California Water and Infrastructure Report

For July 25, 2019

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

patruckert@hotmail.com

"Humanity has always moved outwards over the last two or three million years to find resources and really to better their existence, and I think space is a part of that. It's probably in our DNA, its probably an evolutionary thing. In order to survive, you can't stay in one place forever, whether you're a family, or a tribe, or an entire civilisation. Moon and Mars settlement is extremely important for the dispersal of the human species throughout the solar system and possibly beyond...."

Former Senator and Apollo 17 astronaut Harrison Schmitt

A Note To Readers

A full report is a central part of the Feature this week, continuing our commemoration of the 50 year anniversary of the Apollo 11 landing on the Moon. Also included in the Feature is a petition I urge all readers to sign: “We Commit to the Moon-Mars Mission.” And you will also find there a second petition. One calling on President Trump to Exonerate Lyndon LaRouche.

And in the rest of this week's report:

First, strawberries. A little inside story on how your strawberries come to be.

Drought continues to plague the northwest states, especially Washington.

It is fire season again in the west, and the state of California has been preparing. Several reports on that preparation are featured.

Desalination is one feature that will play a more prominent role in California's water supply. Finally, we have a couple of articles on how that must be done. First an article on the role of nuclear power in providing the electricity for it. And second, how desalination can be a viable alternative to the tunnel(s)

under the Delta.

Then the Feature, which has been discussed at the opening of this introduction.

Celebrate California Agriculture

California strawberries are about to get tastier and more environmentally friendly

By Madeline Wells, SFGATE

Updated 12:40 pm PDT, Wednesday, July 17, 2019

https://www.sfgate.com/food/article/California-new-strawberries-sweetest-uc-davis-14102782.php#photo-17312868

Photo: Santiago Mejia / The Chronicle

Did you know that almost 90 percent of American strawberries are grown in California? If so, did you also know that the University of California, Davis is responsible for developing about 60 percent of California's strawberry varieties?

In the latest news from these strawberry connoisseurs, scientists at UC Davis have developed five new types of the berry set to hit the market this fall.

"These new varieties are intrinsically different from the ones they replace," said Steve Knapp, professor and director of the UC Davis Strawberry Breeding Program, according to a news story on the UC Davis site. "After more than three years of field tests, we're seeing higher yields, greater disease resistance and better quality after harvest."

Researchers say these new strawberries are the best of both worlds: the strawberries will use less water, fertilizer and pesticides and still produce more, healthier, higher-quality strawberries. It will also save farmers money — the strawberries are more resistant to disease, and two of the new varieties have the potential to increase yields by nearly 30 percent.

Drought in the Northwest

Drought conditions worsen in state

July 24, 2019

https://www.goldendalesentinel.com/story/2019/07/24/news/drought-conditions-worsen-in-state/11989.html

As 2019 has progressed, so too have the spread of arid conditions across Washington state.

According to the latest information from the U.S. Drought Monitor (USDM) released on Thursday, roughly three-fourths of the Evergreen state is anything but green, and now listed as being categorically in at least the initial stages of an official drought.

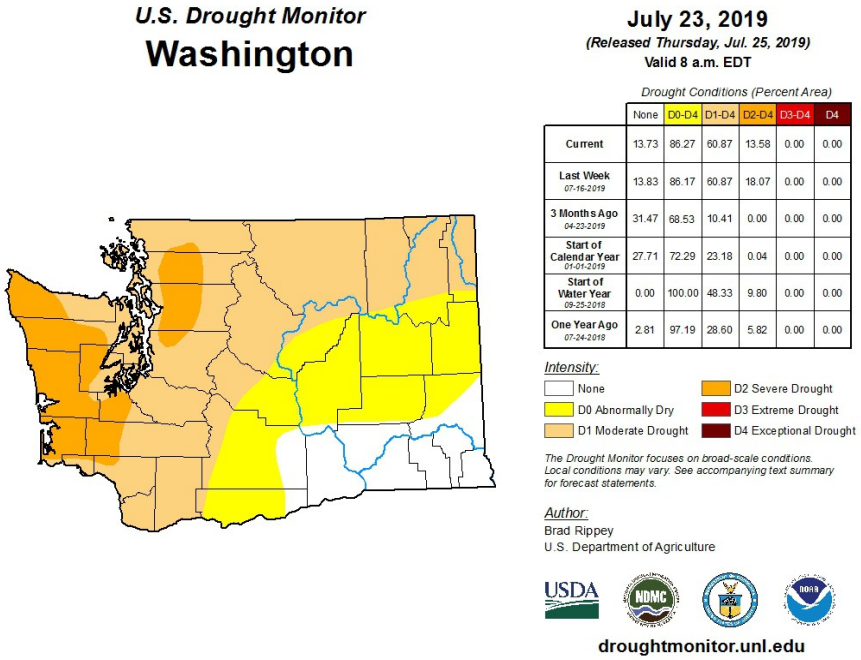
Drought conditions have already formally been declared for about half the state already, with the most parching effects covering much of the Olympic Peninsula where the USDM has posted a rating of D2 for "Severe Drought", along with places around Central Washington from the Canadian border south to near the Oregon border which are largely listed at a rating of D1 for "Moderate Drought".

Watersheds in Wenatchee, Entiat, and Chelan are part of the official drought declarations, as well as those in the Yakima area and in much of Okanogan County.

The desiccated state has been gradually enlarging in a southeasterly direction since the early spring and now encompasses a swath of landscape arching from Klickitat County north through most or all of Kittitas, Douglas, Grant, Adams, and Lincoln Counties that the USDM rates as a D0 for "Abnormally Dry".

The persistent drought and drought-like conditions are not expected to alter their course any time soon, in spite of cooler temperatures and average levels of precipitation which have been recorded over the last month throughout much of the state.

U.S. Drought Monitor for Washington State



Drought-stricken trees die in and around Eugene

By Dylan Darling
July23, 2019
https://www.registerguard.com/news/20190723/drought-stricken-trees-die-in-and-around-eugene

A string of hot, dry summers has taken a toll on trees in Eugene and surrounding forests in Lane County — and that has foresters and other people who regularly work with or around trees taking notice.

Drought is killing Douglas fir, Oregon's signature tree species, as well as grand fir in the Willamette Valley, according to Oregon Department of Forestry research reported earlier this week by the Statesman Journal. State scientists also told the Salem newspaper that drought may be contributing to declines in maple and cedar.

Drought has been a summertime occurrence in Oregon since 2012, and 2015 sticks out as particularly hot and dry.

Lane County currently is abnormally dry, one rung below moderate drought, according to the U.S. Drought Monitor. Most of the Willamette Valley north of Eugene-Springfield already is in moderate drought. And, federal climate experts predict drought conditions persisting through October in Western Oregon.

Each year of drought puts more strain on trees, said Lauren Grand, forester with the Oregon State University Extension Service in Lane County. Beetles or fungus may attack the lower portions of a tree as its top dies. "(Eventually) it can no longer take both attacks and so the tree succumbs to drought," she said.

Fire Season in California Once Again

Following last year's destructive and deadly record fires, the state of California has both increased the fire fighting budget, began to clear forests and has had to deal with the bankruptcy of PG&E as it was found responsible for two of the worst of those fires. What follows are reports on what has been done.

California's new wildfire plan: 5 things to know

By Julie Cart
July 12, 2019
https://calmatters.org/environment/california-wildfires/2019/07/californias-new-wildfire-plan-5-things-to-know/

(Excerpts)

In Summary

Is this a utilities bailout? Will it help prevent future fires? How will all this work? Here's a breakdown of the new plan California lawmakers are putting in place.

Isn't this just a bailout for California's big utilities?

Kinda. One way to look at it is that the financial health of ratepayers, wildfire victims and utilities are intertwined. The first two groups need utility companies to maintain a beating heart in order to stave off higher electricity bills or to prevent being left high and dry after a utility-caused fire. So there's some mutual self-interest at work here.

What about the wildfire victims' fund? How does that work?

Actually the companies can choose between two proposed options. In either case, fire victims are compensated by the utilities, via the fund.

Will this pot of money help wildfire victims?

In theory.

Without question, $21 billion is a lot of money.

But keep in mind that, given the ever-increasing frequency, size, intensity, and destructiveness of fires in California, the price tag to make victims whole is likewise exploding.

Consider, too, that PG&E alone estimates its liability for the most recent fires is in the neighborhood of $30 billion.

What does any of this have to do with preventing or containing fires?

Yes, it seems as if there's a lot about liability and bankruptcy but not much that speaks to the business of preventing or putting out wildfires.

The law requires the three big investor-owned companies to spend $5 billion to fireproof their equipment. They had already pledged to spend $3 billion in that effort, and that work can have a real impact. That's things like insulating transmission and distribution lines, clearing trees and brush around equipment, replacing wooden power poles with steel or composite ones and placing protective covering over some infrastructure.

In addition, lawmakers have indicated they intend to come back with a handful of other bills that more specifically respond to the underlying fire issues of vegetation and tree clearance, community fire safety, and other more-direct fire causes.

California's Wildfires Are 500 Percent Larger Due to Climate Change

"Each degree of warming causes way more fire than the previous degree of warming did. And that's a really big deal."

Robinson Meyer

https://www.theatlantic.com/science/archive/2019/07/climate-change-500-percent-increase-california-wildfires/594016/

Californians may feel like they're enduring an epidemic of fire. The past decade has seen half of the state's 10 largest wildfires and seven of its 10 most destructive fires, including last year's Camp Fire, the state's deadliest wildfire ever.

A new study, published this week in the journal Earth's Future, finds that the state's fire outbreak is real—and that it's being driven by climate change. Since 1972, California's annual burned area has increased more than fivefold, a trend clearly attributable to the warming climate, according to the paper.

The trend is dominated by fires like the Mendocino Complex Fire—huge blazes that start in the summer and feed mostly on timberland. Over the past five decades, these summertime forest fires have increased in size by roughly 800 percent. This effect is so large that it is driving the state's overall increase in burned area.

And while autumn wildfires such as the the deadly Camp Fire dominate the news—and while there is some evidence that they may be getting larger—there is still not enough data to say that any increase is statistically significant. But the climate models do suggest that autumn fires across California will get more common as climate change continues to wrack the state.

The State of Wildfire Risk Reduction in California

Lori Pottinger July 22, 2019

https://www.ppic.org/blog/the-state-of-wildfire-risk-reduction-in-california/?utm_source=ppic&utm_medium=email&utm_campaign=blog_subscriber

After a few horrific years of extreme wildfires, California has been taking steps to reduce future risks with new programs, increased funding, and new policy efforts. We talked to Van Butsic—a land use scientist at UC Berkeley and an adjunct fellow at the PPIC Water Policy Center—about these efforts.

***PPIC:** Is California doing enough to manage its forests and reduce wildfire risk?*

***Van Butsic**: Probably not, but it's definitely doing a lot more than it was five years ago. The state has made a substantial effort to deal with the issues around wildfires—just not yet at the scale needed to get big results.*

***PPIC:** The Newsom administration has taken additional steps to address wildfire risk. Where do you think they're on the right track? What elements are still needed?*

***VB:** They're doing a better job in realizing we need to have more hands-on management. Governor Newsom issued an emergency order that reduced environmental review for a handful of fuel reduction projects, which means they can take place a little quicker and address fire risk this season. And they're investing a bit more money in fire suppression.*

I really do dislike Libertarians. The following excerpted article cuts out the bullshit formula the writer presents toward the end about privatizing and deregulating everything and then we will be in Nirvana.

Trump and Newsom Think Alike on Deadly Wildfires

By guest author Lawrence McQuillan
July 19, 2019
https://catalyst.independent.org/2019/07/19/trump-and-newsom-think-alike-on-deadly-wildfires/

On June 12 the Trump administration proposed easing environmental regulations for forest-thinning on federal land to speed up wildfire prevention. Before accusing President Trump of clearcutting California, it's important to note that Gov. Gavin Newsom is quietly taking similar actions, an admission that environmental mandates are fueling catastrophic wildfires.

Cal Fire has begun work on 35 fast-tracked community projects across California to eliminate excess fuels through thinning, prescribed burns, and creation of fire breaks. But these projects have proceeded only because the governor issued an "emergency proclamation" granting special waivers of state environmental regulations, such as the California Environmental Quality Act (CEQA), which requires impact reviews.

In the 1800s, California forests averaged less than 50 trees per acre; today the average is upwards of 500 trees per acre. This extreme density weakens all trees in the forests as they compete for sunlight and water, making them more susceptible to drought and disease, and producing more flammable dead and dying trees. California has nearly 150 million dead trees.

John Laird, former secretary of the California Natural Resources Agency, has recommended that 500,000 acres of forest each year be thinned of undergrowth, small trees, and dead trees; yet in 2017 the state treated only 250,000 acres. Thinning public and private land has been held back by regulations, especially by CEQA.

Desalination

MegaDroughts And Desalination -- Another Pressing Need For Nuclear Power

James Conca Contributor
July 14, 20019
https://www.forbes.com/sites/jamesconca/2019/07/14/megadroughts-and-desalination-another-pressing-need-for-nuclear-power/#600bfe187fde

About 20% of the world's population has no access to safe drinking water, and this number will increase as the population continues to grow and global freshwater sources continue to decline. The worst-affected areas are the arid and semiarid regions of Asia, the Middle East and North Africa.

UNESCO has reported that the freshwater shortfall worldwide will rise to 500 trillion gallons/yr by 2025. They expect water wars to break out in the near-future. The World Economic Forum says that shortage of fresh water may be the primary global threat in the next decade.

But 500 trillion gallons/year only requires about 1,500 seawater desalination plants like the ones being built in California and Saudi Arabia. At a billion dollars a pop, that's a lot cheaper than war and starvation.

Unfortunately, we presently desalinate only 10 trillion gallons/year worldwide.

California needs 30 large desalination plants to deal with future megadroughts. They did recently build one in Carlsbad, but it's not nearly enough.

Desalination technologies are capable of treating water from a wide variety of sources, including brackish groundwater, surface water, seawater, and domestic and industrial wastewater. While the wastewater from desalination is itself problematic, MIT has developed a process to turn it into useful products.

Most desalination plants in the world use fossil fuels to power them, but it's even better to power them with nuclear energy. The new fleet of Small Modular Nuclear Reactors (SMRs) are ideal as they produce both thermal energy and electrical energy without producing greenhouse gases.

Desalination makes more sense for California than a multi-billion dollar water tunnel

Ted Kuepper and John P. MacHarg, Your Turn Published 3:23 p.m. PT July 20, 2019
https://www.vcstar.com/story/opinion/editorials/2019/07/20/desalination-makes-more-sense-than-multi-billion-dollar-water-tunnel/1134319001/

Re: your May 3 story, "Big change made to water project":

There is an obvious connection between the proposed multibillion-dollar Sacramento Delta Water

Tunnels, the proposed mining/pumping of water from the Mojave Desert, Central Valley farmers lacking the water resources to maximize food production, and the Sacramento River and fishing stocks suffering from inadequate water flows. That connection is the State Water Project, which pumps water to Southern California and reduces the river water needed for fisheries, farmers, and the river itself.

The reality is Southern California needs water and if we don't produce it here, then we're going to take it anywhere we can find it, regardless of environmental damage and economic considerations. But we believe the State Water Project should not be considered the primary source of outside water for Southern California as it is today, and a better alternative is seawater desalination. But desalination suffers from two serious misconceptions due to inappropriate comparisons: 1) Desalination is too costly, and 2) pumping its concentrate back to the ocean may cause environmental damage. Let's examine these:

The Carlsbad desalination plant opened in 2015 and cost $1 billion. It produces 50 million gallons of water daily or 56,000 acre-feet of water yearly. Using these numbers, if the original $20 billion proposed for the water tunnel project was spent for desalination in Southern California, it would pay for over 1 million acre-feet of water yearly. One million additional acre-feet of water yearly for California agriculture and fisheries is a little less than half of the water that travels through the State Water Project yearly and would allow the reduction of that same amount of Sacramento River water that must now be sent to Southern California.

Seawater desalination is not seriously considered as a significant source of water for Southern California because of perceived costs and environmental concerns. But when its cost and environmental concerns are evaluated with comparisons to the State Water Project and pumping sewage into the ocean, desalination compares very favorably here in Southern California. It could reduce the need to pump almost half of the 2.4 million acre-feet of water yearly from Northern California into Southern California as is done today.

In addition, multiple desalination plants in Southern California would make California's overall water system more earthquake-resilient by increasing the number of our local sources of water. We firmly believe that more reliable water sources for Southern California would bring our state into the 21st century in a much more worthwhile way than the speed of a bullet train.

Ted Kuepper is a retired managing director of the Navy's Seawater Desalination Test Facility, Port Hueneme. He is a registered environmental manager and seawater desalination consultant. John P. MacHarg, the owner of Ocean Pacific Technologies in Ventura.

Worth One's Salt: Proposed Doheny Ocean Desalination Project Jumps EIR Hurdle

- *By Dana Point Times*
- *On July 5, 2019*

Lillian Boyd, Dana Point Times

https://www.danapointtimes.com/worth-ones-salt-proposed-doheny-ocean-desalination-project-jumps-eir-hurdle/

South Coast Water District General Manager Rick Shintaku recalls the California drought from 1987 to 1992 as a pivotal moment in his career in water resources.

SCWD's Board of Directors held a public hearing on Thursday, June 27 before certifying the final draft of the Environmental Impact Report (EIR) for the Doheny Desalination project. The initial draft version was released on May 23, 2018. It was created to evaluate the possible impacts and mitigation measures of a potential ocean water desalination facility to produce drinking water, in accordance with

the California Environmental Quality Act (CEQA).

SCWD's service area is approximately 8.3 miles and includes the communities of Dana Point, South Laguna, and areas of San Clemente and San Juan Capistrano.

Currently, SCWD imports 85 to 100% of its drinking water. The agency says this amount of reliability on imported drinking water creates vulnerability during droughts, supply shortages and potential natural disasters. According to SCWD, the proposed project would create a new, reliable, drought-proof source of water, and is one of the first projects to meet all requirements of the California Ocean Plan.

"South Orange County is short of emergency supplies today by 20 to 27.5 million gallons per day. Keep in mind this project produces 5 million gallons per day," Shintaku said. "The single largest risk exposure to South Orange County is an earthquake that could disrupt the State Water Project flows for more than a year."

Feature: We Go-- Back to the Moon and On to Mars

Continuing our featuring of the 50 year anniversary of the Apollo 11 manned-landing on the Moon, we begin with a great one minute video, "We Go as the Artemis Generation" from NASA's Artemis Project announced about two months ago by the Trump administration. This time a man and a woman astronauts will arrive at the Moon in 2024 (just five years from now). This time to stay and build an operational colony on the Moon by 2028. This will be the foundation for then going to Mars.

A link and the opening paragraphs to the Key Note presentation at the July 20 Schiller Institute conference "After Apollo-- Our Mission Today," by Helga Zepp-LaRouche, follows.

Then, the last man to walk on the Moon in 1972, Harrison Schmidt, the only astronaut who was also a scientist, is interviewed by the London *Telegraph*. Schmidt makes clear that, as the space pioneer Krafft A. Ehricke made clear: Mankind is destined to be a space-faring species; that is man's "extraterrestrial imperative,"

Then a link to the LaRouche PAC Weekly Fireside Chat which focuses on a presentation of how Lyndon LaRouche was always two-three generations ahead of his time, visualizing the programs which could ensure that all men and women fulfilled their destinies as humans, as discoverers of the laws governing the universe itself. His Fourth Law for economic recovery mandates fusion power development and space exploration as the necessary step for ensuring continuous economic prosperity.

An invitation for you to join in this great mission can begin by signing the petition: ***We Commit to the Moon-Mars Mission***, which can be found below.

Two more items fill out the Feature.

And, what better way to celebrate America's 50th Anniversary of the successful landing on the Moon, than Exonerating Lyndon LaRouche?

Please take two minutes to sign the Exoneration Petition for Lyndon LaRouche. "We, the undersigned, call on President Donald Trump to exonerate Lyndon LaRouche." Sign here: http://action.larouchepac.com/petition_exonerate_larouche?recruiter_id=175795

Video: We Go as the Artemis Generation

A great one minute video
https://www.youtube.com/watch?v=dOKKkV-30dE&feature=share&fbclid=IwAR14SCPgeBm8kPjR7cp3R6upegtrTO4-dzh3btb3YUMqcKcFIuxflCb4Egk

NASA Published on Jul 19, 2019

We Go: To the Moon and on to Mars. Our generation, the Artemis generation, will explore farther than we've ever gone before. The Artemis program will send the first woman and next man to walk on the surface of the Moon and build a sustainable base to prepare for missions to Mars and beyond.

From the Schiller Institute Conference: After Apollo-- Our Mission Today

Homo sapiens extraterrestris: Man Is the Man in Space

by Helga Zepp-LaRouche

July 20, 2019

Helga Zepp-LaRouche

This article appears in the July 26, 2019 issue of ***Executive Intelligence Review.***

https://larouchepub.com/eiw/public/unlisted/2019/eirv46n29-20190726/Zom-GH6b4eLq/4629-homo_sapiens_extraterrestris_m.html?utm_source=sendinblue&utm_campaign=EIR__July_26&utm_medium=email

Excerpt:

July 20—Ladies and gentlemen, dear friends of the Schiller Institute, today we celebrate a very joyous moment, the 50th anniversary of the first Moon landing. This is a truly universal event, an event which unites all of humanity. In 1969, 500 million people watched that Moon landing. It caused incredible inspiration and excitement at the time. You can be sure that today, when communication is so much better, where already in the last several weeks, there were millions of people watching programs from the past, documentaries, so it will again be hundreds of millions of people, who will unite and celebrate this incredible event. In 1969, it was every seventh human being on the planet [who watched the Moon

landing].

The reason space exploration is so absolutely important is because it has everything to do with mankind's identity. As my late, beloved husband Lyndon LaRouche said, space travel is the proof that the humans are not Earthlings; we are spacefaring, we all have the divine spark of reason which makes sure that each of us is capable of limitless self-perfection to study and discover, ever better, the laws of the physical universe. Or, as our dear friend, the great space pioneer Krafft Ehricke said, it's the *Homo sapiens extraterrestris*; Man is the man in space.

The Extraterrestrial Imperative

The joyous thing is that today, after five decades of a hiatus, of cutting back in funding for NASA, and the very poor funding of the European Space Agency, the perspective of the industrialization of the Moon and a colony on Mars is fully back on the agenda. President Trump announced the United States will put a man and a woman on the Moon by 2024.

The Chinese, for the occasion of this 50th anniversary, just re-activated their *Chang'e-4* lunar mission rover and *Yutu-2* lander on the far side of the Moon.

Today, also postponed until this date, a *Soyuz MS-13* launcher has lifted off from the Baikonur Cosmodrome in Kazakhstan, carrying a Russian, an American, and an Italian to go to the International Space Station for the next period. The Italian—Luca Parmitano—will be commander on the ISS in the second part of this mission. He said, "What we do on the ISS is for the Earth, it's for all of humanity."

Also for this occasion, the Indian *Chandrayaan-2* mission to the South Pole of the Moon, which will investigate the ice in the craters of the South Pole on the Moon, was slightly postponed, but it's supposed to land on the Moon in September.

Also from Russia, Dmitry Rogozin, the head of Roscosmos, sent his congratulations to NASA head Jim Bridenstine, praising the three original NASA astronauts—Neil Armstrong, Buzz Aldrin, and Michael Collins—and all the great space pioneers before them, because they "dared to set off on a journey to the unknown in order to push the boundaries of the reachable world for all of humanity."

If one thinks about the vastness of the universe, what is known so far through the pictures of the Hubble Space Telescope, is that there are at least two *trillion* galaxies. Recently, the proof was found that Einstein's assumption about gravitational waves is, indeed, the reality. And also that it has now been proven that Einstein's assumption that black holes indeed are at the center of each galaxy, which means we are living in a relativistic universe. It is very clear, and this last example is the final proof if you needed one, because the imaging of the horizons of these black holes could only be accomplished because eight countries from across the globe put their radio telescopes together, to be able to make such an image.

The most important message, therefore, is that space research and travel require international cooperation, cooperation and not confrontation. Therefore, we should not be involved in a "race" to the Moon or "race" to Mars. This is the unique chance for progress beyond the geopolitical competition among countries. We have to look at the future in space from the standpoint of the common interest of all of humanity.

Astronaut Schmitt: It's In Humanity's DNA to Move Outwards for A Better Life

July 24 (EIRNS)--"Humanity has always moved outwards over the last two or three million years to find resources and really to better their existence, and I think space is a part of that. It's probably in our DNA, its probably an evolutionary thing. In order to survive, you can't stay in one place forever,

whether you're a family, or a tribe, or an entire civilisation. Moon and Mars settlement is extremely important for the dispersal of the human species throughout the solar system and possibly beyond," former Senator and Apollo 17 astronaut Harrison Schmitt told London's *Telegraph* last week (published July 21).

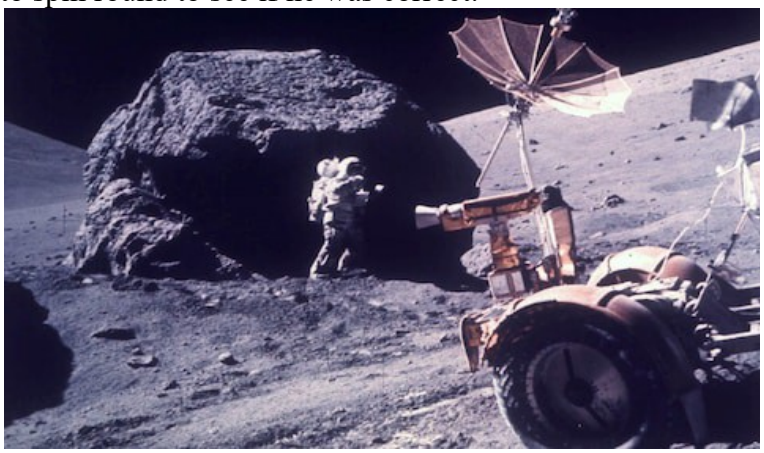
Harrison Schmitt collecting Moon rocks in 1972 Credit: Getty

The Apollo generation is passing very quickly, 83-year-old Schmitt points out. It is the next generation's mission to colonize the Moon, as a source of fuel for fusion power, and as a testing ground for what's needed to go out in deep space.

Schmitt views colonizing the Moon as the easy part. "The Moon's debris layer provides the op to produce water, hydrogen and oxygen as fuels. It's also very fertile, so if you want to produce food, that's achievable. Settlements on the Moon are going to be a piece of cake," he told the *Telegraph*!

"I think 50 years from now, at the 100th anniversary of Apollo, there will be settlements on the Moon, people living there permanently, producing the resources of the Moon. Not only will that assist a Mars mission, but Helium 3, that is an ideal fuel for electric power generation because it creates no radioactive waste and demands for electrical power are not going to decrease, civilisation depends on it, and this is one of its major potential and long-term sources."

Schmitt was the first scientist-astronaut to walk on the Moon. He and Eugene Cernan collected 243 pounds of material during their 75 hours total on the lunar surface, transversing 30.5 kilometers by rover. Geology was not his only interest. Schmitt recounted to the *Telegraph* how he had "carried out personal experiments to see if he could predict weather patterns on Earth, making careful forecasts and waiting for the planet to spin round to see if he was correct."



Schmitt taking samples from a boulder which never saw sunlight Credit: Nasa

"I'm a geologist and in my professional career I have always thought of the Earth as a planet," he

explained.

Not surprisingly, with his optimistic scientific mindset, Schmitt has been outspoken against the fraud of man-made climate change, unimpressed by the resulting flack fired at him by the green ideologues. He joined William Happer in founding the CO2 Coalition, and serves on its board of experts. In a 2016 *Wall Street Journal* op-ed co-authored with Rodney Nichols titled "The Phony War Against CO2," Schmitt wrote that it is "both unscientific and immoral" to treat beneficial carbon dioxide gas as a hazardous pollutant.

https://www.telegraph.co.uk/science/2019/07/21/mining-moon-could-help-save-humanity-says-last-apollo-astronaut/

LaRouche PAC Fireside Chat

July 25, 2019

A Space New Deal: LaRouche's Fourth Law Makes Trump's Moon-Mars Mission a Necessity - LaRouchePAC Fireside Chat

https://larouchepac.com/20190725/space-new-deal-larouches-fourth-law-makes-trumps-moon-mars-mission-necessity-larouchepac

We are at a turning point here in the U.S. following the collapse of aspects of the coup in Robert Mueller's pathetic performance before the Congress on Wednesday. Reflect how the mainstream media greeted the anniversary of Apollo. While thousands thronged the National Mall in optimism and enthusiasm about Apollo and space exploration, the next frontier for mankind; the American population was repeatedly knifed with an active measures propaganda narrative about their sins in electing a "racist" President.

Lyndon LaRouche, as demonstrated by the video "the Woman on Mars" was always two-three generations ahead of his time, visualizing the programs which could ensure that all men and women fulfilled their destinies as humans, as discoverers of the laws governing the universe itself. His Fourth Law for economic recovery mandates fusion power development and space exploration as the necessary step for ensuring continuous economic prosperity. President Trump has taken the bold step of putting the country on a course for returning to the Moon, colonizing it, and then undertaking habitation of other planets. LaRouche's visionary program and his methods of achieving it by crash programs and adequate credit is the means to make this a reality.

Petition: We Commit to the Moon-Mars Mission

Go to the link to sign:

https://action.larouchepac.com/moon_mars

We, the undersigned, pledge our commitment to the following program, and we call upon President Donald Trump and the U.S. Congress to commit to it as well.

- Successfully realize the Artemis mission to bring mankind—including the first woman—to the Moon *to stay* in 2024, as President Trump and his NASA Administrator Jim Bridenstine have called for.
- Make Artemis the first step towards the industrialization of the Moon, as the economic platform enabling human colonization of Mars and human exploration of the Solar System—as first thoroughly defined by the late space visionary Krafft Ehricke.
- Develop advanced fusion propulsion spacecraft, fueled by the helium-3 resources on the Moon —enabling safe and rapid human travel to Mars and other regions in the Solar System, with the goal of achieving constant one-gravity acceleration/deceleration as the standard for human interplanetary missions.
- Achieve this Moon-Mars program through an international 50-year crash program, as outlined by the late economist Lyndon LaRouche—ensuring the high rates of economic payback on Earth which can only be reached by developing new space and fusion technologies, and sharing those technologies internationally as the basis for durable peace on this planet.
- Reform or eliminate the speculative and predatory aspects of the international financial system, as a necessary step to ensure sovereign nations can generate the long-term credit agreements needed to facilitate this mission.
- Remove barriers to international collaboration in space—especially impediments to U.S. cooperation with China and Russia (as typified by the so-called Wolf Amendment, barring NASA from working with China).

This program coheres with remarks made by Lyndon LaRouche to a December 2009 international conference in Russia:

In order to realize the objectives which stand before us now, we have to give mankind a new mission—mankind as a whole. The mission is typified by the idea of the Mars colonization. This requires us to make the kinds of changes, in terms of scientific progress, which are needed for mankind's future existence.

We have many problems on this planet. And we can not solve those problems, extensively, without going into a development of the Solar System as a habitat of mankind. We're on the edge of doing that, scientifically. There are many scientific discoveries, yet to be made, which will make it possible to act for man's colonization of Mars. That will be in some time to come. But what we need now is the *intention* of accomplishing the Mars colonization program. We need to educate and develop generations of young people, who will be oriented to that kind of mission. In the coming period, we will have the birth of young people who will be part of the colonization of Mars, in one way or the other, before this century is out.

We need to give mankind a sense of purpose, developmental purpose, not only throughout the planet, but through the influence of Earth on the adjoining regions of the Solar System, and beyond.

Those objectives are feasible. There are, admittedly, many problems to be solved, scientific problems, which are not yet resolved. We have many questions. But, essentially, we know this is feasible. We know this should be feasible within two or three generations. What we have to do, is give to people, who will be the grandchildren, born now, to give them something to realize. When we're dead and gone, they will be there, three generations from now, four generations from now. They will be the

people who actually colonize areas beyond Earth itself. We need to give them the opportunity to do so. We need to give society, in the meantime, the mission-orientation of achieving that colonization, for our descendants, three generations or so down the line.

We, the undersigned, pledge our commitment to realizing this Moon-Mars mission, and we call upon President Donald Trump and the U.S. Congress to commit to it as well.

Harrison Schmitt on Moon-Mars: "Dispersal of Human Species Throughout the Solar System — And Possibly Beyond"

https://larouchepac.com/20190725/harrison-schmitt-moon-mars-dispersal-human-species-throughout-solar-system-and-possibly

(an excerpt)

July 25, 2019
Harrison Schmitt, the last human being to walk on the Moon, and perhaps the most insightful spokesman for the space program, told *The Telegraph* this week that the "Moon and Mars settlement is extremely important for the dispersal of the human species throughout the solar system,, and possibly beyond." As did the Schiller Institute conference last Saturday, on the 50th anniversary of the Apollo Moon landing, which was titled: MANKIND'S FUTURE MUST DETERMINE OUR PRESENT: A Dialogue of Cultures on How to Develop the Population and the Productive Workforce for Earths Next Fifty Years," so also Harrison Schmitt addressed the "100th anniversary of Apollo," saying that at that time "there will be settlements on the Moon, people living there permanently, producing the resources of the Moon.... Settlements on the Moon are going to be a piece of cake."

This is the truthful optimism required to break through the deadly cult of lies and pessimism peddled by the Green New Deal, the promoters of the anthropomorphic climate change hoax, trying to convince demoralized citizens — especially the youth — that the world is doomed if industrial progress is not reversed, and the population is not reduced to the one (or less) billion people, the supposed "carrying capacity" of our Earth. This is, of course, a lie — our Earth can easily provide sustenance and productive employment for many multiples of the current paltry world population of less than eight billion. But, as Helga Zepp-LaRouche has noted, how can anyone gaze at the Heavens, knowing that there are an estimated two trillion galaxies out there, in our "finite but unbounded universe" (as Einstein discovered), and imagine that there are any limits to our growth or population potential?

It is not coincidental that Harrison Schmitt is also the co-founder of the CO2 Coalition, with Dr. William Happer, Professor Emeritus in the Department of Physics at Princeton University, insisting that the "myth" that CO2 causes climate change, or that it is a hazardous pollutant, is "both unscientific and immoral to perpetuate."

Former NASA Administrator O'Keefe on the Importance of a Crash Space Exploration Program

July 20 (EIRNS)—Under the title "Apollo 11: A Seismic Scientific Event That Multiplied Pace of Technology," in *The Hill* today, former NASA Administrator (2001-2005) Sean O'Keefe addressed the crucial importance of the crash-program approach to the Apollo Moon project in the 1960s, not only in getting to the Moon much earlier than would otherwise have been possible, but also in accelerating the pace of technological development for the world as a whole.

O'Keefe states that the historic Apollo 11 Moon landing "happened ahead of schedule—not the

schedule President Kennedy laid out—but the pace of technology development schedule. The natural course of events and continuous improvements may have yielded the capacity to accomplish the lunar mission perhaps a decade or two later—maybe."

He observes that "the entire computing capacity in the vaunted Houston Mission Control room, for example, was roughly the equivalent of what we have in an iPhone today. For the mission control tasks andeverything else it would take to launch Apollo, NASA did it with precision tools that are today's technology equivalent of sledge hammers. The explorers and adventurers of 50 years ago accomplished this goal by brute force and determination. The result of their effort was to dramatically multiply the pace of technology development since then. The capacity and urgency emerged to design lighter materials, electronic components to respond faster, and chemical propulsion to generate power at levels unimaginable.... The impact to all of us as citizens is huge—accessible commercial aviation to go anywhere, nearly anytime, information and communications systems small enough to put into your pocket and contact anyone anywhere on the globe in moments, and medical breakthroughs like heart pumps and valves that have drastically reduced the incidents of heart attacks since the 1960s. This is just a random compendium of incredible applications that all have their origins in this national quest to access space and go to the Moon.

"Might these developments have happened without the catalyst? Possibly, but certainly not at the accelerated pace that has been achieved. Perhaps most important, it's uncertain whether the United States would be the technology leader it is today without this national policy objective."

O'Keefe writes that the initial impulse for Kennedy's 1961 call for getting to the Moon and back "within this decade" was the response, and fear, from the U.S.S.R. getting to space and putting a man in space first. But by the time of the Rice University speech in September 1962, "he defined the reasons to go to the Moon that transcended the fear motive. Instead the emphasis of the speech was the desire to yield to the human quest for knowledge, describe the remarkable capabilities we would develop and the stunning possibilities we might come to understand to our great benefit.... He never mentioned the Soviets. There was no utterances of fear-mongering. It was all about doing extraordinary things to accomplish aspirations larger than ourselves. The U.S. policy was recrafted to be an economic development initiative to provide capacity and technology prowess."

O'Keefe writes that "The mythical notion that space exploration and going to Moon were wildly popular in the United States of the 1960s is a latter day version of 'fake news.' " He states that the War in Vietnam, the civil rights movement, the War on Poverty were all used in the argument that the space program was too expensive, and some still argue that today. But, he concludes: "If we don't pursue aspirations that stretch our capacity to overcome limitations, obstacles and opposition to seek new opportunities and destinations for humans to explore, we lose. To do so denies our human desire to learn."