

California Water and Infrastructure Report

Formerly, the “California Drought (and Flood) Update”



For June 7, 2018

by Patrick Ruckert

Published weekly since July, 2014

An archive of all these weekly reports can be found at both links below:

<http://www.californiadroughtupdate.org>

<https://www.facebook.com/CaliforniaDroughtUpdate>

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June 1 (EIRNS)—The “Annual Industrial Capabilities” report to Congress was “quietly released” on May 17 by the Pentagon’s Office of Manufacturing and Industrial Base Policy, according to Defense News. While EIR has not yet reviewed the full report, Defense News’ May 22 summary of the report’s findings makes clear that the United States defense is not threatened as much by foreign powers as by our own policies. Decades of post-industrial, rock-sex-drug culture, “information theory” replacing Classical science, remains the greatest threat to national security, and has resulted in more youth on drugs than capable of skilled labor and engineering.

Biggest Threat to U.S. Defense Is Collapse of Skilled Labor Force and Industrial Base

A Note To Readers

The introductory quotation above from the article on page 13 of this report highlights the more fundamental problem of the U.S. economy: We are losing, and have already lost, the productive capacity and the skills required to not only put a man on the Moon once again, but also to build and rebuild our infrastructure.

Underlying the absurdity that the once most powerful and scientifically leading nation on the planet is a virtual basket-case today is the report on page 14 below on “*China Will Surpass the U.S. This Year in Investment in Scientific Research.*”

So, that is the bad news. The good news is that President Trump will meet with North Korea President Kim next Tuesday, while that nation's Asia neighbors (South Korea, China and Russia) are ready to

bring North Korea into China's New Silk Road of infrastructure development. So, peace finally will be established ending the Korean War after 68 years, with the expectation that integration of North Korea into the Belt and Road will complete the original conception of the New Silk Road formulated by Lyndon and Helga LaRouche in the 1990s -- a railroad development corridor from Pusan to Rotterdam. That concept has now been expanded to become a World Land-Bridge, as the Silk Road extends into Africa, Ibero-America, Europe, and, potentially, the United States.

In This Week's Report

Drought is with us and intensifying in the West. While California had a one-year reprieve from the five year, worst drought in 500 years, we are back in it. The other Western states are even deeper in drought than California, and Oregon has now declared a drought emergency in four counties.

A couple of lasting affects from the five-year drought include the California fire season now being year-round, and yet thousands of families still do not have access to running water as their wells went dry over the past few years.

This week's Oroville Dam Update includes a video and a report on construction progress repairing the blown-out spillways.

Then we have a report on Gov. Jerry Brown on Thursday signing a pair of bills that will require strict limitations on how much water California homes can use. And no, contrary to some press reports, individuals will not be fined \$1,000 if they shower and do laundry the same day.

For space reasons this week's report will not include an installment from the LaRouche PAC report: **Campaign to Win the Future-- A New Paradigm for Mankind: LaRouche's Four Laws for Economic Recovery.**

But, you can read the whole report here:

<http://media.larouchepac.com/larouche/documents/20180503-LPAC-2018-Campaign-web.pdf>

U.S. Drought Monitor, Drought News and Drought Affects

For the past several weeks the drought intensity in California has not increased, but the summer has not yet begun.

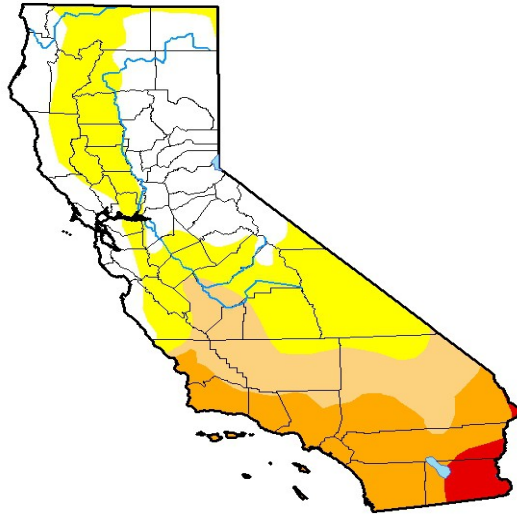
Alarm bells are ringing though in the other states of the Southwest as drought is both intensifying and spreading. Oregon, too, is seeing drought becoming more widespread in the state.

During the past five-year drought in California, fire season, which used to run from May or June to October, became a year-round threat. Though one one year reprieve from that drought has now ended, it appears that the year-round fire season may be with us permanently.

Though much of the state did benefit from the one-year reprieve, thousands of homes still remain without water as their wells went dry. State and local relief efforts to alleviate that suffering still continue and will for some time to come.

**U.S. Drought Monitor
California**

June 5, 2018
(Released Thursday, Jun. 7, 2018)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	30.39	69.61	37.08	20.75	2.78	0.00
Last Week 05-29-2018	30.49	69.51	37.08	20.75	2.78	0.00
3 Months Ago 03-06-2018	8.48	91.52	47.87	22.40	0.43	0.00
Start of Calendar Year 01-01-2018	55.70	44.30	12.69	0.00	0.00	0.00
Start of Water Year 09-26-2017	77.88	22.12	8.24	0.00	0.00	0.00
One Year Ago 06-06-2017	76.47	23.53	8.24	1.06	0.00	0.00

Intensity:

■ D0 Abnormally Dry ■ D3 Extreme Drought
■ D1 Moderate Drought ■ D4 Exceptional Drought
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Anthony Artusa
NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>

Experts: 'Alarming' drought conditions hit US Southwest

By: SUSAN MONTOYA BRYAN, Associated Press

Updated: May 23, 2018

<https://www.wpxi.com/news/national/drought-on-tap-to-intensify-over-us-southwest/754913858>

ALBUQUERQUE, N.M. (AP) - Rivers and watering holes are drying up, popular mountain recreation spots are closing and water restrictions are in full swing as a persistent drought intensifies its grip on pockets of the American Southwest.

Climatologists and other experts on Wednesday provided an update on the situation in the Four Corners region - where Arizona, New Mexico, Colorado and Utah meet. They say the area is among the hardest hit and there's little relief expected, and even robust summer rains might not be enough to replenish the soil and ease the fire danger.

The region is dealing with exceptional drought - the worst category. That has left farmers, ranchers and water planners bracing for a much different situation than just a year ago when only a fraction of the region was experiencing low levels of dryness.

Brian Fuchs, a climatologist with the National Drought Mitigation Center in Nebraska, said people are become more aware and more concerned.

"We've been on this pattern where conditions have dried out, we haven't seen much relief through last summer or into the winter months and here we are going into the summer of 2018 with over two-thirds of the region already in drought," he said. "So that's alarming to say the least."

Portions of the four states are seeing near-record to record dryness. Fuchs explained that some spots have missed out over the last two years on more than 12 inches (30 centimeters) of precipitation - which can add up to as much as a year's worth of rain under normal conditions.

Warmer-than-average temperatures haven't helped as the soil dries out and water demands increases.

With the region's resources strained, a top federal official has resumed pressure on states in the Southwest to wrap up long-delayed emergency plans for potential shortages on the Colorado River, which serves 40 million people in the U.S. and Mexico.

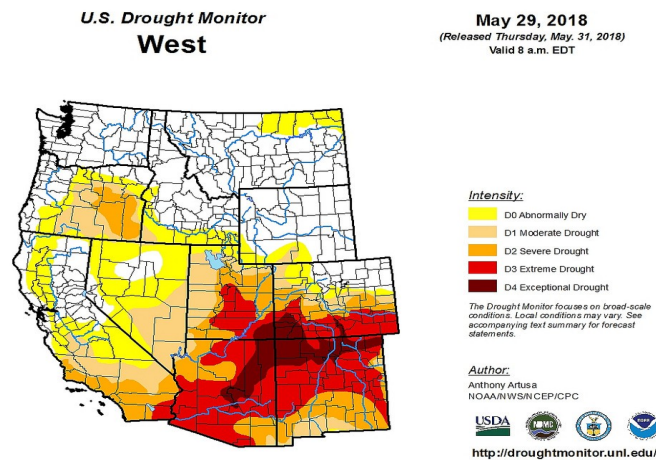
"We face an overwhelming risk on the system, and the time for action is now," Bureau of Reclamation Commissioner Brenda Burman said Tuesday. She spoke before the Imperial Irrigation District in Southern California, one of the biggest single users of the Colorado River.

The drought has hit the Colorado River hard. Forecasters say the river will carry only about 43 percent of its average amount of water this year into Lake Powell, one of two big reservoirs on the system.

Southwest drought worsens as hot June weather arrives

<https://www.theweathernetwork.com/us/news/articles/southwest-drought-worsens-as-hot-weather-arrives-heat-united-states-four-corner-states-rivers-drying-up-utah-arizona-colorado-new-mexico-high-temperatures-precipitation-wildfire-outlook/102832>

*Dr. Mario Picazo
Meteorologist, PhD*



Friday, June 1, 2018, 19:02 - June is here and the heat is on across many areas of the southern U.S., including the Four Corner states.

Despite some recent precipitation, which helped lower drought numbers in some counties, overall conditions continue to intensify and expand. Rivers and watering holes across different areas of Utah, Arizona, Colorado and New Mexico are drying up, forcing the closure of popular mountain recreation areas. Water restrictions are becoming the norm across the region.

Meteorologists, climatologists and hydrologists agree that this usually arid region of the U.S. is the hardest hit this 2018, and despite the summer monsoon rains arriving soon, they may not do the job given the current situation.

Portions of the Four Corner states are seeing record dry conditions. The warmer temperatures have

made things even worse, causing soils to dry out, while water demand increases.

In New Mexico, the intense drought is seriously affecting several stretches of the Rio Grande, one of the longest rivers in the U.S. This summer, the river could dry up as far north as Albuquerque. Home to over half a million people, it is the most populated city in the state. Biologists are working nonstop to move several endangered species from drought affected areas upstream at least during the summer months.

High heat and low humidity increase wildfire risk across the U.S. Southwest

Above normal temperatures and low humidity values this week have made the wildfire alarms sound across a large swath of land. During the first few days of the month as temperatures soar into the 100s, critical conditions are expected to extend into much of southern Colorado and north-central New Mexico. The risk will also keep locals on alert in portions of eastern Arizona and western Texas.

Oregon Declares Drought Emergency for Four Counties

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The U.S. Drought Monitor predicts an exceptional dry summer for Oregon, bringing with it the threat of wildfires and water scarcity

<https://www.estormwater.com/oregon-declares-drought-emergency-four-counties>



Oregon Gov. Kate Brown has declared a [drought emergency](#) in the counties of Klamath, Grant, Harney and Lake. According to the [U.S. Drought Monitor](#), nearly all of southeast Oregon is experiencing moderate to severe drought and this latest declaration marks four Oregon counties with designated drought status. A drought declaration enables the Oregon Water Resources Department to provide temporary relief for agricultural producers in the form of emergency water use permits, water exchanges, and in-stream leases, but is by no means a long-term fix.

A recent report by the U.S. Department of Agriculture (USDA) found that low snowpack levels may be a contributing factor to the drought.

“During a normal May, about 45% of our snow monitoring sites are snow-free,” said Julie Koeberle, a USDA snow survey hydrologist. “This year, 60% are without snow.”

A drier winter and below average snowpack, puts as much as 40% of Oregon at risk for moderate drought in the coming season, according to a forecast by the [National Oceanic and Atmospheric Administration](#). In Lake County, the most recently declared drought emergency county, residents fear a water scarce summer.

“Many longtime Lake County farmers and ranchers have commented that they have not seen water conditions this severe since 2015,” the county resolution states, as reported by [Capital Press](#).

The mounting threat of drought brings with it issues of water scarcity, agricultural decline and potential wildfires for southeastern Oregon as what promises to be a dry summer begins.

In California, it's always fire season now

2017 was one of the most destructive dry seasons in California's history—and 2018 isn't shaping up to be any better

By [Marissa Clifford](#) Jun 5, 2018

<https://la.curbed.com/2018/6/5/17428734/wildfires-california-risk-prediction>



Predicting the severity of fire seasons is tricky, but this year's weather is starting out the same as 2017. *Getty Images*

LA's drought-like conditions and bone-dry vegetation indicate this year's fire season could be just as devastating as 2017.

Cal Fire has already responded to more than 1,200 fires since January, and its firefighters are preparing for the worst.

Some experts are calling this type of dry season California's "new normal." But others, vets like Cal Fire's Scott McLean, have already adjusted to seeing the grasses covering the rolling hills brown earlier and earlier each year.

"It's not new anymore. We're there," McLean tells Curbed. "We don't even call it a fire season anymore."

As predicted, 2017 was one of the most destructive dry seasons in California's history. Statewide, wildfires across resulted in more than \$10 billion in damage and 44 dead, and countless stories of survival.

By this time last year, Cal Fire had responded to 156 fewer fires. But, the good news is that more fires this year doesn't necessarily mean more burned ground. In comparison to the 23,000 acres burned by

the end of May 2017, only 8,000 have burned this year to date. The high number of acres was due to a somewhat surprising cause: rain.

As the climate changes, Southern California will receive less rainfall in autumn and spring with a more pronounced wet season in winter. That means a longer dry season, one that will potentially overlap with fall's notorious Santa Ana winds, a combination that fueled last year's Thomas Fire—which [burned for six months, destroying over 1,300 structures](#) and claiming the lives of 22 people in the ensuing mudslides. Those conditions are also believed to have fanned [the Creek Fire](#) in the foothills of Angeles National Forest.

But a longer dry season and rising temperatures aren't the only factors that could contribute to 2018's potentially devastating fire season. The sudden transitions back and forth from really wet years to really dry years, what Swain calls "[climate whiplash](#)"—which characterizes the swing from wet 2017 to dry 2018—and development all contribute to increased wildfire risk across the state.

Why Emergency Drought Assistance Will Be Needed in California for Years

Just how long interim funding will play a central role in responding to water issues depends on implementing long-term solutions to contamination and groundwater depletion.

By Tess Townsend

June 5, 2018

<https://www.newsdeeply.com/water/articles/2018/06/05/why-emergency-drought-assistance-will-be-needed-in-california-for-years>

Gov. Jerry Brown declared the [end of California's five-year](#) drought in April 2017 after a wet winter replenished shrinking reservoirs. But the lingering impact of the drought, especially on [groundwater supplies](#), means some [still rely](#) on emergency water tanks while they wait for long-term solutions.

This is particularly true in the San Joaquin Valley, where more than 300 domestic well users whose taps have run dry continue to use tanks provided by the state through a program originally slated to end in June.

With the help of emergency funding requested by Assembly member Joaquin Arambula (D-Kingsburg), whose largely rural district is in the valley, the emergency water supply program will likely continue another year at a cost of \$3.5 million. Also included in the emergency relief efforts is \$10 million to address failing domestic wells and septic tanks, and \$10 million for the Drinking Water for Schools Program that funds treatment solutions for schools that struggle with contamination. New state regulations for contaminants like lead and carcinogen [1,2,3-trichloropropane](#) mean schools will need more money to meet safe drinking water standards.

But the need this funding addresses won't disappear entirely by the middle of 2019 when the next budget year starts and that's because many of the problems are related to groundwater overdraft. The state now has more than 20 groundwater basins that are deemed "critically overdrafted." The San Joaquin Valley is particularly hard-hit and many communities there are entirely reliant on groundwater. As farmers dug deeper wells to keep up with a falling aquifer during the drought, many shallower domestic and community wells were left high and dry.

Oroville Dam Update

A video update and a construction progress report will be found below.

Oroville Spillways Phase 2 Update May 31, 2018



[California DWR](#)

Published on Jun 5, 2018

Crews lay roller-compacted concrete (RCC) for the spillway splashpad and excavators break rock to prepare for the placement of structural concrete walls for the spillway's new upper chute. Workers install under drains within the middle chute and drilling rigs bore a series of holes in the RCC to prepare for slab anchors that will be placed in the middle chute. Crews also break concrete on the lower transition slab to prepare for the placement of structural concrete.

<https://www.youtube.com/watch?v=wRsNeiKysXc>

Work Progressing On Upper Level Of Lake Oroville Spillway

By [Bob Moffitt](#)

Wednesday, June 6, 2018 | Sacramento, CA |



The California Department of Water Resources says it has completed the demolition of the top 730 feet of the spillway that failed in February of 2017. Ezra David Romero / Capital Public Radio

Construction on the upper level of the Lake Oroville Spillway has progressed, while work continues on the middle and lower sections of the spillway.

The California Department of Water Resources says it has completed the demolition of the top 730 feet

of the spillway and is preparing to pour concrete slabs and walls.

Drains and anchors are being installed on the middle section. More concrete will be poured when that work is done. At the bottom, the large blocks — called "energy dissipators" — will receive new concrete and steel dowels.

DWR says work on the splash pad below the emergency spillway is 80 percent complete in the northern section and 40 percent complete in the southern section.

Weak spots in the middle section of the old spillway allowed water underneath the concrete and caused a gaping hole in the spillway in February of 2017.

Significant erosion at the base of the emergency spillway then caused the evacuation of nearly 200 thousand people.

Crews spent the past year rebuilding the bottom two sections of the main spillway.

Lake Oroville Spillways Construction Update - June 6, 2018

Published: Jun 06, 2018

<https://www.water.ca.gov/News/News-Releases/All-News-Articles/Lake-Oroville-Spillways-Construction-Update-060618>



A worker assembles structural rebar panels for concrete that will be placed on the Lake Oroville main spillway during Phase 2 of the recovery efforts at the Butte County, California site. DWR/2018

SACRAMENTO – Today the Department of Water Resources (DWR) provided an update on construction-related activities for the Lake Oroville Spillways Emergency Recovery Project.

Construction on the Main Spillway

- *Controlled blasting demolition of the original 730 feet of the upper chute is complete. Crews are preparing the foundation for placement of structural concrete slabs and walls.*
- *In the middle chute, foundation prep is 34 percent complete and crews are preparing for the installation of sub-drains and slab anchors in advance of placing permanent structural concrete slabs and walls later this summer.*
- *Work continues on the energy dissipators, or dentates, at the bottom of the main spillway. The dentates are being hydro-blasted to prepare for the placement of a new layer of structural*

concrete reinforced with epoxy-coated steel dowels.

- DWR is again using November 1 as a milestone to complete major construction work and placement of all concrete on the main spillway. Additional work, including dry finishing and curing of concrete, joint sealing, connecting drainage systems, backfilling side walls, and site clean-up on the main spillway will continue after November 1.

Construction on the Emergency Spillway

- Construction of the northern half of the roller-compacted concrete splashpad is 80 percent complete.
- Crews are 40 percent complete with foundation prep at the southern half of the splashpad site in advance of RCC placement.
- Work at the emergency spillway site is not dependent on the November 1 milestone and will continue throughout 2018.

Additional Updates

- Lake levels are currently at [818 feet](#). DWR anticipates some water to pass through the gates until the lake level drops below 813 feet. Crews have put in place a water containment system to collect any water that passes through, which will have no impact on construction.
- The independent Board of Consultants met with DWR for the 18th time on May 29 and 30.
- Crews continue work to resurface a structural concrete slab that was placed last year that had a poor surface finish and did not meet DWR's quality control standards. When commenting on the work to remove the top layer of concrete on this slab, the independent Board of Consultants stated, "the removal of the erosion resistant concrete has turned out to be much more difficult than expected...this information provides empirical evidence that the chute concrete has superior erosion resistant properties."

To view photos and video of the Lake Oroville Spillways construction, visit DWR's [Oroville Spillway photo gallery](#) and [YouTube channel](#).

New Oroville Dam safety advocacy group launches

By [Risa Johnson](#)

Chico Enterprise-Record

PUBLISHED: May 31, 2018

<https://www.chicoer.com/2018/05/31/new-oroville-dam-safety-advocacy-group-launches/>

OROVILLE — The Oroville Strong! advocacy group is going by a new name and hoping to increase its reach to those in the greater area who have been affected by the spillway crisis.

The new entity called the Feather River Recovery Alliance will be headed by some of the same leaders; however, it will be disassociated from the Oroville Chamber of Commerce.

One of the alliance's main goals is to gather a total of 20,000-25,000 signatures on the Hold DWR Accountable petition, which [started circulating in February of this year](#). Currently the group says it has between 7,000-8,000 signatures.

The petition asks that the Federal Energy Regulatory Commission order a completely independent forensic study of the Oroville Dam and related infrastructure as well as the department's operating and maintenance procedures; an opening of the relicensing process; recreational facilities equal or better than what were available before the spillway crisis; and also full compensation by the state Department of Water Resources for all local outreach efforts of downstream communities to "reverse

the negative public impressions the incident created.”

No, Californians, you won't be fined \$1000 if you shower and do laundry on the same day

Despite fake news claiming such, as the reports below make clear, the two new state laws on water use do not fine individuals for using too much water. At least not yet.

Drought or no drought: Jerry Brown sets permanent water conservation rules for Californians

By [Paul Rogers](mailto:progers@bayareanewsgroup.com) | progers@bayareanewsgroup.com | Bay Area News Group
May 31, 2018

<https://www.mercurynews.com/2018/05/31/california-drought-jerry-brown-sets-permanent-water-conservation-rules-with-new-laws/>

Although he declared an end to California's historic five-year drought last year, Gov. Jerry Brown on Thursday signed two new laws that will require cities and water districts across the state to set permanent water conservation rules, even in non-drought years.

“In preparation for the next drought and our changing environment, we must use our precious resources wisely,” Brown said in a statement. “We have efficiency goals for energy and cars – and now we have them for water.”

Brown signed two bills, [SB 606](#) by Sen. Robert Hertzberg (D-Van Nuys) and [AB 1668](#) by Assemblywoman Laura Friedman (D-Glendale), that require cities, water districts and large agricultural water districts to set strict annual water budgets, potentially facing fines of \$1,000 per day if they don't meet them, and \$10,000 a day during drought emergencies.

Under the bills, each urban water provider will be required to come up with a target for water use by 2022. Fines for agencies failing to meet their goals can begin in 2027.

The targets must be approved by the State Water Resources Control Board between now and then, and will vary by city and county.

Standards will be based on a formula that is made up of three main factors: an allowance of 55 gallons per person per day for indoor water use — dropping to 50 gallons by 2030; a yet-to-be determined amount for residential outdoor use that will vary depending on regional climates; and a standard for water loss due to leak rates in water system pipes.

Gov. Brown signs pair of bills implementing water restriction policies

By [Jack Barnwell](#)
Editor

Posted June 6, 2018

<http://www.ridgecrestca.com/news/20180606/gov-brown-signs-pair-of-bills-implementing-water->

restriction-policies

Gov. Jerry Brown on Thursday signed a pair of bills that will require strict limitations on how much water California homes can produce (sic). [“produce” should probably be “use.”]

The two bills come in part to prepare California for the next drought and what it considers the inevitable changes that come with shifting climate changes, according to Brown’s office.

The bills — SB 606 by Sen. Robert Hertzberg (D-Van Nuys) and AB 1668 by Assembly member Laura Friedman (D-Glendale) — will:

– Establish “an indoor, per person water use goal of 55 gallons per day until 2025, 52.5 gallons from 2025 to 2030 and 50 gallons beginning in 2030.

– Create incentives for water suppliers to recycle water.

– Require both urban and agricultural water suppliers to set annual water budgets and prepare for drought.

“In preparation for the next drought and our changing environment, we must use our precious resources wisely,” Brown said in signing the bills. “We have efficiency goals for energy and cars – and now we have them for water.”

These standards must be in place by 2022.

“How these bills are folded into the GSP is something I don’t have an answer for at this time,” Zdeba said. “We have to see what new efficiency regulations the State Board comes up with and how they will fit into the plan.”

Zdeba said that outdoor watering would be set locally. The water district established a set of policies via its Ordinance 103 with regard to landscaping irrigation. The district doesn’t have ordinance for indoor use.

The state average for combined indoor/outdoor use per person per day was 90 gallons, according to the State Water Resources Control Board. But usage fluctuates, going up in the summer and falling in the winter.

The Forests and the Trees

More than 129 million trees in the state died during the drought and the bark beetle infestation. Literally, the state’s forests are seriously threatened.

Governor orders new focus on ailing forests

By Jordan Bowen
05/31/2018

<https://www.ptreyeslight.com/article/governor-orders-new-focus-ailing-forests>

After a year of calamitous wildfires that capped four years of historic drought, Governor Jerry Brown is ordering additional resources and prioritization toward managing the health of the state’s ailing forests.

In an executive order issued this month, the governor directed the Department of Forestry and Fire

Protection, the Natural Resources Agency and the Department of Fish and Wildlife to tackle the serious threats facing the state's 33 million acres of forests and nearly 1,300 square miles of urban forest canopy.

The order could help public and private landowners in West Marin receive state assistance and regulatory relief to help manage dead and dying trees, and directs state agencies to increase cooperation with federal parks.

The executive order describes the worsening health of California forests as a nearly existential threat to the state's economy, biodiversity, water supply and climate goals. It lays out 16 bureaucratic directives for the state's public agencies to coordinate a more urgent and vigorous response to an increasingly visible crisis.

Specifically, the order requires state agencies to implement the practices recommended in the Forest Carbon Plan, a 186-page report released in May that highlights the cumulative, increasingly alarming impacts of drought, wildfire, climate change and native and exotic pests and diseases on the state's woodlands.

The plan outlines doubling the amount of acreage treated to reduce those impacts, from 250,000 to 500,000 acres a year, with a particular focus on the Sierra Nevada, where tree mortality has sharply increased in recent years.

Still, an estimated 15 million acres of forest are estimated to need some form of restoration, and around 129 million trees have already perished since 2010. Significant drought, warming temperatures, and "high stand density" from a century of fire suppression have added to trees' vulnerability to both natural and anthropogenic perils.

The United States Forest Service recently estimated that California could lose as much of 25 percent of its standing live forests, or 5.7 million acres. That study is a forecast based on current and expected conditions, acknowledging that tree mortality could be even greater should unanticipated or more severe than expected threats develop in years to come.

The Economy, Science, Space, Nuclear Power and Tariffs

Biggest Threat to U.S. Defense Is Collapse of Skilled Labor Force and Industrial Base

June 1 (EIRNS)—The "Annual Industrial Capabilities" report to Congress was "quietly released" on May 17 by the Pentagon's Office of Manufacturing and Industrial Base Policy, according to *Defense News*. While *EIR* has not yet reviewed the full report, *Defense News*' May 22 summary of the report's findings makes clear that the United States defense is not threatened as much by foreign powers as by our own policies. Decades of post-industrial, rock-sex-drug culture, "information theory" replacing Classical science, remains the greatest threat to national security, and has resulted in more youth on drugs than capable of skilled labor and engineering.

"The greatest challenge that could harm domestic defense capabilities is the demographics of the workforce. Only 39% of the current workforce is under the age of 45. And while jobs in the aerospace and defense sectors are seen positively by the majority of young professionals, only 1.5% of 25- to 34-year-olds in the U.S. have a science degree," *Defense News* wrote in its coverage of the report.

Those figures are taken from Figure 1 in the report, which states that aerospace and defense “companies are being faced with a shortage of qualified workers to meet current demands as well as needing to integrate a younger workforce with the ‘right skills, aptitude, experience and interest to step into the jobs vacated by senior-level engineers and skilled technicians’ as they exit the workforce.”

The U.S. likewise does not have a diversified industrial base, and therefore lacks the design and production capability needed to develop new systems. For example, the report warns that “the biggest risk for the aerospace sector is its ability to sustain the design and manufacturing skills and capabilities needed for future aircraft design and manufacture,” according to *Defense News*.

Defense News summarizes the report’s findings for sectors such as shipbuilding, which faces “potential consequences if something were to happen to the small, highly concentrated industrial base.” The danger referenced is the lack of a workflow necessary to ensure those industrial capabilities do not go under—although not said, a danger stemming from the rule of Wall Street “markets.” Likewise, “the age and condition of the naval shipyard infrastructure, which is on average seven years older than industry standard” is also critical, leading to significant work stoppages every year.

The full report is available here:

https://partner-mco-archive.s3.amazonaws.com/client_files/1527002508.pdf

China Will Surpass the U.S. This Year in Investment in Scientific Research

Washington Post front-page article today on the advance of science research in China, which will surpass the United States this year as the leading nation in investment in scientific research (the United States spends about \$500 billion/year). A Univ. of Missouri professor of science and technology is quoted, "People are rather in awe of what the Chinese policies have accomplished." More papers in scientific journals by Chinese than U.S. researchers in 2017. Doctoral degrees in science and engineering now comparable: 40,000 in United States annually, 34,000 in China. The recruiting program called Thousand Talents. R&D investment in America increasing at 4% annually; in China by 18%. More here.

Trump Again Seeks Action To Save Nuclear and Coal Electricity Plants

June 2 (EIRNS)—The numbers and output of nuclear and coal generating plants in the U.S. are declining to the point of risk to baseline electricity supplies; and yesterday, the Trump Administration asked for action. White House spokesperson Sarah Sanders said that the President wants Secretary of Energy Rick Perry to “prepare immediate steps” on this.

This statement follows reports of an Administration 40-page memorandum on the topic of remedies to the plight of nuclear and coal generating sectors, which has not been released. According to the *Wall Street Journal* today, which, along with Bloomberg, reported obtaining a copy, “The memo is dated May 29 and labeled as a draft addendum to a larger package submitted to the National Security Council.” The NSC and the Energy Department are working on new policies to aid the nuclear and coal sectors, on security grounds. Bloomberg reports that the memo calls for placing a two-year hold on forced early closures of coal and nuclear plants, during which “the DOE would conduct a study of vulnerabilities in the U.S. power grid system.”

At present the U.S. has 99 nuclear power reactors in operation, down from the peak of 104, and set to go lower rapidly, if more nuclear plants are allowed to shut down as planned over the next few years. States are fighting rearguard actions.

One-quarter of the nation’s 99 nuclear plants do not make sufficient revenue to cover expenses, and

risk shutting down over the next three years, according to a study by Bloomberg released in mid-May. The 24 plants in that category, have a generating capacity of 32.5 gigawatts, which is more than a quarter of the entire fleet of U.S. reactors, which supplies about 20% of U.S. electric power. A similar study in March, showed that half of the U.S. coal-fired electric capacity is on shaky ground.

A Fool's Errand—The NASA Administrator Is Trying To Sell the Space Station

June 6 (EIRNS)—NASA Administrator Jim Bridenstine has been talking to American and international companies about forming a consortium to take over operation of the ISS, the *Washington Post* reports today. Sen. Ted Cruz (R-TX) has said the proposal of the Administration to end government funding of the station in 2025 came from the “numbskulls” at the Office of Management and Budget. This is undoubtedly the case, since their view is that since NASA's budget will not be increased to carry out Trump's return to the Moon, and therefore “saving” the \$3-4 billion per year that it costs NASA to operate the station is the only way to fund the lunar program.

The White House, the *Post* reports, “will request market analysis and business plans from the commercial sector and solicit plans from commercial industry.” Bridenstine has said he is aware that companies may find it “hard to close the business case.” In fact, they will find it impossible. There is virtually no commercial activity presently on the station except for a couple of small experiments paid for by companies or universities. How could any consortium make a profit above the \$3-4 billion operating cost? Also unanswered is the question of what it means for the Russian, European, Japanese, and Canadian space agencies, which together have spent billions of dollars to contribute hardware and crew to the station, and who oppose ending its operation for purely financial and political reasons.

Pro-commercialization advocates point to projects underway to put little habitats in low-Earth orbit. These bear no resemblance to the ISS, and are being promoted mostly as “hotels” for tourists.

The push to have private industry take over very expensive, if not delicate government space assets, reminds one of President Reagan's effort to sell the Space Shuttle fleet to a private company, which, of course, never happened.

Trump Steel Tariffs ‘Make Sense,’ But Don't Make Productivity

The actual tariff situation is not what's being reported. China produces half of the 1.7 billion tonnes of steel annually produced in the world. It has reduced that production, by government policy, by 170 million tonnes or 10%, between 2012 and 2017. It has eliminated 1.1 million jobs in iron ore/iron/steel in doing so, even while increasing total net employment by 12 million jobs/year and household income at a rate of about 8%/year overall. It has targeted another 30 million tonnes reduction in 2018, to reach the 2020 goal of a 200 million tonnes reduction, two years early. But this is becoming more difficult, because steel prices are rising and demands by Chinese companies to reopen older induction (scrap steel) furnaces are increasing.

The Trump Administration is using an old "national security" law to impose 25% steel tariffs on Canada, Mexico, EU countries for two reasons: These tariffs violate WTO -- they are still somewhat selective although these countries are the big exporters to America; and second, the White House believes some steel imports from these countries are, in net effect, Chinese steel transshipments. The angry explosions from Trudeau, Juncker, et al. are hypocritical; they have 10-15% tariffs on U.S. steel, and Canada in particular has transshipped China-produced steel. The White House public arguments are also partly horsefeathers, because there is no "national security" issue *as defined by the 1972 law*, and the tariffs of Canada and EU, for example, are not 25%. After exempting those countries at first, the White House wanted quota agreements from them, which they refused, and so it went to the tariffs,

which are less effective but still basically sensible.

But primarily: *U.S. quota negotiations with China are going more productively than with its "allies"*, because China's steel modernization policy and the Trump push for steady 80% capacity utilization in U.S. steel, are consistent and cooperative. WH is trying, so far without success, to push EU/Canada/Mexico into agreement with that through quotas.

But for the U.S. economy, will 80% steel utilization mean much? Not without a change in credit policy. U.S. steel consumption (demand) is constant for years at ca. 100 million tonnes. Imports are constant for years at 25-30 million tonnes finished steel (mainly from Canada), and gradually trending downward, but net imports are only 15-20 million tonnes because America also exports. Both demand and imports were higher 40 years ago. Total U.S. finished steel production is about 85 million tonnes/year; directly and indirectly this employs about 2 million Americans, says the Iron and Steel Institute. So with consumption at 100 million tonnes, even total net-import substitution would increase demand for domestic producers by just 10-15% over a number of years. The more immediate impact will be a continuing rise in steel prices.

Where would increased steel demand come from? 70% of all steel consumption is for a) buildings and infrastructure ("public construction" but also including commercial real estate) b) mechanical equipment (Deere, IH, Caterpillar, etc.), and c) rail/transport construction. So it would have to come from national credit, including industrial subsidies (Hamilton: "bonuses"), both of which the Administration and Congress have completely avoided so far.

The aluminum tariff situation is quite different. U.S. aluminum production has plunged since 2001 for reasons which have nothing to do with exports and depend completely on electricity deregulation. Total production has fallen 47% just in the past decade, from 3.7 million to 2.4 million tonnes. Primary production (not from scrap) has dropped 60% from 2.1 million to 800,000 tonnes. In 1981 America produced 32% of world aluminum; now it is 3.5% (2016). Only 9 smelters are operating in the United States. The reason is high electricity costs since deregulation and the introduction of intermittent power sources which can't power alumina processing. The industry's mere 800,000 tonnes primary production/year costs \$2.5-3 billion in electricity costs alone.

800,000 tonnes/year are imported and this is rising rapidly (by 50% since 2010), as consumption is 2.4 million tonnes and rising, and stockpiles are being used up. 37% of imports come from Canada (65% of primary metal product imports), which has a lot of relatively cheap hydropower. 15% from Russia. To substitute the primary metal imports would require three full size nuclear power plant equivalents to be added to the grid dedicated to aluminum production alone; so in physical practice, 5-7 GW of new power. And in the process, the price of the aluminum (which is 35-40% electricity) will go up quite significantly. Price per kwh for large wholesale users United States regions is 25-200% higher than in Canadian regions. So re-regulation *and* significant new power production is necessary.

The various levels (\$50-150 billion) of tariffs threatened against China's "Made in China 2025" frontier technology industries, and purely punitive (not protective) threats are clearly meant to force bargaining on the trade deficit, but are incendiary and will not work.