

California Drought (and Flood) Update



For May 11, 2017

by Patrick Ruckert

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

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If we look overall at the value of infrastructure—that's what I want to focus on today, because there are aspects of infrastructure that make it different from anything else in the economy. Wrong economic thinking about it prevents financing and prevents it from being built, and holds us back from reaping all of the benefits that we could from investments in these sorts of projects.

Jason Ross

The Value of Infrastructure

A Note To Readers

The reports this week include an interesting set of studies that describe a new wave pattern in the upper atmosphere that may be responsible both for the long drought and the freight train of storms that ended the drought this winter. That is followed by a warning that new El Nino conditions are developing across the Pacific, which could mean next winter will be wet.

June and July could see flooding as the “gigantic” snowpack melts in the Sierras. More warnings of a fragile levee system not being able to hold back those waters is the follow-on.

Then we have our Oroville Dam update featuring the experts evaluation of why the spillway collapsed. That is followed by more articles on the state of other dams in the state.

Desalination is back in the news, with what appears a shift in the thinking of some people. Senator Boxer is promoting the building of the plant at Huntington Beach and the Sacramento Bee says to cut out the bullshit of permitting delays and build that Huntington Beach plant. Also Santa Barbara will now, starting this week, provide water to 30 percent of its population from the new plant just opening.

I do hope readers enjoy the irony in the report of the damage that the environmentalist culturally-allied

pot growers are doing to the forests, streams and wildlife of northern California. As the author of the article concludes, “The pot you smoke may be grown on the carcass of a dead fisher.”

As we should well know by now, the future of water in California is fundamentally a question of infrastructure. So, as most readers of this report should know by now, that is my focus. Therefore, the following three paragraphs must be called to the attention of all Americans.

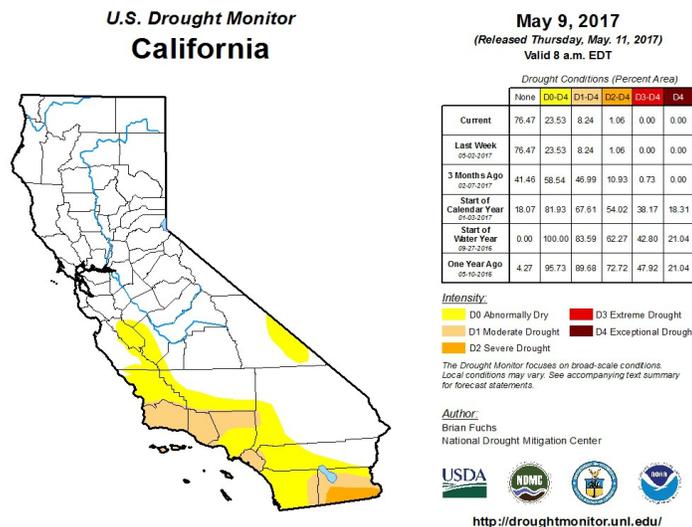
In just three days, in Beijing, humanity's future will be mapped out at the “The Belt and Road Forum for International Cooperation.” For the past three years the Belt and Road policy of China has become the greatest economic and infrastructure building program in human history. The conference beginning on May 14 will see the heads of state from twenty-eight nations converging on Beijing for China’s first official international forum on the Belt and Road Initiative. Also called, “The New Silk Road,” this project already encompassing more than 70 nations and more than half of the world's population, is the door to the future.

Although it does not appear that President Trump will attend, what is clear is that his administration is moving rapidly toward the U.S. joining the Belt and Road Initiative one way or another. China's experience in building modern infrastructure and the potential funding from China's holdings of more than \$1 trillion in U.S. Treasury Bills, represent the pathway for the President's infrastructure policy to actually become a reality.

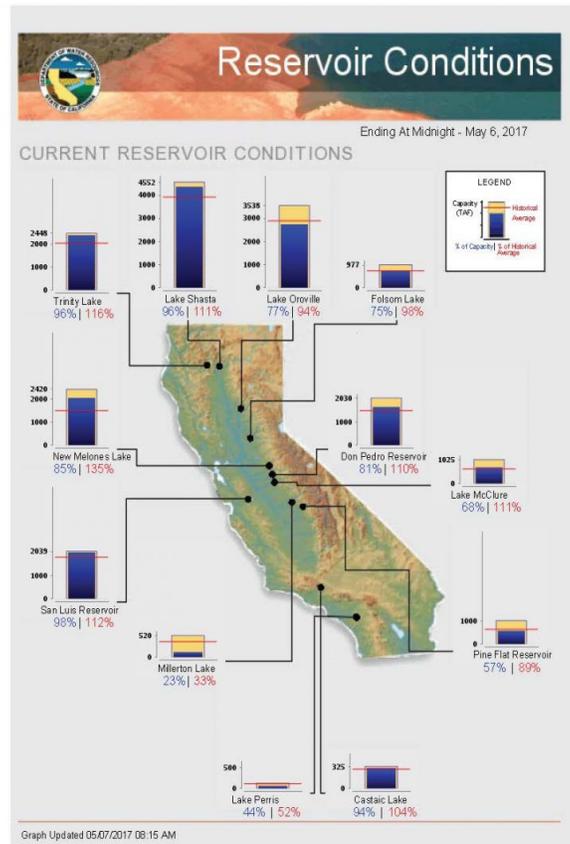
The German newspaper, the Rheinische Post, today quotes China's consul-general in Duesseldorf, Haiyang Feng: “We should take the idea of a new Silk Road as a win-win situation for all countries that participate in it. We are experiencing an era of crises: terrorism, wars and refugee streams, plus a shrinking world economy. Hardly a country in the world still has the will nor the courage to think for the future and act accordingly. The Chinese idea of a new Silk Road can, therefore, also be seen as a hope-promoting answer for this new era, and that is exactly why this initiative is welcomed by more and more countries in the world.“

This week's report will conclude with a discussion of infrastructure-- what it is, why it is so important, and how it is a distinguishing characteristic of our species.

U.S. Drought Monitor



Reservoir Graph



The Weather

Signs are already occurring that the coming winter may be shaped by a new El Nino. Be that as it may be, a couple of new studies show that El Nino is not the only element that shapes our climate and weather.

I also include in this section a graph of the historical California precipitation record which shows that there is no discernible trend over the past 120 years.

El Nino conditions are developing in the Pacific

By John Kemp

May 5, 2017

<http://www.reuters.com/article/us-elnino-usa-kemp-idUSKBN1802C6>

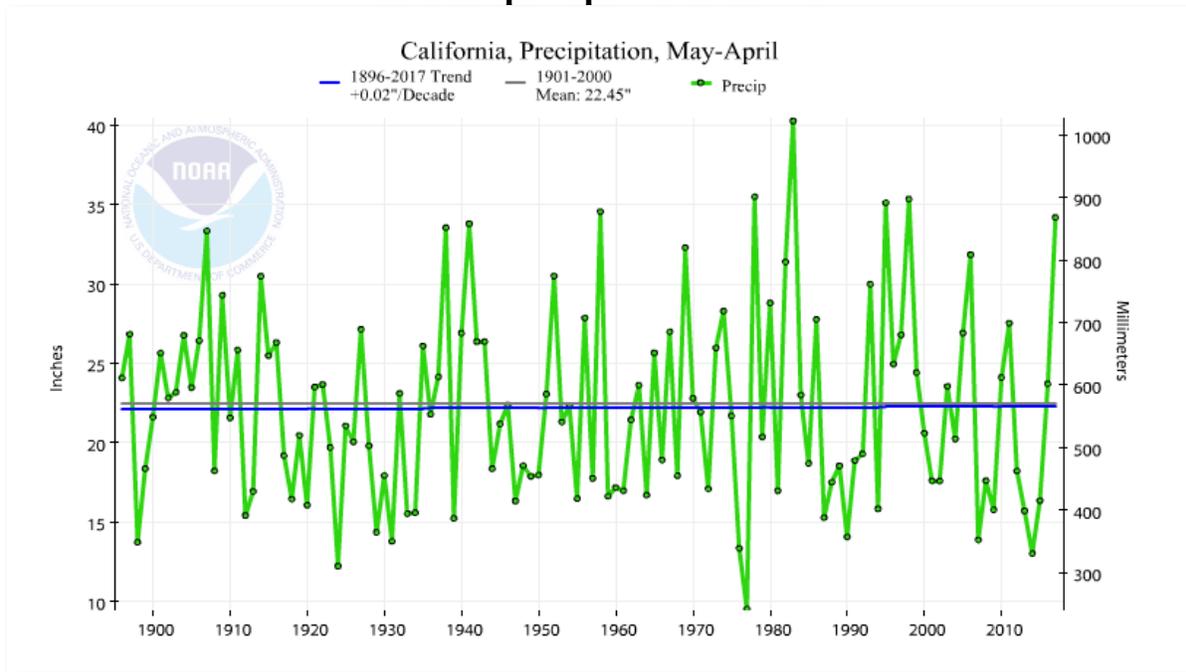
El Nino conditions are developing across the Pacific with an increasing probability that a full-fledged El Nino episode will occur during the second half of 2017.

Pacific equatorial winds have slackened since the start of the year and a characteristic tongue of warm water has begun to form stretching from Peru toward the international dateline.

Both are consistent with the development of El Nino and are likely to strengthen during the second and third quarters.

The U.S. government's Climate Prediction Center (CPC) last month forecast El Nino conditions would prevail by the end of the northern hemisphere summer, but put the probability at only 50 percent.

California precipitation since 1895



*There has been no trend in California precipitation since 1895
Graph from NOAA*

Newly Identified Climate Pattern May Have Caused California's Drought

By Matt Weiser

May 4, 2017

Research by scientists in Colorado describes five pairs of pressure cells in the upper atmosphere that can influence both droughts and floods. And soil moisture in California could provide a way to monitor the phenomenon.

<https://www.newsdeeply.com/water/community/2017/05/04/newly-identified-climate-pattern-may-have-caused-californias-drought>

What caused the worst drought in California history? This question will haunt the state's water managers, even as they begin to put the five-year drought behind them.

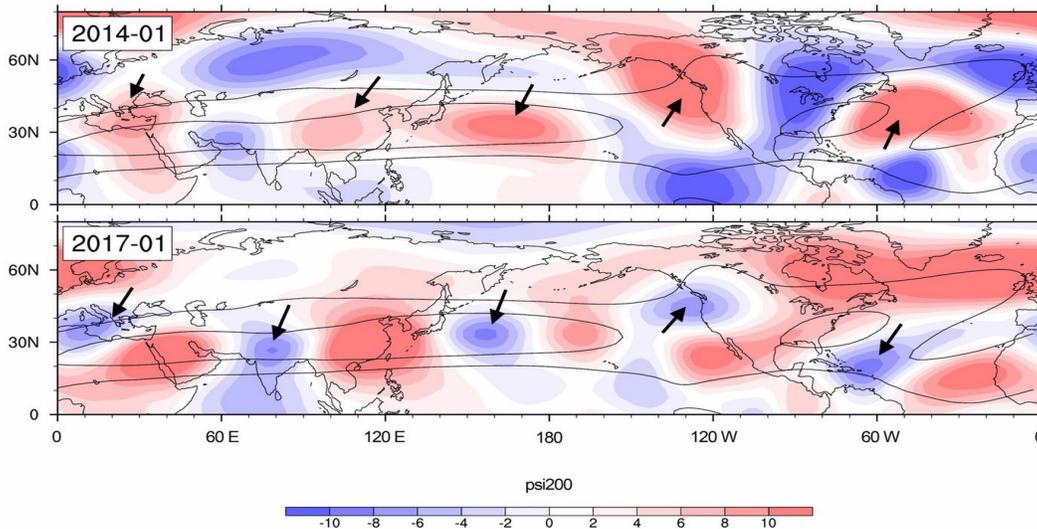
Now a pair of federal researchers may have the beginnings of an answer to the question. In two [new papers](#), they describe a new wave pattern in the upper atmosphere that may be responsible both for the long drought and the freight train of storms that ended the drought this winter.

The scientists at the [National Center for Atmospheric Research](#) (NCAR) have given this new pattern the somewhat sleepy name "wavenumber-5," or Wave-5 in abbreviated form. It consists of five pairs of alternating high- and low-pressure features that encircle the globe about 6 miles (10km) above the ground. They are very large-scale planetary waves that have strong impacts on local weather systems

by moving heat and moisture between the tropics and higher latitudes, as well as between oceanic and inland areas.

The waves at times become almost stationary, thereby influencing where storms occur. The result can be persistent weather patterns that produce droughts, floods and heat waves.

An example was the so-called Ridiculously Resilient Ridge, a large and persistent high-pressure ridge that blocked storms from reaching California during much of the drought.



This image shows the location of the five pressure cells that characterize the Wave-5 climate pattern (each highlighted by black arrows). The top image from January 2014 shows a large high-pressure cell (red) parked off the coast of California and the Pacific Northwest, which greatly aggravated the drought. The bottom image from January 2017 shows a shift: Now a low-pressure cell (blue) is parked in the same location, which allowed a series of heavy storms to reach California. (Image courtesy National Center for Atmospheric Research)

Melting Snow, Levees, and Potential Flooding

GET READY FOR LOTS OF WATER

By Dennis Wyatt
Manteca Bulletin
May 5, 2017

<http://www.mantecabulletin.com/section/1/article/143435/>

Stanislaus River flows could double in the coming days as the Bureau of Reclamation adjusts releases from New Melones Reservoir to handle what is expected to be a record snowmelt.

The Bureau has advised the offices of emergency services in both San Joaquin and Stanislaus counties of plans to change river flows. The impact on safety connected with activities in and along the river as well as the potential for flooding farmland on the riverside of levees is significant. It also will put further stress on the levees.

The river is currently flowing at 4,000 cubic feet per second or the equivalent volume of 4,000 basketballs passing a given point in one second.

The Bureau is mulling options that could increase the Stanislaus River flow to 8,000 cubic feet per second in the coming days. With the reservoir at just over 2 million acre feet — it has a 2.4 million acre foot capacity — the Bureau needs to make a determination of how they best can safely control inflow.

Driving the decision as well is the fact the peak snowmelt usually hits in late June or early July.

Break in California Levee System Could Contaminate Bay Area Drinking Water Supply

State says fixing the problem could cost \$3 billion or more

By Stephen Stock, Rachel Witte, Michael Horn and Jeremy Carroll

NBC- Bay Area

May 1, 2017

A [five year survey](#) released by the California Department of Water Resources reveals half of the levees that guard California cities from a major flood don't meet modern standards, and if a levee were to break in the wrong place, it could cut off the drinking water supply to the Bay Area for months or even years.

The report also indicates 60 percent of the levees that protect the state's rural areas from flooding — roughly 1,230 miles in all — are at high risk of failure from seepage, boils, structural instability, erosion and even rodents; that includes the levees that protect the drinking water aqueducts for the Bay Area and Southern California.

Much of the state's 13,000 miles of levees were built in the 1800s to protect farmland in the Sacramento and San Joaquin valleys from potential flood.

“The levees are old,” said Michael Mierzwa, the lead Central Valley Flood Management Planner with the state Department of Water Resources. “We're sitting on levees that were constructed over a hundred years ago, and we haven't been really paying the true cost on maintenance and upkeep.”

“The threat of levee catastrophe is significant,” said Mark Cowin, former director of California's Department of Water Resources. “We depend upon the integrity of those levees in the delta to allow us to move the water from north to south.”

However, it's not just the water supply that's threatened by levee failure. Other infrastructure, like transportation corridors and the electrical grid, are also vulnerable if the levees break.

Cowin says the cost of fixing the levee system is \$3 billion or more.

Oroville Dam Update

What follows are two excerpted articles on the outside consultants memorandum to the California Department of Water Resources, titled, “Preliminary Findings Concerning Candidate Physical Factors Potentially Contributing to Damage of the Service and Emergency Spillways at Oroville Dam.”

Of note is this paragraph in the second article, pointing to the still continuing problem of no one willing

to take responsibility for the decades of neglect of the maintenance of Oroville dam in particular, but we shall add this: The transformation of our economy to a Wall Street/ finance driven gambling casino, relegating the real physical economy to wither away, resulted in the Oroville Dam disaster and many others to come. Here is the the paragraph:

“Bob Bea, of the [Center for Catastrophic Risk Analysis at UC Berkeley](#), said the memo lacked analysis of the institutional deficiencies that allowed the problems to persist. In past infrastructure failures, those issues accounted for almost 80 percent of why problems developed and went uncorrected, said Bea, a retired engineer whose credentials include conducting an independent investigation into why the levees around New Orleans failed during Hurricane Katrina in 2005.”

The report itself follows the articles.

Oroville Dam spillway had two dozen problems that may have led to mass failure, report says

*By Ralph Vartabedian
Los Angeles Times
May 10, 2017*

<http://www.latimes.com/local/california/la-me-oroville-dam-report-20170510-story.html>

The massive failure of the [Oroville Dam](#)'s main spillway in February involved two dozen potential design and maintenance problems, including thin concrete, inadequate reinforcing steel and weaknesses in the foundation, a panel of engineering experts reported Wednesday.

A forensic investigation team said it was issuing a preliminary list of causes so that engineers do not repeat the problems as they rush to fix the spillway before the next cycle of rains begins in November.

The two-page report does not identify what initiated the failure along the 3,000-foot chute that was used to drain the reservoir during massive winter storms. But it makes clear that the spillway is structurally too weak to handle the massive loads it sustained when dam operators opened the spill gates.

“The list is long,” said David Gutierrez, one of state’s top dam safety experts who retired from the Department of Water Resources after 37 years and is now consulting on the safety investigation. He said that not all of the 24 factors will likely be cited as causing the failure, but he added that no single problem likely caused the failure either.

The forensic team report covers design, maintenance and operation factors as possible causes of the failure.

Among the problems the report identified:

- *large variations in the thickness of the spillway’s slabs*
- *lack of continuous reinforcement along slab joints*
- *slabs that were too large to control cracking*
- *slab joints that allowed water to penetrate*
- *hydraulic pressures that were transmitted to beneath the slab*
- *multiple problems with drains under the slab that were supposed to relieve upward pressure*
- *inadequate preparation of the foundation and lack of effective repairs through the years*

The forensic team also identified potential factors in the damage to Oroville’s [emergency spillway](#), an unpaved hillside that was briefly used in February when the main spillway was damaged.

Oroville Dam: What state's forensics team has found in first analysis

By Ryan Sabalow and Dale Kasler

Sacramento Bee

May 10, 2017

<http://www.sacbee.com/news/local/article149800569.html#storylink=cpy>

In a report released Wednesday, engineers assigned to investigate the February failure of Oroville Dam's main spillway cited a variety of flaws in the 3,000-foot-long structure, including variations in the thickness of the concrete slabs, poor drainage beneath the spillway, improperly filled cracks and signs of inadequate maintenance.

The forensics team, consisting of six outside consultants, also said the spillway may have split because of an increase in water releases just prior to the Feb. 7 incident.

However, the team warned that its analysis, which consists of 24 possible causes, is preliminary. "Additional factors may be identified as the investigation proceeds," the group wrote in a three-page memo to the state Department of Water Resources. The team is expected to make its final report this fall.

The preliminary report represents the first analysis by the team officially designated by DWR to determine what caused the dam's main flood-control spillway to break apart. DWR was ordered to hire the forensics team by the Federal Energy Regulatory Commission, which licenses the dam and approved DWR's selection of the team members. The team turned in its preliminary analysis to DWR last week, but the state didn't release its contents until Wednesday.

Among the possible causes, the team took aim at DWR's maintenance of the structure over the years, pointing to "lack of durability and effectiveness of slab repairs."

One engineering expert said preliminary findings looked right – with one key exception.

Bob Bea, of the [Center for Catastrophic Risk Analysis at UC Berkeley](#), said the memo lacked analysis of the institutional deficiencies that allowed the problems to persist. In past infrastructure failures, those issues accounted for almost 80 percent of why problems developed and went uncorrected, said Bea, a retired engineer whose credentials include conducting an independent investigation into why the levees around New Orleans failed during Hurricane Katrina in 2005.

Looking into both human and mechanical errors provides "the insights about how ... you fix this in the future," said Bea, who released [an unsolicited report](#) on the spillway's fracture in April.

Two Republican legislators – Assemblyman James Gallagher and Sen. Jim Nielsen – whose constituents were evacuated, said in a joint statement they were troubled that some of the flaws cited by the forensics team had been identified by state officials during routine inspections in past years. Those problems included cracking and the presence of trees growing too close to the spillway, which may have interfered with the drainage system.

"We will remain resolute in our efforts to explore whether or not inspection findings were adequately addressed," the lawmakers said. Three Assembly committees will hold a joint hearing Thursday afternoon on the spillway emergency.

Outside consultants memorandum to the California Department of Water Resources

Memorandum

To: Mr. Paul Dunlap, California Department of Water Resources

From: Oroville Dam Spillway Incident Forensic Investigation Team

Date: May 5, 2017

Re: Preliminary Findings Concerning Candidate Physical Factors Potentially Contributing to Damage of the Service and Emergency Spillways at Oroville Dam

http://www.water.ca.gov/oroville-spillway/pdf/2017/Memorandum_050517.pdf

Candidate physical factors potentially contributing to service spillway damage:

1. Thinning of the chute slab above herring bone drains; these locations can promote cracking
2. Large variations in slab thickness.
3. Limited slab reinforcement consisting of one layer of light reinforcement in the top of the slab.
4. Lack of continuous tension reinforcement across slab joints.
5. Corrosion and failure of reinforcing bars across cracks
6. Slab joints with insufficient keys or lack of keys.
7. Slab placement sizes which were too large to control cracking.
8. Lack of waterstops in slab joints.
9. Hydraulic pressures and flows transmitted beneath the slab sections through open cracks and joints.
10. Increase in spillway discharge shortly before slab failure.
11. Plugging or collapse of drains or collector pipes, including potential plugging by tree roots.
12. Flow into the foundation that exceeded the capacity of the drain pipes, including possible flows from areas adjacent to the chute.
13. Lack of redundancy in collector drains.
14. Unfiltered drains; the gravel envelope may not serve as a filter.
15. Herringbone drains crossing joints in the slab.
16. Weathered rock and completely weathered rock that is soil-like material as slab foundation, without appropriate modification of the chute slab design, resulting in potentially erodible material beneath the slab and lack of foundation bond with concrete; the weathered rock and completely weathered rock appears to be associated with geologic features such as shear zones, and the degree of weathering changes relatively rapidly between some areas of the chute slab.
17. Less rigorous foundation preparation, resulting in lack of foundation bond with concrete.
18. Extended drought impacts on foundation materials.
19. Insufficient anchorage, due to limited anchor development in the concrete, short anchor length, inadequate grouting or grout strength, and/or installation in weak foundation material.
20. Relatively high spillway flow velocities in the lower chute for higher spillway discharges.
21. Lack of durability and effectiveness of slab repairs.
22. Spalling and/or delamination of concrete at slab joints.
23. Groundwater pressures; although current evidence suggests this may not have been a significant factor.
24. Cavitation; although preliminary analysis suggests this may not be a significant factor.

Candidate physical factors potentially contributing to emergency spillway damage:

1. Significant depth of erodible rock and soil in orientations that allowed rapid headcutting toward the crest control structure; these materials also appear to be associated with geologic features such as shear zones.
2. Hillside topography that concentrated flows and increased erosive forces, facilitating headcut formation.
3. Insufficient energy dissipation at base of the spillway crest.
4. Absence of erosion protection downstream of the crest structure.

Oroville Dam: With bills rolling in, state borrows heavily

By Dale Kasler

Sacramento Bee

May 8, 2017

<http://www.sacbee.com/news/local/article149363309.html#storylink=cpy>

California is borrowing up to \$500 million to pay for the [crisis at Oroville Dam](#), although it expects to be reimbursed for its costs.

The Department of Water Resources obtained a \$500 million line of credit last week to cover expenses connected to the spillway fracture at Oroville, including the permanent repairs. DWR obtained a separate \$300 million credit line last week to cover other capital improvements for the State Water Project beyond Oroville.

Federal money is expected to pay for much of the repairs. President Donald Trump in early April approved a request for \$540 million in winter storm repair funds for California, including \$274 million to deal with the short-term emergency at Oroville.

The state also plans to seek reimbursement from the Federal Emergency Management Agency for 75 percent of the cost of the dam's permanent repairs. Kiewit Corp. of Omaha, Neb., has won a [\\$275.4 million contract](#) for the repairs, which are expected to take two years.

Water customers, not state taxpayers, are expected to pick up whatever costs aren't covered by the feds. Because Lake Oroville is the main storage facility of the State Water Project, state officials believe the costs will be borne by SWP member agencies such as the giant Metropolitan Water District of Southern California.

Not so close: Oro Dam Diversion Pool dredging won't be done until December

By Risa Johnson

May 10, 2017

Oroville Mercury-Register

<http://www.orovallemr.com/general-news/20170510/not-so-close-oro-dam-diversion-pool-dredging-wont-be-done-until-december>

Oroville >> There's more debris in the water at the Oroville Dam Diversion Pool than initially thought, and state Department of Water Resources officials now don't expect to complete dredging and hauling of debris by December. DWR is seeking bids for the remaining work.

Daily incident reports have shown the debris removal was almost complete for weeks. The total amount was previously reported to be 1.7 million cubic-yards of material by DWR and [Wednesday's incident report](#) states 1.69 million cubic-yards of debris have been removed.

According to a new filing with the Federal Energy Regulatory Commission, the department's goal is to get the pool's capacity back to what it was before the spillway's collapse, and plans for achieving this by December are 95 percent complete. Some Critical Energy Infrastructure Information which has been redacted.

Removal of the vast amount of debris became essential as it was impeding the Hyatt Powerplant's ability to operate. The material comes from the main spillway that began to crumble Feb. 7 and the emergency spillway which was used for the first time Feb. 11. The emergency spillway is not a

structure at all, but a clearing on the hillside, so trees, rocks and dirt were swept up in the gushing water's path, ending up in the Diversion Pool below.



Excavators remove debris from the Diversion Pool below the main Oroville Dam spillway in this photo from March 29. Bill Husa — Mercury-Register

The Real and the Hysterical

In last week's report a discussion of Trinity Dam on the Trinity River, and the third largest dam in California, focused on the lack of an emergency spillway for the dam. The following article, with just the link provided here, elaborates on that story, and includes, in my view, a little hysteria about the B.F. Sisk Dam, which impounds the 2-million-acre-foot San Luis Reservoir near Los Banos.

Climate change erodes thin safety margins at Calif. dam

By Jeremy P. Jacobs, E&E News reporter

Greenwire: Monday, May 8, 2017

<https://www.eenews.net/stories/1060054182>

Perhaps, as I titled my report on Oroville Dam a couple of months ago, "Oroville Dam's near catastrophe: A wake up call for the nation," Oroville Dam has indeed become such a wake-up call. Here is an excerpted article that demonstrates that at least some of the media is beginning to pay attention:

The state of our dams

By Alex Breitler

The Record

May 6, 2017

<http://www.recordnet.com/news/20170506/state-of-our-dams>

Lightly redacted inspection reports obtained by The Record for a few dams upstream of San Joaquin County, along with other documents and interviews, reveal ordinary maintenance issues as well as longer-term, potentially more serious problems.

Desalination

Statewide Poll Shows Californians Strongly Support Seawater Desalination

By Pamela Martineau

Association of California Water Agencies

May 4, 2017

<http://www.acwa.com/news/desalination/statewide-poll-shows-californians-strongly-support-seawater-desalination>

Nine out of ten voters polled in California favor desalination efforts and 78% of surveyed voters say they would be more likely to vote for a candidate for elected office who supports seawater desalination, a new statewide poll released today by Tulchin Research revealed.

The strong preference for a candidate who supports funding water desalination plants holds across both partisan and regional lines.

“Very few issues show such overwhelming support as does desalination in California,” said Ben Tulchin, President of Tulchin Research. “Elected officials and candidates for elected office should certainly take note that their constituents clearly want seawater desalination as a source of drinking water in the state.”

“The results of this survey add to the mounting evidence that the majority of the state is in favor of desalination as a way to provide a secure source of drinking water for our communities,” said Antonio Gonzalez, president of the William C. Velasquez Institute.

Dithering must end in California's too-long desalination debate

By the Editorial Board

Sacramento Bee

May 9, 2017

<http://www.sacbee.com/opinion/editorials/article149580949.html#storylink=cpy>

Last winter's extreme storms notwithstanding, water remains scarce in this state. Between climate change and ongoing growth, California can't afford to squander a single gallon. Yet in Orange County, a project that could increase water supply by 50 million potable gallons daily has been awaiting

approval since 1998.

There are [pros](#) and [cons](#) aplenty to the \$1 billion desalination plant proposed for Huntington Beach by Poseidon Water. And in the nearly 20 years during which state and local authorities mulled it, all have been masticated thoroughly.

Like the plant Poseidon [recently opened to the south in Carlsbad](#), the Huntington Beach facility would add a critical, if pricey, source of freshwater in drought years.

Now the Huntington Beach project – [which President Donald Trump is said to support](#) – has three final hurdles to clear, starting later this summer when the plant's lease agreement comes up for renewal before the state Lands Commission. After that, the state Water Board has to sign off on an amended discharge permit, and then it comes before the California Coastal Commission. If there are no further delays, the plant should have a thumbs up or down by the first quarter of next year.

All things considered, we think it merits approval.

But at the very least the project deserves a decision. Let's not dither for another 20 years.

Santa Barbara's desal plant to start delivering water this month

By Beth Farnsworth

May 9, 2017

<http://www.keyt.com/news/santa-barbara-s-county/santa-barbaras-desal-plant-to-start-delivering-water-this-month/489820201>

SANTA BARBARA, Calif. - Parts of Santa Barbara will soon be receiving water from the city's reactivated desalination plant.

City officials announced The Charles E. Meyer Desalination Plant will start distributing water this month, although an exact date is not known. Joshua Haggmark, the City's Water Resources Manager told NewsChannel 3 that the start date could come within the next three weeks, optimistically, by Monday.

City officials said the desalinated water will meet and exceed all state and federal drinking water regulations.

The desalination plant, located at 525 East Yanonali Street, will produce nearly 3 million gallons of water every day, meeting about 30% of the city's water demand.

“The pot you smoke may be grown on the carcass of a dead fisher.”

So concludes this article from the Sacramento Bee. Environmentalists and pot smoking have long been bed mates, so the destruction of the environment resulting from marijuana growing truly is ironic.

From fishers to foxes, illegal pot growers are poisoning wildlife in Northern California forests

By Jane Braxton Little

Sacramento Bee

May 7, 2017

<http://www.sacbee.com/opinion/california-forum/article148488874.html>

First it was Pacific fishers, poisoned and dead. Then it was bears and gray foxes. The more Mourad Gabriel looked the more carcasses he found.

His decadelong scientific [research](#) has now established a clear connection: Illegal marijuana cultivation is threatening the viability of fishers and taking an unknown toll on other forest wildlife.

If there is a threat to public lands in Northern California greater than the GOP commitment to transferring vast stretches to private ownership, it is pot farms.

“An armed industry is taking over our national forests,” said Gabriel, a wildlife disease scientist and executive director of [Integral Ecology Research Center](#).

Pot growers have gashed thousands of illegal farms into the remote backcountry of national forests from the Klamath to the Plumas. They have diverted entire streams, bulldozed trees and punched roads onto erosive hillsides.

To protect their plants from wildlife, growers place poison-laced bait that causes animals to bleed to death. These rodenticides bioaccumulate, spreading death up the food chain from prey to predator. The large mammals Gabriel finds are just the ones that have not completely decomposed before he stumbles across them: “You don’t find the birds,” he said. “They’re long gone.”

The area contaminated by pot farms has also grown and now includes almost every county in far Northern California. More disturbing for wildlife, the poisons on grow sites have escalated from anticoagulant rodenticides to include carbofuran, a pesticide so toxic it is prohibited in Canada and under a de facto ban in the United States.

California has taken important steps toward limiting the use of rodenticides. Since 2014 sale of all second-generation anticoagulant rodenticides has been restricted to licensed pesticide operators. Obviously this has not deterred illegal pot growers.

Neither has marijuana legalization. Despite the hopes of wishful thinkers, production is booming and the growing season, which used to begin in May, is becoming year-round. U.S. Forest Service law enforcement has never had the resources to deal with these trespassers. With the agency burning half its budget to fight fires and further cuts proposed, going after pot growers is little more than whack-a-mole.

His research may be our best hope for reclaiming our national forests from an illegal industry. The data deliver a clear message for agencies and policymakers: Marijuana is killing wildlife and poisoning public lands.

And the science has a pointed message for users: The pot you smoke may be grown on the carcass of a dead fisher.

Feature

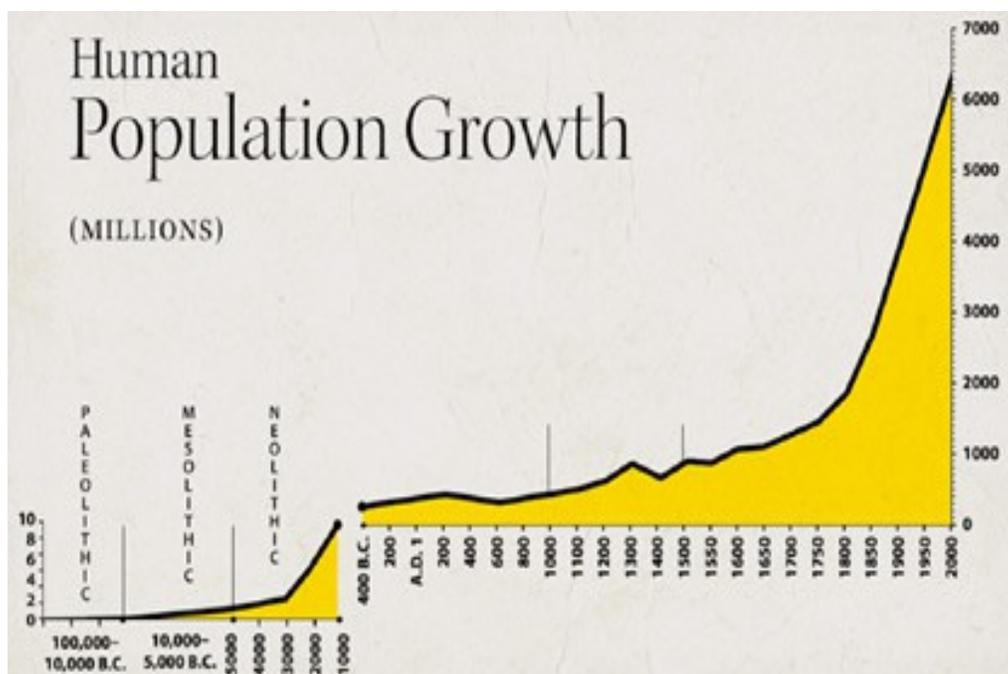
The Value of Infrastructure

A presentation by Jason Ross at the “U.S.-China Cooperation on the Belt and Road Initiative and Corresponding Ideas in Chinese and Western Philosophy,” April 13-14, 2017 in New York City.

<http://schillerinstitute.org/conf-iclc/2017/0413-ny/ross.html#xscr>

(What follows is excerpts from the first few paragraphs of the presentation by Jason Ross).

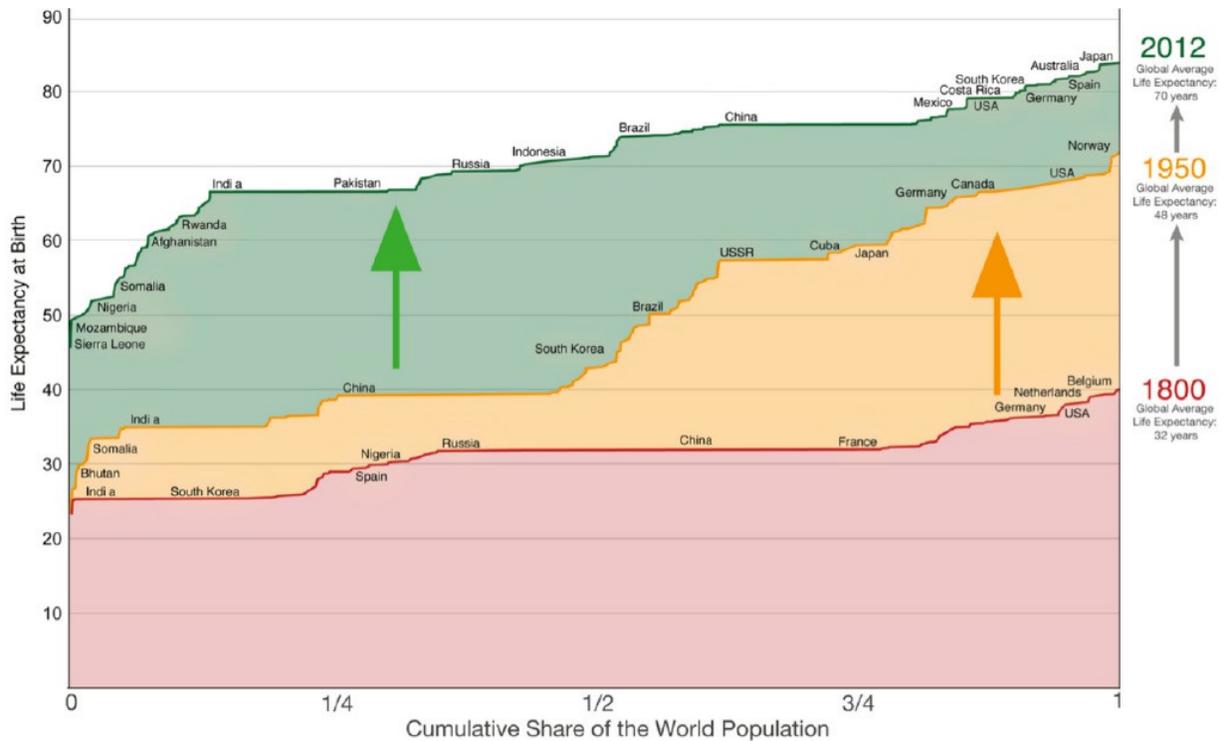
If we look overall at the value of infrastructure—that’s what I want to focus on today, because there are aspects of infrastructure that make it different from anything else in the economy. Wrong economic thinking about it prevents financing and prevents it from being built, and holds us back from reaping all of the benefits that we could from investments in these sorts of projects. If we look at the human species as a whole, what characterizes us is that over historical time, we have become a new species—repeatedly. If we were looked at from the standpoint of biology, you would say that the human species has been supplanted and transformed into a new species, a new genus, a new family, many times in our history. We’ve seen this in the changing relationship that we have to our environment. We’ve seen it in the changing number of people that can exist on the planet.



This [Fig. 1- above] is a chart of human population over the past 10,000 years. No animal species willfully changes the number of its species that can live on the planet; we do that. How do we do that? We do that in what makes us human, which if we look back to the Greek creation story of the human species, to the story of Prometheus, we’re told a tale of how the human species was created. This tale asserts that before Prometheus, we had bodies that were human, but we didn’t have minds; we didn’t use fire. Prometheus, in giving fire to mankind, and number, and poetry, and astronomy, and the calendar, and all of the arts, and metallurgy, and medicine, and sailing ships, and the use of animals—by giving knowledge to mankind, we became a new species on this planet. That’s the basis of our transformation in our living standards.

Here [Fig. 2-below] you see a chart of life expectancies over time. The red line is life expectancy for different nations in 1800; where you can see that even the nation with the highest life expectancy, Belgium, their life expectancy was only 40 years in 1800. Think what the average age of a person in a society like that would be. How advanced could such a society become, if this is the maximum age

people are reaching? You see a tremendous increase. You see what had been reached by 1950, and now today—2012 and beyond—every nation in the world has a life expectancy that’s greater than that of Belgium, which had the highest 200 years ago. That’s something to be very happy about and proud of, and reflects something that’s absolutely different about our species from any other sort of life.



What is ‘Infrastructure?’

So, what is infrastructure? Think about the word “environment” for a moment. We use it in many contexts. Sometimes we mean specifically things like the air and the water around us; sometimes it has a more general meaning, like the ambience. What’s the environment in a social situation? What’s the environment like in a restaurant, for example? But our environment—the world around us—is increasingly one that we create. The resources that we use—unlike animals—are not ones that we find around us. An animal looks for plants to eat; a plant hopes some sunshine will land on it. These are just things that are around it; it doesn’t create them, it uses them. For us, this synthetic environment that we create for ourselves, is our infrastructure. By mediating our discoveries that we have made, the science that we know, the technology that we’re capable of—by implementing them as a platform of infrastructure, we set ourselves up for a certain level of civilization, of economic potential.