

Bullet points for January 29th discussion on “global weirding:
{Version Jan. 29, 2023}

Did you know that...

Biodiversity:

- Salmon are literally being cooked by hotter spawning streams *(LAC)*
- 65% of insects will go extinct due to climate change. *(LAC)*
- Almost half of life on earth is some type of parasite, and they play an important role in the food chain. A Puget Sound study has found that many parasites are disappearing due to climate change, and this could have far-reaching consequences for ecosystems and biodiversity. *(KHN 01/19/23)*
- It's estimated that biodiversity loss could double under an additional ½ degree of warming *(WTBD)*

Global/International:

- Poorest countries are most impacted by climate change. *(LAC)*
- This past year (2022), 30 million Pakistani's impacted by flooding exacerbated by climate change. *(LAC)*
- Income gap (GDP) between rich and poor countries has increased by 25% since the 1960's. *(LAC)*
- Around the world today, the fastest growing type of new energy is solar. *(TED)*
- In China where clean energy and air quality is essential to powering its future, they are investing hundreds of billions of dollars in clean energy – including flooding coal mines and putting floating solar panels on the surface. *(TED)*
- The UN has said that climate change threatens to undo the last 50 years of development in global health and poverty reduction *(HTTACC)*
- India is replacing a quarter billion incandescent light bulbs with LEDs which will save them 7 billion dollars in energy costs; and they're looking to decarbonize the entire vehicle fleet. *(TED)*
- With a 2-degree temperature rise the GDP of many poor countries will drop by 5-10%. With a 4-degree rise, the global GDP drop would be 20%. *(WTBD)*
- Over 70% of new energy being installed around the world today is clean energy, and most of that is in the poorest countries where they don't have the money to build power infrastructure. *(HTTACC)*
- Countries like Sweden with high carbon prices and strict regulations continue to have strong economies. It's estimated that the clean tech economy could grow to nearly \$3 Trillion. *(OC)*

Weather/Disasters:

- 90% of extra heat being generated due to global warming goes into the ocean, where it fuels more frequent and more intense hurricanes. *(LAC)*
- Warmer atmosphere holds more water as vapor, so when it rains the rains are heavier and more prolonged, leading to more intense flooding. *(LAC)*
- Extreme events were averaging every 4 months in the 1980's, now in 2010's occur every 3 weeks. *(LAC)*

Drought/Fires:

- More heat creates more evaporation, drying the land creating drought, and carrying the water vapor to other areas where rains are heavier. *(LAC)*
- Wildfires are more frequent and more extreme, as human accidents (lit match, burning debris, camp fires) encounter more combustible fuels. *(LAC)*

Science/Health:

- It's been more than 160 years (since the 1850s) since scientists first discovered that digging up and burning coal and oil is producing heat-trapping gases that is wrapping an extra blanket around the planet *(TED)*
- The World Health Organization (WHO) and several medical journals have cited climate change as the greatest threat to global public health, and that's why Harvard Medical School announced in Jan 23 that they will now include climate change impacts on health in all 4 years of its curriculum. (hms.harvard.edu)
- The long-term average temperature of the planet is as stable as that of a human body – and when that increases by 1.5C or 3F it means we have a fever and we need attention to re-stabilize it. The earth is running a fever and it's caused by our lifestyle choices – $\frac{3}{4}$ caused by burning fossil fuels and $\frac{1}{4}$ caused by deforestation and agriculture. *(WTBD)*
- The rate of extra joules of energy being added to the planet is equivalent to 4 Hiroshima bombs per second. *(WTBD)*
- As the average temperature ticks up, so do heat waves, heavy precipitation events, the area burned by wildfire, coastal flooding events, and economic costs. So the more carbon we produce, the greater temperature change we'll see, and the greater the damages. *(WTBD)*
- Burning fossil fuels is already responsible for the air pollution currently killing over 4 million people per year, including 200,000 in the US. Every degree of warming will make

air pollution worse, with an estimated additional 150 million deaths if the world warms to 2 degrees instead of 1.5. *(WTBD)*

- Scientists have calculated that for every 1 degree warming we can expect 3-10% increase in rainfall during heaviest events, 5-15% reduction in the yield of major crops, and a 200-400% increase in the area burned by wildfire across the western US. (The area in the US SW burned by wildfires today has almost doubled since the 1980s due to climate change.) *(WTBD)*
- If the world warms by 1.5 degrees (as it almost certainly will), the melting Arctic permafrost will release between 70 – 500 Gigatons of carbon (methane). *(OC)*

US Specific:

- In Texas, there's over 25,000 jobs in the wind energy industry, and in 2018 the state was up to 20% of energy from renewable sources *(TED)*
- Ford Hood, the largest army base in the US is powered by wind and solar energy, saving taxpayers \$150M. *(TED)*
- According to the US Bureau of Labor in 2019, the fastest growing job for the previous 4 years in a row is Wind Energy Technician. *(HTTACC)*
- Extreme weather fueled by climate change cost the US \$165 Billion in 2022. There were 18 separate disasters with a cost of more than \$1B each. *(NOAA)*
- Between 2016 and 2022 the US experienced 122 separate billion-dollar disasters that killed at least 5,000 people. *(NOAA)*

Canada

- With only 0.05% of the global population, Canada currently accounts for 2% of the annual global emissions. But the total contribution since 1900 puts Canada as the 10th highest country in the world. *(OC)*
- It's estimated that in the last 20 years pine beetles, newly migrated to a warmer Canada, have destroyed almost 60% of the sellable pine in British Columbia. *(OC)*
- According to Natural Resources Canada, even though Canada has huge forested areas that act as a carbon sink, but that annual uptake averages only 10% of what our emissions are. *(OC)*
- The 4 provinces whose economy grew fastest in 2017 were the same 4 provinces who have a price on carbon. *(OC)*

Lifestyle Choices (all from IJOP, Feb 2017):

- First step is the easiest – use a carbon calculator to figure out where your emissions are coming from, since everyone’s different
- Many climate-friendly steps we can take in our everyday life, and most will save us money.
- Washing clothes in hot water uses 5 times more energy than in cold water.
- Switching from incandescent to LED light bulbs can cut lighting emissions up to 85% .
- If everyone in America switched just one incandescent bulb for an LED one, that would be like taking almost 800,000 cars off the road.
- If every new US appliance purchased had an Energy Star rating, it would be the equivalent of taking 350,000 cars off the road.
- Installing a programmable thermostat can lower your energy bills and emissions by 15%.
- Our personal choices control about 40% of carbon emissions, so the most important thing we can do is let our elected representatives know that we want them to address climate change. (Citizens Climate Lobby can help.)

Table of Sources:

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| <i>HTTACC</i> | <i>How to Talk About Climate Change at Thanksgiving Dinner, Nov 2919, YouTube.</i> |
| <i>IJOP</i> | <i>I’m just one person, what can I do? (Globalweirdingseries.com)</i> |
| <i>KHN</i> | Katharine Hayhoe Newsletter (sign up at katharinehayhoe.com) |
| <i>LAC</i> | Katharine Hayhoe video, <i>Loving All God’s Creation</i> . Nov 30/22, BYU |
| <i>NOAA</i> | US National Oceanic and Atmospheric Agency, Jan 10 2023, as reported in npr.org . |
| <i>OC</i> | <i>O Canada</i> , Feb 2019.(GlobalWeirdingSeries.com) |
| <i>TED</i> | Katharine Hayhoe TED talk, Dec 2018 |
| <i>WTBD</i> | <i>What’s the Big Deal with a Few Degrees?</i> March 2019. (Globalweirdingseries.com) |