

## **Transcript of Interview with Marie Angel by Tory Schendel Cox**

**Interviewee:** Marie Angel

**Interviewer:** Tory Schendel Cox

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**Location (Interviewee):** San Francisco, California

**Location (Interviewer):** Evansville, Indiana

**Abstract:** In response to COVID-19, the Evansville Museum of Arts, History and Science launched the mini-series, "Cultural Insights: Interviews in the Creative Sector," to highlight colleagues and professionals working in the same or similar field of museum professionals.

Marie Angel, Curatorial Assistant I, Geology, California Academy of Sciences,  
<https://epicc.berkeley.edu/https://www.flickr.com/photos/casgeology/>

### **Tory Schendel Cox 00:01**

Hi, my name is Tory Schendel Cox. I'm the Virginia G. Schroeder Curator of Art at the Evansville Museum, and today, I'm so excited to have Marie here from the Cal Academy of Science in California, and Marie please take it from here.

### **Marie Angel 00:14**

Hi! Thanks so much for having me. I really appreciate the opportunity to talk to you and everybody else about the work that we're doing at the California Academy of Sciences in San Francisco. I'm a curatorial assistant in the geology department, and I've worked there for about two years. So myself and along with our other curatorial assistant assist the geology collections manager with the care and conservation of our collection. Our collection includes fossil vertebrates and invertebrates, minerals, foraminifera which are just little tiny micro fossils, and diatoms which are single celled algae. And yeah, like I said, I've been there since 2018, and I started out part time, but about a year ago, I became full time with some funding from an NSF OCE, Ocean Sciences grant which I'll get into a little bit later. So, a lot of my work is data entry. You know I think I have a lot of friends that have said "why, how can you work from home right now when you know you have to be in front of a specimen, and you have to look at the specimens?" But trust me, a lot of it is just looking at Google Sheets all day. [both laughing] So, yeah so, we, we do a lot of digitization in our department, and this doesn't necessarily just mean taking photographs of our specimens, although that is really important. We do have a geology flicker page which I would encourage everybody to go check out if you just search in Google, 'California Academy of Sciences geology flicker,' you should find it right away. So, it does include a lot of photos from our collection. So, digitization includes entering both specimen data and locality data. So, in geology it's really important for us to know where something came from, who collected it and when it was collected, and this, this data is also served to larger data aggregators such as GBIF, so we really want to make all of our data available both to the larger research community and to the public. So, you can go on to GBIF and see what we've been doing. Some other tasks that I do when I'm not in front of my computer are giving collections tours, table and specimens at academy events such as our weekly Thursday night nightlife events, which are now going online, so I would encourage you to get on Facebook and find

some of our nightlife that'll be online for the foreseeable future. And we also table at some public outreaches. Last year for the spring break period, we had a spring festival called Dino Days, so we brought out a lot of specimens and were able to show off some dinosaur specimens to kids and their families which was really fun; everybody always loves seeing dinosaurs. We also bring specimens to other institutions, table specimens before Lindsay Wildlife Experience in Walnut Creek which is where I used to work. We've also, we always have a couple cases at the San Francisco gem and mineral show which also takes place in Golden Gate Park, so we bring our minerals specimens to that. Um, we also work a lot with our exhibits department; we had to move an exhibit last year of minerals, so we had to take everything off the exhibit condition report and photograph over 100 mineral specimens and then move the exhibit to a new location. So that was actually like really fun and got to just, you know, look at some pretty shiny things for a few weeks [laughing] because you can't go wrong with that. And we're also preparing right now to open a new collections gallery exhibit next year that will be all of our, all of our collection departments will be represented in that gallery, so we're just working on selecting some stories and specimens from our collection right now. And additionally, I will rehouse specimens as needed. So, a lot of our specimens are stored in paper trays that are kind of falling apart, not in the best conditions, so we want to make sure that we transfer all of our specimens to acid free trays and, and transfer them from plastic files to glass files. So, I think a lot of people kind of think like, "oh it's just a rock, or it's just a fossil like, what can go wrong, what can happen? You know, it's kind of sitting there in a shelf and whatever," but you know, environmental controls are still very important for geological collection. Um, things like temperature and humidity and light can really affect both fossils and minerals, especially light conveyed certain types of minerals. So, we do want to make sure that, you know, our specimens are preserved for future generations to study and preserved in the best condition that we can. So, we are always making sure that our environmental controls are, as, you know, as good as we can make them. Um, and yeah, I was just going to go over a couple of the grants that we have-

**Tory Schendel Cox 05:30**

Yeah, go for it.

**Marie Angel 05:30**

-right now. So, we have a grant from the NSF called the Eastern Pacific Invertebrate Communities of the Cenozoic, or EPIC for short, which is a lot easier to say. It's a partnership of nine natural history museums up and down the West Coast here. And we're working together to digitize marine invertebrate fossils found in the eastern Pacific. These specimens span the last 66 million years of life of Earth's history. And during the course of this grant, we're working to make 1.6 million specimen records available online through digital data and photographs. And we're also digitize-, we're also geo-referencing thousands of localities, aiming for 35,000 localities. So that'll be something that we'll be working on from home during this time is just, you know, we can't really do a lot of specimen data entry right now. But we can do geo-referencing from home that just requires an internet connection. So, we're just, you know, by doing this collaboration with other institutions and utilizing our collections, we can reconstruct entire marine ecosystems from the past, which is really cool. So, researchers use this data to

understand how marine ecosystems responded to and recovered from a number of events in Earth's history, including the Paleocene, Eocene thermal maximum, and the transition to the modern Ice House climate approximately 2.5 million years ago. So, by understanding the past climate change of Earth, and we can better forecast and predict our future. So, you know, you really have to look to the past to kind of predict and understand future climate change, which is a lot of the work that we do. And then our other big grant that we have right now, which is also an NSF grant, the Ocean Scientists grant, I mentioned previously. So, I am overseeing one volunteer and have assisted a couple students last year. And we'll have, hopefully, some more students coming this summer from UC Davis, which is one of the organizations we're partnering with right now. So, we are utilizing our microfossil collection to construct assemblages, which researchers are using this data to inform future predictions for these ecosystems in the face of climate change. So again, looking to the past to inform the future, which is kind of our overarching theme right now with our research. So, I helped to complete some research into the quality sediment samples to analyze, so I don't know if you remember when you were visiting, but you saw like all these little vials of essentially what looks like sand. So those are actually from the UniCal collection. So, oil drilling, which this operation was going from about 1890 to 2005.

**Tory Schendel Cox 08:39**

Wow.

**Marie Angel 08:40**

UniCal had this collection of sediment samples that were extracted from about 8000 cores, both in the ocean, or right off the ocean and off the coast, and on land. So, we're looking into the ones that were drilled right off of the coast of Santa Barbara. Um, so UniCal basically had this huge collection, they actually used to employ micro paleontologists to analyze these samples. And then the story is that one day, they just decided they were going to just throw all of these samples away. And some micro paleontologist came in and said, like, "no, no, no, like, you can't do that. There's actually really, these are really important. There's important data in here, there's important specimens in here." So, the collection was rescued and deposited with the California Academy of Sciences. So, we are still working on getting those, those vials re-housed, taking them out of these gross wooden drawers that have been stored off site and transferring them to nice metal drawers. And then we're cataloguing them as we file them in our collection. So, then we know exactly I can say, "oh, you know, I'm looking for this core number and it's database, so I know exactly what to where to go to to find it." So that's a lot of the work that I was doing. With that, we're also, hopefully, going to have a couple more students coming this summer, like I said, um, so yeah, we're just, we have researchers who are going to use this data to understand how marine ecosystems have responded to rapid environmental change in the past and how they can respond to future change. And I don't know if I mentioned the title of this project, but it's the Holocene and Anthropocene as Windows into the Future of Marine Systems, we don't have a catchy title for it yet. So, we're still gonna muse on that while we're on shelter in place here.

**Tory Schendel Cox 10:47**

Yea

**Marie Angel 10:49**

So, we're, basically that means that we're gonna be utilizing these geologically “young” marine sediments from the California margin to reconstruct these, the microfossil response to environmental change. And this work is of particular importance because these coastal ecosystems play a critical role in carbon sequestration, marine fisheries, coastal economies and cycling of nutrients. So, we are just going to be cataloging, digitizing, and identifying these fossil samples collected along the California margin. And these materials will be combined with samples from available sediment cores to develop a public online digital database through which the research community may access project data and results. So that's just a little bit of what we have been working on. Yeah, both before we were on the shelter in place and now from home,

**Tory Schendel Cox 11:53**

This is amazing. That is a lot of information and a lot of things that you're doing. Out of curiosity, is there a pivotal piece of information that you could share with us regarding these trends and the ecosystem that you're finding?

**Marie Angel 12:09**

Um, I don't really have that information. I think it's, it's still being worked on. And so, as a curatorial assistant, I'm not the one doing this research, but I'm supporting the research that's happening in our department.

**Tory Schendel Cox 12:24**

Which is just as secure and vital.

**Marie Angel 12:26**

Yes, yes. So, we do, the EPIC grant does have a website, which I will send to you to make available. We don't have a website yet for the microfossil grant, but hopefully, we will soon.

**Tory Schendel Cox 12:46**

So then, out of curiosity, how many pieces are in the collection that you specifically work with?

**Marie Angel 12:52**

Um, our collection, our whole geology collection is millions of specimens, especially when you count, you know that the hundreds of 1000s, probably millions of microfossil collections that we have and the diatom collection. So yeah, I don't think, I don't have a firm number for you. But I can tell you that it is, it is multiple millions.

**Tory Schendel Cox 13:18**

It is there any piece in particular that is your absolute favorite?

**Marie Angel 13:23**

I'm kind of particular I, I'm more partial to our ice age fossils, especially the megafauna because I feel like that's a little bit easier to relate to. So, I don't have a geology background, I don't have a biology background. I've really no science background whatsoever. So, I kind of just fell into working in just, in science museums, my background is museum studies and collections management. So, for me not having that background, I find that it's kind of easier to relate to our ice age specimens just because I can kind of imagine like, "okay, yeah, like in the Bay Area 10, 15,000 years ago, you know, these animals were here. They were walking around, they were, you know, they were everywhere." So, I'm yeah, I think those, those ones are my favorite. I think in particular, who-, the my, probably my favorite is our Smilodon from the La Brea Tar Pits in LA, we affectionately refer to as kitty. Just because it's a really fascinating fossil and just looks really cool.

**Tory Schendel Cox 14:36**

And that's the important part of relating to the artifacts because what's interesting about even my institution is I'm in charge of roughly same thing, we don't have a specific number of 15,000 artifacts from prehistory to modernity. And although I'm a generalist and a little bit of everything, I don't know everything, and it's hard to therefore the more I can relate to something, the more meaning it brings to me, and the more I can understand how my colleagues relate to it. That is how it's going to get more validity, at least in my mindset, of why I'm going to exhibit something so...

**Marie Angel 15:12**

Yeah, exactly. Like I've taken those specimens out on to public outreaches, and I think it's just easier a little bit too for like, the public to relate to those specimens because I think for some people, and even for me, it can be hard to like relate to a specimen that's you know 70 million years old like, it's kind of hard to like picture that in your head and like think of like, even if you see artistic renditions, it's hard to say like, this was a thing that existed you know x million of years ago, but if you say like, okay this was an animal that existed right here where I'm standing 15,000 years ago, it's just like a little bit easier to relate to.

**Tory Schendel Cox 15:53**

And probably even to digest too as someone who may not be as palatable to the sciences or in my case the arts-

**Marie Angel 16:01**

Right.

**Tory Schendel Cox 16:02**

-it's just easier to build that human connection because again that's why we exist.

**Marie Angel 16:05**

Yeah, and even if you think about like you know at that time period, there were humans here. I mean we had our indigenous tribes here, and they were living with these animals, so I think that also makes it a little bit easier to kind of like understand and relate to.

**Tory Schendel Cox 16:21**

Absolutely. Well Marie, is there anything else you'd like to share with our viewers?

**Marie Angel 16:26**

I would just like to share that I just I hope everyone is staying safe and staying inside. You know, get a little bit of fresh air when you can, go for a walk around your block [laughing], but I just hope that everyone's staying safe and healthy and that you know hopefully everyone can go back to work soon. I, I can't complain that I'm, you know, I'm able to work from home, so you know, I'm, I'm very, very grateful for that, but I know that there are a lot of people out there struggling, so I hope that everyone is able to get back to work,

**Tory Schendel Cox 17:04**

Well, we're definitely grateful for your time and we look forward-

**Marie Angel 17:08**

Thank you.

**Tory Schendel Cox 17:08**

-to seeing the website and what you're doing too. And again this is the Evansville Museum recording, and Marie, thank you so much for your time and don't be a stranger.

**Marie Angel 17:18**

Yes, thank you so much, and don't be a stranger either. It's great to talk to you.

**Tory Schendel Cox 17:21**

Absolutely, bye for now.

**Marie Angel 17:24**

Bye.