



Dispatches From The Wild, Weird World Of Humanity And Its Biosphere

September 29 2021

United States

As Congressional negotiations towards a (hopefully!) climate action-heavy infrastructure package drag on, President Biden's administration is steadily working in the background to make environmental progress with executive action. Two new multi-agency actions started recently that will likely have long-lasting positive effects!



First, the Biden Administration is starting the process of creating the first-ever [national extreme heat protections for workers](#), starting work on new regulations with OSHA and other agencies that will prevent employers from forcing employees to work for too long or without breaks outdoors during extreme heat waves, as well as in ultra-hot environments like some warehouses or kitchens. They're also working on [lots of other helpful stuff](#), from funding and technical assistance for community "cooling centers" to improving data collection and communication on heat dangers.

This was long-needed workers' rights action anyway (there have been [384 heat-related deaths on the job since 2010](#) in the United States, many of them farmworkers) and also counts as "soft" climate adaptation, preparing our labor protection regulations for a hotter future.

Second, in line with the provisions of the international [Kigali amendment to the Montreal Protocol](#), Biden's EPA is [promulgating a new rule](#) that will slash emissions of [hydrofluorocarbons](#) (HFCs). HFCs were the compound that replaced ozone-destroying CFCs in the refrigerant field, and they did that well, but then turned out to be a fairly powerful greenhouse gas, making them a small but significant contributor to climate change after carbon dioxide and methane. (Don't worry-there are plenty of [replacement refrigerant compounds](#) already widely used). The EPA estimates that if HFC emissions continue illegally after its new limits, it'll be [roughly equivalent to keeping 22 coal plants up and running](#) per year, so it's making sure to collaborate with other agencies, like Customs and the Department of Justice, to make sure the new rule is enforced. Great news!

In sum, the environmental policy of the Biden Administration is just..*awesome*. It's full of people who actually care about these issues and are trying really hard to make life better for the American people, and they're quietly making progress day by day!

The state legislature of **California** just passed (and Governor Gavin Newsom signed into law) [three new bills which will make it much easier to build new, denser housing](#): allowing duplexes to be built in former single-family zoning, making it easier for cities to change their own zoning laws to let in more residents, and making it harder for cities to change their zones laws or hike building permit fees to close the door to new residents.

This may sound like an esoteric issue, but it's actually a [really big deal](#): building more and denser housing leads to shorter commutes, more walkable neighborhoods, and lower carbon emissions. And in California specifically, restrictive zoning laws near major cities have pushed a lot of new housing development out into the [wildland-urban interface](#), making lots of homes vulnerable to newly powerful wildfires.

On an even more macro level, there's also a [reasonable case to be made](#) that restrictive zoning laws near prosperous cities, and the resulting lack of housing opportunities, has contributed to a wide range of societal problems, from inequality to racial segregation to obesity. In sum, California's new pro-dense housing laws are great news!

Also from **California**: just before this newsletter was sent out, Governor Newsom also [signed](#) into law a [\\$15 billion package of 24 climate adaptation-related bills](#), including expanding water supplies for drought relief, funding strategic fuel breaks and other wildfire preparedness measures, and accelerating the transition to zero-emission vehicles. Superb!

And **Ford** has announced that they will be spending [\\$11.4 billion on new electric vehicle production](#) in the United States, including a new factory for electric pickup trucks in Tennessee and two battery manufacturing parks in Kentucky. Excellent!



Coral Science!



As this newsletter has often reported, coral reefs are having a really terrible century due to warming waters, ocean acidification, overfishing, and pollution. As a new meta-analysis found, [global coverage of living coral has declined by half since the 1950s](#). However, two new studies are offering glimmers of hope that some forms of coral reef may be able to

survive in the even hotter and more acidic waters expected by the end of the century.

One [hydrological research team discovered](#) that in the Twin Rocks area of the [Verde Island Passage](#), a coral reef-channel in the Philippines, carbon dioxide-infused groundwater is currently flowing upwards into the ocean. Not just a small amount of groundwater-large, consistent flows, that have over time [made the immediate area as acidic as the world's oceans might be by 2100](#), even under a worst-case scenario. And yet, corals were still growing there! And not just a few stragglers, either; the reef at Twin Rocks (pictured above) was [vibrant and healthy](#), with high fish biodiversity and abundance. This survival of a healthy reef is conditions far more acidic than those killing other coral around the world may be possible due to some as-yet-undiscovered evolutionary adaptations-and it can't hurt that the Twin Rocks reef is within a marine protected area, so it's not being fished or dredged around by humans. It's not at all clear what's going on here, and more research is definitely needed, but it's definitely a good sign that it's even *possible* to have healthy coral reefs in water that acidic. Fascinating news!

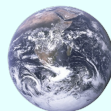
A second study [summarized the results of a really interesting experiment](#) conducted at a classic marine-science hub, the University of Hawaii. [Ten flow-through tanks](#) (pictured) were set up that pumped unfiltered seawater

directly from a real coral reef offshore into systems that were artificially heated up and acidified, to simulate likely future conditions. Each of those ten systems also had a few "starter" local fish and coral fragments deposited on settlement plates within it, to encourage the larvae and other tiny organisms in the seawater to stick around and grow as best they could



in the new conditions. After two years, the researchers used DNA metabarcoding to see what had survived-and they found that a *lot* of creatures had, from corals to fish to sponges, even many were more or less common than they would be in a "normal" reef. This despite the fact that a lot of studies of individual species have found terrifying collapses in similar future-conditions systems. As [lead researcher Molly Timmers put it](#), "Rather than the predicted collapse of biodiversity under ocean warming and acidification, we found significant changes in the relative abundance, but not the occurrence of species, resulting in a shuffling of coral reef community structure." One [current guess](#) is that the "cryptobiota," barely-studied tiny marine organisms that are essentially to coral reefs what insects are to forests, might be performing some kind of important stabilization role that doesn't show up when you study individual coral species in isolation.

So...*maybe*. Maybe, maybe, maybe. Maybe evolution will help corals adapt to these conditions faster than thought. Maybe the mass die-offs of coral reefs we've been seeing aren't an absolutely unavoidable consequence of acidification and warming, and can be avoided in reefs kept safe from other human disturbances. Earth is really complicated, and it's just possible that the demise of coral reefs isn't going to quite as all-encompassing as we've feared. Maybe we'll get really, really lucky, and if we're smart about marine conservation as well, some wild coral reefs will survive the oceans of the future, alongside those kept alive by constant human gardening or genetic engineering. Here's hoping-and let's continue all coral-aiding efforts and research!



UN General Assembly

In a [pleasant surprise](#), two major new climate action commitments came out of



the September 2021 UN General Assembly (*not* to be confused with the yearly UN climate change-specific conference, set for November 2021).

President Biden ([pictured](#), at the assembly) [announced](#) that the United States would double its funding of international

climate finance (helping poorer countries reduce their emissions and adapt to climate impacts, through global financial mechanisms like development banks) to [\\$11.4 billion per year by 2024](#).

And Chinese autocrat Xi Jinping make a simple but impactful [statement, translated as](#) “China will step up support for other developing countries in developing green and low-carbon energy and **will not build new coal-fired power projects abroad**” This is a great victory-China was one of the last holdouts [still funding](#) coal projects overseas.

Of course, China is still building out new coal domestically (although there's been some [interesting signs](#) of an accelerating transition there) but this is still superb news, [potentially directly affecting](#) 44 coal plants currently in line for Chinese funding in countries from Mongolia to Zimbabwe. It's also worth keeping in mind that Chinese investments in overseas coal were rapidly declining anyway, as the sector is becoming unprofitable due to the rise of cheap renewable energy. Still, it's excellent news, and yet another sign of the coming end of coal, the [worst](#) source of energy!



The Weekly Anthropocene

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