

## OPINIONS

**River Right | Big numbers!**

BY TOM CARSTENS

*It's clearly a budget. It's got a lot of numbers in it.* —George W. Bush.

The combination of big snowmelt and big rain has meant that all our rivers have big water. River flows are measured in cubic feet per second (CFS); these numbers are also big right now. The folks I paddle with study these numbers. You could call it “risk-budgeting.” Little kayaks on big, roiling water can make for interesting trips.

It is budget time and that brings another set of big numbers. Federal, state, county—everyone’s trying to match needs with resources. Well, the feds, not so much—they can spend without regard for income in spite of being over \$20 trillion in the hole. It’s hard to wrap my head around that number, which comes out to over \$61,000 of debt for every American. Not sure how that’ll be repaid. At least, by law, Oregon’s state and local governments must balance their budgets.

Our legislature has been trying to work out a \$1.6 billion shortfall in projected revenues. The Democrats want to raise taxes. They contort themselves into framing income redistribution schemes that make it seem like someone else will be

paying the tab. But they don’t fool most of us—in the end, we know who pays the tab. Beleaguered, Republicans are suggesting we try cutting some spending.

Last February, the joint Senate-House Committee on Ways and Means held a series of meetings throughout the state to gather public input on what to do. Did you attend the one in Ashland? Even though speakers were limited to two minutes each, it was a full three-hour parade of sacred cows competing to spare the knife. I brought up the uncomfortable fact that the state actually has an unfunded liability of around \$22 billion (and growing), mostly due to future Public Employees Retirement System (PERS) pension obligations. That full amount is not yet a deficit on today’s balance sheet, but it does represent promises for which we have no idea how we’ll pay.

Not really understanding how big that number is, I worked out that 22 billion seconds ago or 697 years is the year 1320, which is 172 years before Columbus first set sail. And the world was still flat! Put another way, that’s over \$5,000 per Oregonian. It’s so much money that our

legislators don’t really have a clue how they’re going to deal with it. Out of around 4,400 bills presented this session, not one addresses this.

Give credit to our own Senator Alan DeBoer. He’s about the only guy in Salem actually looking for solutions to this huge problem. He thinks the PERS unfunded liability will eventually reach \$50 billion if we don’t act. Now, that’s a wow.

Among other things, he’s tinkering around with individual and corporate taxes to try to get at the “unfunded” part. He should be careful: we don’t want to look like Illinois, breathlessly trying to tax our way out of financial difficulty while citizens and businesses scurry off to states with more favorable tax climates. Think of it as the “self-draining swamp effect.”

Sooner rather than later, we’re going to have to look directly at the “liability” part, i.e. the lopsided contract the public employee has with the taxpayer. That’s going to take some political courage and leadership. Without it, we’re going to see some real pain. All those sacred cows could be headed for the slaughterhouse. We’re already seeing consequential cuts to local



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school budgets. (Why do schools always seem to be the first to get the ax?)

Meanwhile, DeBoer is also looking at how the state could relieve the PERS liability from local governments. A significant percentage of our two county payrolls is encumbered by pension costs. Josephine County tries to work in these costs up front with each new hire, but it’s hard to project; legislative relief will be needed to address the spiraling pressure. Jackson County maintains a “rainy day” fund, but the county can’t keep this up forever—PERS will someday “eat our lunch,” says the county administrator.

At least we can take some budget comfort here in the valley. Our Applegate Valley Fire District is one public entity that provides great support at a bargain-basement price. Small numbers, zero drama, big payback. Maybe we ought to put those guys in charge.

See you on the river...but watch those numbers!

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**Global warming and sustainable agriculture**

BY RAY SEIDLER, PHD

“Climate change” is the long-term trend in the Earth’s climate (changes in temperature, wind, precipitation, strength and frequency of extreme weather events). “Global warming” refers to the increase in Earth’s average surface temperature due to increased concentrations of greenhouse gases (GHG). “Sustainable agricultural practices” are farming techniques that protect the environment, soil health and productivity, and public health, human communities, and animal welfare.

How does all this come together?

A lot of Applegate Valley agriculture is known to involve sustainable and near-sustainable agricultural practices. These practices protect neighbors, use few if any toxic synthetic pesticides, and attract more consumers who seek foods, plants, and “vine imbibes” with enhanced health and nutritional properties.

Climate models suggest that global warming from the release of greenhouse gases (carbon dioxide, methane, and nitrous oxide) will change everything about our future agriculture industry.

The graph shows temperature trends anticipated for Jackson County, including

the Applegate area, through the year 2100 based on mathematical modeling conducted by US Geological Survey scientists. The upper line represents the mean maximum temperature scenario that assumes consumption of fossil fuels at the accelerating rate we have exhibited to date (“business as usual” or BAU). Meanwhile, the lower line assumes we change the trajectory and slow the rate of accelerating fossil fuel use and GHG emissions by about 50 percent.

As illustrated by the graph, we have already experienced a 1.5-degree F mean increase in annual temperature during the 1950 to 2005 period. It shows another 4 degrees F expected to be phased in over the next 40 years, with an additional 4.1-degree F increase (9.6 degrees F total) by the end of the twenty-first century if we follow BAU.

These models predict less snowpack for summer irrigation, earlier spring snowmelt providing less irrigation water during the late growing season, and a reduction in soil moisture. Anticipated are:

- Changes in the current natural fauna and flora

- A necessity to change crops using cultivars more adapted to a warmer environment (such as different grape varieties)
- Possible losses of beneficial biological control and pollinator populations
- Warming river temperatures as riparian vegetation zones change (disappear?)
- A significantly increased area involved in wildfires and, therefore, increased potential for soil erosion

Scientists have estimated that the global food system and conventional agriculture practices contribute one-third of the GHG emissions and account for some 30 percent of the world’s energy consumption (nature.com/news/one-third-of-our-greenhouse-gas-emissions-come-from-agriculture-1.11708). Fossil fuel combustion for the production of ammonia fertilizer, mining, and shipping of other mineral fertilizers, soil preparation, synthesis and application of pesticides, manufacturing farm equipment, and the harvesting and shipping of food thousands of miles from where it was produced all contribute to energy demands. In the Rogue Valley, we are now receiving fruits, including table grapes, from Chile, located some 6,000 miles away.

Adding to the problem is the loss of soil organic matter as carbon dioxide, largely since World War II, due to farming practices that physically disturb the soil

and use nonspecific toxic chemicals to control pests. This destroys the soil’s health and sustainability.

Scientists believe that if some atmospheric carbon dioxide gas is sequestered back into the soils to again form soil organic carbon, further global warming can be at least partially slowed. It is possible that 5 to 15 percent of annual global carbon dioxide emissions can be offset by increased global soil carbon sequestration (cdn2.sustainabilitylabs.org/ecosystem-restoration/wp-content/uploads/2015/10/Soil-Carbon-Sequestration-Impacts.pdf).

Financial incentives to sequester carbon by using sustainable agricultural practices include improved fertility and soil water-holding capacity and increased crop yields.

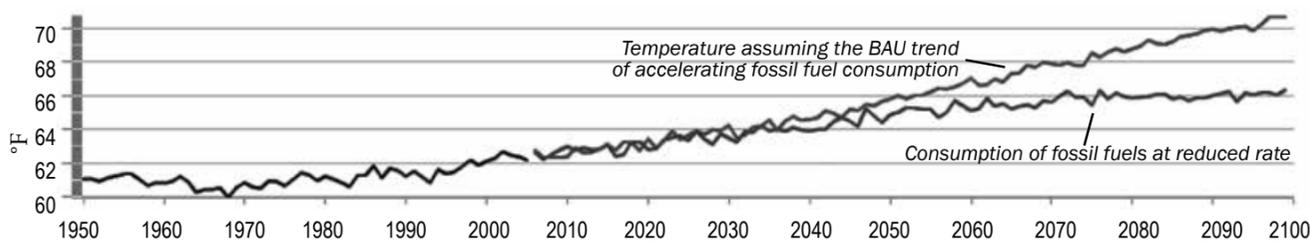
Soil carbon sequestration is only a minor part of the total repair of global warming. Reduction in fossil fuel emissions coupled with soil carbon sequestration is vital for buying time to find more significant ways to slow climate change.

Practices that facilitate soil carbon sequestration are:

- Decreasing the level of soil disturbance (tillage)
- Increasing the mass of organic inputs to soils (organic fertilizers free of toxic chemicals, plants with numerous deep roots)
- Improving soil microbial diversity and abundance by increasing soil organic matter and avoiding or limiting toxic pesticides
- Adopting year-round cover crops and crop rotation.

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Temperature trends for the Rogue Valley from 1950 to 2100 using data from the US Geological Survey (2.usgs.gov/climate\_landuse/clu\_rd/nccv/viewer.asp). Graph provided by Alan Journet, PhD, of Southern Oregon Climate Action Now.

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