Panel I: What We're Up Against

Ruby Acevedo, Yana Garcia, Dr. Tyrone Hayes, Geneva Thompson, Dr. Mike Wilson, Miya Yoshitani

YANA GARCIA: Good morning. Thank you to Mustafa for that incredible opening. My name is Yana Garcia. I am not going to take too much time because I have a lot of really incredible panelists that I want you all to hear from. But I want to pull from a theme that Mustafa left us with that I think is really strong for not just this morning, but today. Our panel is called *What We're Up Against*.

We do not want to leave folks with the impression that what we have before us is a long list of challenges that we all face. Although that is the case in many instances, and today it is very obvious what the challenges before us are, and we can often feel like we are in times of crisis. Instead I really want you all to understand the opportunities that arise in some of these challenge areas and what the work is that we can do to embrace those opportunities.

We mentioned the Green New Deal. I think in this time of climate crisis there is an opportunity to go back and hopefully do our best to address some of the racial, social, and economic inequities that have long persisted in this country.

I am the assistant secretary for environmental justice and tribal affairs at the California Environmental Protection Agency.[1] I want to take a moment and honor the movements that have led to positions like mine, and to positions like Mustafa's, and all of those who have come before me, and to honor the land that we stand on and the people who have been here for a long time—the Ohlone folks of this area. For those of you who may not know, the Bay Area before the Gold Rush was actually one of the most thriving areas in all of the Americas north of Mexico.

I just want to take a minute because we do not often think about or have space—hold space for the indigenous folks who have come before us and whose land we are upon. I want to take a minute to honor them.

I am going to introduce some of our speakers. I am going to start with Geneva Thompson, who is a staff attorney at the Wishtoyo Foundation.[2] We will

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1. CALEPA, https://calepa.ca.gov/ (last visited Feb. 3, 2020).
2. Geneva Thompson is currently associate general counsel for the Yurok Tribe. *Office of the Tribal Attorney*, YUROK TRIBE, https://www.yuroktribe.org/government/tribalattorney/ (last visited Feb.

be hearing from her first before we move on to Miya Yoshitani, who is the executive director at the Asia Pacific Environmental Network, and a longtime environmental justice activist.[3]

Then, we will hear from Dr. Tyrone Hayes, who is your very own professor of integrative biology here at University of California, Berkeley.[4] We will hear from Dr. Mike Wilson, who is the national director for occupational and environmental health at the BlueGreen Alliance.[5] Then, we will close out with some comments from Ruby Acevedo, who works at an organization called Public Advocates, which handles a lot of civil rights, racial, economic, and social justice issues.[6] She is going to talk to us about the intersection of environmental justice and housing.

So, without further ado, I am going to kick it over to Geneva.

GENEVA THOMPSON: My name is Geneva Thompson, a citizen of the Cherokee Nation and staff attorney at the Wishtoyo Foundation. I also served as the president of the California Indian Law Association (CILA). Anyone who is interested in getting more involved with CILA, please talk to me afterwards. We are always looking for new members.

I would first like to take a moment to acknowledge that we are on stolen Ohlone land, and it is really important to take a moment to acknowledge that and also know that we are all guests here and to be respectful and act as guests as we move forward.

I want to take a moment to look at what environmental justice means for native nations and native people. There are three distinct differences when you are talking about environmental justice with native nations and native people compared to other environmental justice communities.

The first is the inherent sovereignty that native nations have and that it is rooted in precolonial political systems. There are three different types of recognition of sovereignty. I want to make it very clear that every native nation has their inherent sovereignty, regardless of what other government recognizes their sovereignty or not. Because we are in a colonial state and under U.S. law, different government entities recognize different native nations. With that recognition comes different laws and different rights. I always like to start this kind of conversation with showing the three categories of recognition.

22, 2020). At the time of the summit, Geneva was a staff attorney at the Wishtoyo Foundation. WISHTOYO: CHUMASH FOUND., https://www.wishtoyo.org/ (last visited Feb. 3, 2020).

3. ASIAN PAC. ENVTL. NETWORK, https://apen4ej.org/ (last visited Feb. 3, 2020).

4. Berkeley Research: University of California, *Tyrone B. Hayes*, https://vcresearch.berkeley.edu/faculty/tyrone-b-hayes (last visited Feb. 3, 2020).

5. Dr. Mike Wilson is now chief of the Environmental Health Investigations Branch (EHIB) in the California Department of Public Health. At the time of the summit, Dr. Wilson was the national director for occupational and environmental health at the BlueGreen Alliance. BLUEGREEN ALL., https://www.bluegreenalliance.org/ (last visited Feb. 3, 2020).

6. PUB. ADVOCATES: MAKING RIGHTS REAL, https://www.publicadvocates.org/ (last visited Feb. 3, 2020).

First is federally recognized native nations, and that means that the United States recognizes a particular nation as a sovereign nation. A good example is Cherokee Nation: We are federally recognized.

The second one is a state-recognized native nation. That means the U.S. government is not recognizing the native nation, but a particular state is. Some states have a formal recognition process. Other states have more of an informal recognition process. Here in the state of California, it is more informal, but there are certain rights that come with the state of California acknowledging that a native nation is a sovereign entity even if the U.S. government does not.

The third group is the non-recognized native nations. There are native nations out there that neither the U.S. nor any states formally recognize. Those people and those nations are treated as non-native folks in the context of law and rights that come with that.

I think it is important to know that there are these three different groups as it applies to federal and state law when you are thinking about how to navigate environmental justice communities and impacts on native nations and native people because you need to know what laws are at play when advocating for X, Y, or Z.

The second part of environmental justice and native nations is the legal right to be culturally distinct from the larger American society through self-governance. Every native nation has a government structure that they have always had precontact. Some native nations are implementing that in different ways.

Some nations take a very formal approach, copying what the U.S. government does and having executive, judicial, and legislative branches. Others follow a more traditional government structure. But that goes back to the sovereignty issue where native nations are their own government entities. With that come different interactions with federal and state laws. It is important how the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) interact with native nations, either federally or state recognized.

The third and last part of environmental justice and native nations is the deep cultural ties to the environment. It is important to highlight the idea that folks' identity is tied with aspects of the land. A lot of native nations have creation stories that are tied to their traditional homelands. That is rooted precolonization, pre-United States. That is part of people's identities and cultural structure in a way that when there are harms, or pollutions, or destruction of these landscapes, it cuts really deep. That is particularly important to highlight when you are thinking about environmental justice issues with sacred landscapes because people's identities are tied with the land.

I want to provide some examples of native-led environmental justice movements, also highlighting the difference between a native-led nonprofit and a native nation in advocating for environmental protection and environmental justice protection. It is very important for people in the environmental justice

movement to understand the difference. This is something that we deal with a lot, actually. You will have a native nation that is a sovereign government that needs to be treated and respected like a sovereign government. Then you have native-led nonprofits that are working towards the protection of native life ways, that are working to protect the environment and cultural landscapes. But they are not a government. They are not representing a sovereign group of people.

When you are working with nonprofits as compared to nations, you need to be very clear on where you are, who you are talking to, and what laws apply to whom you are talking to or whom you are working with. That is what I tried to highlight here. Compare Standing Rock Sioux: tribe, sovereign nation and Standing with Standing Rock: a native-led nonprofit.

They operate in similar worlds, but not the same. There are similar advocacy routes, but not the same. At Wishtoyo there are times where people want to call us a tribe and want to say, "Oh, Wishtoyo the nation so you can do government-to-government consultation." But no, we are not. We are a native-led nonprofit. I just wanted to highlight those distinct differences.

There is the Wishtoyo Foundation, that is the organization that I work for. We are a native-led nonprofit with the mission to preserve and protect Chumash culture, and the culture of all indigenous people, and the environment that our current and future generations depend upon.

A sacred landscape that we focus a lot of our advocacy around is *Utom*, which is the Santa Clara River. It is in the Ventura County area Chumash territories—Point Conception down to Malibu area. We focus a lot of our advocacy campaigns in Chumash traditional territory.

Because of *Utom* and the significance of *Utom* to Chumash life ways, we bring a lot of environmental cases to protect the river, the animals that depend on the river, and the plant species that depend on the river that are also essential for Chumash cultural life ways and practices. There is a lot of riparian vegetation that is used for baskets, and houses, and canoes, and *tomols*. We try to focus our advocacy around that.

The first case that I would like to talk to you about is the Calpine Mission Rock Energy Center. It is a 275-megawatt natural gas peaker power plant that was going to be sited on the banks of *Utom*. We worked with Earthjustice to intervene on that application, and we were very successful. Showing the California Energy Commission and the applicant that this peaker power plant was not needed, and that it was going to harm the environment and harm Chumash cultural life ways. The applicant suspended their application, which was very exciting, but we are going to be still staying on top of them and making sure that they do not try to revive the project there.

The second case that we have brought is an Endangered Species Act (ESA) case, specifically around the endangered Southern California Steelhead. The Steelhead, or *Isha'kowoch*, is a glistening salmon and very significant animal for the Chumash people. There is a long history of the steelhead being a source of food and of cultural practice for the Chumash people. You see paintings and

songs and stories talking about the steelhead. We have elders that talked about remembering seeing the river flow backwards because of the steelhead migration up and down the river.

We brought an ESA case against the United Water Conservation District's Vern Freeman Diversion Dam that was preventing the flows of the river and blocking steelhead migration and spawning. We just heard that we won our case and got a permanent injunction in place, and that United has to release more flows, and they have to basically build a new fish passage system like the Vern Freeman Dam so the steelhead can migrate. We are very excited about that victory.

YANA GARCIA: Now we are going to Miya Yoshitani who is going to talk to us about some of the history of the environmental justice movement. Miya was actually present at the first National People of Color Summit.

MIYA YOSHITANI: It is really nice to be here, and I first just wanted to say thank you for centering impacted communities—environmental justice communities—in your efforts to defend the law. This is really impactful and important for communities who are on the front lines of environmental justice issues. Legal remedies are one of our core strategies, and they can work if they are actually led by the people who are most impacted by environmental justice issues. Thank you for being here.

I wanted to first talk about some of the origins of the environmental justice movement.

I kind of came into the movement as a student. I was doing campus organizing around racial justice issues and got invited to the first National People of Color Environmental Leadership Summit. I took my backpack and took a train to D.C. from Chicago. I showed up without even having a hotel reservation—the way students do it. I found someone to let me sleep on their hotel room floor. Seven hundred environmental justice advocates from around the country attended, all people of color. It was really pretty amazing.

The seventeen Principles of Environmental Justice that were part of that convening still hold true today.[7] You can kind of see some of the origins of the movement in those principles. Mustafa already mentioned the seminal study on toxic waste and race which identified the important points that where people live matters, race matters. The first indicator in proximity to hazardous facilities was race, not income. You can read the whole study, but that is a punch line. People of color are not imagining things when they say that we are the ones who are being overburdened by the combination of pollution and poverty and racism. That is the highlight of that.

7. EJNET, *Principles of Environmental Justice* (Apr. 6, 1996), https://www.ejnet.org/ej/principles.html.

The origins of the environmental justice movement really come out of racial justice and civil rights. That is why it is distinctly different from the conservation environmental movements. It is also why building power and systemic change are also central to the environmental justice movement.

The origins of the environmental justice movement in the early '90s really helped spur a number of networks of communities of color, environmental justice communities. The Asian Pacific Environmental Network (APEN) was one of them. I was lucky enough to be around when we first started talking about it.

We first started organizing in a Laotian refugee community in Richmond, California because of the proximity of this refugee community to the refineries there. This community had come from refugee camps in Thailand and landed in this multiracial community in Richmond, suddenly finding themselves on the front lines—a fenceline community. Their kids were going to school in elementary schools right next to the refinery where they were breathing in all of the air quality of one of the biggest polluters in the state and in the country—also one of the biggest contributors to greenhouse gases in the state.

What are we up against? We are up against some of the biggest corporate interests in the universe. Some of the corporations that have the biggest profits, who care the least about their workers, who have the greatest subsidies from our federal government, and who kind of undergird and control the political system. We are up against just a few things.

When it comes to making the fundamental systemic shifts in our politics, our economy, and our ecology that are necessary for communities who are most impacted by environmental issues and by climate change, we are up against a lot. That is why these movements are so important. Richmond is a microcosm of what is wrong with our politics, with our democracy, with our economy, and with the ecology. A microcosm of who is in power and who is not. It is just an indicator of what is happening everywhere. What we are up against in Richmond is what we are up against all over the place.

It is about cumulative impacts. It is about understanding that when communities of color talk about being exposed to one facility, what they are really talking about is there might be one refinery next to us and then we are also living next to all of the most polluting freeways. We are living next to the incinerators. We are also living next to the hazardous waste facilities. We are living next to neighborhoods that have the least healthy food. We are living next to the places where our democracies have been taken over by corporations.

Those cumulative impacts need to be part of the legal framework and policies we pursue. The legal and policy approaches need to address the whole cumulative impact of what communities are facing.

Climate change is an example of these cumulative impacts. We are talking about communities who are on the front lines because they live next to the most polluting facilities. They live next to the places that are contributing the most to our atmospheric problems with climate change. You can talk about how we are at the target zone of the root causes of climate change. So, when you talk about

addressing climate change, you have to address the local impacts of climate change as well. If you are growing up next to a refinery, not only are you impacted by climate change in terms of the economic effects, the rising energy prices, the rising sea levels—but you are dealing with local pollution that is causing the highest asthma rates in the country.

The heart of this movement is about building power. It is about building power with communities who are most impacted at the center. This is what we do. We do locally centered state policy. We do power building through voter registration, voter engagement, and making sure that our year-round organizing is actually connected to our electoral board. We are part of national movements like the Green New Deal.

These great ideas are great ideas because they are coming from communities who have been not just most impacted but have been at the center of the solutions. When you are supporting the best parts of the Green New Deal, you are supporting the work and the understanding that has been built by communities of color over time in this work. Thank you very much.

YANA GARCIA: You have heard this morning about the location of where people live being influenced very much by race and the history of racism in this country and then your likelihood of exposure to pollution. The other crisis that we are dealing with in California and in many places across the country is the housing crisis. Access to affordable, healthy housing is an urgent need for many of the residents in our state, particularly those here in the Bay Area. Ruby is going to talk a little bit about that interplay, that tie-in to some of the housing work that is upon us now.

RUBY ACEVEDO: Thank you. Hi, my name is Ruby. I am the housing justice attorney at Public Advocates. Before that I did eviction defense, and before that I did a lot of environmental justice work alongside communities of color with California Rural Legal Assistance. I am just going to backtrack really quickly.

When I was eighteen and an undergrad, I thought I wanted to be a plant pathologist because that was my way of helping the environment. Plant diseases just really excited me, and I loved fixing plants—you are essentially a plant doctor. I was on that path, and that was with the U.S. Department of Agriculture through a fellowship I was working on at the time.

While working out in the fields, fixing my plants, getting them sick, then curing them and watching them come back to life, there were a lot of pesticides around the fields that we were working in. The reason for that was because that is where the actual fruit that you probably ate was being grown. You have the different fields, which include both the ones that are for experimental purposes, and then you have the ones that are just for food consumption.

In experimenting and going out there and picking my samples, I was covered from head to toe with what we call "monkey suits" because we needed to be protected from all the horrible pesticides that were out there in the fields.

If you looked a couple of rows down, there—maybe about ten to fifteen rows down—you had farm workers who were also working very close to me in the same fields and they were not as heavily protected as we were.

They were not taking breaks like we were, every hour in 100-degree weather. Some of these fields were out in Arizona. We would start at 4:00 a.m. and end at 11:00 a.m. because by 11:00 a.m. it was too hot to be working out there. We drove out of the fields, and you had these farm workers still out there, still working. Who knows when their next break was going to be. That was when I decided the environment includes so much more than just plants. It is about people. It is really about the community and the people that are most impacted.

I go back to my hometown in Salinas, California, and I notice that there is this elementary school that is surrounded by fields, literally. Strawberry fields on one side, you have lettuce on the other. Every side of that school was surrounded by a field and there was an airplane flying around spraying pesticides. It was this "aha" moment. I am working to save these plants, and yet there are so many people being harmed by those same plants that I am working to save. I walked down the street to where I was living at the time and started volunteering with California Rural Legal Assistance. Since then, I have been advocating for low-income communities of color, specifically those that have been burdened by environmental injustice.

The reason I tell this story is because I did not realize I myself was also being affected by environmental justice issues. Growing up in Salinas near these fields, literally walking distance from these fields, I started to realize that not only were the farm workers—like my parents—coming home with clothing that had been completely covered in pollutants, we were all living right next to those fields.

I focused a lot of my work around housing once I started law school, and it was because place matters. Where you live really matters. I started working in eviction defense. You might not necessarily see the connection to environmental justice with eviction defense.

What often happens in California, and in many of the eviction defense cases that I saw, was people could not afford to pay to live even in the most environmentally burdened neighborhoods. That is one aspect of environmental justice.

But another aspect is those who are living in a safer neighborhood, a healthy neighborhood that is not surrounded by power plants, or meat rendering plants, or another kind of plant. What ends up happening is these low-income, mostly tenants of color, end up having to move. That is where displacement comes from.

Displacement results from many people not being able to afford to live in a healthy place. We are going to focus on those who are currently living in a healthy, more environmentally friendly location because when they can no longer afford to live there, when they are priced out of those locations because Google decides to come in and put a plant, or we decide to open up a soccer field down the street. This raises rents, and it also impacts the environment.

What ends up happening is they move. Where do they move? They end up in places that are more environmentally burdened than they were before. A lot of the displacement from the Bay Area is ending up in the Central Valley, which is heavily burdened with industrial sites. Because of its location—because of ecology and the environment—it is already in and of itself an environmentally unjust location to live.

A lot of my clients were moving out. Once they were served with evictions, they planned to move to Stockton, to Fresno—places where they could afford to live. But what is in Fresno? I focus on Fresno because when I was a community worker out there, I worked with the Darling rendering plant. It is a meat rendering plant that is located in a neighborhood, primarily Latino and Black populated. It literally uses animal carcasses and workers drive through the neighborhood, right in front of a school, and leave a dead cow right on the street.

That is what happens in environmentally unjust communities—they have those things down the street. That facility is their neighbor. Their neighbor is a rendering plant that prevents them from going outside, that leaves all these carcasses in front of their homes, and that forces them to breathe the air they emit. Forget having any barbecue outside on a nice day because the smell is unbearable.

That is what my clients out in Fresno experienced and what my clients from here in the Bay Area moving out to those areas are now going to be experiencing. I do not want to victimize them because these communities are so powerful, and they can make so much change. But they—the communities of color, the low-income communities of color—are the ones paying for all the environmental injustice that is happening.

There has been a failure to acknowledge that we had a housing crisis for many years. For a long time, it was ignored. It did not exist. Recently, it has been acknowledged by the governor and by several city councils. But they have acknowledged it only in theory. They said, "Yes, it is here." In practice, they are still making these same decisions.

YANA GARCIA: I am going to give the mic over to Dr. Tyrone Hayes. He is going to talk to us a bit about the incredible work that he has done to build a scientific basis for a lot of what is now known to be the carcinogenic effects and endocrine system effects of a number of chemicals.

DR. TYRONE HAYES: Yes. Now for something a little bit different. I study frog hormones, and just as I started here as an assistant professor at Berkeley, I was contracted by Novartis, the largest chemical company in the world, to find out if their number one selling product, atrazine, an herbicide, interfered with frog hormones.

In fact, I discovered that when frogs were exposed to this herbicide, the genetic males were feminized and that they turned into half hermaphrodites. They developed both testes and ovaries, which is not normal, even for a frog.

There are fish that naturally change sex, but not frogs. Then, we later discovered that about 10 percent of the animals exposed to atrazine that are genetic males literally turn into functioning females.

We hypothesized that this was due to an effect on the gonadal production of hormones. For example, testosterone, which literally means testicular hormone, is the "male hormone." But it can be converted into estrogen, the "female hormone." We hypothesized that atrazine, in fact, turned on the gene for this enzyme, which then converts the testosterone into estrogen, resulting in demasculinization, a loss of sperm, and a growth of eggs in our exposed frogs.

Then, I turned my attention to trying to figure out if this was just something that happens with frogs. I am a little boy who likes frogs, but maybe not everybody likes frogs. I turned then—because I only study frogs—to people who were studying other vertebrate animals.

We published a paper, twenty-two of us from twelve different countries, where we showed that people from around the world, independently—scientists were finding these same types of effects that I had found. I was also being challenged by the company who was claiming that I had done something wrong, that there was something wrong with my science, that maybe I was even a little bit crazy.

We showed that frogs exposed to atrazine had no sperm in the testes. A scientist in Belgium that showed the same thing in fish. A scientist in Argentina that showed the same thing in reptiles, in an alligator. Sperm in the testes. Give it atrazine, no sperm.

Similar work was done in Croatia and Nigeria on rats, mammals like us. Sperm in the testes, give it atrazine, no sperm. Work in Pakistan on birds showed no sperm in the testes after exposure to atrazine. I should point out these effects in amphibians were being found at levels that are like 0.1 parts per billion. That is like one thousandth of a grain of salt in two liters of liquid—very low levels.

You cannot do this direct experiment in humans, but a colleague of mine looked at men in Columbia, Missouri. The control group were men who have no fertility problems, and the other group were men who have low sperm counts and cannot get their wives pregnant. There was a significant correlation between low sperm counts and levels of atrazine in their urine.

Again, 0.1 parts per billion of atrazine is what it takes to chemically castrate a frog or a fish. Just by coincidence, if you have that much atrazine in your body, you tend to have a low sperm count.

I started to think about these environmental justice issues when looking at levels of atrazine measured in men in California who work in the fields and apply atrazine. Men who apply atrazine have 24,000 times more atrazine in their urine than we know is associated with low sperm count and these men in the Columbia, Missouri study. They have 24,000 times the atrazine in their urine that we use in my laboratory to chemically castrate fish and amphibians. One of these guys could pee in a bucket. I could dilute their urine 24,000 times and use the atrazine in their urine to chemically castrate and feminize 24,000 tanks of tadpoles. I think

about environmental justice issues because these men in California are primarily Latinx.

On the other side of the equation, we started to look at the impacts of atrazine on aromatase and estrogen production. In amphibians and fish and reptiles, aromatase will make them grow eggs in their testes. That is not going to happen in humans, but this aromatase is very important in breast cancer and prostate cancer. Cancer is the number one cause of death after heart disease, and prostate is the number one cancer in men, and mammary cancer the number one cancer in women.

With regards to prostate cancer, a study showed in a factory there was an 8.4-fold increase in prostate cancer incidents in men who work in their factories bagging atrazine. Their factory is in San Gabriel, Louisiana, in Cancer Alley, which you heard about this morning.

There is another study showing that there is a correlation between breast cancer and atrazine contamination of well water, also in Cancer Alley. 1.2 million pounds of atrazine flow into the Gulf of Mexico every year. There is a pipe that flows directly from a factory into the Mississippi River in a community that is 80 percent African American.

Data show that the type of cancer that you are likely to get, as well as your mortality rate, correlates with your race. If you are Black, you are more likely than Caucasians to get eleven out of the thirteen most common cancers. You are more likely to die from all thirteen of the thirteen top cancers.

My colleagues who are experts on cancer tell me that less than 30 percent of cancer can be explained by genetics. When your doctor tells you that you are more likely to get breast cancer if your mother, your sister, your aunt, or somebody in your family has breast cancer, they are not telling you that you have bad genes, they are telling you that you have been exposed to the same crap as the rest of your family.

If you are an immigrant or if you are a minority or low income, you are more likely to live in and more likely to work in the areas where you are exposed to chemicals that we know are associated with adverse health outcomes.

Now, a colleague of mine—a former graduate student—showed that if you give atrazine to breast cancer cells, it induces this aromatase, just like we have shown in fish, amphibians, reptiles, birds, and rats. The reason that that is significant is breast cancer, the number one cancer in women, is driven by the hormone estrogen. The cancer cells express aromatase and make estrogen that causes these damaged cells to grow and divide and metastasize and spread throughout the body.

In fact, aromatase is so important that the number one treatment for breast cancer is a chemical called letrozole that reduces aromatase and estrogen so that your damaged cancer cells do not grow and spread. If you get breast cancer right now, this is the drug that you would take.

How much sense does that make when the most common contaminant of drinking water, atrazine, does exactly the opposite? It turns on aromatase, it

increases estrogen, and it is associated with breast cancer cells growing. Turns out the same company in 2000 made both chemicals—Novartis.

The same company that was selling us 80 million pounds of atrazine was in turn selling us letrozole, which does the opposite. So that if you were taking this company's drug to treat your breast cancer, you were drinking another drug by the same company.

I published a paper called "The One Stop Shop: Chemical Causes and Cures for Breast Cancer."[8] You can guess they were not too happy about that. What is more is, I think that my interest in this aquatic organism has taught me a lot about another aquatic organism—humans. Because we all start out in amniotic fluid, we all start out in water. We need the same hormones that my frogs need—testosterone, estrogen, thyroid hormone. They synthesize and act the exact same way: it does not matter if you are fish, a frog, a dog, or a cat, a hog, or a human.

What is more is that we know that your children will be exposed to over 300 synthetic chemicals before they leave the womb. We have no idea what most of these chemicals do to us. One that we do know something about is atrazine.

This atrazine causes prostate and mammary cancer in rats. It causes immune failure in rats. It causes neuro damage when rats are exposed in utero. And the studies that impacted me much more are EPA studies that showed that atrazine causes abortion in rats. Of those rats that do not abort, the sons are born with prostate disease. Of those rats that do not abort, the daughters are born with impaired mammary development such that when they grow up, their offspring have retarded growth of development because they cannot be fed properly.

This study moved me more than any that I have done. The subject rat never saw atrazine. The subject rat was just affected by atrazine that its grandmother was exposed to. When I think about my little girl, and your kids, and the idea that our grandchildren could be affected by chemicals that we are using today, it really moves me.

I really thank you for the honor of being able to share my work with you here. Thank you.

YANA GARCIA: Thank you, Dr. Hayes. Now on the continued topic of worker exposures and the tie-ins to workers and some coalition building points, we have Mike Wilson.

DR. MIKE WILSON: Great, thank you very much, Yana. I am going to be talking about the state of labor in the United States, and in particular, the decades-long, structural suppression of labor rights in the United States and the health harm that millions of Americans suffer in the work environment, particularly low-income people, people of color, and new immigrants as a consequence. I will try to illustrate how the environmental justice analysis applies in the work

8. Tyrone B. Hayes, *The One Stop Shop Chemical Causes and Cures for Breast Cancer*, 24 REVIEWS ON ENVTL. HEALTH 333 (2009).

environment and how protecting people's economic security—their labor rights—is essential to making long-term progress in environmental justice.

The BlueGreen Alliance[9] started twelve years ago as a collaboration of the United Steelworkers Union (USW) and the Sierra Club, and it is now a coalition of the ten largest labor unions in the country and six environmental organizations. Invoking Mustafa's point that we are trying to build a new economy without repeating the models of oppression and existing paradigms that we experience today—that is what the BlueGreen Alliance is all about.

I'll try to convey four key ideas in my presentation. The first is that defending worker rights is a key tenet of the struggle for environmental justice.

Eduardo Porter noted in his October 30, 2016 *New York Times* essay that "[r]anked by inequality, the United States surpasses every other advanced nation."[10] Whether it is life expectancy or infant mortality, wealth and income, incarceration or educational attainment, countless statistics offer a fairly dark picture of the American experience. It is a picture of prosperity that consistently leaves large numbers of Americans behind.

When we think of inequality, we usually think of income. And of course, the income inequality numbers in the United States are stark. Income inequality has increased in many industrialized countries, but it has become especially pronounced in the United States. In the first three decades after World War II, real compensation (wages and benefits) moved roughly in tandem across all sectors of the American economy; since 1979, however, the United States has experienced a striking increase in income inequality (Figure 1). During this period, over 15 percent of national aggregate income shifted from the bottom 90 percent of the income distribution to the top 10 percent.

9. BLUEGREEN ALL., https://www.bluegreenalliance.org/ (last visited Feb. 3, 2020).

10. Eduardo Porter, *Richer but Not Better Off*, N.Y. TIMES (Oct. 30, 2016), https://www.nytimes.com/2016/10/30/opinion/sunday/richer-but-not-better-off.html.

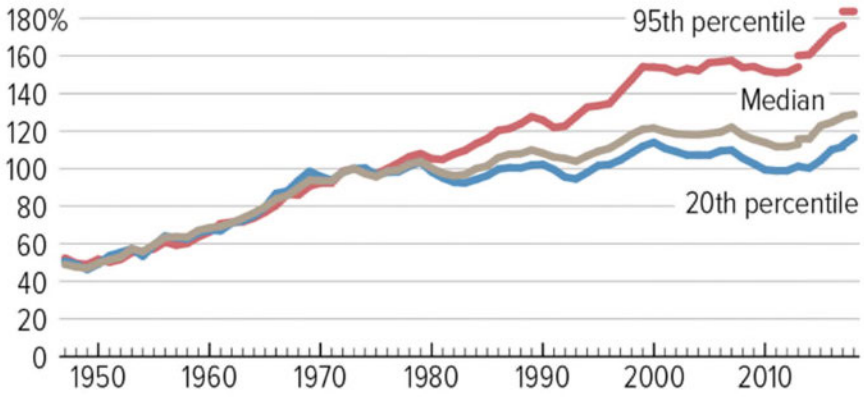

Figure 1: Real family income between 1946 and 2018 as a percentage of the 1973 level[11]

One consequence is that 44 percent of U.S. children under age 18 now live in low-income households, defined as 200 percent of the federal poverty threshold; about one in five children (21 percent) live at or below the federal poverty threshold.[12] While about 30 percent of white and Asian children live in low-income families, more than twice that percentage (63 percent) of Black, American Indian, and Hispanic children live in low-income families.[13]

In addition to low wages, tens of millions of non-unionized American workers experience economic insecurity because their jobs do not offer paid sick and vacation days, or access to health insurance or retirement plans, or seniority rights, due process for disciplinary actions, effective protections from on-the-job hazards, or the right to refuse unsafe work. Workers are not typically offered control over scheduling and a predictable eight-hour workday and forty-hour workweek but must contend with a constantly changing schedule of days off, which can destabilize families and create additional stresses on childcare. Because access to health insurance in the United States is through employment, the prospect of losing a job can be terrifying, particularly when the insurance

11. Chad Stone et al., *A Guide to Statistics on Historical Trends in Income Inequality*, CTR. ON BUDGET & POL'Y PRIORITIES 9 (Jan. 13, 2020), https://www.cbpp.org/sites/default/files/atoms/files/11-28-11pov_0.pdf.

12. Yang Jiang et. al, *Basic Facts About Low Income Children Children under 18 years, 2014*, NAT'L CTR. FOR CHILD. IN POVERTY 1 (Feb. 2016), http://www.nccp.org/publications/pdf/text_1145.pdf. Forty-four percent of 74 million is equal to 32 million children, and 20 percent of 74 million is equal to 15 million children.

13. *Id.* at 4.

covers an entire family. Many of the tenets of economic security are simply no longer available in U.S. workplaces.

Here's the key point: As more and more people experience economic stress and insecurity, as they feel "one paycheck away from homelessness" or that the bottom could fall out of their lives any day, they will simply be unable or unwilling to give attention to questions of environmental justice or public health. As Dr. King reminded us, a safe, decent job is the foundation of economic security, from which nearly all other human activity flows. As such, defending worker rights—labor rights—can be seen as central to the struggle for environmental justice.

My second key idea is that worldwide, workers protect their economic security—and their lives—by unionizing.

Forming a union—unionizing your coworkers—is the primary, legally sanctioned means by which people protect their economic security and all the elements of their economic security—around hours of work, wages and benefits, working conditions, safety and health, fairness and due process, and the chance to fight for better conditions.

We all know that the right to organize a union, collectively bargain, and strike is codified in the National Labor Relations Act of 1935 (NLRA). Labor Secretary Frances Perkins was the author and chief architect of the NLRA. Its emergence in the 1930s is a fascinating and crucial moment in U.S. history that deserves your attention; but for today, let's just say that it grew in large part out of the escalating conflict in the 1920s and 1930s between labor and management—or as Jeremy Brecher has documented in his groundbreaking book, *Strike!*, the "second civil war in the United States."

With progressive forces gaining political ground in Europe during the 1930s, some leaders of large U.S. companies became increasingly worried that the economic strain of the Depression could lead to similar calls for revolutionary changes in the U.S. political system. For some, the NLRA was seen as a way to ease this pressure by giving workers the legal right to organize, collectively bargain with employers and—when necessary—strike, as compared to providing workers with key elements of economic security through state authority and public programs. This strategy had an enormous impact: workers organized and joined unions by the millions after Roosevelt signed the NLRA in 1935.

The NLRA states clearly that its purpose is to correct "the inequality of bargaining power between employees who do not possess full freedom of association or actual liberty of contract and employers who are organized in the corporate . . . association"—acknowledging the imbalance of power between workers and employers.

The NLRA remains in force today, of course, though it has been markedly weakened in the intervening years. Original (and subsequently introduced) weaknesses in the NLRA have meant that in practice, organizing a union is risky for U.S. workers; it can and does lead to workers being fired and/or failing to

achieve a first contract with their employer, as documented in a 1994 joint study of the NLRA by the U.S. Departments of Labor and Commerce.[14]

The weaknesses in worker protections in the NLRA have been a primary driver in reducing the U.S. *private sector* unionization rate from 35 percent of workers in the 1960s to 6.2 percent today.[15] The current rate rises to about 10.3 percent if you include workers in public sector unions, such as teachers, police, firefighters, public transit, municipal workers, and so forth.

To repeat: the share of workers who belong to labor unions dropped from about 34 percent in the 1960s to 10 percent today. About 14.6 million U.S. workers are represented by a union today, out of about 163 million workers nationally.[16] Ninety-four percent of private sector workers are not protected by a union contract.[17]

Faber and colleagues compared the decline in unionization with the increase in income inequality in the United States and—not surprisingly—found a striking association, which was widely reported in the popular press (Figure 2).

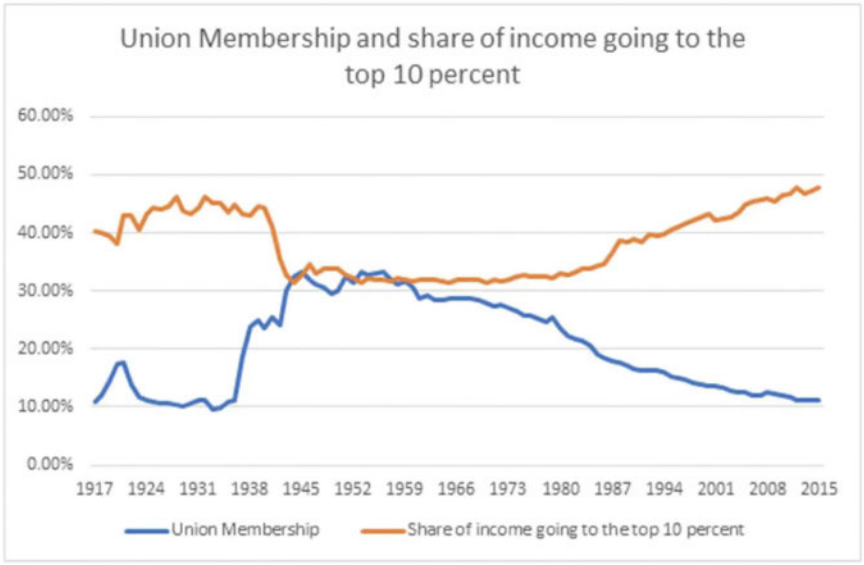

Figure 2: U. S. union membership (blue) and share of income going to the top 10 percent (orange), 1917–2015[18]

14. JOHN T. DUNLOP, U.S. DEP'T OF LABOR, U.S. DEP'T OF COM., FACT FINDING REPORT: COMMISSION ON THE FUTURE OF WORKER-MANAGEMENT RELATIONS (May 1994), *available at* https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1279&context=key_workplace.

15. News Release, U.S. Bureau of Labor Statistics, Union Members — 2019 (Jan. 22, 2020), https://www.bls.gov/news.release/pdf/union2.pdf.

16. Erin Duffin, *Civilian labor force in the United States from 1990 to 2019*, STATISTA (Jan. 30, 2020), https://www.statista.com/statistics/191750/civilian-labor-force-in-the-us-since-1990/.

17. News Release, U.S. Bureau of Labor Statistics, *supra* note 15.

18. Jaren Bernstein & Dean Baker, *Unions in the 21st Century A Potent Weapon Against Inequality*, WASH. POST (Sept 3, 2018), https://www.washingtonpost.com/news/posteverything/wp/2018/09/03/unions-in-the-21st-century-a-

Schmitt and Mitukiewicz found that one primary factor appears to explain much of the change in unionization: the broad national political environment. They concluded that national politics—and the implications of these politics for enforcement of laws, including the NLRA—are a more important determinant of trends in unionization than globalization or technological change.[19]

What are the implications of this? One implication is that economic insecurity and the specter of poverty that come with nonunion employment probably motivate millions of Americans to work under unsafe or exploitative conditions. Because of their otherwise precarious conditions, low-income workers, many people of color, and recent immigrants are the most at risk of exploitation and dangerous working conditions.

My third key idea is that it's very difficult for unorganized workers to protect themselves from on-the-job hazards; tens of thousands of workers continue to die each year in U.S. workplaces.

Unsafe workplace conditions continue to exact an enormous toll for American workers. About 5,000 workers are killed on the job each year from traumatic injuries caused by events such as falls, being struck by an object, electrocution, trench collapses, and so forth. Ten times this number, or about 53,000 people, die from diseases caused by exposures to hazardous substances on the job, such as asbestos, lead, silica, and industrial chemicals. There are about three-and-a-half million people who experience nonfatal, reportable injuries and illnesses each year on the job.[20]

These numbers, however, are grossly under-reported. The U.S. Centers for Disease Control and Prevention reported in 2016 that "[a]lthough deaths from work-related injuries are mostly captured by surveillance systems, most deaths from work-related illnesses are not."[21] At least two-thirds of workplace illnesses in the United States are not reported.[22]

The petrochemicals, toxic metals, industrial emissions, and industrial waste—which other speakers have talked about today—are a source for community exposures to contaminants in air, drinking water, soil, groundwater, and surfaces in homes and other buildings. They are also the source of hazardous *workplace* exposures in industrial processes, dangerous chemical products, and industrial waste streams. We have a common source and a common analysis.

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potent-weapon-against-inequality/ (citing Henry S. Farber et al., *Unions and Inequality over the Twentieth Century New Evidence from Survey Data*, Nat'l Bureau of Econ. Research, Working Paper No. 24587, 2018).

19. John Schmitt & Alexandra Mitukiewicz, *Politics Matter Changes in Unionization Rates in Rich Countries, 1960–2010*, CTR. FOR ECONOMIC AND POLICY RESEARCH 3 (Nov. 2011), https://cepr.net/documents/publications/unions-oecd-2011-11.pdf.

20. U.S. CTRS. FOR DISEASE CONTROL & PREVENTION, *Workers Memorial Day—April 28, 2017*, 66 MORBIDITY AND MORTALITY WEEKLY REPORT 417, 417 (Apr. 28, 2017).

21. U.S. CTRS. FOR DISEASE CONTROL & PREVENTION, *Workers Memorial Day*, 65 MORBIDITY AND MORTALITY WEEKLY REPORT 389, 389 (Apr. 22, 2016).

22. *Id.*

Chemical exposures recognize no boundaries. People are harmed in communities and in workplaces by the same kinds of hazardous substances.

My final key idea is this: if you end up working in regulatory policy, one of the most effective actions you can take is to give workers a voice in safety decision making, alongside management.

I will close with a case study—the Chevron refinery fire in Richmond, California. On August 6, 2012, the refinery experienced a catastrophic fire that resulted from a major failure in an 8-inch pipe carrying 640°F fuel oil from the refinery crude unit. When the fuel oil escaped through the pipe, a 100-square-meter flammable vapor cloud occurred, which ignited and nearly killed the nineteen workers who were attempting to correct the weakened pipe. Over the next forty-eight hours, the fire and its combustion products sent about fifteen thousand area residents to local health centers for respiratory complaints and other symptoms related to exposure to the smoke and other products of combustion, according to the U.S. Chemical Safety and Hazard Investigation Board.[23]

As a consequence of that incident, which was one of about 150 that occur every year in the United States in communities across the country, we formed the Refinery Action Collaborative under the aegis of the U.C. Berkeley Labor Occupational Health Program (LOHP), which is housed in the School of Public Health. On November 15, 2012, Local 5 of the United Steelworkers (which represents the Chevron refinery workers), the USW International Union, the EJ groups, Communities for a Better Environment and Asian Pacific Environmental Network, the BlueGreen Alliance, NRDC, and our staff at LOHP met to work out common objectives, which focused on protecting the safety and health of refinery workers and the community through new regulations.

Over the course of five years, the Refinery Action Collaborative worked with Cal/OSHA and Cal/EPA and the governor's office to redraft the state's industrial safety regulations that apply to petroleum refineries. Working with these agencies, the coalition played a key public interest role in transforming California's antiquated, 3,000-word 1992 regulation into a 24-part, 10,000-word modern regulation, known as *Process Safety Management (PSM) for Petroleum Refineries*, General Industry Safety Orders § 5189.1, which includes sweeping new engineering and management requirements. Cal/OSHA and Cal/EPA implemented the new regulation in 2017, and it remains in force today.

One of the foundations of the revised regulation is a groundbreaking requirement of refinery employers to involve at least one USW representative in every process safety decision made by managers in the state's refineries. One could argue that the regulation complements the NLRA by giving USW representatives the authority to participate in plant safety decisions, alongside

23. U.S. CHEM. SAFETY & HAZARD INVESTIGATION BD., REGULATORY REPORT: CHEVRON RICHMOND REFINERY PIPE RUPTURE AND FIRE 7 (OCT. 2014), *available at* https://www.csb.gov/chevron-refinery-fire/.

managers. Giving workers this authority is especially important in light of the hollowing out of OSHA at the federal and state levels that has occurred in the last decade.

I've talked with USW members who have since participated in meetings with managers over a serious process safety problem at a refinery, and, of course, these are not easy meetings. The Phillips 66 plant in Rodeo, in the north San Francisco Bay, is over one hundred years old, for example, and workers have never had the right to participate in a meeting with managers that has to do with the safety of the plant—of preventing major fires, explosions, and chemical releases. But with California's new PSM regulation, they now have this right, and with it, they are bringing a fresh perspective to management's decision-making table: one that focuses first on plant safety. Compared to managers, they are under much less pressure to consider economic factors, such as the function, price, and performance of crude stock, among other demands. In this way, these representatives of the workforce—and the regulation that empowers them to participate—are protecting the safety of thousands of refinery workers as well as millions of residents in surrounding communities.

California's refinery safety regulation is an inspiring legal document that brings safety to the fore in one of the nation's most dangerous industries. I recommend you take a look at the text[24] or the paper we presented at the national conference of the American Institute of Chemical Engineers in 2018.[25]

I hope I've been able to draw some connections for you between the labor and environmental movements and that I've been able to describe how—at least in the context of major industrial fires, explosions, and chemical releases—the goals of each movement are the same: protecting lives. I hope you have a chance to reach out to your brothers and sisters in the labor movement if you become involved in environmental justice or environmental struggles in your legal careers. And of course, please do not hesitate to contact me if I can be of support to you: mpwilson@berkeley.edu.

Thank you very much.

YANA GARCIA: Thank you to all our wonderful panelists. I just want to leave you all with a couple closing remarks. For everyone, but especially for those law students in the room, I hope that you gathered somewhat of a view of the diversity in perspectives and allies, stakeholders in this movement.

Take a look at the various components of what it takes to build some of the strategies that help us move forward in addressing some of the challenges that

24. CAL. OCCUPATIONAL SAFETY & HEALTH STANDARDS BD., OSHB-98(2/98), STANDARDS PRESENTATION (2017), *available at* https://www.dir.ca.gov/OSHSB/documents/Process-Safety-Management-for-Petroleum-Refineries-txtbrdconsider.pdf.

25. Michael P. Wilson et al., *California's 2017 Process Safety Management Regulations for Petroleum Refineries The Future of PSM in the United States?*, AICHE ENGAGE 1, (2018), https://engage.aiche.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=3a95bda3-e49e-4d49-99f7-ec7e58455b1a&ssopc=1.

are before us, whether dealing with our climate crises, dealing with health impacts, labor issues, issues to preserve indigenous rights and indigenous sovereignty. All of these perspectives are incredibly important: Honoring our ancestors—let us not forget to do that—working with stakeholders whom you may not otherwise think to reach out to and think about working with our scientists, working with our science community, building diverse coalitions across difference, building bridges, building your record, and thereby building your narrative. That will give you a winning case or a winning campaign.