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## *Underwater Workstation*

DiabloRosso Gallery, Panama  
April - May 2016





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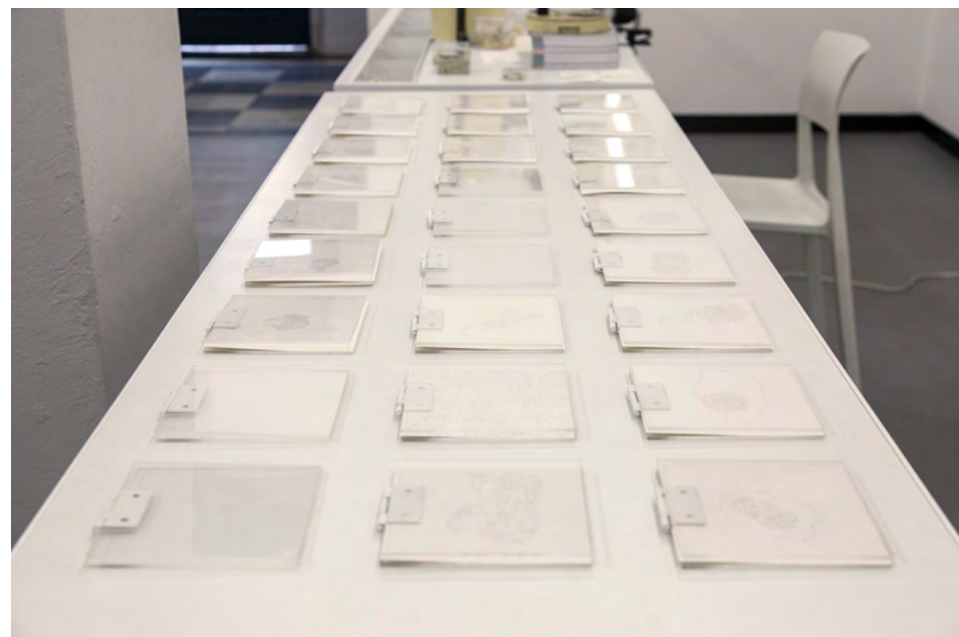
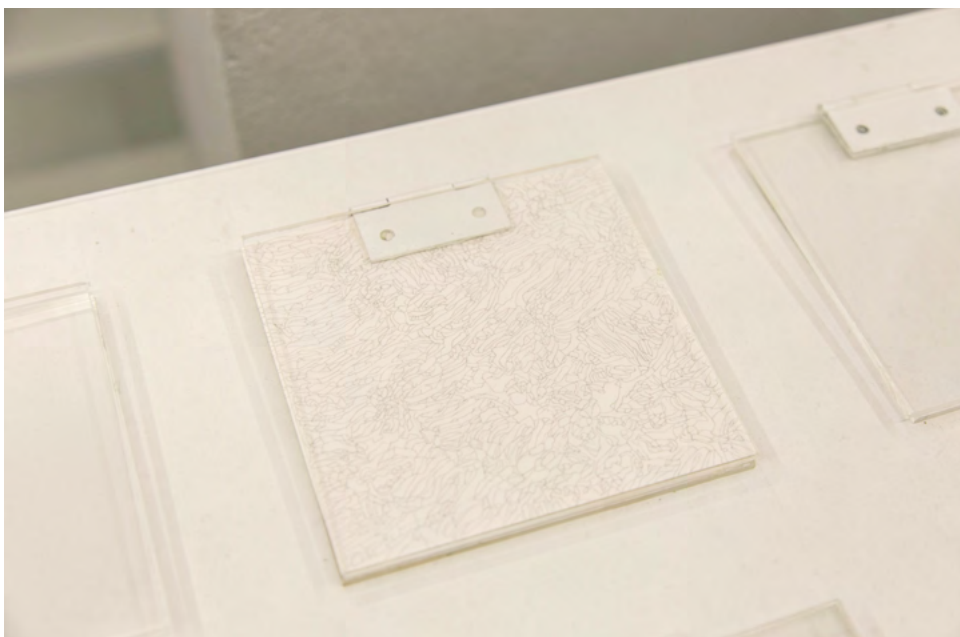
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This exhibition was the result of my fourth project created in close collaboration with STRI (Smithsonian Tropical Research Institute). The show took place at DiabloRosso Gallery where I created a workspace/lab for five weeks.

The opening of the exhibition was also the start of the work process. When it opened there was a four-module table, with empty lids that were going to be filled with drawings as the exhibition progressed. There was also an aquarium and two series of works that were made at a previous stage. The earlier works, the aquarium and the workstation, together created an environment in which the public could experience the viewing of finished pieces and the process of making new ones in the same space.

The idea was to create a ‘workstation’ or ‘laboratory’ at the exhibition space of DiabloRosso where I spent time making daily, thus creating a dynamic in which the public could witness the work progress.

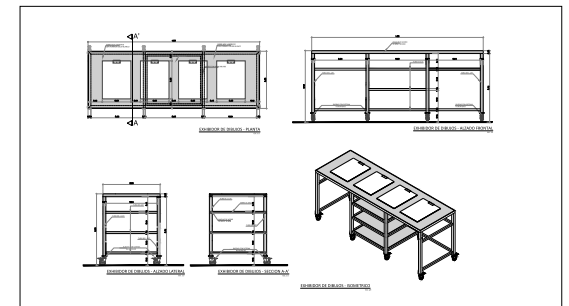
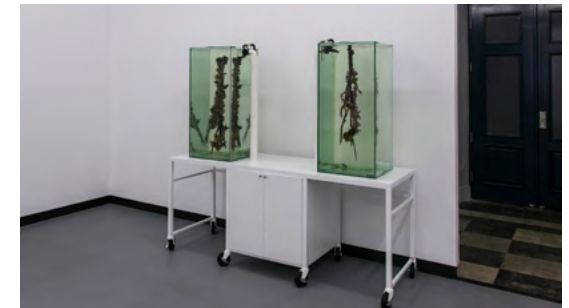
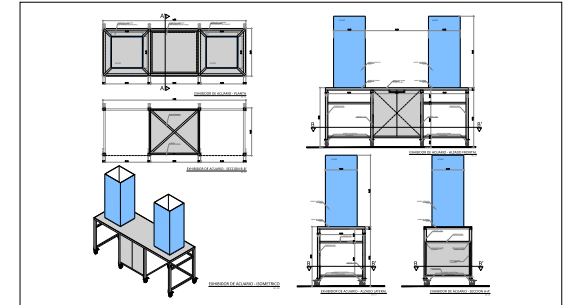
For this, I created a multifaceted table, on which I could both produce work as well as display the process. It was a self-contained device that could store the drawing apparatuses and tools I use for observation, as well as the different media and materials I work with.

The ‘functional’ parts also served as a platform for the visualisation of the works and the process of working. The station was meant to host several operations at the same time, such as: making, displaying and storing.

The aquariums held samples of mangrove roots —the same kind I drew (and now displayed) on my previous visit to STRI.

The samples were collected at the Bocas del Toro Research Station (STRI) and brought successfully into the exhibition space after a series of failed attempts that were part of the challenge of bringing living organisms from the Caribbean Sea into the Pacific water. This involved getting the organisms to adjust to changes in water temperature, salinity and many other variables.

process  
workstation



I divided the work period into working with two different labs at STRI, the O'Dea Lab that had lent me a selection of their fossil collection to be brought into the exhibition and the Altieri Lab that is carrying an intertidal experiment in Punta Culebra. Andrew Altieri (the head of the Altieri Lab and staff scientist at STRI) had also advised and helped in the complex process of bringing the mangrove roots from Bocas del Toro Station into the exhibition space in the city.

The Altieri Lab at the Smithsonian Tropical Research Institute in Panama 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. His research group pursues field-based research questions wherever natural history and ecological patterns 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.

(excerpted from [www.altierilab.org](http://www.altierilab.org))

The O'Dea Lab explores biological change through major events in the history of life, the most recent being the arrival and pervasive impact of humans. The team uses the marine fossil record to explore two principal questions:

1. How does environmental change drive evolutionary and ecological change over deep time? The team uses the marine fossil record of Tropical America to explore how animals have changed over time with the objective of predicting future change to life on earth. Specifically, the group focusses on what makes an animal susceptible to extinction and how processes like extinction play out in ecological and environmental contexts.
2. What would Caribbean coral reefs like without humans? The group combines the fossil record of coral skeletons, mollusk shells, fish otoliths (ear bones), shark dermal denticles (skin teeth), and the spicules of sponges with archeological and historical records to reconstruct coral reef ecosystems from a time before humans had an impact. These 'pristine' fossil reefs help coral reef biologists understand what has been lost, why Caribbean reefs have degraded and how best to direct their recovery.

(excerpted from [aaronodea.wordpress.com](http://aaronodea.wordpress.com))

The fossil collection was brought to the gallery space where I also installed a microscope, a magnifying lens and other devices I needed for drawing. The fossil drawings were made in the gallery space itself.

fossil collection  
O'Dea Lab,  
Smithsonian  
Tropical Research  
Institute





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*Fossil's Stories*, 2016

23 drawings

pencil on paper, 13 × 13 cm

















The drawings of the intertidal experiments in Punta Culebra were made 'on-site' as the experiments are physically fixed to the rocks and are absolutely immovable. The experiment, that Altieri has been following for three years, consists of a set of plots of about  $30 \times 30$  cm each in which he tries to see which organisms would start living on the rocks if certain environmental variables would be changed. One of the plots is marked by four screws just to delimit the area and follow the process of the stone 'as it is', the second has a cage to keep predators out, the third a roof to keep the sun out, and the fourth one has a roof and a cage, so predators and the sun are kept out. The experiment is not finished as yet and conclusions not reached. There are organisms growing in the protected experiments such as barnacles and mollusks. I focused during the process in drawing the patterns that those organisms form.

As always with working in the field, the process had to integrate weather and natural conditions. In this case the place was only accessible when the tide was low and had to be exited before the tide would come back up. This would give a window of four to five hours a day, which varied daily by 40 minutes and hopefully the weather would be on my side during those hours.

fieldwork at  
Punta Culebra  
Nature Center,  
Smithsonian  
Tropical Research  
Institute



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*Intertidal Experiments*, 2016

4 drawings

pencil on paper, 30×40 cm















Early 2015 (mid-January – mid-March), I stayed for six weeks (with an interval in between) at the Smithsonian Bocas del Toro Research Station in Panama—a station that is part of the Smithsonian Tropical Research Institute (STRI).

My aim was to draw mangrove tree roots from two different perspectives: firstly, the structure of the elevated stilt roots that allow the trees to respire oxygen even while their lower roots are submerged, and secondly, the lower part of the roots that remain underwater, including some of the organisms that comprise its ecosystem.

At Colon Island in Panama's Bocas del Toro region in the Caribbean, STRI has established a site for education and ecological research, providing scientists and students with access to an extraordinary diversity of marine and terrestrial animal and plant life. This station is situated among areas of undisturbed forest, a remarkable coastal lagoon system, and numerous islands and reefs.

I have been interested in mangroves for a while. On a previous research visit to the Bocas del Toro region, I got in touch with Andrew Altieri (staff scientist, STRI Smithsonian Tropical Research Institute, Republic of Panama) who works in marine ecology and marine conservation. Eventually I developed the plan to return to the station to focus on mangroves. In his capacity as a marine ecology researcher, which also includes mangrove ecosystems, Andrew guided me throughout the process of research and preparation for this project.

In 2014 I visited the Bocas del Toro Research Station to conduct a short pilot of the project, to see if my ideas would conflict with the material resistance of the landscape and context. On that research visit I accompanied Timothy M. Davidson, who was monitoring an experiment he had set up in a creek close to the Research Station.

While accompanying him I took notes of the geography of the area, of the specific location of the mangroves, their distribution, and the possible spots from which I could draw them.

Mangroves are basically spread all over the costal area and the various small islands, and contain shrubs and trees species that are only found along shores, rivers, and estuaries in the tropics and subtropics.

Deciding upon the drawing location formed an important step in the project, because the view of the mangroves would drastically change depending on where I would look at them—from the Research Station's dock, or from a boat, looking at land, or an island, from the open water, or from a wide or a narrow creek.

The perspective on the structure and network of roots would also differ depending on distance. Any alterations in point of view would have a huge impact on the drawing process.

The creek where Tim was conducting his experiment, Punta Caracol Chica, turned out to be perfect for my project because of the distance between the boat and the view, which was ideal for drawing. It also provided a perfect view of the shapes of the roots. I decided I would go to that exact spot a year later.





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*Mangroves*, 2015

16 drawings

pencil on paper, 30 × 42 cm















A year passed and in 2015 I was back at the creek. I had already decided on location and material, I just had to start. I went daily by boat to the same creek. I decided to make the first drawing at the last navigable part of the creek and work my way backwards approximately 20 meters every day until the end of my stay in Bocas.

The second part of the project consisted of drawings of the mangrove's underwater ecosystems. There are many organisms living in between, and on the roots, and again, depending where you immerse yourself you are going to find different organisms. I couldn't resist the beauty of the sponges that attach to the roots and I decided to focus on these for a series of watercolors. This second phase of the project is still to be continued.



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*Mangroves—roots underwater*, 2015

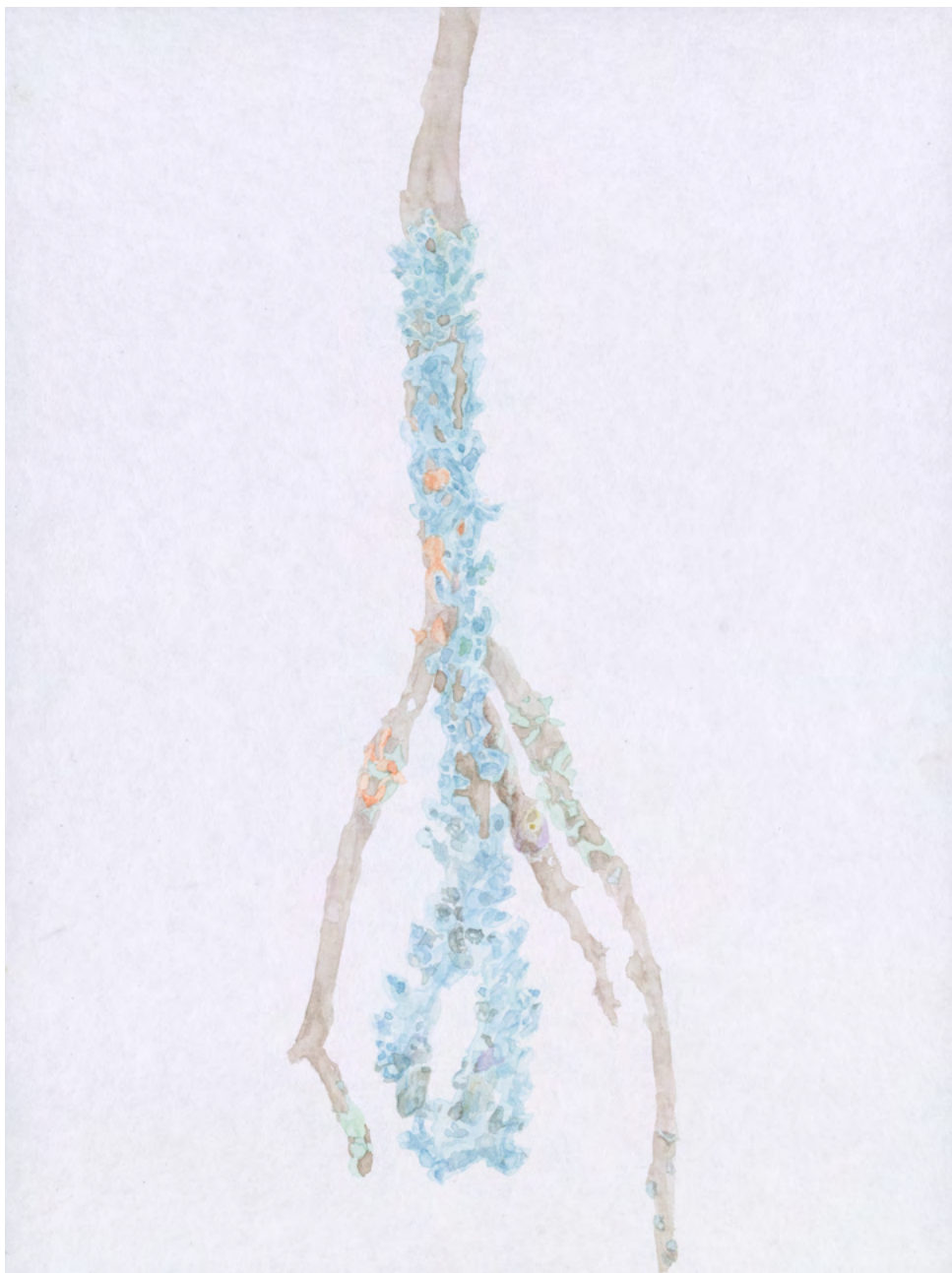
6 paintings

watercolours, 40 × 30 cm















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publication

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