Chapter 15 - The Skies Above

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Goals? What Goals?

So, after decades of increasingly obvious man-made changes for the worse in our atmosphere from our uncontrolled burning of fossil fuels, a few extremely observant and prescient scientists began to notice the connection. This was back in the mid-1900's. Further study revealed the phenomena of greenhouse gases, and that they actually trapped the sun's heat as it was reflected back towards outer space, holding it within Earth's atmosphere and causing the atmosphere to gradually warm up. At first, the science was dismissed out of hand as speculative at least, alarmist at worst and certainly unproven, But then, as temperatures did indeed begin to increase, the science was proven to be correct and not just alarmist.

However, the fossil fuels industry preferred to continue business as usual, so that they could continue growing their wealth, even though it meant stealing the future for all life on the planet and destroying our climate. So, they hired some sleezy merchants of doubt,[1] of the same scummy ilk that cast doubt on the adverse impacts of smoking on health, to dupe the public into thinking all was just fine and dandy, no problem here. Since we humans just love burning fossil fuels, and are really good at filtering out what we don't want to hear and hearing what we do want to hear, we just kept on keeping on and ate the big corp baloney until we were choking on it.

What is COP26?

COP26 is the nickname for the 2021 United Nations Climate Change Conference, held in Glasgow, Scotland. It was the 26th Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC), the third meeting of the parties to the 2015 Paris Agreement (CMA3), and the 16th meeting of the parties to the Kyoto Protocol (CMP16). The Paris Agreement was negotiated at the UNCCC held near Paris, France in 2015, and includes 195 parties to date. Each party (all countries except the EU, which is a group of countries), are expected to commit to Nationally Determined Contributions (NDC's) towards reducing CO_2 emissions sufficiently to meet the temperature limit set by the IPCC.[3,4]

And, here we are. We are now killing our entire planet and all its life, including ourselves, without doing too much about it. In part because most of us have absolutely no clue how bad things really are. Mainly because it doesn't get much coverage in the media. Or at least not the absolute emergency coverage that it deserves, given that we're actually taking out our entire planet and, by extension, our own species. Just wow. A head-shaker for sure. Perhaps it's because the public finds sports and reality TV so much more interesting. Although it's fair to say that the increased storms, fires and destruction that's resulting from our collective complacency can be pretty interesting, it's more about the entertainment aspects that come from watching others suffer, and is rarely linked to fossil fuels or our own individual choices, if ever. It's pretty fascinating, if you think about it.

In 1988, the United Nations, evidently feeling some level of urgency around the matter, pulled together the Intergovernmental Panel on Climate Change (IPCC), with the goal of figuring out what to do

about it.[2] Ultimately, they settled on a goal of limiting the temperature increase from fossil fuels to 2 ºC (3.6 ºF), and preferably 1.5 ºC (2.7 ºF), with the global average pre-industrial temperature of 1850 to 1900, before it started increasing, as a baseline. The temperature increase of 1.5 ºC was based on extensive scientific analysis of the impacts of average global temperature increases on regional maximum temperatures and numbers of days when extreme deadly temperatures are reached. About 420 million fewer people would face extreme heat waves, and the number of plants and animals that would face habitat loss would be reduced by half, including some of the coral reefs.[5] The long-term limitation of 2 ºC is more of a compromise, since at this point we're unlikely to meet the original goal.

Sadly, at this point, it doesn't look the collective NDC's of the parties will limit the temperature increase, which is getting passed up as I write this. My own take on all this is that governments do not and never will have the will or the balls necessary to limit global warming. This is because the fox is already in the hen house, if you will, meaning that the government leadership is supported mainly by big corporations and ultra-wealthy entities who pay the politicians to keep their sorry greedy selves rich, never mind the planet or the rest of us. The pathetic reality is that anything governments do will be limited to greenwashing, just like big corps do, a little of this and a little of that, playing up the small insignificant wins while playing down the massive dark dirty secret realities underlying it all, without ever making a real difference.

What it gets down to is, if we want to save our earth, we're going to have to do it ourselves. We're going to have to grow up, get past the complacency and take matters into our own hands. It's entirely up to us, at the end of the day. We have to each reduce our carbon footprints significantly and commit to families of two or fewer children. Reducing our carbon footprint by definition means using less fossil fuel, which would in theory drive the ultra-wealthy scumbags that are responsible for this out of business. And a huge part of that is not buying stuff we don't need. Which should be simple. Think about that. You can make decisions every day that save you money and save the planet.

The latest update on COP26 shows that, per the commitments of all the parties combined, we can expect to see an ***increase*** in global CO_2 emissions of 13.7% by 2030, compared to 2010.[6] Ouch. This is pretty hopeless, considering that we need at least a 25% ***reduction*** in emissions just to keep the temperature increase below 2 ºC, and we need an even bigger reduction, of 45%, to keep the temperature within the 1.5 ºC limit. Does it look like global governments are going to get this done? After working on it for the past 10 years and accomplishing nothing? Nope, I don't think so either.

It utterly fascinates me that there's absolutely no mention whatsoever of the importance of reining in human population growth as a key underlying issue to be addressed if we want to reduce CO_2 emissions for reals in the entire Paris agreement.[7] Nothing. Not one word. In 25 pages of text. Seriously. I guess they're leaving it up to individual countries on exactly how to reduce their emissions, with or without population control. That, and the fact that there are no set expectations probably explain why this isn't saving the day. One thing the Paris Agreement does seem to have going for it is reporting of annual CO_2 emissions by country, although you probably have to take that with a grain of salt, too. Though I guess it's better than nothing to at least have some data. Or it might be worse. My boss Gordon used to say, "Bad data is worse than no data". Anyway, it's all we have, so I use it, for better or worse.

The most recent UN climate report states that global warming has already become irreversible. Climate change is already accelerating and intensifying, and is impacting every region on the globe. At

this point, the 1.5 ºC limit is being passed sooner than originally expected, which means at least some of the countries under the Paris Agreement are most likely underreporting. Even under the lowest emissions scenario, the planet is expected to warm by 2.7 ºC in just the next 20 years. Talk about blowing the deadline. And to think I felt bad about blowing the deadline on that compressor project! Yeesh. And the warming won't reduce for millions of years, which means it will last longer even than nuclear waste. That's when you know it's bad.

Uptick

As if things weren't scary enough, it looks like science actually underestimated the actual rate of global warming, which is understandable, since we severely lack true life experience on this particular issue and how it actually plays out. Like all science, the science of global warming is unfolding before our eyes, and each day something new is learned, and then followed up on, leading to yet more discoveries. Sort of like the PFAS thing in the previous chapter. Or Einstein's theory of relatively. Only different.

When it comes to global warming, I guess it's not really a surprise that the permafrost in the Arctic is now melting, but the actual quantity of CO_2 that's locked in said permafrost is a relatively recent consideration. It turns out that a whopping 1600 gigatons (yes, this is in units of 10^9 tons) is locked in the permafrost, which is about twice as much as what's currently in the atmosphere, about 870 gigatons.[8] And, to make it even worse, it's melting at unexpectedly rapid rates, as scientists are discovering destabilized landscapes where permafrost that was thawing at a few inches per year is now suddenly thawing abruptly at 10 feet per year. Is that freaking scary or what? I mean, really? It sort of flies in the face of the alarmist climate sensationalism promoted by climate deniers. Dontcha think? And, adding to the joy of it all, streams in Alaska are taking on a rusty orange tint, from release of minerals and mercury from the melting permafrost. Oh no! Now we have yet more death to wildlife, in the form of yet more toxins and interference with spawning.

Part of the reason that climate models have underestimated the increasing rate of global warming is that the scientists didn't know about things like the warming in the Arctic ocean, that's been going on since the early 1900's.[9] Since 1979, the sea ice has been receding at about 12% per decade, and now it's accelerating.[10] The warming air and surrounding water is also increasing the rate of melting of the Greenland ice sheet,[11] and the thinning ice sheets are leading to a vicious cycle in which the water underneath the glaciers is increasing and flowing into the oceans, as well as lubricating the bottoms of the glaciers creating a lubrication effect so that they slide into the oceans faster. They're also finding that there might be twice as much subglacial water as previously thought.[12]

The climate is now changing so fast on our planet that we're approaching at least five tipping points that are likely irreversible.[13] These include:

- Melting of Greenland Ice Sheet
- Melting of Antarctic Ice Sheets
- The death of coral reefs
- Thawing of Permafrost

> Harmful tipping points in the natural world pose some of the gravest threats faced by humanity. Their triggering will severely damage our planet's life-support systems and threaten the stability of our societies.[13]

- Changes to a North Atlantic ocean current.

The air temperatures towards the poles are increasing faster than the rest of the planet, with the average air temperatures in parts of Norway higher by 7 ºF compared to 50 years ago. Some parts of the country barely drop below freezing in winter, and extreme heat waves for that part of the world are melting permafrost and ice caps faster than ever.[14] On the other end of the globe, the southern Antarctic Filchner-Ronne ice shelf is losing stability because of warm water, and is very likely to lose it in the near future.[15] Now that the ice is melting in the north, big shipping companies are of course taking advantage, making things worse for wildlife by increasing shipping through newly thawed zones.[16] So much for the last refuge on the planet.

And, the ice melt isn't restricted to the poles. Glaciers are also receding in the Andes, causing dangerous landslides and floods while threatening the high alpine environment, ecosystems and water supplies that depend on glacial melt during dry seasons. Receding glaciers have caused more than 12,000 deaths from over 1,300 glacial lake outburst floods in 2016, and currently 15 million people are exposed and at risk.[17] In Glacier National Park, climate change has reduced the number of glaciers from 150 in 1850 to 26 today.

<u>And The Deaths Begin</u>

As I mentioned in Chapter 6, if we don't control our population kindly and gently and with purpose, the planet will do it for us, and it probably won't be kind and gentle. Actually, it's already started. And it's not kind and gentle. In the summer of 2003, more than 20 years ago, it was already starting with a heat wave across Europe that caused eight straight days of highs above 104 ºF in France, killing more than 15,000 people from heat stroke, and more than 20,000 in Italy. There were more than 70,000 deaths in all of Europe.[18] I'm not aware of the numbers for wildlife deaths, but I'm sure that was significant as well. And, compared to what's coming, eight days isn't very long. If we continue to spew ever more CO_2 into the atmosphere, heat waves will become ever longer and hot days will become ever hotter. I mean, what can we expect? That's pretty much, duh. Ya think?

The past ten years have been the hottest on record, and in the Southwestern U.S., days with triple-digit temperatures are arriving weeks sooner, and continuing weeks later than they did 100 years ago. Major heat waves have hit Europe five times since 2003, and the hottest day in France was 114.8 ºF. How's that for hot? Hell, that's almost hot enough to melt plastic film. Us humans can only tolerate so much heat, and when huge regions on our planet are rapidly increasing toward higher temperatures and humidity, we can no longer sweat fast enough to avoid overheating, so we croak. It's as simple as that. If we fail to cut our horrendous emissions, the heat deaths in the U.S. will be well over 100,000 annually by 2100, and in India it will be more like 1.5 million. And obviously the same is true for wildlife.

So, we'll have billions of people trying to migrate to cooler climates at the 11th hour when there's no room for them there, either. And don't think air conditioning is going to save the day. We already consume 8.5% of global electricity on AC as it is, and there's no freaking way we can accommodate all that AC as the heat spreads over the globe like a black cancer, which would

"Climate change and antibiotic resistance are two of the biggest health issues of our time," Pamela Yeh, Evolutionary Biologist

double or triple the demand for AC. Hello? We'll run out of fossil fuel long before the planet is too hot to live on if we try. Does it feel like we're backing ourselves into a corner here? It does to me. Think about that.

While the direct impact of heat is an obvious problem, it's just one of many. The high temperatures are also allowing disease vectors like tics and mosquitoes to spread into areas where they previously couldn't survive.[19] Mosquito season is also extending later into fall, which obviously increases the risk of mosquito-borne diseases like West Nile virus, malaria, dengue fever and eastern equine encephalitis.

In New York, mosquitoes carrying equine encephalitis were found in 15 New York counties, compared with 3 or 4 counties historically, and one person died of it. Now officials are recommending preventive measures including insect repellents, removing standing water and wearing long-sleeved shirts. So now we're back to non-discriminately poisoning habitats to save our sorry selves when we are to blame for the problem. Could we at least stick with wearing long-sleeved shirts, removing standing water (eg gutters, buckets and such, ***NOT PONDS AND WETLANDS THAT OTHER WILDLIFE NEED***) and slathering on some DEET-free insect repellent, or wearing a face net when outside? Evidently not in today's world, where it's all about us and our comfort and convenience. It's just so much easier to let somebody else spray the daylights out of the habitat that wildlife needs. After all, they're only the wildlife. Again, if we continue with this kind of God mentality we're going to take out the last scraps of wildlife that are left, along with our own race.

The higher temperatures and heavier rainfalls are also encouraging bacterial growth, which is probably more of a problem at this point than the mosquitoes, but that's just me. Floods are leading to more sewage overflows that leak into homes and drinking water sources, such as lakes and rivers, yet another example of why we really need to maintain our utility infrastructure. In 2022, 26 countries reported cholera outbreaks in the first nine months of 2022, compared to less than 20 historically, so we can expect more of that, and more diseases going forward. Currently deaths are estimated at 20,000 to 140,000 annually.[20]

Atlantis Here We Come

In the past 100 years, sea level has risen 6 – 8 inches[21] because the world's glaciers are melting from the poles to the mountains. Just since 2000, the glaciers have released more than 5.3 trillion metric tons of water into the oceans.[22] Does that sound like a lot? It is. Even on a global scale, it's a lot. And now we can expect at least another 5 inches by 2100 if we continue our current behaviors. If we applied some reasonable level of urgency to reducing our carbon footprints, we could potentially reduce this by half. Which would be nice, since about 900 million people live in low-lying coastal cities, all of which are being impacted.

We're already to a point where cities are trying to figure out what to do about losses of coastal real estate. Move inland and rebuild? Build seawalls? That are expensive and never work? Leave? I imagine the answer will be some combination of the above, and more. There are even a few common sense concepts of restoring the natural coastal wetlands that we epically messed up to begin with, since the planet had provided them not only as an important refuge for all manner of wildlife, but also to

protect coastlines from erosion. That, in my own opinion, would be the most effective solution, at least for now. We can certainly expect mass migrations as humanity moves inland, which will likely lead to yet more conflict as people fight over land and water rights. Oh, and naturally, more construction that will exacerbate the warming even more.

Even scarier, scientists have found that melting ice in the Antarctic could slow down the water circulation in the ocean's deeper parts, which would in turn slow down the overturning circulation around Antarctica and accelerate global warming and sea level rise even more.[23] This is an example of what is meant by the term "tipping point". With the acceleration of glacial melt, one study from U.S. geological survey and Virginia Tech is predicting a worst-case scenario of up to a meter of sea level rise on the Southeast Atlantic coast, which would displace about 14 million people and lose about $1 trillion worth of property by 2100.[24] I wonder how many people who live there even know about this possibility? And if they do, how do they react? Do they even care? Is it too far into the future to fathom? When it will be their children's or grandchildren's problem? Do they roll their eyes and blow it off as silly nonsense? Or are they looking to move inland before prices skyrocket? Of course, under these apocalyptic predictions, most of humanity would likely be gone along with the wildlife by then anyway, if we continue with our blatant recklessness. Getting back to the present, extreme weather is driving up insurance costs, as well as construction costs to repair damage from storms and sea level rise, realities that are hard to ignore.

The reality is, when we see these directional predictions of future conditions, it's happening now, and moving in that direction. I mean, we're not going to have current conditions for the next 75 years and then suddenly sea level is 1 meter higher. It will be increasing during the entire time period, until it reaches a meter, and then will continue to rise, if there are any glaciers left to melt. And, we're not talking about an absolute number here. With just 4 – 6 inches of sea level rise that we already have, beach erosion, inland flooding, saltwater intrusion, subsidence and rising groundwater are already creating severe problems in coastal regions. Saltwater intrusion into previously fresh groundwater is impacting water supplies and killing forests from the U.S. Atlantic seaboard to the Amazon. More than half of Florida's beaches, about 400 miles of coastline, are severely eroded, according to the Florida Department of Environmental Protection.

As storms get more extreme, flooding further and further inland will continue to increase in severity and frequency, and studies are finding that the moon's cycles are intensifying regular everyday waves and exacerbating high tide flooding, leading to yet more erosion. Do ya think this is a great time to buy coastal real estate? I don't. I mean, wouldn't that be just plain old-fashioned common sense? Yet, we seem to be so dumbed down and ignorant of what's going on that coastal cities continue to grow worldwide. And, even worse, areas that are more prone to flooding are growing the

fastest. All I can say is, wow. Our descendants are going to look back and be absolutely astounded at how stupid we are. Unless they're even more dumbed-down than we are. They may be waking up a bit by then, because all the fossil fuels that we're making the plastics and toxins from will probably be used up by then. Which in turn means there won't be too many of us around either. Anyway. I digress.

In the U.S., 32 coastal cities are at risk of flooding out completely by 2050, just 25 years from now, and Florida and southeastern states will be hit the worst.[25] From Miami to Boston, Galveston to Houston on up to Richmond, California. Didn't Little Feat do a song about that? No, that was trucking. Never mind. Back to flooding. All will be drowned. Under water. Gone. Like Atlantis. Only with continents still attached. Mostly. And, idiotic purchases of land in flood-risk areas is beginning to take a toll in the form of higher insurance rates and lower property values, so somebody's paying attention, even if it's not the general public. Of course, big corp is really good at exploiting humanity and the planet given expected scenarios and, since insurance is definitely big corp, I guess they can be expected to keep an eye on what's really going on, as the general public continues to allow themselves to be duped. Next time you think cheap coastal land is a bargain, you might want to think again. Florida will be the first to drown, at least in the U.S., given that most of the residents live within 60 miles of the state's 1200 miles of coastland.

And, as New York and Miami have learned the hard way from the severe impacts of hurricanes Ida and Irma, higher seas are doing a number on utility infrastructure, which is in woeful disrepair thanks to decades of neglect by the federal and local governments. Irma essentially trashed Florida's mangroves, the last remnant of defense against rising seas. Now, at the 11th hour, cities are starting the pay attention and fix things and work on mitigation plans. Problem is, nature is a powerful thing, and we've pissed her off royally at this point, so the idea of protecting overpopulated cities that don't belong anywhere near seashores just seems laughable. We can throw all the money we want at it, but it ain't gonna work. You'd think that by now we'd know that when we butt heads with Nature, she's gonna win every single time. And she's still winning.

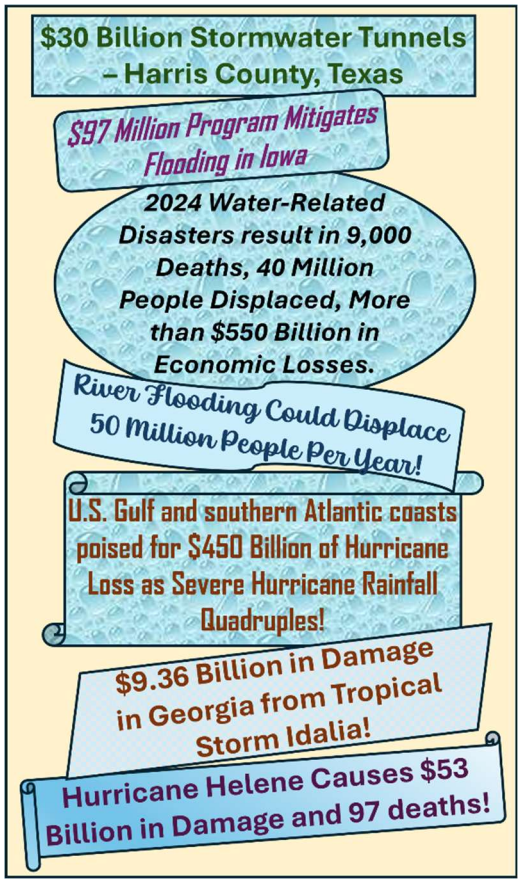
For one thing, building seawalls doesn't get rid of the rising water, it just diverts it somewhere else. Hello? Wouldn't that be something about physics and path of least resistance? Do you remember anything about that from 7th grade science class? For another, seawater is infiltrating from below as well, raising water tables that are already high even higher, while contaminating once-fresh groundwater with sea salt and turning it into seawater. As well as pushing up nasty toxins that were buried long ago, that seemed deep enough at the time, into the ground water.[26] And those are just a few things I can think of. There's probably more. There always is. At any rate, there's not really a whole lot that we can do with money and technology here. About the only thing we can do going forward is learn our lessons and learn them well. We need to reduce population and reduce carbon footprint. And don't build by the coasts for the next couple millennia or so. If ever.

It seems like big plans to throw money at saving cities abound these days. Italy is considering building a wall around historic Venice, which is also sinking. Good luck with that. Wouldn't it be so much cheaper and easier to stop the bleeding? Stop the CO_2? While we still have time? Think about that.

How's the Weather?

I'm assuming that most of us have noticed some differences in the weather patterns here on planet Earth. After all, unlike basic common-sense climate issues that should be addressed immediately and with an extreme level of urgency on a daily if not hourly basis, the media is really good about sensationalizing extreme weather events. All the death, destruction and drama, who can resist? We don't miss much about the extreme tornado seasons, the extreme hurricanes, the atmospheric rivers, heavy rains, flooding and landslides. We even hear a little about extreme droughts, but not as much as all the other stuff with all that excitement and entertainment as we find ourselves drawn like a magnet and glued to TV screens or our phones, checking out the cool pictures of upside down houses and submerged vehicles. Sometimes all this death and destruction even gets linked to climate, and the idea that we're seeing more and extreme weather all the time because of climate change, and that it's not our imagination. Sometimes, but not always. That depends on your choice of media. At this point, climate change is impacting 80% of global cities, and that number will only grow.

The reality is that we are indeed seeing more extreme weather, and it's definitely linked to climate change caused by us humans. The fact is, warmer air holds more moisture, and water is also a greenhouse gas, so increasing water in the atmosphere is amplifying the effects of all the other greenhouse gases and accelerating global warming. Something like a runaway nuclear reactor. This is why extreme weather events are happening more and more often, and this trend of increased intensity and higher frequency will continue to increase throughout the rest of our lives on this planet. This will be true of every single one of us, human, animal and plant alike, other than a few trees that might manage to survive for more than 200 years. Most of us will be long gone, and by the time things begin to turn around, if they ever do, our species and most others on this planet will be severely depleted in population. Hopefully, we'll have long learned to live in balance with our precious planet. If not, we'll be endangered or extinct. In just 200 years. I guess at least we won't have to wait for the comet or the sun to go supernova.



The point of this discussion of our CO_2 on weather is to move through the proof that we're really wasting our planet for reals, so that we can hopefully be motivated to start actually doing something about it. The weather is real. It's not theoretical, or something that might happen in the future. It's something that's happening ***now***, it's impacting our planet ***now***, it's impacting people and wildlife, and it's going to ***get worse***. And it's ***our fault***. It's just amazing what a little bitty molecule of heat-retaining gas can do to an entire planet. And, it's amazing how much power there is in the air when that molecule gets too plentiful. And how that power can completely mess up the land and sea and everything living on or in them. If you're not convinced from the news, read on. If you're not convinced after this, then I give up. You're beyond hope.

These days, you don't have to be in a coastal city to experience high waters. Inland floods from extreme weather events are increasing, and the infrastructure that we've created to mitigate flooding is not holding up, as we lose ground to nature's fury. From California to New York to Las Vegas to Uganda, people are dying and being displaced by the thousands and property is being destroyed, to the tune of billions of dollars as 8 – 10 inches of rain are falling in a single day. Think about that. Buckets of water pouring out of the sky so fast that you can't see the destruction, all you can see is water, until it's over. As climate change makes atmospheric rivers more intense, the cost in the Western U.S. alone is expected to reach $3.2 billion in damages per year by the end of the century as floods triple.[27] In the Midwest, the increasingly massive water volumes carrying toxins and nutrients and microplastics and sediment off the big corp megafarms are making the dead zone in the gulf of Mexico grow faster than ever.

And we're throwing money at flood mitigation as though we're never gonna run out, just like we do with our limited resources. I mean $10 billion? Really? And, consider that these are massive construction projects, that consume massive amounts of resources and use massive amounts of energy to do. You have to wonder, is the amount of money we're coughing up in the form of our tax dollars to mitigate all this destruction greater than or less than the amount of money the big corps have made as a result of encouraging us to spew as much carbon as possible to keep their profits growing? It's almost as if big corp is purposely encouraging us to keep doing the wrong things so they can keep making money to mitigate the disasters. How's that for a conspiracy theory? Wouldn't it be just so much easier to just stop spewing the CO_2? Of course, there'd likely be less entertaining destruction to mesmerize us on T.V., but still.

Hurricanes are getting so bad that climatologists are arguing for another category, the latest and greatest "Category 6" storm.[28] The one foot rise in east coast sea level in the past hundred years may not seem like much, but it's estimated that the damage from hurricane Ian was $50 billion more than it would have been without the higher sea level. In addition to the obvious damage to property, Ian also caused a spike in nutrient pollution from the Caloosahatchee River that's leading to red tide outbreaks that are killing the sea grass that the manatees depend on, leading to loss of manatees. This is why 719 manatees were found dead in Florida waters in 2022.

Of course, the actual heat itself is killing people and wildlife, in addition to jacking up global weather generally. Again, it's not really all that sensational from a media standpoint if somebody dies of heat stroke or just croaks in their home, especially if they're old, and no federal agency is bothering to track people dying from heat. The Centers for Disease Control and Prevention estimates that at least 700 people per year die from heat in the U.S.,[29] yet a more detailed analysis published by GeoHealth estimates that up to 12,000 people die annually from heat stroke.[30] Yet, even with the lower number of 700, that's still more deaths from heat than from any other weather hazard, including hurricanes, tornados, floods and wildfires.

Severe drought across the globe is hurting agriculture and killing aquatic species as reservoirs and rivers dry up, including the Danube, the Po, the Rhine and the Thames, in the worst drought in 500 years. Drought in the Amazon (yes, THE Amazon) is pushing the entire ecosystem over a tipping point as I write this. Rainfall is steadily decreasing in the U.S. Southwest, leading to predictions of a snowless future, even in the mountains. So much for ski season.

Obviously, there's no time to lose here. Each and every one of us can change the terrible path we've put our planet on, but we have to do it now. Following chapters will dig into the specific impacts of our choices and changes that we can easily make to put a stop to increased CO_2e emissions and help our planet. I hope you take it to heart and take some action to help turn this mess around, as best we can at this point.