

Life is the most exceptional form of poetry, albeit complicated, messy, fragile, and quickly dwindling. Biodiversity is nature's art.

What will become of this art as we continue to extinguish life in the name of monetary growth? Today's environmental problems are global in scale and complex. To face this milieu of issues, we need the creativity of artists, scientists, and those focused on other disciplines combined to creatively address such challenges we and other species currently face. My continued project *SEARCHING FOR THE GHOSTS OF THE GULF* responds to missing Gulf of Mexico species through visual artworks and collaborative actions with coastal communities that are themselves culturally endangered.

Some Working Notes on Searching for the Ghosts of the Gulf

Brandon Ballengée

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Ten Years after Deepwater Horizon ___ The Gulf of Mexico is a special place for many of us—and over ten thousand other species—she is our sanctuary, our home, our mother, provider and sometimes destroyer. As an artist, I find the Gulf of Mexico to be an inspirational source of color, form, intrigue, tranquility, and even fear. From the science side, the Gulf is among the most important and biologically diverse marine environments in the world. She is resilient, powerful, seductive, but also dangerous, damaged and suffocating in her own *sang noir*, a regional term describing crude oil.

2020 marks the ten-year anniversary of the Deepwater Horizon (DWH) oil spill, which is considered the largest environmental disaster in the history of the United States and the largest known petrochemical spill by volume in human history.¹ The tremendous amount of oil spilled during DWH was estimated at greater than 200 million gallons, which resulted in an immediate contamination area of 149,000 km² and continued to spread through currents widely in the Gulf and beyond for years.²

From an ecological and economic standpoint, the DWH spill could not have occurred in a more disastrous location, for the Gulf of Mexico is one of the most important and biologically diverse environments in the world. The Gulf is a nursery for thousands of marine species and has numerous endemic³ organisms, including 77 fishes found nowhere else in the world.⁴ Gulf seafood is an important source of food for millions of people in North America, and, since marine species migrate by following the Gulf Stream, people throughout Europe also rely on these fish for protein.

Cleanup efforts exacerbated the spill's toxicity and reach by utilizing Corexit 9500 and other chemical dispersants. Such dispersants molecularly bind and break down oil into smaller droplets that more readily mix with the water and sink. According to the Material Safety Data Sheets (MSDSs) for Corexit 9500, produced by the chemical manufacturer Nalco,⁵ no toxicity studies were conducted prior to its use in the Gulf.⁶ However, numerous earlier toxicology studies found such dispersants to be teratological⁷ to marine wildlife and possibly carcinogenic to humans.⁸ Regardless, an estimated two million gallons of chemical dispersants were used for DWH in deep-sea as well as in surface water. Findings have



FIG. 1
RIP PARROT FISH from the GHOSTS
OF THE GULF, 2014. Giclée print
on handmade Japanese rice paper.
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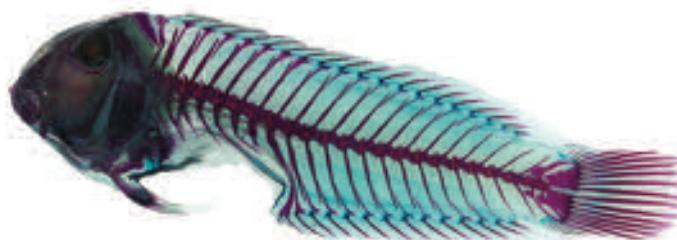


FIG. 2
RIP AFRICAN POMPANO from the GHOSTS
OF THE GULF, 2014. Giclée print
on handmade Japanese rice paper.
© Ballengée Studio



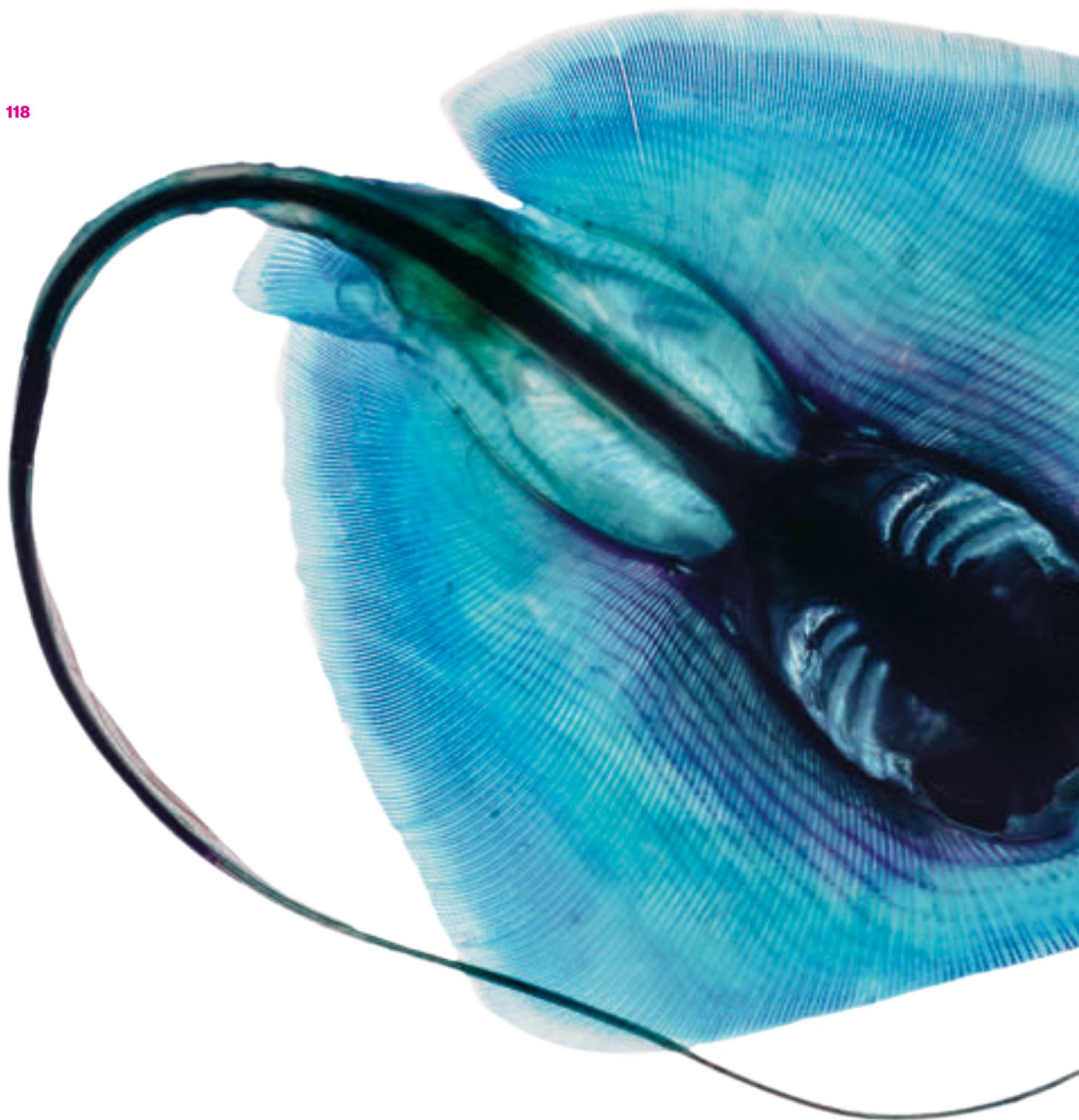
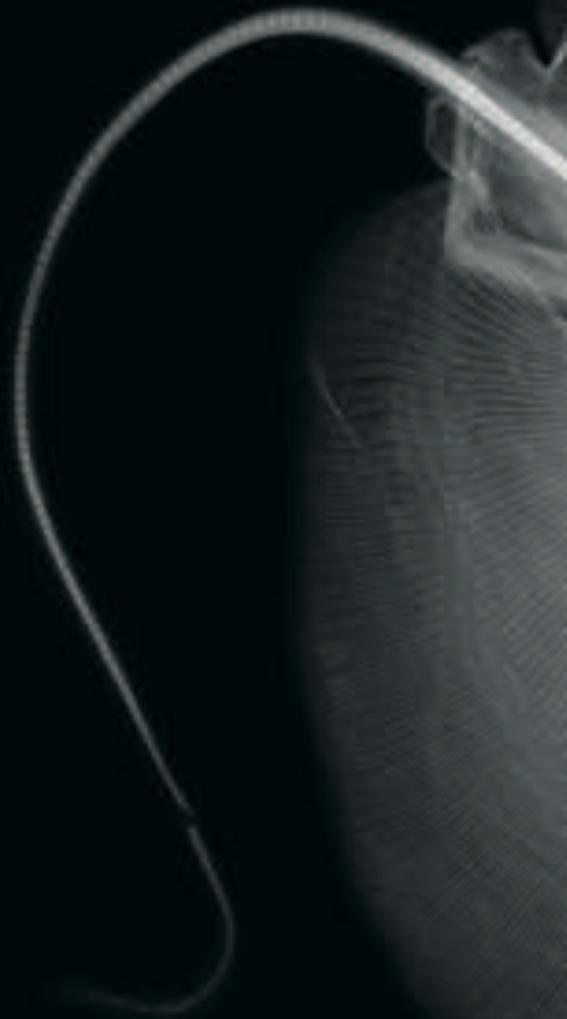




FIG. 3
RIP BLUNTNOSE STINGRAY from the
GHOSTS OF THE GULF, 2014. Giclée print
on handmade Japanese rice paper.
© Ballengée Studio

FIG. 4
RIP TRIGGERFISH from the **GHOSTS
OF THE GULF, 2014.** Giclée print
on handmade Japanese rice paper.
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FIG. 5
MIA LEAF-NOSE LEG SKATE, 2018.
Radiograph of the Museum
of Natural History at the
Smithsonian, specimen
USNM 158971 *Anacanthobatis*
***folirostris*. Species**
last reported in 2004.
© Ballengée Studio



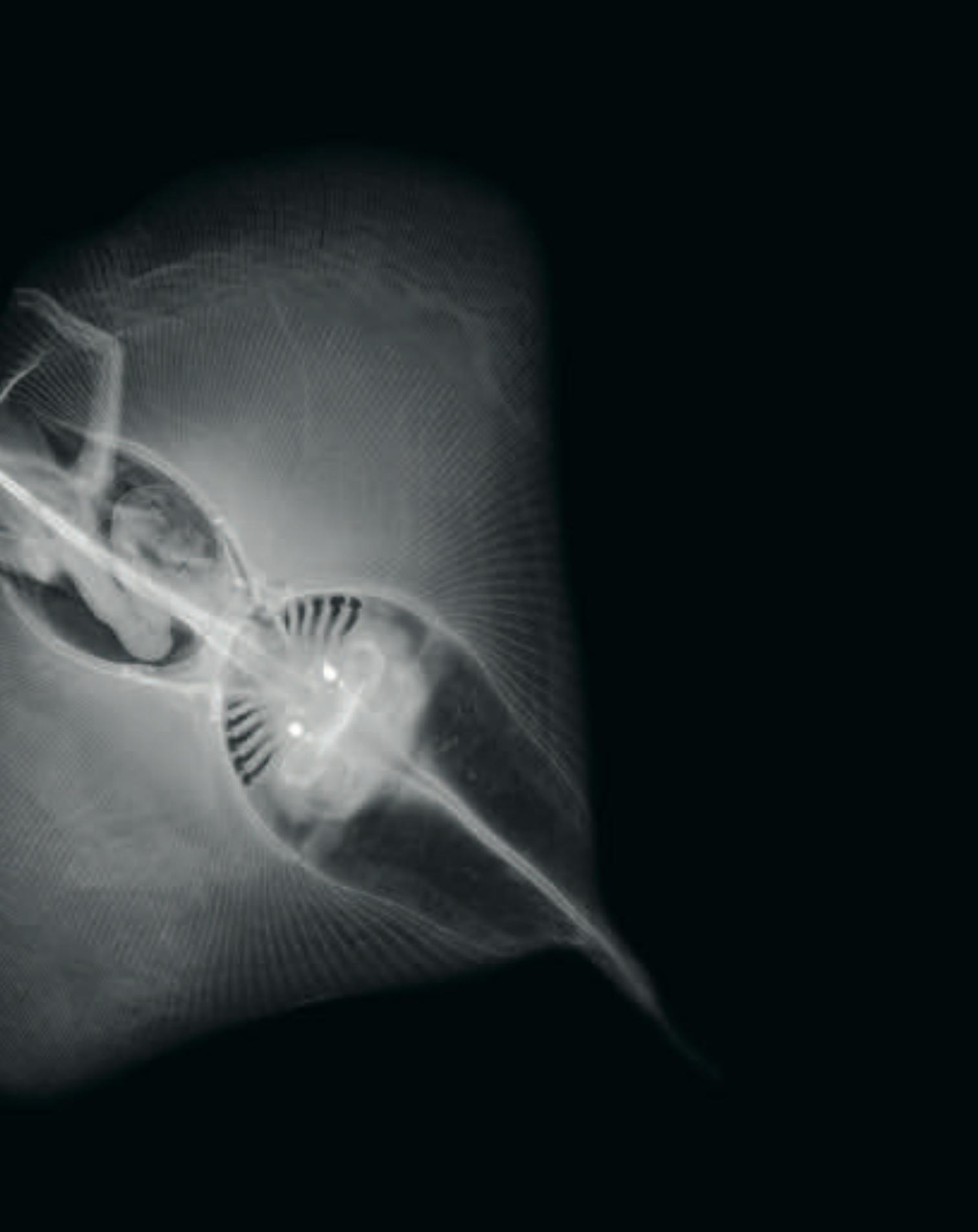
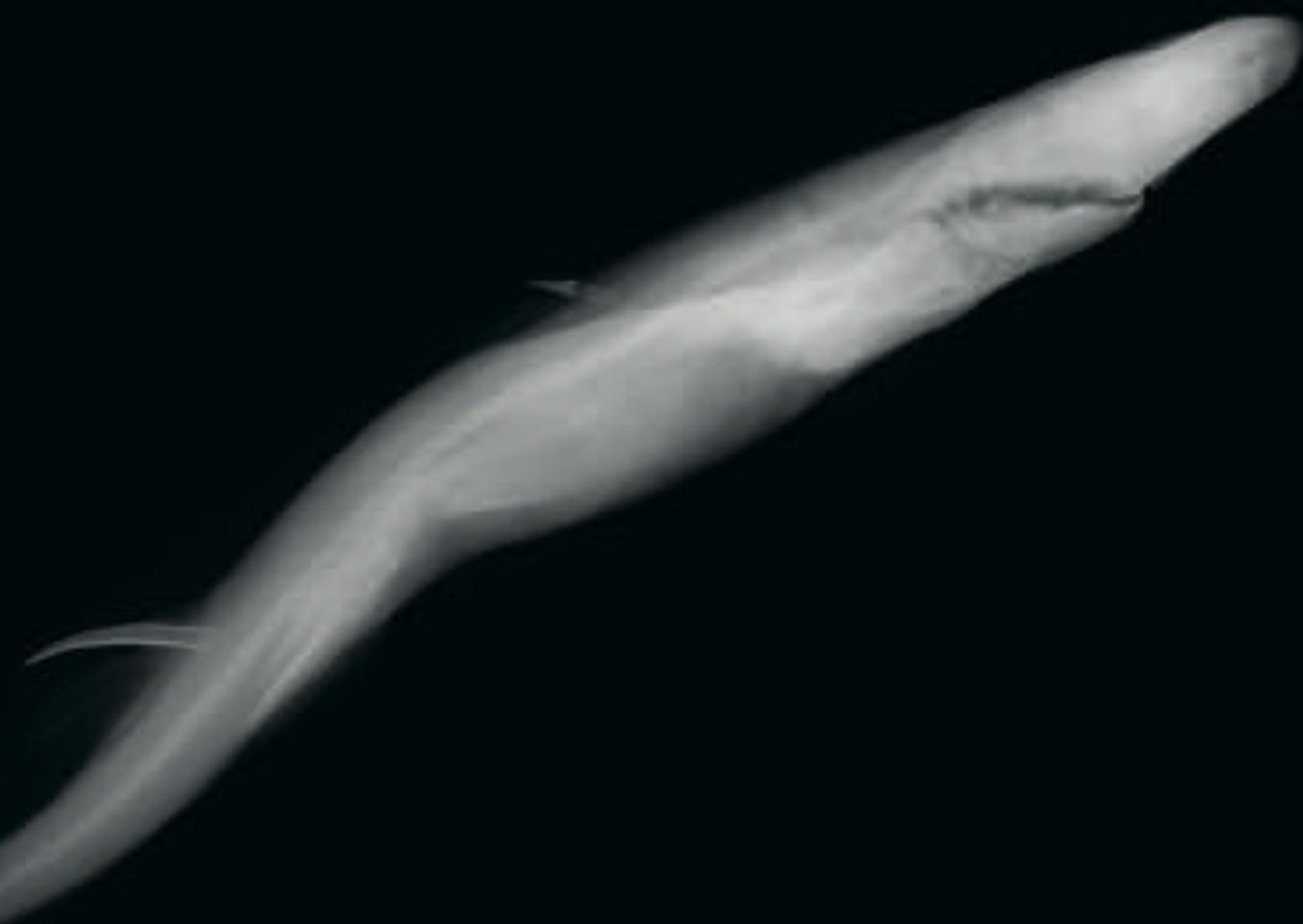


FIG. 6

MIA FRINGEFIN LANTERNSHARK, 2018.
Radiograph of the Museum of
Natural History at the Smithsonian,
specimen USNM 220379 *Etmopterus*
***schantzi*. Species last reported**
in 2006.

© Ballengée Studio



suggested this made DWH oil as much as 52% more toxic and more difficult to clean up and increased the negative impact on wildlife.⁹ To date, it is suggested that almost 100 million gallons of DWH oil combined with dispersants remain in the Gulf.¹⁰

The DWH impacts to Gulf of Mexico species and ecosystems are still not fully understood, however; some persistent ecological effects include damage to deep ocean coral communities, harm to oyster fisheries over several years, loss of marshlands as well as population declines of marine mammals, sea turtles and seabirds.¹¹ There is considerable evidence that some species, especially fishes, continue to be physically and developmentally challenged or even have become absent following DWH.¹² Further, risks from oil-production-related polycyclic aromatic hydrocarbons (PAH) exposure and concentrations in fishes are widespread in the Gulf of Mexico and will likely continue as extraction of petrochemical intensifies.¹³

Responding through Art and Actions ___ Since the DWH oil spill, much of my art and research science has focused on the perilous environmental state of the Gulf, post-spill. Even ten years after DWH, the long-term impact on Gulf communities, fishes, other biota, and Gulf ecosystems is still not well understood. Additionally, there have been over 2,000 smaller spills since DWH and another spill, the Taylor or MC20, began even earlier, in 2004, and continues uninterrupted today. Through my installations, photographs, crude paintings, and programs, I want to give meaningful visual form to these environmental insults and inspire individual actions towards systemic change and foster the change of individual attitudes and behaviors among coastal residents, which will (hopefully) result in increased community resilience to climate change. These socioecological actions may include: increased practices of sustainable fishing and aquaculture; development of ecotourism; support and transfer to renewable energy production from wind and solar instead of gas and oil; more access to quality science and art education; return to local farming; others to be determined.

During the DWH spill (April through September 2010), I collected thousands of dead specimens from Louisiana beaches. These were preserved and over 20,000 of them were later utilized to create the monumental installation *COLLAPSE* (2010–2012) (FIGURE 11). A subset of these specimens were chemically cleared and stained,¹⁴ then made into the initial *GHOSTS OF THE GULF* photographic series in 2014. From 2016, I exhibited these preserved specimens and prints in the collaborative *CRUDE LIFE* project, which was displayed at Gulf community events such as Mardi Gras or Blessing of the Shrimp Fleets as well as at schools, in parks and even at the Louisiana State Senate—all in all, the project reached more than 5,200 individuals (FIGURE 7).¹⁵



FIG. 7
**CRUDE LIFE Portable Museum
installation and ECO-ACTION
outreach event in 2017 at
Indian Bayou, Saint Martin
Parish, Louisiana.**

Photo: Brandon Ballengée



FIG. 8

MIA STRING EEL, 2018. Radiograph of the Museum of Natural History at the Smithsonian, specimen USNM 263571 *Gordiichthys leiby*. Species last reported in 2004.

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FIG. 9

MIA UNNAMED DEEP WATER DRAGONFISH, 2018. Radiograph of the Museum of Natural History at the Smithsonian, specimen USNM 222026 *Eustomias leptobolus*. Species last reported in 1960.

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Inspired by my ongoing work with Louisiana coastal communities, *SEARCHING FOR THE GHOSTS OF THE GULF* is an ongoing interdisciplinary art and environmental advocacy project seeking to portray absent biodiversity and activate coastal residents through three intertwined components: *portraying* (drawing, photographing and radiographing) missing species from natural history collections to create prints and drawings made from dried crude oil material; *activating* coastal communities through participatory ecological-art field trips and programs; *exhibiting* works in pop-up exhibitions in unconventional venues (FIGURE 10).

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Portraying ___ In 2016, I became part of an interdisciplinary Louisiana State University research team (where I am currently a research associate in the Museum of Natural Science), which published that 14 fish species, endemic to the Gulf of Mexico, have not been reported following the DWH spill.¹⁶ Even prior to the spill, several Gulf fishes remained elusive and had not been found in decades (1950 through 2005). Little is known about these species and the only records we have of their existence is a handful of preserved specimens scattered among natural history collections.¹⁷ As an artist and biologist, I am inspired to portray and to tirelessly search for these *GHOSTS*.

In response, I create portraits of these missing species, which I refer to as *GHOSTS OF THE GULF*, as a way to give form to each of the lost species (FIGURES 1–4). The *GHOSTS* are drawn from historic specimens in the Tulane University Biodiversity Research Institute's (TUBRI) Suttkus Fish Collection, the second largest preserved fish collection in the world, located in Belle Chase, Louisiana, USA, and others I photographed and radiographed as a 2017 artist-in-residence at the Smithsonian National Museum of Natural History in Washington D.C., USA, which is housing the largest fish collection in the world. Some portraits are printed radiographs while others are drawn using solidified DWH »tar balls« collected from Gulf beaches or from »fresh« crude oil from the Taylor spill (FIGURES 5–6, 8–9). These *GHOSTS* intend to convey mystery as well as melancholy as a means to engage audiences towards introspective contemplation, asking what is lost from our collective treatment of the Gulf. I am also interested in what creating portraits of missing animals means at a point in history where we find ourselves in Earth's sixth mass extinction event under way, when species are disappearing so fast that we cannot even scientifically record them.

Activating ___ Coastal Louisiana's economy strongly relies on its fisheries and the oil industry, both of which have become increasingly unstable in recent decades. Rising seas, coastal erosion, sediment diversions, and multiple oil spills have depleted fish populations and devastated oyster farming. What is happening to coastal ecosystems is happening to us—we are intertwined, and it takes art to make this clear to us.

To activate coastal communities, I lead *ECO-ACTIONS* – artistic and environmental inquiries into socioecological stressors facing our coast. For these, residents join me in conducting ecological field sampling in disappearing marshland habitats, while making their own art envisioning future scenarios where their communities will hopefully adapt and survive. Likewise, I learn from these residents about their knowledge of the Gulf and her species. The *ECO-ACTIONS* focus on missing Gulf species, land and habitats, while also exploring loss of coastal culture.

Additional *ECO-ACTIONS* are planned (post-COVID-19) for the Suttkus Fish Collection. There, programs will include introductory fish drawing and photography workshops for fisherfolk, oil workers and others – a strategy to connect stakeholders with Gulf biodiversity in a novel way. My goal is to generate discourse around the complexity of the Gulf of Mexico food web, species and habitat disappearances, and create situations where fisherfolk and biologists will strategize means to help Louisiana fisheries to once again become sustainable.

Fundamentally, these programs are intended to build resilience as they connect human to nonhuman communities, improve knowledge of local ecosystems and provide strategies for expressing these findings with others through art. My underlying idea is that by examining complicated socioecological issues, grounded in scientific facts, through the lens of art, participants may brainstorm solutions and begin to take creative actions towards positive changes.

Exhibiting ___ To share these works, pop-up exhibitions are set up in unconventional venues such as marinas, seafood markets, parks, libraries, festivals, and other places where fisherfolk, oil field workers and their families gather. My intention is to reach new audiences, and also to enlist residents in *ECO-ACTIONS* and other activities. My hope is that, collectively, we may yet develop novel strategies to adapt and sustain our communities, human and nonhuman alike.

Working with coastal Louisiana communities over the past decade has taught me that art can be an important icebreaker for meeting residents and a means to discuss complex socioecological challenges. Art may also act as an olive branch with fisherfolk and oil workers – many of whom remain resistant to the concept of human-caused environmental impact like climate change, while at the same time being the part of the population faced with the greatest threats to their culture and livelihoods. Through these pop-up exhibitions, I am able to meet and recruit potential project participants, communicate my environmental concerns and learn about others' perspectives, while brainstorming creative ideas towards survival.

Speculative Futures ___ Land in coastal Louisiana is being lost at the fastest rate on Earth and, in recent decades as discussed above, several Gulf species have gone missing. As habitats and biodiversity disappear, so do the cultures that rely on them. The fate of the Gulf's children remains precarious. I believe art grounded in science will play an important part in building regional socioecological resilience. As an artist, I continue to develop an aesthetic of »loss,« giving a visual form to the growing absence of life on our rapidly degrading planet. As a scientist, I find it increasingly important to share research findings about such losses with the public. Through art, I am able to speculate future outcomes, question our current behaviors, express my concerns as well as mourn. As a biologist, I must remain analytical and report unbiased information on species found within or missing from ecosystems. Combined, art and science are complementary ways of trying to understand our world and ourselves, as well as a means to address the complex socioecological challenges we and other species currently face. In a joint effort, we may find some of the Gulf's lost children and save ourselves in the process.

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FIG. 10
Gulf of Mexico endemic fishes
»missing« since the 2010 oil spill.
This poster has been given away
during outreach events and posted
in marinas, schools, groceries,
the Louisiana State Senate, and
other venues.
© Ballengée Studio





FIG. 11

Installation view of COLLAPSE, 2010–2012 in the exhibition WASTE LAND, University of Wyoming Art Museum, 2016. COLLAPSE was created in scientific collaboration with Todd Gardner, Jack Rudloe, Brian Schiering, and Peter Warny. Mixed-media installation including 26,162 preserved specimens representing 370 species.

© University of Wyoming Art Museum,
photo: Wes Magyar, WM Artist Services

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- 16 Prosanta Chakrabarty, Glynn A. O'Neill, Brannon Hardy, and Brandon Ballengée, »Five Years Later: An Update on the Status of Collections of Endemic Gulf of Mexico Fishes Put at Risk by the 2010 Oil Spill,« *Biodiversity Data Journal* 4 (2016), e8728.
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