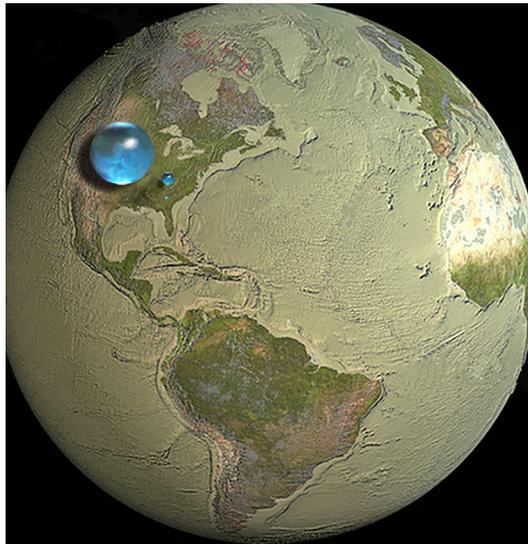
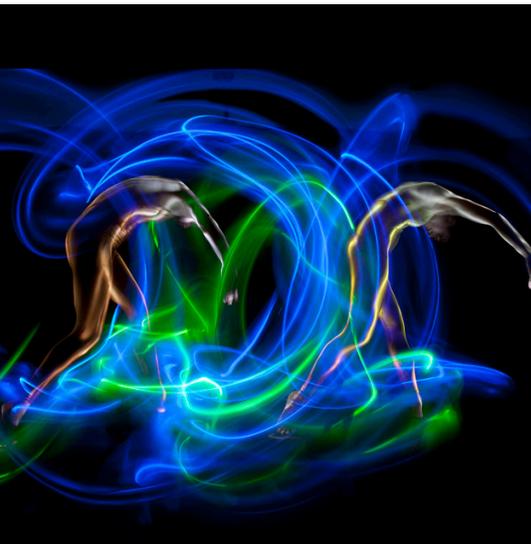




DC Art Science Evening Rendezvous

Exploring the intersection of Research, Innovation, and Social Engagement



# Art, Science, and Ocean

In 2016, the National Academies Keck *Futures Initiative* (NAKFI) convened a gathering on the topic of ocean research. The conference, *Discovering the Deep Blue Sea: Research, Innovation, Social Engagement*, included a group of creative practitioners from the fields of art, design, communications, science, engineering and medicine who gathered to address urgent, global issues related to human health, the environment, and food supply, for example, in the context of discovering the deep blue sea. The May 2017 D.C. Art Science Evening Rendezvous (DASER) revisited that theme to further the discussion around integrating art and science as it relates to the oceans. DASER is a discussion forum organized by Cultural Programs of the National Academy of Sciences (CPNAS), held 4-6 times annually. DASER fosters community and conversation around the intersections, and interweaving, of art, science, and culture. DASER is part of a larger international network of cross-disciplinary salons called Leonardo Art Science Evening Rendezvous that are fostered by Leonardo: The International Society of Art, Science, and Technology. Speakers at this special DASER were Susan Middleton, Prosanta Chakrabarty, Janeil Engelstad, and Larry Pratt (biographies on page 4). The discussion was moderated by J.D. Talasek. The program was live-streamed and a recording is available on the NAS account at <https://livestream.com/NASEM/may2017daser>. Videos of the presentations are available at <http://www.YouTube.com/CPNAS>.



The National Academies of SCIENCES • ENGINEERING • MEDICINE



## PROGRAM HIGHLIGHTS



Photographer Susan Middleton offered a rare glimpse into the mysterious and beguiling world of marine invertebrates. A unique blend of art and science, her presentation, titled “SPINELESS: Portraits of Marine Invertebrates, the Backbone of Life,” revealed the spectacular diversity and astonishing beauty of this less celebrated realm of life upon which all other life depends. Middleton introduced us to animals most of us never knew existed. Marine invertebrates are creatures lacking a backbone and they comprise over 98% of marine animals. Attendees had an opportunity to see her photographs on display in the Keck Center gallery during the reception, and she signed copies of her book, *SPINELESS*.

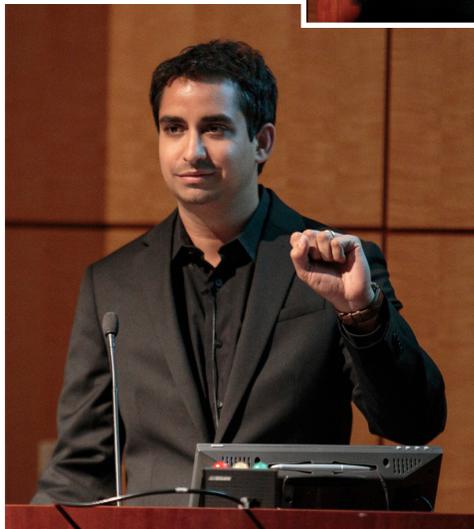
In his talk titled “Exploring the Aquatic World with Art and Science,” Prosanta Chakrabarty spoke about a myth that many believe—that there is a lot of water. Many think the amount of water on Earth is inexhaustible. Using art and science Chakrabarty explored this myth, and showed that although much of the aquatic world remains unexplored, it is certainly vulnerable and not as vast as most think. He showed a thought-provoking map from the United States Geological Survey of spheres representing

all of Earth’s water, Earth’s liquid fresh water, and water in lakes and rivers (it is pictured on page 1 of this report). The largest sphere represents all of Earth’s water. Its diameter is about 860 miles (the distance from Salt Lake City, Utah, to Topeka, Kansas) and has a volume of about 332,500,000 cubic miles (mi<sup>3</sup>). This sphere includes all of the water in the oceans, ice caps, lakes, rivers, groundwater, atmospheric water, and even the water in you.



In her talk, “Activation and Agency: Engaging Social and Environmental Concerns through Design and the Arts,” NAKFI Alumna, Janeil Engelstad presented and discussed images from her recent residency at the Dallas Museum of Art, projects produced through her organization Make Art with Purpose (MAP), and her overall practice, which activates at the intersections of art, design, history, social justice and science.

*HoverDive* is an evening-length dance performance, with choreography informed by ocean science. It is the product of physical oceanographer and NAKFI alumnus Larry Pratt’s three-year collaboration with Courtney Peix, Director



of Contrapose Dance of Boston, and other artists and dancers. In his talk, “The Making of *HoverDive*: A Collaboration on Dance and Ocean Science,” Pratt described some of the practical and philosophical challenges that arose during the making of this work.

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## CAN I QUOTE YOU? Audience Responses



### THE REASON I ATTENDED TONIGHT:

I wanted to expand my mind.

My professional experience in both art and science.

My friend is a wetlands biologist and she wanted to attend, and I attend often.

### I WOULD COME BACK BECAUSE:

I always go away with new ideas and a broader understanding of the world and its people.

DASER brings such creative and interesting speakers. I'd come back for the inspiration and new/unique insights.

Inspiring lectures and I enjoy

meeting other attendees during the reception.

### THE SPEAKER NAILED IT WHEN:

Susan Middleton and Prosanta Chakrabarty opened my mind! Very good presentations. All were interesting.

When Janiel Englestad said, "What artists can offer is the artist's process - it can be very illuminating."

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## #DASER Social Media Highlights

There was lively Twitter and Instagram activity during the DASER program.

@PT4Breakfast: #DASER DC- get thee to the #NAS tonight for "Spineless" photo exhibition & talk on #oceans & octopuses. Photography of #SusanMiddleton

@gkygirlengineer: Susan Middleton is speaking now at #DASER. I want to be able to photograph like her. Her series Spineless is amazing.

@STEMarts: "I live where art and science meet..." photographer Susan Middleton #DASER #SCIART #susanmiddleton

@drdarsci: Fish scientists using 3D printing and ink stamping to produce art and science, both valuable and needed @PREAUX\_FISH #scicomm #DASER

@jsener: Chakrabarty: all the water in the ocean would fit in a ball 860 mi in diameter = big but not nearly as much as we think. #DASER



@elpeanoh: @makeartwpurpose talks on narratives, honoring cultures + traditions that are little understood. Outcome: Beyond Borders project in Dallas. #DASER

@drdarsci: Larry Pratt wants to find #sciart projects that do real service to art and science both, not simply mashed together #DASER

@jsener: Pratt: HoverDive (a collaboration between dance & ocean science) sought to move past "artsy science reports" to a 'twin journey into unknown' #DASER

@STEMarts: How to close the imbalance of power when scientists and choreographers collaborate? Commence the research at the same time #LarryPratt #DASER

Read the complete social media Wakelet archive:

<https://wakelet.com/wake/d9304796-62d2-4fd6-8b1d-dbeb9b81f70b>



## SPEAKER BIOGRAPHIES

Susan Middleton is an acclaimed photographer, author, lecturer, and Guggenheim fellow. Blending art and science, she specializes in the portraiture of rare and endangered animals, plants, sites, and cultures. Her most recent book is *Spineless: Portraits of Marine Invertebrates, the Backbone of Life* (Abrams 2014). Her work is represented in the permanent collections of the National Gallery of Art and the National Academy of Sciences. She lives in San Francisco.

Dr. Prosanta Chakrabarty is an Associate Professor and Curator of Fishes at the Museum of Natural Science and Department of Biological Science at Louisiana State University. He is also a rotating Program Director at the National Science Foundation this year. He is a systematist and an ichthyologist studying the evolution and biogeography of both freshwater and marine fishes. His work includes studies of Neotropical (Central and South America, Caribbean) and Indo-West Pacific (Indian and Western Pacific Ocean) fishes. His natural history collecting efforts include trips to Japan, Australia, Taiwan, Madagascar, Panama, Kuwait, and many other countries. He has discovered over a dozen new species including new anglerfishes and cavefishes. The LSU Museum of Natural Science fish collection that he oversees includes more than a quarter of a million fish specimens, and nearly 10,000 DNA samples covering most major groups of fishes. He earned his PhD at the University of Michigan and his undergraduate degree is from McGill University in Montreal. He has written over 50 scientific articles and two books. He was named a TED Fellow in 2016, you can follow him on Twitter @Preaux\_Fish.

Janeil Engelstad initiates interdisciplinary collaborations to produce multi-form projects that address social and environmental concerns. The process for this work, which is as important as the outcome, can involve extensive research, ongoing dialogue with partners and other stakeholders, and building interdisciplinary partnerships that contin-

ue after a project has been completed. Creating a place for individuals and groups who do not have access to art making opportunities or a public voice to express their identity, experiences and points of view is fundamental to her practice. Engelstad is the Founding Director of Make Art with Purpose (MAP), an organization that produces international projects in art, science, design and architecture. She has taught and lectured at universities throughout North America and Europe and in 2006 she was a Fulbright Scholar at the Academy of Fine Arts and Design in Bratislava, Slovak Republic. Engelstad was a recent visiting artist at the Center for Creative Connections at the Dallas Museum of Art, is an Associate Artist at the Social Practice Art Research Center, University of California, Santa Cruz and she is currently co-producing a social justice public art project in lower Manhattan with an accompanying exhibition at Museum of Art in Design launching in the fall of 2017. Janeil participated in the National Academies Keck *Futures Initiative's* 2016 conference on Discovering the Deep Blue Sea.



As a scientist at the Woods Hole Oceanographic Institution, Larry Pratt conducts research on the physics of the ocean. He also teaches classes at MIT as part of a joint graduate program. Larry has collaborated with a number of dance companies and visual artists resulting in performances and museum exhibitions in New York and the Northeast. His own fine art photography has been shown from coast to coast. Larry participated in the National Academies Keck *Futures Initiative's* 2016 conference on Discovering the Deep Blue Sea.

# LIVESTREAM WEBCAST REPORT

## Live Overview

### Filters

Time: from 05/01/2017, 01:04 PM to 05/31/2017, 01:04 PM

Timezone: (GMT-04:00) Eastern Time

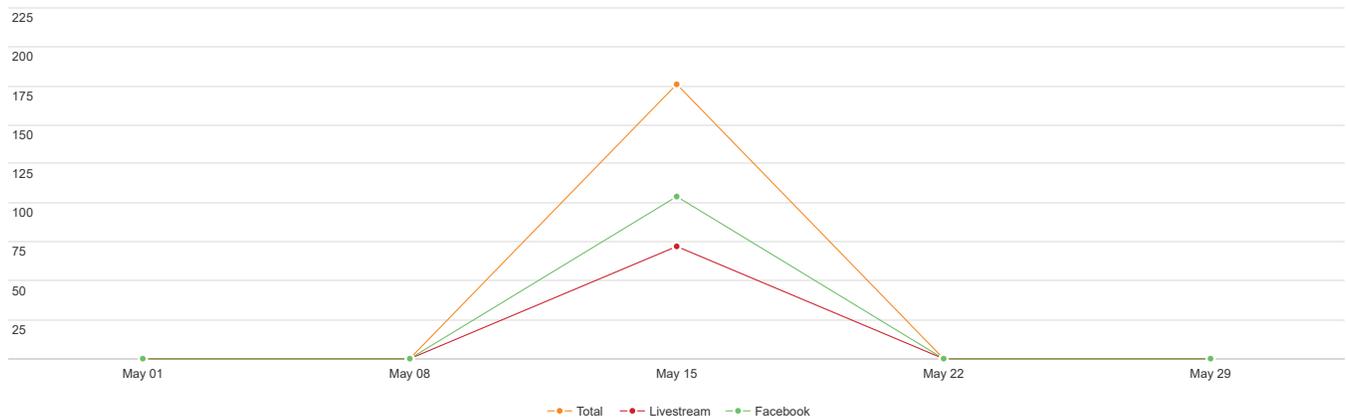
Event: DASER - May 2017

Destination: All Destinations

### Live Viewers

Total Live Views	Livestream Views	FB Live Views
176	72	104

### Total Views



Livestream	1 month, 0 days
Total Live Views	72
Unique Live Views	43
Total Minutes Viewed	1,010
Average Watch Time	00 : 19 : 26

Facebook Live	1 month, 0 days
Total Live Views	104
Unique Live Views	104
Total Minutes Viewed	65
Average Watch Time	00 : 00 : 37

# DASER

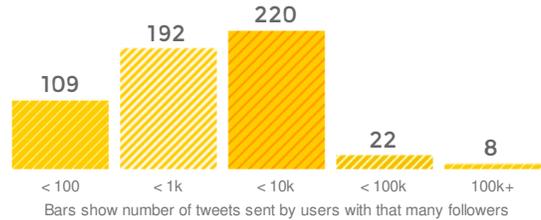
## ESTIMATED REACH

**3,347,402**

ACCOUNTS REACHED

## EXPOSURE

**5,679,345** IMPRESSIONS

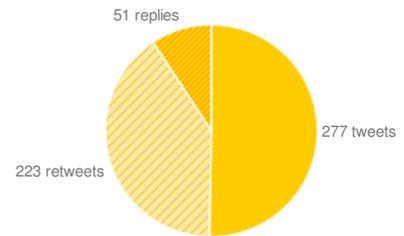


## ACTIVITY

**551**  
TWEETS

**249**  
CONTRIBUTORS

**10**  
DAYS



## TOP CONTRIBUTORS

- 2.2M** IMPRESSIONS  **@SPIEGELONLINE**
- 78** RETWEETS  **@CPNAS**
- 123** MENTIONS  **@CPNAS**

## MOST RETWEETED TWEETS

- 20**  **CPNAS @CPNAS**  
WANTED: Species missing since the 2010 oil spill in the Gulf of Mexico. A poster by @bballengee and @PREAUX\_FISH.... [twitter.com/i/web/status/8...](#)
- 15**  **Michele Banks @artologica**  
Thursday @CPNAS - Art, Science and Ocean feat. Susan Middleton's gorgeous marine invertebrates... [twitter.com/i/web/status/8...](#)
- 14**  **Bashir Romeo Sheidu @WildRomeoX**  
@nHubNG CEO Daser will be sharing his experience on outsourcing coding skills into the global market with East Afri... [twitter.com/i/web/status/8...](#)

## PHOTO CREDITS

Page 1: From left to right, Larry Pratt, Susan Middleton, United States Geological Survey. Pages 2-6: All photos by Kevin Allen Photo.