



HOT NEWS

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The National Forum on Soil and Water Conservation and Rural Revitalization in the Yellow River Floodplain Area was held successfully

On May 31, the National Forum on Soil and Water Conservation and Rural Revitalization in the Yellow River Floodplain Area, sponsored by the China Soil and Water Conservation Society, the World Association of Soil and Water Conservation and the Shandong Soil and Water Conservation Society, was held in Xiajin County, Shandong Province. More than 40 experts from more than 20 institutions, including the China Institute of Water Resources and Hydropower Research, the Institute of Environment and Sustainable Development in Agriculture of the Chinese Academy of Agricultural Sciences, the Inner Mongo-

lia Autonomous Region Institute of Water Resources Science, and Beijing Forestry University, conducted exchanges and discussions on the theme of "Soil and Water Conservation in the New Situation to Help Rural Revitalization and High-Quality Development".

Many problems such as flooding, salinization, desertification existed in the Yellow River Floodplain Area, involving 110 counties (cities) in 5 provinces covering an area of 250,000 square kilometers. The ecological environment of this area was very fragile, the cultivation conditions were seriously deteriorated in the past. After long term treatment,



The opening ceremony of the forum

general situation has been improved greatly. In the context of the new era of comprehensive promotion of rural revitalization strategy, ecological protection and high-quality development, this forum was organized to "learning wisdom from the ancients, thinking current situation of development, and creating a future path", will deepen the understanding of the relationship between soil and water conservation and rural revitalization.

The forum discussed the development direction, key technologies, scientific methods and implementation paths of soil and water conservation in the Yellow River Floodplain Area under the new situation. The invited experts gave reports with title of "Some theoretical and practical issues between ecological protection and agricultural development" "Focusing on the double carbon target and enhancing the capaci-

ty of forest carbon sink" "The connotation, mechanism and calculation of carbon sink for soil and water conservation" "Construction of agricultural clean watershed in the context of rural revitalization" "The sand industry contributes to the high quality development of green ecology in the Yellow River Floodplain Area " "The role of soil conditioner technology in soil erosion control " "Aquatic vegetation resistance characteristics and sediment transport mechanism".

Duihu Ning, the president of WASWAC, attended this forum. He hopes that this forum will be meaningful and helpful in enhancing the scientific and technological innovation capacity of soil and water conservation, in resolving the risk of soil erosion, and in creating a green and safe ecological environment in the Yellow River Floodplain Area.



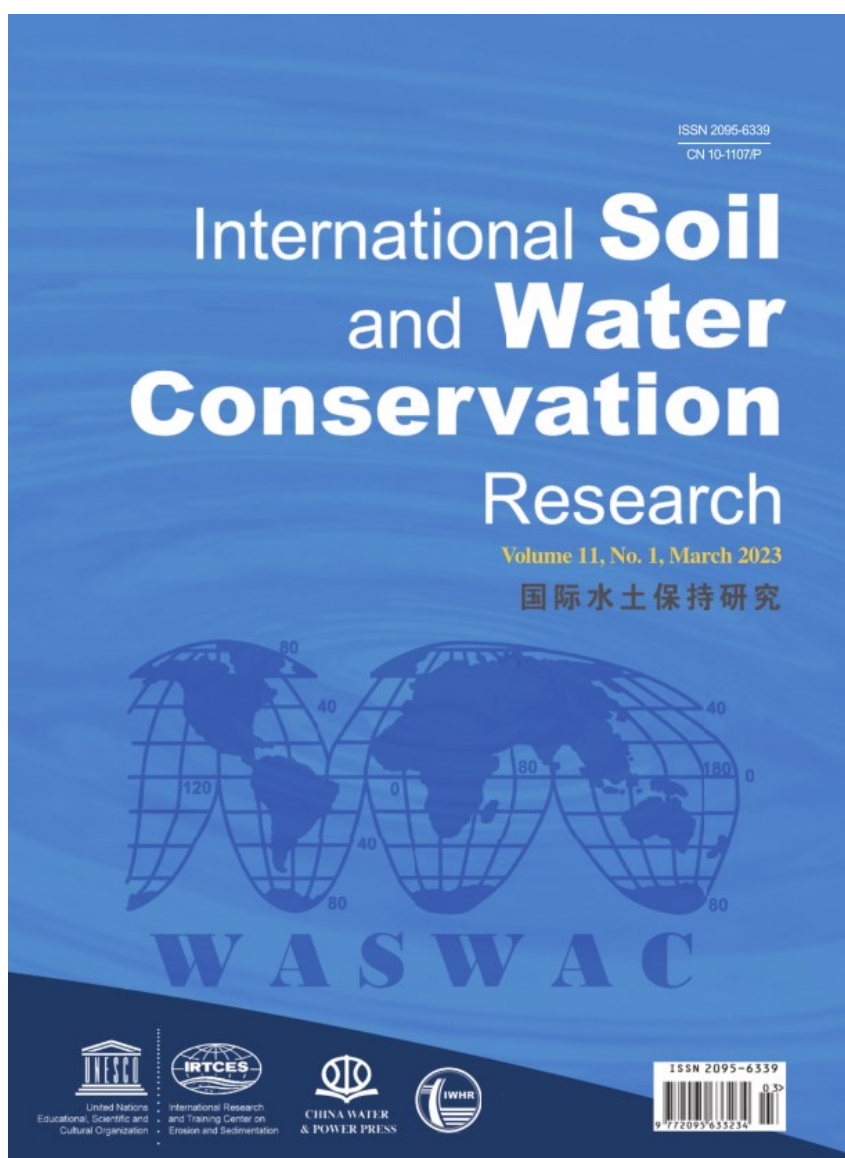
Prof. Duihu Ning, the president of WASWAC is giving speech

ISWCR received the fourth IF of 6.4

According to the latest JCR released on June 28, 2023, the ISWCR, the official journal of WASWAC, now has an impact factor of 6.4, which ranks it 54th in the environmental sciences category (274 Journals), 6th in the soil science category (37 Journals) and 9th in the water resources category (103 Journals). According to the ranks, **ISWCR is a Q1 Journal** in

all three indexed categories of environmental sciences, water resources and soil science.

ISWCR was officially indexed by Science Citation Index Expanded (SCIE) in July, 2019, it received its first official Impact Factor (IF for 2019) of 3.770 in June 2020, the IF for 2020 is 6.027, the IF for 2021 is 7.481, 6.4 is the fourth official IF for ISWCR.

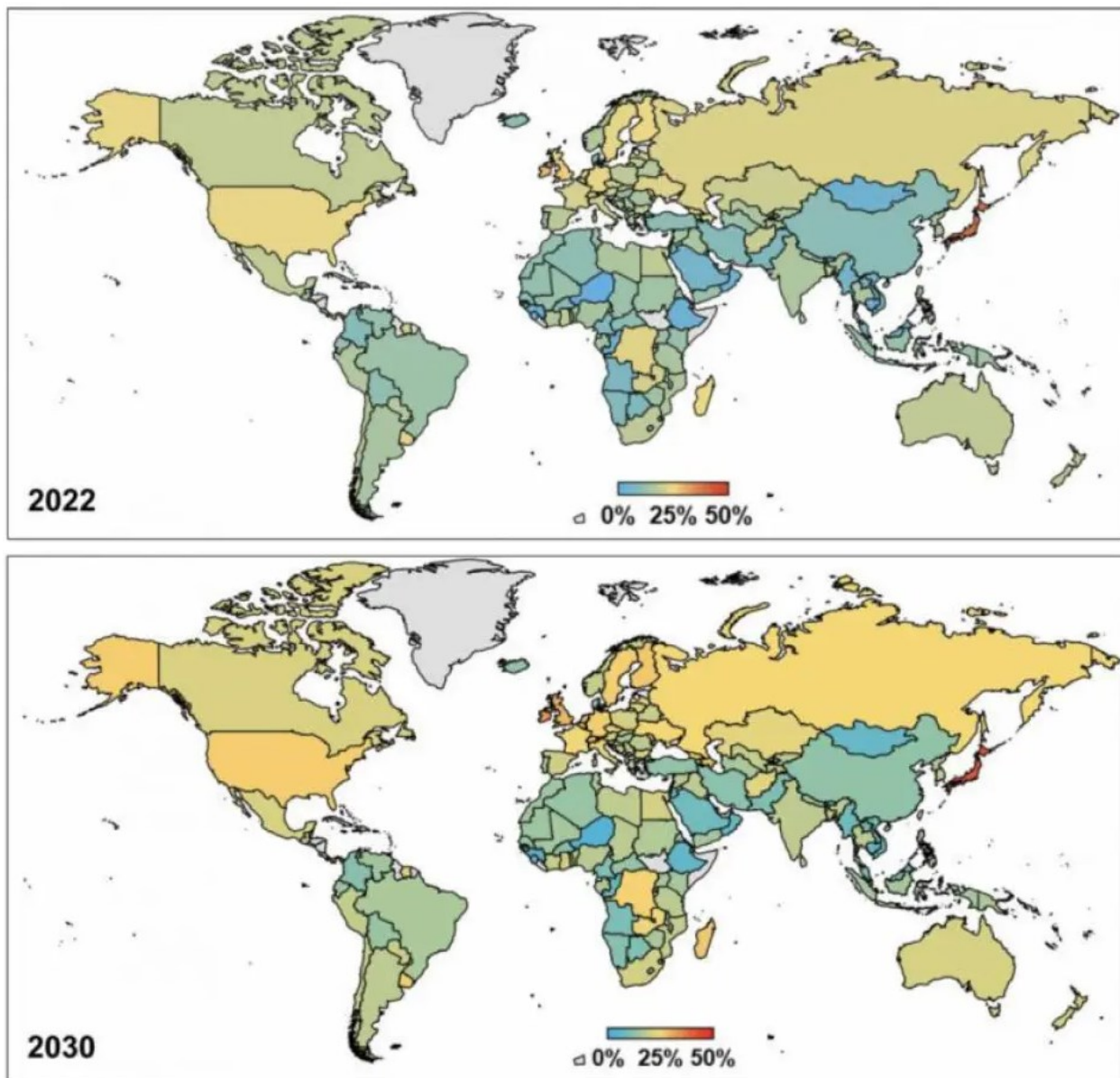


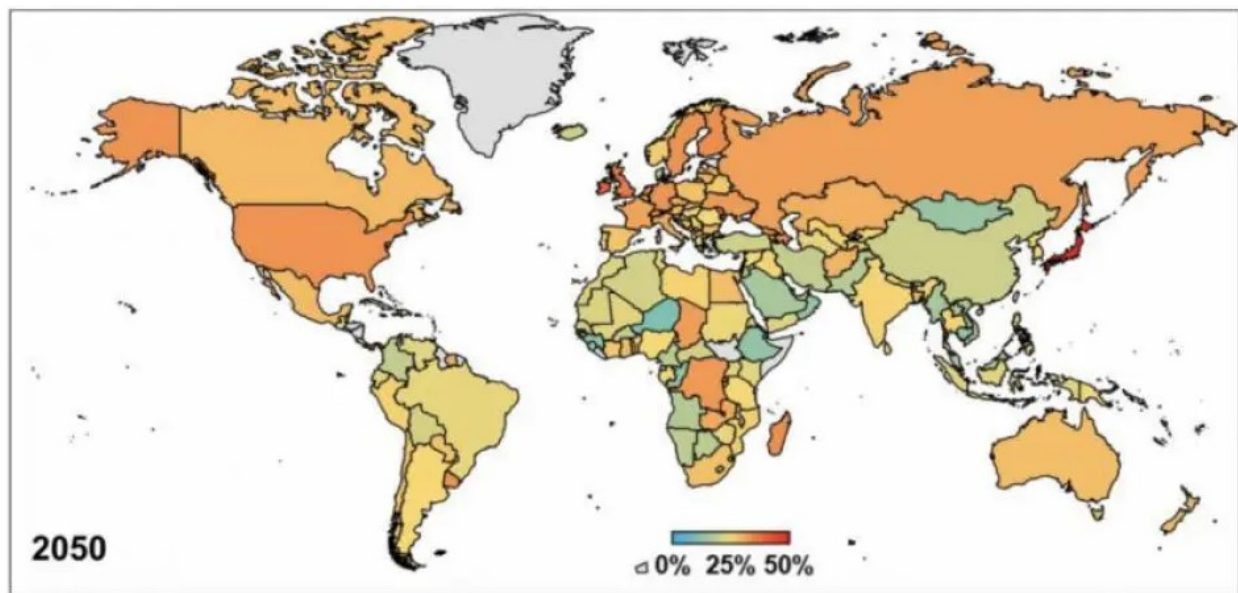
UN: Trapped Sediment Robbing World's Large Dams of Vital Water Storage Capacity; ~26% Loss by 2050 Foreseen

Dams' original storage capacity lost to sediment by 2050: 1.65 trillion m³, roughly the combined annual water use of India, China, Indonesia, France and Canada

"Sedimentation is a serious issue that endangers the sustainability of future water supplies for many" – UNU-INWEH Director Vladimir Smakhtin

Trapped sediment has robbed roughly 50,000 large dams worldwide of an estimated 13% to 19% of their combined original storage capacity, and total losses will reach 23% to 28% by 2050, UN research warns.





River sediment accumulates behind a dam's barrier. The problem, often ignored, has now become a significant challenge to global water storage infrastructure that must be addressed with a long-term sediment management strategy.

The global loss from original dam capacity foreseen by mid-century – from ~6,300 billion to ~4,650 billion m³ in 2050, a difference of ~1,650 billion m³ – roughly equals the annual water use of India, China, Indonesia, France and Canada combined.

UN University's Canadian-based Institute for Water, Environment and Health applied previously-determined storage loss rates in various areas worldwide to large dams in 150 countries to forecast cumulative reservoir storage losses by country, region, and globally.

The United Kingdom, Panama, Ireland, Japan and Seychelles will experience the highest water storage losses by 2050 – between 35% and 50% of their original capacities – the study shows. By contrast, Bhutan, Cambodia, Ethio-

pia, Guinea, and Niger will be the five least affected countries, losing less than 15% by mid-century.

"The decrease in available storage by 2050 in all countries and regions will challenge many aspects of national economies, including irrigation, power generation, and water supply," says Dr. Duminda Perera, who co-authored the study with UNU-INWEH Director Vladimir Smakhtin and Spencer Williams of McGill University in Montreal. It is published by the journal Sustainability.

"The new dams under construction or planned will not offset storage losses to sedimentation. This paper sounds an alarm on a creeping global water challenge with potentially significant development implications."

The researchers applied previously-established storage loss rates worldwide to a subset of nearly 60,000 dams in a database maintained by the International Commission on Large Dams (ICOLD). The subset comprises 47,403 large dams for which original storage capacity and year of construction are known: 28,045 in Asia-Pacific, 2,349 in Africa, 6,651 in Europe, and 10,358 in North, Central and South America.

Large dams and reservoirs – defined as higher than 15 m, or between 5 and 15 m high impounding over 3 million m³ – are essential in many places for hydroelectricity, flood control, irrigation, and drinking water.

River sediment accumulates behind a dam's barrier. The problem, often ignored, has now become a significant challenge to global water storage infrastructure that must be addressed with a long-term sediment management strategy.

"Sedimentation is a serious issue that endangers the sustainability of future water supplies for many," says Dr. Smakhtin.

"It stimulates downstream flooding causing erosion, impacting wildlife habitats and coastal populations. And abrasive sediments can damage hydroelectric turbines and other dam components and mechanisms, decreasing their efficiency and increasing maintenance costs."

Global average annual storage losses amount to approximately 0.36% of initial capacity, the UNU-INWEH study says, noting that figure may err on the conservative side. Previous attempts to estimate a global annual rate of loss from initial reservoir capacity generally agree on a range between 0.5% and 1%.

Many other studies suggest, however, that reservoir sedimentation rates and associated storage losses are site-specific and vary significantly between regions.

For example, other researchers have estimated the loss from 190 California reservoirs at more than 50% from their original capacities, with 120 reservoirs having lost over 75%. A similar study predicted Japan's Sakuma reservoir will lose around 44% of its initial capacity by 2040.

* * * * *

The Americas

The Americas' 19 countries contain 10,358 large dams with an initial storage capacity of 2,810 billion m³ foreseen falling 28% to 2,014 billion m³ by 2050. And Panama's 21 dams appear to be facing the highest storage loss: 38%, from an initial 9.5 billion m³ to 5.9 billion m³ by 2050.

Brazil, second after the USA in the Americas in number of large dams, will lose an estimated 23% of its initial storage of 600 billion m³ by 2050.

* * * * *

Europe

Europe's 6,651 large dams across 42 countries had a total initial storage capacity of 895 billion m³. The region has already lost 19% of that volume, will lose up to 21% by 2030 and 28% by 2050, the study found.

Among the 42 countries, 33 (~78%) will likely lose over 25% of initial storage by 2050 in part because of the dams' age. Ireland can anticipate the greatest loss of storage by 2050 (39%), Denmark the least loss (20%). Turkey, Iceland, Hungary, and Cyprus appear to be Europe's other least-impacted countries.

Africa

Already, the 2,349 dams across Africa's 44 countries have lost about 702 billion m³ or 15% of their original storage capacity. By 2030 and 2050, cumulative storage losses are estimated at 17% and 24%, respectively.

The Seychelles' two dams have to date lost about 30% of their original 1 million m³ capacity and are projected to lose 50% by 2050 – the greatest loss of any country. Madagascar, DR Congo, Chad, and Zambia are projected to lose 30% by 2050, while another 11 countries will lose an estimated 25% to 30% by mid-

century.

The lowest storage loss by 2050 is estimated for Niger (11%). Losses of less than 15% are foreseen for Sierra Leone, Congo, Ethiopia, and Guinea, mostly attributable to their relatively young dams.

A previous study noted that the Aswan Dam on the Nile River, with 99% of estimated trapping efficiency, has almost completely blocked sediment flow to the Nile River Delta.

The new UNU-INWEH study estimates Aswan dam storage losses at 18%, 21%, and 28% in 2022, 2030, and 2050 respectively.

◇ *****

◇ Asia-Pacific

◇ Combined with those in Australia, and New Zealand, Asia's 43 countries are home to 35,252 large dams, making it the world's most heavily dammed region. The region is home to 60% of the world's population and water storage is crucial for sustaining water and food security.

◇ In 2022, the region is estimated to have lost 13% of its initial dam storage capacity. It will have lost nearly a quarter (23%) of initial storage capacity by mid-century.

◇ *****

For details: <https://apnews.com/article/canada-ein-presswire-newsmatics-africa-europe-7d3ae1d064722911f8b91dbcaa0245ac>

Green fingers take root to boost tree coverage

By Li Hongyang

Tree coverage has increased in China thanks to the widespread implementation of afforestation last year, according to a report released by the National Afforestation Committee on Sunday, which was also the 45th National Tree Planting Day.

The report said that 3.83 million hectares of trees were planted and 3.21 million hectares of degraded grassland were treated last year.

The forest coverage rate in China has reached around 24 percent, or some 231 million hectares, and grassland covers about 265 million hectares, according to the report.

Last year, about 850,000 hectares of trees were planted as part of the Three-North Shelter Forest Program, which aims to improve the environment in northwestern, northern and northeastern China.

Some 18.8 million hectares of desertification control have been completed in the past 10 years, holding back encroaching deserts in many areas.

China's afforestation achievements were noted in a study by the National Aeronautics and

Space Agency in the United States, which said that satellite imagery reveals that China and India are leading the increase in forest coverage, with China alone accounting for a quarter of the global net increase in green areas despite having only 6.6 percent of the world's vegetated area.

Nearly 100,000 kilometers of highway greening were completed last year, and the greening rate along railway lines reached about 87 percent.

The construction of ecological corridors along rivers and lakes continues to advance, the NAC report said, and 63,000 square kilometers of land suffering from soil erosion have been treated.

As part of the plan to create a "Beautiful China", the government plans to increase forested areas by 3.2 million hectares, and plant and restore 3.46 million hectares of grass in 2023.

The National Forestry and Grassland Administration said it will determine the scale of greening activities after assessing which areas are suitable for planting.

Details: <https://www.chinadaily.com.cn/a/202303/13/WS640e7a2ea31057c47ebb4006.html>

Across China:

Former mine site transformed into forest in central China

In early spring, Xiao Meng and his colleagues at the Huangshi National Mine Park in Central China's Hubei province were busy planting locust trees alongside local residents at the former mine site.

"In the past, it was a barren waste rock field. Now, the saplings I planted have grown into forests," the 58-year-old former miner said.

Xiao, now a security guard at the park in the city of Huangshi, has been planting trees on the site for nearly 40 years and has witnessed the environmental improvements taking place in the park.

The Huangshi National Mine Park was built on the site of the century-old Daye iron mine. Due to years of exploitation, three local mines had turned into three huge pits with an average drop height of over 400 meters, and over 300 million tonnes of waste rock had been dumped at the mine site.

"When the wind blew, the dust floated in the air, and when it rained, the slurry flowed," Xiao said, noting that the conditions not only harmed the health of the miners, but landslides and soil erosion also brought inconvenience and dangers to nearby residents.

Yan Hongyong, who is in charge of the management office of Huangshi National Mine

Park, said that at that time, workers originally planned to plant vegetation to treat the problems caused by the waste rock field. However, the waste rock was hard and had poor water retention, so normal plants could not survive.

"After years of efforts, local technicians found that locust trees were highly drought-resistant and nitrogen-fixing with their rich roots, and they were able to grow on these rocks," Yan said.

Tens of thousands of people have since come to plant locust trees on the field every year, including the workers at the mine and local residents, Yan added.

"However, due to the harsh environmental conditions, not every locust tree planted can survive," said Wu Fangqi, a 73-year-old retiree from the Daye mine site.

To improve the survival rate of the trees, people dug large holes in the waste rock piles, filled the pit with slag and fertilizer, and watered the locust saplings they planted every few days, Wu said.

More than 1 million locust trees have been planted on the waste-rock area over the past four decades, forming an ecological forest spanning some 3.6 million square meters.

Now, the mine site has been turned into a tourist attraction.

"The Huangshi National Mine Park attracts

more than 300,000 visitors every year," Yan said. "When the locust trees blossom, the park is filled with tourists."



An aerial photo of the Huangshi National Mine Park in Central China's Hubei province, March 10, 2023.
[Photo/Xinhua]

Details: <https://www.chinadaily.com.cn/a/202303/23/VVS641c0dbaa31057c47ebb62dc.html>

70% of California beaches could be lost by the end of this century

By Camille Fine

The impact of historic weather and changing climate trends threaten up to 70% of California beaches, which could be lost to erosion by the end of this century, a recent U.S. Geological survey found.

The government report released earlier this year, which is in the process of being peer-reviewed for publication, found that between 25% and 70% of California's beaches – and up to two-thirds of the state's approximately 840

miles of coastline – could be washed away by 2100 due to rising sea levels caused by global temperature increases and greenhouse gas emissions.

In 2017, a study conducted by the same researchers found that between 31% and 67% were at risk of disappearing.

"Beaches are perhaps the most iconic feature of California, and the potential for losing this identity is real," Sean Vitousek, the lead re-



A two day rainstorm between January 26 and 28 in 2021 caused numerous mudslides, debris flows, and other issues along California's coastal Highway 1 through Big Sur.

Pacific Coastal And Marine Science Center

Severe coastal bluff erosion, along the southern end of Ocean Beach, San Francisco, California on Jan. 19, 2010. This storm damage occurred during the 2009-2010 El Niño, which, on average, eroded the shoreline 55 meters that winter. Jeff Hansen, USGS Pacific Coastal and Marine Science Center.

In the next 25 years, the West Coast faces a potential sea level rise of up to eight inches, according to the National Oceanic and Atmospheric Administration.

The report's estimates of how the entire state's coastline will shift were determined by combining rising sea level models due to global temperature increases with two decades of satellite imagery of Ocean Beach in San Francisco.

Researchers say the report can help guide the state's coastal preservation and monitoring efforts. To maintain existing beach widths, the state will need to "require substantial management efforts," including beach nourishments, sand retention, armoring, dune restorations as well as other engineering and nature-based solutions, the survey said.

"Beaches are natural resources, and it is likely that human-management efforts must increase in order to preserve them," Vitousek said in 2017.

'A balancing act': Band aids versus longterm solutions to coastal erosion

Shalini Vajjhala, Executive Director of the nonprofit PRE Collective, says that determining a sustainable plan to address coastal erosion and beach maintenance is "a balancing act" between allocating resources towards "urgent needs" that arise from something like extreme weather, while also reducing the overall root causes of climate change's impact on the landscape. PRE Collective works with communities across the U.S. to help them plan resilient and sustainable infrastructure development.

"The balancing act is making sure that we address the urgent needs and help folks who are suffering and still reduce the underlying risks and damages," Vajjhala said.

Nourishment is not a long-term solution to beach erosion but protects property, ports and tourist destinations in the short-term, according to the U.S. Army Corps of Engineers.

"Keeping beaches nourished with sand helps them to absorb waves and storm surges, which protects property from coastal hazards. Sandy beaches are important habitats for birds, turtles and other wildlife. Tourism at recreational beaches is a vital part of the economy in many coastal regions. For all these reasons, beach restoration and renourishment are valuable sediment management activities," the U.S. Army Corps of Engineers said.

Beach nourishment is an example of a band aid that addresses immediate needs, Vajjhala said, but it can have significant impacts on local ecosystems when sand is deposited on coral reefs or other fragile ecosystems.

Beach nourishment has been more prevalent on the East Coast historically, but West Coast initiatives have also occurred, and California has made efforts to better coordinate coastal sediment management and beach nourishment activities.

Beach maintenance is often determined on past-use and whether it's historically been a sandy or rocky beach, Vajjhala said. If sandy beaches in states like Florida and North Carolina turned into rocky ones, similar to much of

the West Coast's shore, it would deeply impact their local economy and environment, Vajjhala said.

"Band aids triage things that help you deal with the immediate symptoms. But they don't actually change the underlying problem, right? They don't make a storm less bad. They just deal with the results of it. And so a lot of our solutions for coastal erosion that are more long term are preventing it from happening in the first place," Vajjhala said.

Vajjhala said that more federal funding in recent years and improvements in land, agriculture, water and fire management are helping to promote more sustainable, longterm solutions to coastal erosion.



Severe coastal bluff erosion, along the southern end of Ocean Beach, San Francisco, California on Jan. 19, 2010
Jeff Hansen, USGS Pacific Coastal And Marine Science Center

<https://www.usatoday.com/story/news/nation/2023/06/05/california-beaches-erosion-threat/70288927007/>

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