



W. M. KECK FOUNDATION  
2022 ANNUAL REPORT



# MAPPING EARTH

W. M. KECK FOUNDATION  
2022 ANNUAL REPORT

*Cover:*  
Illustration of the WHOI-Keck 3D Acoustic Telescope  
on a seamount listening to a whale

LEADERS' MESSAGE



Robert A. Day  
*Chairman*



Joseph Day  
*Co-Chief Executive Officer*



Stephen M. Keck  
*Co-Chief Executive Officer*

At the W. M. Keck Foundation, we fund pioneering biological and physical science research and engineering. Indeed, we are proud to have provided early funding to awardees of nine Nobel Prizes. Congratulations to Scripps Research’s K. Barry Sharpless, PhD who was awarded the 2022 Nobel Prize in Chemistry for the development of click chemistry. Dr. Sharpless also shared the 2001 Nobel Prize in Chemistry for his work on chirally catalyzed oxidation reactions.

Rather than requesting proposals by subject matter, we encourage projects that are distinctive and novel in their approach, question the prevailing paradigm, or have the potential to break open new territory. Of course, we do notice topical trends. For instance, in the last 15 years we have awarded over \$33 million to study earth science and related fields. This year, our Annual Report highlights research striving to better understand the Earth.

Our nation’s scientists are pushing boundaries in pursuit of knowledge about the Earth’s structure and changing environments. Two teams on opposite sides of the country have developed new instruments to study the oceans in ways previously impossible. A Woods Hole Oceanographic Institute team built an acoustic telescope to isolate sounds in the ocean and determine their origins. Successful initial tests in the New England Shelfbreak proved we can listen to specific sounds that may create “a transparent ocean” in which everything can be observed in real-time. In the Pacific, a University of Hawai’i team has designed and is testing a first-of-its-kind Hadal Water Column Profiler to map our deepest ocean trenches.

Above ground on the north shore of O’ahu, Hawai’i, researchers used Keck funds to establish the first microbial map of an entire watershed, ridge to reef, and the microbes’ contributions to their ecosystem processes. Each of these research groups took groundbreaking ideas, solved thorny problems and created new technologies, instrumentation or methodologies that other scientists are already using for the next level of scientific inquiry.

In Los Angeles, educators are also teaching the next generation about the Earth. TreePeople is activating communities to increase tree canopies across low-income neighborhoods and providing schools with knowledge, skills and understanding of the environment. Occidental College professors are engaging undergraduates with hands on research experiences using state-of-the art equipment. A charter school network, aptly named Environmental Charter Schools, has implemented an educational model where the environment is an integral part of the schools. Their inspiring and interactive living campuses bring learning to life and serve as a model of sustainable living and ecological design.

Although this Report’s stories focus on Earth Science projects, we continued to make grants across our programs in 2022. Of the \$68 million we distributed, we funded \$26 million in science and engineering, \$26 million in medical research, and \$16 million to the Southern California community, educational, arts, and other organizations.

We remain grateful to our Board members who lend us their expertise. In particular, we want to thank Dr. Edward C. Stone, Jr., who retired in 2022. As Chair of our Science & Engineering Committee for twenty-four years, Dr. Stone was instrumental in selecting our awards for so many materials science and astrophysics grants (including the Keck telescopes and the Keck Institute for Space Studies at the California Institute of Technology). We will also miss our retired Director, Nelson Rising, who passed away in February 2023.

We welcome to our Board, Dr. Kelsey Martin, Director of the Simons Foundation’s Autism Research Initiative and its Neuroscience Collaborations. We have already enjoyed working with Dr. Martin both while she was the UCLA Medical School Dean and as one of our first Keck Young Scholars in 2001.

With T. J. Fournier (a great-great grandson of W. M. Keck) joining us as the first fifth generation of Members, we continue our family’s stewardship of the foundation W. M. Keck established in 1954. As the country’s research topics and educational and community needs change over the next decades, we will remain flexible and open to funding big ideas that push boundaries.

Joseph Day  
*Co-Chief Executive Officer*  
*W. M. Keck Foundation*

Robert A. Day  
*Chairman*  
*W. M. Keck Foundation*

Stephen M. Keck  
*Co-Chief Executive Officer*  
*W. M. Keck Foundation*





## WOODS HOLE OCEANOGRAPHIC INSTITUTION

# LISTENING TO THE OCEAN

The Keck telescopes atop Mauna Kea can detect light that originated billions of lightyears away in space. Closer to home, the depths of the oceans remain largely unexplored. While light travels great distances in the emptiness of space, it only penetrates a few hundred meters under water. Yet, the deepest part of the Pacific Ocean, the Mariana Trench, lies 11,000 meters below the surface.

▲ Illustration of a communications buoy at sea with ship in background

## How can we “see” beneath the sea? The solution lies not in looking, but in listening.

How can we “see” beneath the sea? The solution lies not in looking, but in listening. Unlike light, sound can travel hundreds of miles through seawater. In 2018, the Keck Foundation awarded \$1 million to the Woods Hole Oceanographic Institution to develop a “Real-Time 3D Deep Water Acoustic Telescope”.

Oceanographer and acoustician, Ying-Tsong “YT” Lin and his team overcame several formidable technical challenges to make the telescope work. While a single hydrophone (an underwater microphone) can pick up a signal from hundreds, if not thousands, of kilometers away, it can’t easily pinpoint the sound’s direction. To determine the direction requires multiple hydrophones that “triangulate” a signal based on the time it takes for sound to reach each hydrophone. To detect meaningful time differences, the hydrophones can’t be too close together, so the telescope must be big. As seen in the image, the telescope has five arms, each five meters long, with hydrophones spaced along the arms.

Getting out to sea requires a boat ride, and the telescope must fit on the boats available. So, Woods Hole engineers developed a system that allows the arms to fold closed for transport and to open precisely while at sea –

▼ The acoustic telescope awaiting pre-cruise testing

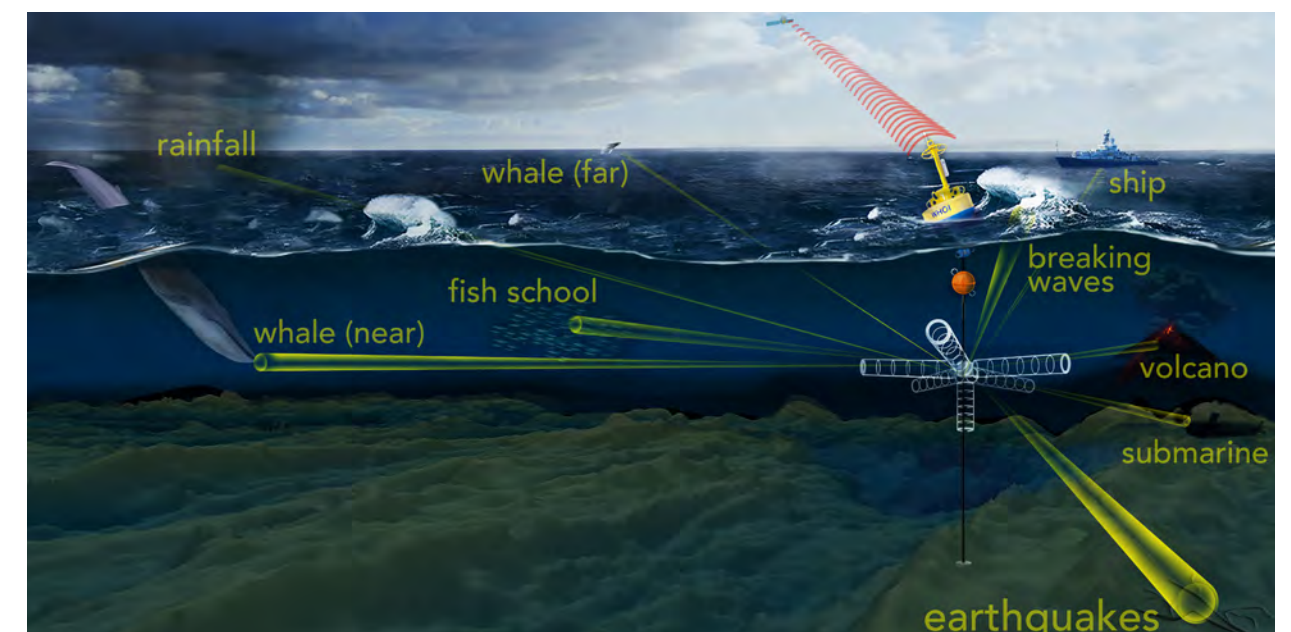


no small feat, especially in the middle of a pandemic that required special working conditions.

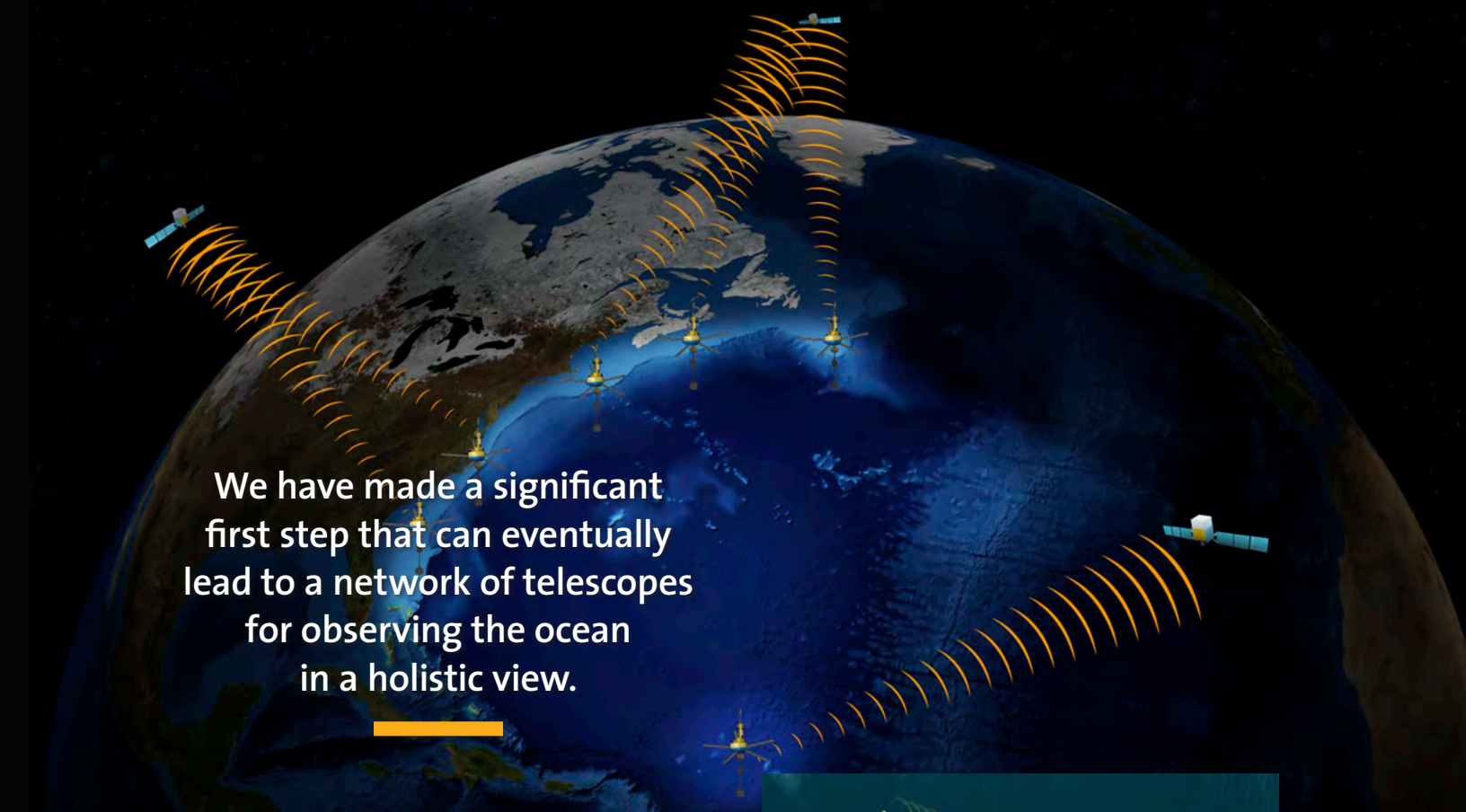
Beyond the mechanical engineering challenges, many other problems had to be solved. To allow the telescope to be deployed for extended periods of time without human supervision from a nearby boat, Woods Hole engineers developed ways of powering the telescope and sending volumes of data wirelessly back to land via satellite.

Astronomers call the first use of a telescope “first light”. The acoustic telescope achieved “first sound” on a mission to the New England Shelfbreak in the Atlantic

▼ The acoustic telescope can listen to many sources simultaneously







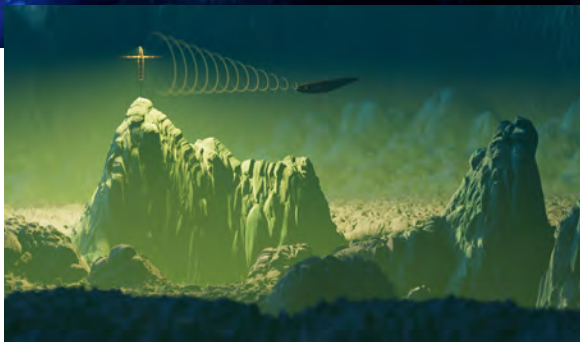
We have made a significant first step that can eventually lead to a network of telescopes for observing the ocean in a holistic view.

▲ The acoustic telescope will be connected to a surface buoy, allowing real-time satellite data transmission

Ocean, south of Nantucket, Massachusetts in mid-2021 in a joint oceanographic and acoustics experiment sponsored by the US Office of Naval Research.

So what does the ocean sound like? For one thing, it is noisy (or “acoustically diversified”). Schools of fish, whales, distant ships, waves, thunderstorms, and earthquakes all contribute to the cacophony. This makes the origin and direction of a sound difficult to pinpoint. Imagine trying to listen to a conversation across a crowded room while blindfolded. To solve this problem, the Woods Hole team developed new software solutions to separate the desired signal from the considerable background noise.

After the Woods Hole team demonstrated that the acoustic telescope could listen to the ocean in the first experiment on the New England Shelfbreak, the US Office of Naval Research initiated another multi-million-dollar experiment on the New England Seamounts Chain to prototype an ocean observatory network centered around the acoustic telescope to study larger areas of the



▲ Illustration of the WHOI-Keck 3D Acoustic Telescope on a seamount listening to a whale

ocean. At the Keck Foundation, we strive to fund high risk projects that spark the next level of scientific inquiry. The Woods Hole project did just that as evidenced by the US Office of Naval Research’s significant follow-on investment.

Dr. Lin believes that the telescopes can be used to map the oceans, not just the shape of the seascapes, but also the living and non-living things that lurk beneath the surface. Ultimately, Lin believes the telescopes can be used to create “a transparent ocean” in which everything can be observed in real-time. When asked how he viewed the project overall, Lin replied “This project was a dream that wouldn’t have happened without generous support from the Keck Foundation. We have made a significant first step that can eventually lead to a network of telescopes for observing the ocean in a holistic view.” ■

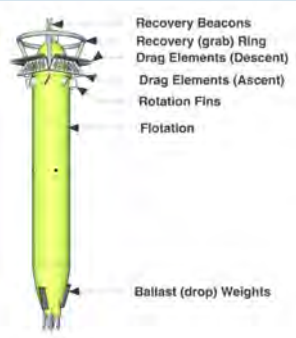


▲ Launching the Hadal Water Column Profiler from the R/V Kilo Moana

UNIVERSITY OF HAWAI’I AT MĀNOA

# STUDYING THE OCEAN TRENCHES

THE DEEP OCEAN TRENCHES, OR HADAL ZONE, ARE AMONG THE MOST POORLY STUDIED REGIONS ON THE PLANET. Practically nothing is known about the mixing, circulation, chemical properties, or biological communities in waters deeper than 6,500 meters, where only a handful of moored and hydrographic measurements have been made. With support from the Keck Foundation, a team of researchers at the University of Hawai’i at Mānoa built a first-of-its-kind Hadal Water Column Profiler, capable of reaching the deepest point in the global ocean (11 kilometers deep). This free-falling profiler simultaneously measures vertical profiles of turbulent mixing, temperature, conductivity, current velocity, dissolved oxygen, and bioacoustic backscatter. It also records video and has an 11-bottle water sampler. The team designed the Profiler to make the first direct measurements of turbulent mixing in the deep ocean trenches, allow for exploration of flow patterns, trench ventilation mechanisms, and midwater biological communities. To minimize the possibility of at-sea loss of the Profiler, the team worked with Ron Allum, the lead engineer on James Cameron’s Deepsea Challenger vehicle, and included multiple redundant ballast release systems. The Profiler is capable of several profiles a day, allowing the role of tides and other short time-scale processes to be studied. The University of Hawai’i’s new profiler has captured the attention of the oceanographic community with several groups offering to trade ship time in exchange for scientific collaboration. ■



▲ Original design concept with some key components labeled





UNIVERSITY OF HAWAII AT MĀNOA

# MAPPING MICROBIAL COMMUNITIES

Microbial life is found in virtually every habitat and organism on Earth, where it is critical to the health and metabolism of larger animals and plants. The collection of microbial species living in a particular environment is known as its “microbiome.” Scientists think the makeup of any particular microbiome involves complex interactions between the environment, animals and plants, and the microbes. Most microbiome research focuses on a single animal, plant, or habitat. This severely limits our ability to understand the diversity and distribution of microbes on a landscape, let alone on a global scale.



▲ Lifeforms within ecosystems are intrinsically linked by shared microbial diversity

## Groundbreaking project that established the Waimea watershed on the north shore of O‘ahu, Hawai‘i.

In 2018, the Keck Foundation awarded \$1 million to a cross-disciplinary group of six investigators at the University of Hawai‘i at Mānoa for a groundbreaking project that established the Waimea watershed on the north shore of O‘ahu, Hawai‘i, as a model microbiome mesocosm (i.e., a semi-controlled outdoor experiment to bridge the gap between the laboratory and the real-world environment). The lead scientists, Margaret McFall-Ngai and Nicole Hynson, and their team took advantage of this unique study site, small enough to thoroughly investigate but large enough to reveal the complexities of natural systems. In this first ever study of an entire watershed, from ridge to reef, they mapped its microbial communities and their ecosystem processes.

One might imagine that a freely moving animal such as a fruit fly would possess the most diverse microbiome, as it flew around to ingest a wide variety of microbes on various fruits and surfaces around its habitat. However, the opposite was true. The team’s detailed microbial census demonstrated that most of the microbial diversity present within a watershed is

◀ Investigators studying the interactions between microbiomes and foodweb efficiency in bromeliads as a model miniature ecosystem



▲ Researchers discovered that the microbiomes of organisms are embedded in those of their habitats’

maintained within environmental substrates like soil or stream water, while host-associated microbiomes of organisms are generally subsets of those that are lower on the food chain. They used an amplicon sequence variant (ASV) approach, which is a measure of biodiversity in the microbiome based on snippets of unique DNA sequences. Environmental microbiomes contained more than 55% of total watershed ASV richness, while ASVs were lower in producers (plants) and lowest in consumers (animals). This result challenged the notion



that the source of microbes for a given microbiome of a host organism was most likely derived from close relative interactions. It also highlighted an important role of the geographic environment and food webs in shaping unique microbiomes.

Despite the logistical and operational challenges posed by the COVID-19 pandemic, the project succeeded. The investigators have published a dozen publications (with a handful more in preparation), garnered more than \$4.3 million new research funding, and provided valuable training for many students and postdoctoral students.

The Keck Foundation grant allowed the team to initiate more in-depth experimental studies in the Waimea watershed. To closely examine the impact of environmental microbiomes on animal host physiology, the team sampled live wild flies from two different Waimea sites. They used the microbes from each of these populations to inoculate lab-raised axenic (microbe-free) fruit flies. They then measured many physiological features of the inoculated lab fruit flies, such as weight, fatty acid and protein profiles, developmental time, fertility, stress resistance, and sleep patterns, and compared them to the wild flies. In addition, the team

▼ Microbes such as bacteria and fungi support the health of ecosystems



used more than 200 strawberry clones from a single genetic line to study the impact of environmental microbiomes on plant host physiology. The team inoculated individual plants with microbiomes derived from soil from five field sites representing different rainfall levels and compared them for drought tolerance. Results from these on-going comprehensive studies could yield fascinating new insights into the complex physiological impacts of the environmental microbiomes as they get taken up by animal and plant hosts.

The team's pioneering studies revealed that environments act as reservoirs of diversity for both animal and plant microbiomes, and that host-associated microbiomes are nested subsets of free-living, host-independent microbiomes. By identifying sources of shared microbial diversity within a mountain-to-sea landscape, researchers hope to better understand the origins, acquisition processes, and physiological effects of symbiotic microbes. Continued research in these areas could help us develop more effective strategies for impactful goals for our planet, such as global conservation, biodiversity preservation, and ecosystem restoration. ■

▼ A team of researchers with diverse expertise made possible the whole watershed study of the microbiomes of Waimea Valley



The Keck Foundation grant allowed the team to initiate more in-depth experimental studies in the Waimea watershed.

OCCIDENTAL COLLEGE

# EXPANDING FIELDWORK

TO ENHANCE UNDERGRADUATE RESEARCH OPPORTUNITIES, THE KECK FOUNDATION AWARDED \$400,000 TO OCCIDENTAL COLLEGE IN 2015 to purchase equipment for DNA analysis and ocean data collection and to add research experiences to five courses.

Occidental's Moore Laboratory of Zoology holds the world's largest preserved Mexican bird collection. With new equipment for DNA analysis, John McCormack, the Moore Lab's director, and 30 students studied the evolutionary relationships of birds collected 80 years ago. After resampling birds from fifty sites in Mexico, the team compared the present-day bird populations to their ancestors and observed the effects of climate change. They also used DNA sequencing to compare feral parrots in Los Angeles to their wild ancestors that live in two different regions in Mexico. The researchers found that, unlike their Mexican ancestors, the red and lilac crowned parrot species in Los Angeles cohabit and interbreed.

The Keck Foundation grant also supported the purchase of a new 36-foot research vessel: the RV Nobilis. The Nobilis can rapidly reach study areas up to 85 miles out in the ocean, with time for students to collect fish, dive, observe birds, and return in one day. Daniel Pondella, the Vantuna Research Group director, and his students led the restoration of approximately 40 acres of rocky reef habitat near Palos Verdes. ■



▲ Dr. James Maley shows Homecoming and Family Weekend guests bird specimens



▲ Students enrolled in *The Biology of Marine Fishes* fishing off the side of the RV Nobilis near Catalina Island



▲ The RV Nobilis near Catalina Island



TREEPEOPLE

# PLANTING AN URBAN FOREST

Urban forests promote healthier communities and provide a myriad of social and cultural benefits. But many communities in Los Angeles are environmentally stressed. Children play in school yards paved with asphalt. Rainwater drains to the ocean without being captured on a large scale. Low-income areas have little tree canopy compared to the suburbs. And visits to the emergency room are on the rise due to heat-related illnesses.

▲ Children with saplings on their way to school

## Urban forests promote healthier communities and provide a myriad of social and cultural benefits.

Reimagining a more resilient future for Los Angeles that is greener, shadier, and more water-secure is TreePeople's vision. To get there, residents need the knowledge and the resources to be good environmental stewards.

TreePeople's Platinum LEED certified Center for Community Forestry in Coldwater Canyon Park sets an example for what an environmentally sustainable Los Angeles could look like. In 2001, the Keck Foundation supported TreePeople's plan to re-envision its trailers and sheds at the park. TreePeople built sustainable facilities with interactive displays to educate community residents, teachers, and school children. Visitors learn about the natural cycles that take place in the city forest and how nature-based solutions have been integrated into the design of the site.

The Center features an urban watershed garden that serves as a mini replica of Los Angeles. In a city with too few trees and a river covered in concrete, visitors learn how trash and polluted run-off impact the health of our waterways and ocean when it rains. As an alternative, the site demonstrates how many trees and permeable

▼ Conference center at TreePeople's Coldwater Canyon Park



surfaces replenish the groundwater. A large cistern under the parking lot captures rainwater for use at the site. A conference center serves as a learning opportunity about green building technology. Every year, 10,000 visitors leave the Center inspired by what they can do at home and in their communities.

Still, many areas of Los Angeles suffer disproportionately from low tree canopy, poor air quality, and a higher risk of flooding. Since the mid-2000s, TreePeople has used data to map the region's tree canopy. Just 25% of the City of Los Angeles' land is covered by trees. One-fifth of this canopy is concentrated in four wealthy

▼ Elementary school students learn about the Los Angeles watershed during a TreePeople Eco-Tour







People need trees.  
But trees also need people to  
maintain and care for them.

▲ Students learn how to capture rainwater

neighborhoods. The city's trees are not where most people live.

Based on the data, TreePeople launched its urban forestry initiative in 2007 in three environmentally stressed communities. People need trees. But trees also need people to maintain and care for them. To ensure long-term stewardship, TreePeople deployed a new community engagement strategy to increase resident involvement and leadership in reforesting their own neighborhoods, parks, and schools. The initiative started in the northeast San Fernando Valley and the Harbor/Gateway areas.

With a second grant from the Keck Foundation, TreePeople refined the model and expanded to South Los Angeles, with a focus on the Crenshaw, Leimert Park, and Vernon-Central neighborhoods. Nearly 950 trained "citizen foresters" led tree planting and care events and distributed fruit trees to low-income families. Events started in parks but shifted when residents wanted to plant trees at their children's schools. Trees planted through these community-led events have had a 95% survival rate.

These early grants prepared TreePeople to deepen its work in specific neighborhoods called Bright

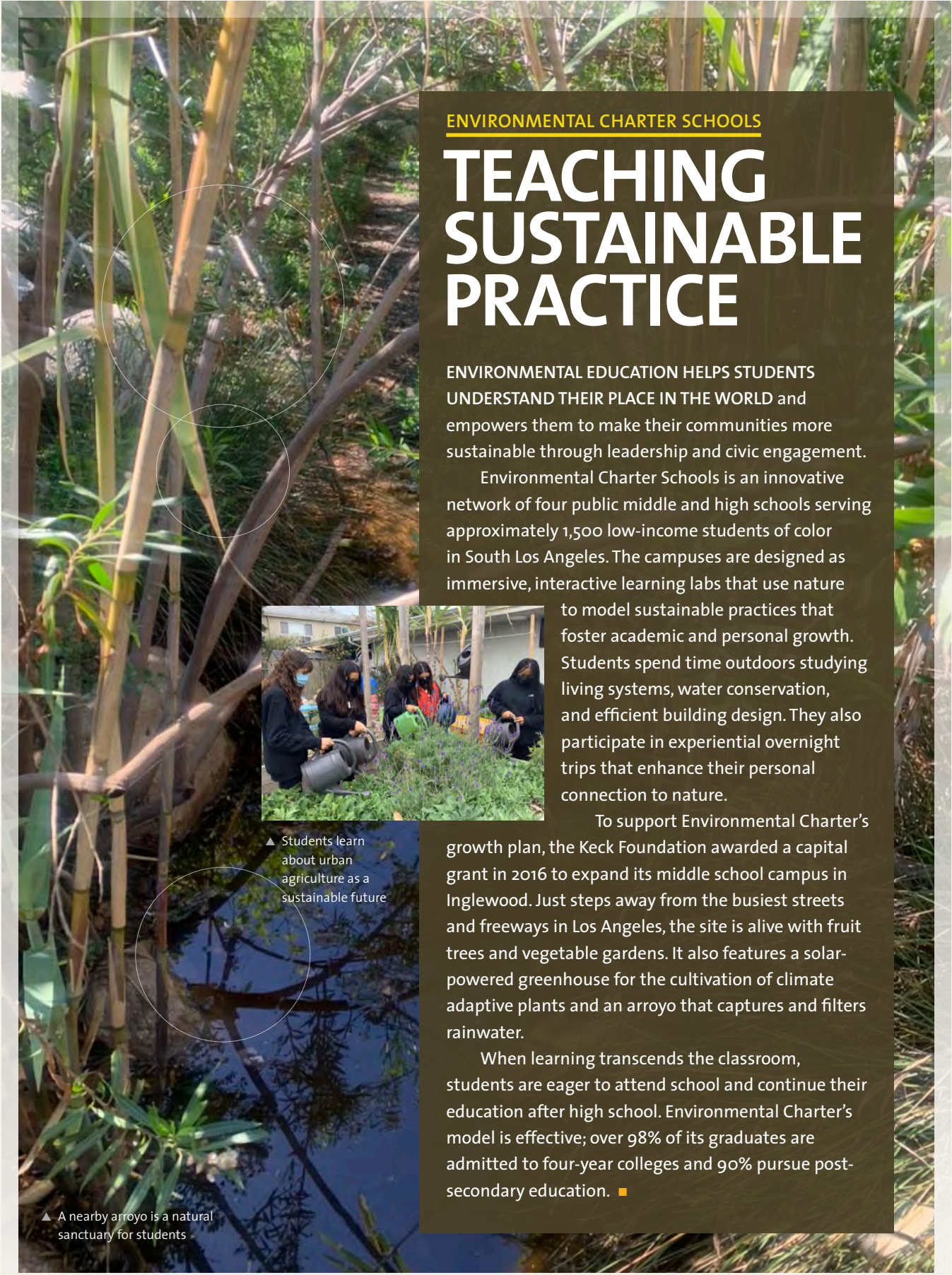


► Tree planting at  
Pacoima Middle School

Spot Communities. Since then, TreePeople has hired organizers from the community to build trust and mobilize residents in identifying resiliency needs and planning greening projects. It has also focused on public policy advocacy to push the state and cities to invest in greening, maintenance, and water capture efforts.

Recent state legislation is providing up to \$3 million per school to remove asphalt, plant trees and gardens, and install underground cisterns. TreePeople is ready to leverage this opportunity on a community scale. Pacoima, Huntington Park, and Wilmington are Bright Spot Communities where TreePeople is greening schools and the surrounding community and taking students on life changing trips to the mountains to learn about the forest.

The importance of TreePeople's mission continues as extreme hot weather events increase in frequency and duration. Given these environmental challenges, our grantmaking will remain focused on improving the quality of life for all residents of the region. ■



ENVIRONMENTAL CHARTER SCHOOLS

# TEACHING SUSTAINABLE PRACTICE

ENVIRONMENTAL EDUCATION HELPS STUDENTS UNDERSTAND THEIR PLACE IN THE WORLD and empowers them to make their communities more sustainable through leadership and civic engagement.

Environmental Charter Schools is an innovative network of four public middle and high schools serving approximately 1,500 low-income students of color in South Los Angeles. The campuses are designed as immersive, interactive learning labs that use nature

to model sustainable practices that foster academic and personal growth. Students spend time outdoors studying living systems, water conservation, and efficient building design. They also participate in experiential overnight trips that enhance their personal connection to nature.

To support Environmental Charter's growth plan, the Keck Foundation awarded a capital grant in 2016 to expand its middle school campus in Inglewood. Just steps away from the busiest streets and freeways in Los Angeles, the site is alive with fruit trees and vegetable gardens. It also features a solar-powered greenhouse for the cultivation of climate adaptive plants and an arroyo that captures and filters rainwater.

When learning transcends the classroom, students are eager to attend school and continue their education after high school. Environmental Charter's model is effective; over 98% of its graduates are admitted to four-year colleges and 90% pursue post-secondary education. ■



▲ Students learn  
about urban  
agriculture as a  
sustainable future

▲ A nearby arroyo is a natural  
sanctuary for students



# 2022 FINANCIAL STATEMENTS

## REPORT OF INDEPENDENT AUDITORS

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The Board of Directors  
W. M. Keck Foundation

### Opinion

We have audited the financial statements of the W. M. Keck Foundation (the Foundation), which comprise the statements of financial position as of December 31, 2022 and 2021, and the related statements of activities and cash flows for the years then ended, and the related notes (collectively referred to as the “financial statements”).

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Foundation at December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

### Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Foundation and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free of material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Foundation’s ability to continue as a going concern for one year after the date that the financial statements are available to be issued.

### Auditor’s Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free of material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.



REPORT OF INDEPENDENT AUDITORS (continued)

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Foundation’s internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Foundation’s ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Ernst & Young LLP

May 23, 2023

STATEMENTS OF FINANCIAL POSITION

December 31 (in thousands)	2022	2021
Assets		
Cash and cash equivalents	\$ 38,898	\$ 54,723
Interest and dividends receivable	1,581	1,528
Prepaid federal excise taxes	620	195
Investments	1,323,945	1,799,223
Receivable from brokers	149	17,753
Right-of-use asset	3,193	3,592
Other assets	2,061	1,580
Total assets	\$ 1,370,447	\$ 1,878,594
Liabilities and net assets		
Payable to brokers	\$ 116	\$ 35,293
Accounts payable and accrued expenses	1,607	2,116
Lease liabilities	3,372	3,715
Grants payable	26,538	31,690
Deferred federal excise taxes payable	4,946	10,998
Total liabilities	36,579	83,812
Net assets	1,333,868	1,794,782
Total liabilities and net assets	\$ 1,370,447	\$ 1,878,594

See accompanying notes.



STATEMENTS OF ACTIVITIES

Year Ended December 31 (in thousands)	2022	2021
<b>Revenues, income and (losses) gains:</b>		
Net investment income and (losses) gains:		
Interest	\$ 5,100	\$ 5,202
Dividends	12,724	7,851
Net realized gains on investments	30,145	119,026
Change in net unrealized (losses) gains in market value of investments	(435,353)	188,855
Investment management expenses	(8,114)	(9,597)
Taxes withheld	(128)	(100)
Total net investment and (losses) gains	(395,626)	311,237
Other Income	101	28
Total revenues, income and (losses) gains	\$ (395,525)	\$ 311,265
<b>Expenses:</b>		
Grants	\$ 62,679	\$ 78,548
Salaries, employee benefits and payroll taxes	4,175	3,206
Professional services, contract services and other management and general services	3,165	2,568
Federal excise tax provision	(4,630)	4,770
Total expenses	\$ 65,389	\$ 89,092
Change in net assets	(460,914)	222,173
Net assets, beginning of year	1,794,782	1,572,609
Net assets, end of year	\$ 1,333,868	\$ 1,794,782

See accompanying notes.

STATEMENTS OF CASH FLOWS

Year Ended December 31 (in thousands)	2022	2021
<b>Operating activities</b>		
Change in net assets	\$ (460,914)	\$ 222,173
Adjustments to reconcile change in net assets to net cash used in operating activities:		
Depreciation and amortization	588	573
Net realized gains on investments	(30,145)	(119,026)
Change in net unrealized (losses) gains in market value of investments	435,353	(188,855)
Changes in operating assets and liabilities:		
Interest and dividends receivable	(53)	78
Prepaid federal excise taxes	(425)	(30)
Other assets	(656)	(613)
Receivable from brokers	17,604	(5,393)
Payable to brokers	(35,177)	10,492
Accounts payable and accrued expenses	(509)	283
Lease liabilities	(343)	(314)
Deferred federal excise taxes payable	(6,052)	2,625
Grants payable	(5,152)	5,197
Net cash used in operating activities	(85,881)	(72,810)
<b>Investing activities</b>		
Purchases of investments	(463,859)	(472,389)
Proceeds on disposition of investments	533,929	548,953
Acquisition of fixed assets	(14)	(57)
Net cash provided by investing activities	70,056	76,507
Net (decrease) increase in cash and cash equivalents	(15,825)	3,697
Cash and cash equivalents, beginning of year	54,723	51,026
Cash and cash equivalents, end of year	\$ 38,898	\$ 54,723
<b>Supplemental disclosures</b>		
Taxes paid during the year	\$ 1,850	\$ 2,175

See accompanying notes.



NOTES TO FINANCIAL STATEMENTS

December 31, 2022

1. Organization

Formation and Goals of the Foundation

W. M. Keck established the W. M. Keck Foundation (the Foundation) as a charitable trust in 1954. In 1959, Mr. Keck changed the trust entity to a corporate entity by forming the W. M. Keck Foundation as a Delaware corporation and transferring the trust’s assets, and eventually by bequeathing the residue of his estate, to the corporation. It is this Delaware corporation that exists today and continues to be known as the W. M. Keck Foundation. The Foundation’s goals are principally to identify and support university and college research and education programs in the areas of science, engineering, and medicine. In addition, the Foundation gives some consideration to promoting liberal arts education and, in Southern California, to supporting community services, health care, pre-collegiate education, and the arts. Operations are funded by the Foundation’s returns on its investment portfolio.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Grant Payments

In accordance with accounting standards for not-for-profit entities, unconditional grant payments are recognized as an expense in the period in which they are approved. If these grants are to be paid over a period exceeding one year, they are recorded at the net present value of the future cash payments, using an applicable Treasury Bill rate. Grants that are conditioned upon a future and uncertain event are expensed when these conditions are substantially met.

Cash and Cash Equivalents

Cash and cash equivalents are defined as liquid investments with remaining maturities of three months or less at time of purchase.

Investments

Investments in equity securities with readily determinable fair values and all investments in debt securities are measured at fair value in the statements of financial position. Fair value is established based on quoted prices from recognized securities exchanges.

Investments in private equity funds and hedge funds are measured at fair value, using the net asset value (NAV) as a practical expedient, which is based on net asset values reported by the fund managers. Pursuant to provisions of Accounting Standards Update (ASU) 2009-12, *Fair Value Measurements and Disclosures (Topic 820): Investments in Certain Entities That Calculate Net Asset Value per Share (or its Equivalent)*, the Foundation believes that the net asset value of these investments as of December 2022 and 2021 approximates their fair value as of that date. However, because of the inherent uncertainty of valuation, the estimated fair values for these securities and interests may differ from the values that would have been used had a ready market for the investments existed, and the differences could be material.

Purchases and sales of securities are recorded on the trade date. Dividend income is recorded based upon the ex-dividend date. Interest income is recorded as earned on an accrual basis. Realized gains and losses are recorded upon disposition of securities based on the specific identification method. Unrealized gains and losses are included on the statements of activities and represent the net change in fair value for investments held at the end of the year.

Fair Value of Financial Instruments

The Foundation’s statements of financial position include, but are not limited to, the following financial instruments: cash and cash equivalents, accounts payable, and accrued liabilities. The Foundation considers the carrying amounts of these assets and liabilities on the statements of financial position to approximate the fair value of these financial instruments because of the relatively short period of time between origination of the instruments and their expected realization.

Concentrations of Credit Risk

Financial instruments that potentially subject the Foundation to concentrations of credit risk consist of cash and cash equivalents and investments. The investment portfolio is managed within the Foundation’s established investment guidelines.

Fixed Assets

Fixed assets are carried at cost, less accumulated depreciation, and are included in other assets on the statements of financial position. Depreciation is computed on the straight-line method over the estimated useful life of each type of asset or the term of the related lease, whichever is shorter. The depreciable lives for leasehold improvements are ten years, for furniture and equipment five years, and for software three years.

Leases

Under ASC 842, the Foundation determines if an arrangement is a lease at inception based on whether the Foundation has the right to control the asset during the contract period and other facts and circumstances. The Foundation has obligations as a lessee for office space and office equipment with initial noncancelable terms in excess of one year. The Foundation classified these leases as operating leases. Operating leases are included in right-of-use (ROU) assets and lease liabilities on the statements of financial position. ROU assets represent the Foundation’s right to use an underlying asset for the lease term, and lease liabilities represent the Foundation’s obligation to make lease payments arising from the lease, both of which are recognized at the commencement date based on the present value of future lease payments over the lease term. For this purpose, the Foundation considers only payments that are fixed and determinable at the time of commencement. The office space lease contains a renewal option of five years. Because the Foundation is not reasonably certain to exercise the renewal option, the optional periods are not included in determining the lease term, and associated payments under the renewal option are excluded from lease payments. As the implicit rates for the Foundation’s leases were not readily determinable, the Foundation’s incremental borrowing rate was used in determining the present value of lease payments. The Foundation’s incremental borrowing rate is a hypothetical rate based on the rate of interest the Foundation would have to pay on a collateralized basis to borrow an amount equal to the lease payments under similar terms and in a similar economic environment. The office space lease agreement contains variable costs, such as common area maintenance, insurance, real estate taxes or other costs. Variable lease costs are expensed as incurred on the statements of activities. Leases with a lease term of 12 months or less at inception are not recorded on the statements of financial position and are expensed on a straight-line basis over the lease term in the statements of activities. The Foundation’s lease agreements generally do not contain any residual value guarantees or restrictive covenants.



Fair Value of Measurement

The Foundation applies the principles of Accounting Standards Codification (ASC) 820, *Fair Value Measurement*, for all financial assets and liabilities that are recognized or disclosed at fair value in the financial statements. This standard defines fair value, establishes a consistent framework for measuring fair value, and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. The standard clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the Foundation establishes a three-level fair value hierarchy, that prioritizes the inputs used in measuring fair value as follows:

- Level 1 – Assets that have readily observable prices (quoted prices in active markets accessible at the measurement date for assets). The fair value hierarchy gives the highest priority to Level 1 inputs.
- Level 2 – Assets that are based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Financial assets and liabilities in this category generally include asset-backed securities, corporate bonds and loans, municipal bonds, forward contracts, future contracts, interest and credit swap agreements, options, and interest rate swaps.
- Level 3 – Assets whose fair value cannot be determined by using observable measures and can only be calculated using estimates or risk-adjusted value ranges, when little or no market data is available. The inputs into the determination of fair value require management’s judgment or estimation of assumptions that market participants would use in pricing the assets or liabilities. The fair values are, therefore, determined using factors that involve considerable judgment and interpretations, including, but not limited to, private and public comparable, third-party appraisals, discounted cash flow models, and fund manager estimates. The fair value hierarchy gives the lowest priority to Level 3 inputs.
- Assets and liabilities measured at fair value are based on one or more of three valuation techniques noted below:

(a) *Market approach*. Prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities.

(b) *Cost approach*. Amount that would be required to replace the service capacity of an asset (replacement cost).

(c) *Income approach*. Techniques to convert future amounts to a single present amount based on market expectations (including present value techniques, option-pricing, and excess earnings models).

The Foundation’s assets measured at fair value on a recurring basis at December 31, 2022 were as follows (in thousands):

	Level 1	Level 2	Investments at NAV	Total
Assets:				
Common and preferred stock	\$ 507,576	\$ —	\$ —	\$ 507,576
Corporate bonds	—	22,091	—	22,091
Municipal bonds	—	3,510	—	3,510
Government bonds	14,393	17	—	14,410
Foreign investments	57,820	22,097	—	79,917
Mortgage- and asset-backed securities	—	51,444	—	51,444
Mutual funds	341,172	—	—	341,172
Private equity funds	—	—	303,825	303,825
Total	\$ 920,961	\$ 99,159	\$ 303,825	\$ 1,323,945

The Foundation’s assets measured at fair value on a recurring basis at December 31, 2021 were as follows (in thousands):

	Level 1	Level 2	Investments at NAV	Total
Assets:				
Common and preferred stock	\$ 781,851	\$ —	\$ —	\$ 781,851
Corporate bonds	—	31,980	—	31,980
Municipal bonds	—	3,569	—	3,569
Government bonds	31,395	43	—	31,438
Foreign investments	74,185	32,101	—	106,286
Mortgage- and asset-backed securities	—	78,117	—	78,117
Mutual funds	344,211	—	—	344,211
Private equity funds	—	—	394,684	394,684
Hedge funds	—	—	27,087	27,087
Total	\$ 1,231,642	\$ 145,810	\$ 421,771	\$ 1,799,223

The Foundation has classified its mutual funds, equity securities, preferred stock, and certain of its government bonds and foreign investments that have quoted prices in active markets as Level 1 within the fair value hierarchy. These securities are valued under the market approach using inputs observable in active markets for identical securities. The Foundation has classified certain of its government bonds, corporate bonds, municipal bonds, foreign bonds, and mortgage- and asset-backed securities as Level 2 investments. The fair value of these assets is valued under the market approach using inputs observable in active markets for similar assets. The Foundation has measured its investments in hedge funds and private equity funds at fair value using the net asset value as a practical expedient, which is based on net asset values reported by the fund managers. These investments that use net asset value as a practical expedient are not classified in the fair value hierarchy. The fair value of the underlying assets in private equity funds is valued under the income approach using discounted cash flows and other inputs not observable in active markets. The hedge funds in which the Foundation is invested hold a mix of Level 1, 2 and 3 instruments.



NOTES TO FINANCIAL STATEMENTS (continued)

3. Liquidity and Availability of Resources

The Foundation's financial assets available within one year of the statement of financial position date for general expenditure are as follows (in thousands):

December 31 (in thousands)	2022	2021
Cash and cash equivalents	\$ 38,898	\$ 54,723
Interest and dividends receivable	1,581	1,528
Liquid investments (excludes private equity)	1,020,120	1,404,539
Total financial assets available to management for general expenditure within one year	\$ 1,060,599	\$ 1,460,790
Supplemental disclosure		
Grant commitments due within one year	\$ (21,030)	\$ (23,375)

Liquidity Management

The Foundation has \$1,060,599,000 of financial assets available within one year of the statement of financial position date to meet cash needs for general expenditure. None of the financial assets are subject to donor restrictions that make them unavailable for general expenditure within one year of the statement of financial position date. The Foundation maintains a policy of structuring its financial assets to be available as its general expenditures, liabilities, and other obligations come due. In addition, the Foundation invests cash in excess of daily requirements in short-term investments.

4. Investments

The cost and fair value of investments are as follows (in thousands):

	December 31, 2022		December 31, 2021	
	Cost	Fair Value	Cost	Fair Value
Common and preferred stock	\$ 314,178	\$ 507,576	\$ 334,821	\$ 781,851
Corporate bonds	24,413	22,091	28,395	31,980
Municipal bonds	3,452	3,510	2,734	3,569
Government bonds	15,866	14,410	31,823	31,438
Foreign investments	73,371	79,917	68,725	106,286
Mortgage- and asset-backed securities	56,487	51,444	79,567	78,117
Mutual funds	356,319	341,172	282,479	344,211
Private equity funds	124,033	303,825	146,000	394,684
Hedge funds	—	—	33,500	27,087
	\$ 968,119	\$ 1,323,945	\$1,008,044	\$ 1,799,223

The change in net unrealized gains on investments is reflected on the statements of activities and is summarized as follows (in thousands):

Year Ended December 31 (in thousands)	2022	2021
Net unrealized gains, beginning of year	\$ 791,179	\$ 602,324
Net unrealized (losses) gains on investments for the year	(435,353)	188,855
Net unrealized gains, end of year	\$ 355,826	\$ 791,179

The Foundation has made total capital contributions (net of distributions/return of capital) of \$124,033,000 to private equity funds as of December 31, 2022. The private equity funds are primarily invested in assets valued using Level 3 inputs and, as of December 31, 2022, are subject to lock-up provisions up to nine years, subject to certain further extension adjustments. The Foundation had total future capital commitments related to private equity funds of \$70,232,000 as of December 31, 2022.

5. Taxes

The Foundation qualifies as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code and, accordingly, is not subject to federal income taxes. However, the Foundation is classified under the Internal Revenue Code (IRC) as a private foundation and, as such, was subject to a flat rate federal excise tax of 1.39% on net investment income.

As of December 2022 and 2021, the Foundation accrued a 1.39% excise tax on net investment income.

Private foundations are required to distribute annually, in qualifying charitable distributions, an amount equal to approximately 5% of the average fair market value of the Foundation's assets (the minimum distribution). If the Foundation does not distribute the required minimum distribution, a one-year grace period is granted to distribute the undistributed income.

The Foundation uses the liability method for accounting for excise taxes. The federal excise tax provision consists of the following (in thousands):

Year Ended December 31 (in thousands)	2022	2021
Current	\$ 1,422	\$ 2,145
Deferred	(6,052)	2,625
	\$ (4,630)	\$ 4,770

Deferred federal excise taxes arise primarily from the net unrealized appreciation in the fair value of investments and the Foundation uses the federal excise tax rate of 1.39% for the years presented.

The Foundation completed an analysis of its tax positions, in accordance with Financial Accounting Standards Board ASC 740, *Income Taxes*, and determined that there are no uncertain tax positions taken or expected to be taken. The Foundation has recognized no interest or penalties related to uncertain tax positions. The Foundation is subject to routine audits by the taxing jurisdictions; however, there are currently no audits in progress for any tax periods (tax years 2018 through 2022 remain open and subject to selection for such routine audits).



6. Functional Classification of Expenses

Functional expenses present expenses by function and natural classification. Expenses directly attributable to a specific functional area of the Foundation are reported as expenses of that functional area. Indirect or shared costs are allocated between Program Services and Management and General Services based on the proportion of full-time employee equivalents of a program or other supporting service versus the total organizational full-time employee equivalents.

The following is a functional classification of the Foundation’s expenses:

Year Ended December 31, 2022 (in thousands)	Program Services	Management and General	Total
Grants	\$ 62,679	\$ —	\$ 62,679
Salaries, employee benefits and payroll taxes	3,802	373	4,175
Professional services, contract services and other management and general services	2,700	465	3,165
Total functional expenses	\$ 69,181	\$ 838	\$ 70,019

Year Ended December 31, 2021 (in thousands)	Program Services	Management and General	Total
Grants	\$ 78,548	\$ —	\$ 78,548
Salaries, employee benefits and payroll taxes	2,857	349	3,206
Professional services, contract services and other management and general services	2,189	379	2,568
Total functional expenses	\$ 83,594	\$ 728	\$ 84,322

7. Grants Payable and Conditional Grant Commitments

Grants payable and conditional grant commitments as of December 31, 2022 are as follows (in thousands):

	Unconditional	Conditional
2023	\$ 21,030	\$ 2,120
2024	3,000	15,500
2025	2,700	13,500
2026 and thereafter	—	108,750
	\$ 26,730	\$ 139,870
Less present value discount	(192)	—
	\$ 26,538	\$ 139,870

Projected timetable and payment amounts shown above for conditional grants are estimated. Conditional grants will be recorded as an expense in the period when the conditions to the grant are substantially met. These grants are conditioned upon other donors matching the amounts contributed by the Foundation, receipt of building permits and other regulations, and compliance with budget, timetable, and grant agreement requirements.

8. Lease Commitments

The Foundation has operating leases related to office space and office equipment. New leases commenced for office space and for office equipment in 2019. The office equipment lease expired in 2022 and continued on a month-to-month basis. Statement of financial position information related to operating leases are as follows (in thousands):

December 31 (in thousands)	2022	2021
Right-of-use asset	\$ 3,193	\$ 3,592
Lease liabilities	3,372	3,715

As of December 31, 2022, the Foundation’s office space lease has an original lease period expiring in 2029. The office space lease includes an option to renew for an additional five years.

The components of lease costs, lease term and discount rate are as follows (in thousands):

December 31 (in thousands)	2022	2021
Operating lease cost	\$ 546	\$ 546
Variable lease cost	372	345
Total operating lease cost	\$ 918	\$ 891

Year Ended December 31 (in thousands)	2022	2021
Weighted-average remaining lease term for operating leases	6.92 years	7.91 years
Weighted-average discount rate for operating leases	4.05%	4.05%

The following table summarizes the maturity of the Foundation’s operating lease liabilities as of December 31, 2022 (in thousands):

December 31 (in thousands)	
2023	\$ 500
2024	520
2025	541
2026	563
2027	585
Thereafter	1,187
Total operating lease payments	3,896
Less: Imputed interest	(524)
Present value of operating lease liabilities	\$ 3,372

Supplemental cash flow information related to leases are as follows (in thousands):

Year Ended December 31 (in thousands)	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flow from operating leases	\$ 447	\$ 473
ROU assets obtained in exchange for lease obligations:		
Operating leases	\$ —	\$ —
Reductions to ROU assets resulting from reductions to lease obligations:		
Operating lease	\$ (399)	\$ (388)



9. Employee Retirement Plan

The Foundation maintains a qualified 401(k) Profit Sharing Plan (the Plan) for eligible employees. Employees can contribute a percentage of their pretax compensation subject to Internal Revenue Service (IRS) limitations. The Foundation matches 200% of the employee’s deferral, but not more than 6% of the employee’s compensation in total until IRS compensation limits are reached. The Foundation’s matching contributions to the Plan were approximately \$324,000 and \$280,000 for the years ended December 31, 2022 and 2021, respectively.

10. Subsequent Events

The Foundation’s management has evaluated subsequent events through May 23, 2023, which is the date these financial statements were available to be issued.

Management has determined that no material subsequent events have occurred during that period that would require the Foundation to either recognize the financial impact of such events in the accompanying financial statements or disclose any such events to ensure the financial statements are not misleading.

2023 DIRECTORS, COMMITTEES,  
MEMBERS AND OFFICERS



# W. M. KECK FOUNDATION DIRECTORS, COMMITTEES, MEMBERS AND OFFICERS FOR 2023



W. M. Keck, Sr.  
*Founder and President*  
1954 – 1964



Howard B. Keck  
*Chairman and CEO*  
1964 – 1994



Robert A. Day  
*Chair and CEO*  
1995 – 2021  
*Chairman*  
2022 – Present

### FOUNDING MEMBERS

W. M. Keck, Sr.  
*Chairman, 1954 – 1964*

Howard B. Keck  
*Chairman, 1964 – 1994*

Naurice G. Cummings  
Willametta Keck Day  
Dr. Benjamin Hager  
W. M. Keck, Jr.  
Harold C. Morton

### OFFICERS

Robert A. Day  
*Chairman*

Joseph Day  
*Co-Chief Executive Officer*

Stephen M. Keck  
*Co-Chief Executive Officer*

Lucinda Day Fournier  
*Vice President*

Matt Day, Sr.  
*Vice Chair*

Allison M. Keller  
*Executive Director,  
Chief Financial Officer, and  
Chief Operating Officer*

Dr. Maria C. Pellegrini  
*Executive Director of Programs*

Stephanie L. Garacochea  
*Corporate Secretary and  
Director of Operations*

### MEMBERS AND DIRECTORS

Stephanie Argyros  
James A. Baker, III  
Peter K. Barker  
Robert Bradway  
Dr. William R. Brody  
Peter Carlton  
Dorothy W. Day  
Jonathan S. Day  
Joseph Day  
Matt Day, Sr.  
Matt Day, Jr.  
Robert A. Day  
Dr. James S. Economou  
Dr. Thomas E. Everhart  
Brian A. Finch  
Dr. Richard N. Foster  
Lucinda Day Fournier  
Theodore J. Fournier\*  
Bradford Freeman  
Mark C. Holscher  
Christopher Hopkins  
Maria Hummer-Tuttle  
Brighton Keck  
Erin A. Keck\*  
Stephen M. Keck  
Theodore J. Keck  
Kent Kresa  
Sherry Lansing  
Dr. Kelsey Martin  
Kerry K. Mott\*  
Ronald P. Spogli  
Dr. Edward M. Stolper  
C. Ben Vaughan\*  
Elizabeth M. Vaughan\*  
Sean Vaughan\*

*\*Denotes Member only*

### EXECUTIVE COMMITTEE

Robert A. Day, *Chairman*  
Stephanie Argyros  
James A. Baker, III  
Peter K. Barker  
Robert Bradway  
Dr. William R. Brody  
Peter Carlton  
Jonathan S. Day  
Joseph Day  
Matt Day, Sr.  
Dr. James S. Economou  
Dr. Thomas E. Everhart  
Brian A. Finch  
Dr. Richard N. Foster  
Lucinda Day Fournier  
Bradford Freeman  
Mark C. Holscher  
Christopher Hopkins  
Maria Hummer-Tuttle  
Stephen M. Keck  
Kent Kresa  
Sherry Lansing  
Dr. Kelsey Martin  
Ronald P. Spogli  
Dr. Edward M. Stolper

### AUDIT COMMITTEE

Peter K. Barker, *Chair*  
Matt Day, Sr.  
Brian A. Finch  
Bradford Freeman  
Maria Hummer-Tuttle

### LEGAL AND GOVERNANCE COMMITTEE

Mark C. Holscher, *Chair*  
Brian A. Finch  
Christopher Hopkins

### COMPENSATION COMMITTEE

Peter K. Barker, *Chair*  
Matt Day, Sr.  
Robert A. Day  
Sherry Lansing  
Ronald P. Spogli

### INVESTMENT COMMITTEE

Peter K. Barker, *Chair*  
Peter Carlton  
Joseph Day (*Ex Officio*)  
Robert A. Day  
Bradford Freeman  
Stephen M. Keck  
Ronald P. Spogli

### GRANT COMMITTEES Medical Research Committee

Dr. Richard N. Foster,  
*Chair*

Peter K. Barker  
Robert Bradway  
Dr. William R. Brody  
Matt Day, Sr.  
Robert A. Day  
Dr. James S. Economou  
Dr. Thomas E. Everhart  
Stephen M. Keck  
Kent Kresa  
Sherry Lansing  
Dr. Kelsey Martin

### Science and Engineering Committee

Dr. Edward M. Stolper  
*Chair*

Dr. William R. Brody  
Joseph Day  
Matt Day, Sr.  
Robert A. Day  
Dr. James S. Economou  
Dr. Thomas E. Everhart  
Dr. Richard N. Foster  
Theodore J. Keck  
Kent Kresa  
Dr. Kelsey Martin

### Southern California and Undergraduate Education Committee

Lucinda Day Fournier,  
*Chair*

Stephanie Argyros  
Peter K. Barker  
Joseph Day  
Matt Day, Sr. (*Ex Officio*)  
Robert A. Day  
Christopher Hopkins  
Maria Hummer-Tuttle  
Brighton Keck  
Sherry Lansing

### PROGRAM DIRECTORS

Dr. Maria C. Pellegrini  
*Executive Director of Programs*

Dr. Dorothy Fleisher  
*Senior Program Director*

Dr. Justin Gallivan  
*Senior Program Director*

Dr. Jean Kim  
*Senior Program Director*

Dr. Kevin Moses  
*Senior Program Director*

Dr. Thomas Rieker  
*Senior Program Director*

Anneli Stone  
*Program Director*

### SENIOR MEDICAL ADVISOR

Dr. James S. Economou

### INDEPENDENT PUBLIC ACCOUNTANTS

Ernst & Young  
*Los Angeles, California*



2022 REPRESENTATIVE GRANTS

2022 REPRESENTATIVE GRANTS

MEDICAL RESEARCH

**Brandeis University**  
Waltham, MA  
\$1,000,000  
*To understand the brain-body interface in physiology and disease.*

**Cornell University**  
Ithaca, NY  
\$1,000,000  
*To develop the next generation high speed atomic force microscope.*

**Fox Chase Cancer Center**  
Philadelphia, PA  
\$1,000,000  
*To use deep learning to rationally design molecular glues that can eliminate targeted proteins.*

**New York University**  
New York, NY  
\$1,200,000  
*To understand one-shot learning in the human brain and replicate that function in silico.*

**Ohio State University**  
Columbus, OH  
\$1,200,000  
*To uncover a feedback loop between the central nervous system and adipose tissue.*

**Salk Institute for Biological Studies**  
La Jolla, CA  
\$1,300,000  
*To test a novel probe that enables dynamic imaging of molecular interactions on genes that determine cell fate.*

**Seattle Children’s Hospital**  
Seattle, WA  
\$1,300,000  
*To exploit viral induced cellular vulnerabilities to combat infectious diseases.*

**University of California, Berkeley**  
Berkeley, CA  
\$1,000,000  
*To develop new methods for medicinal plant suspension cell cultures.*

**University of California, Irvine**  
Irvine, CA  
\$1,000,000  
*To develop a method to engineer regulating ligands for G-protein coupled receptors.*

**University of California, San Diego**  
San Diego, CA  
\$1,300,000  
*To develop targeted protein degradation, advanced imaging, and supercomputing methods to study the biological effects of tau aggregates in human neurons.*

**University of Kansas**  
Lawrence, KS  
\$1,200,000  
*To develop a method to improve the design of molecules that target specific RNAs.*

**University of Washington**  
Seattle, WA  
\$1,300,000  
*To develop novel probes to label cellular structures in live cells for super-resolution optical and electron microscopy.*

SCIENCE AND ENGINEERING RESEARCH

**California Institute of Technology**  
Pasadena, CA  
\$1,100,000  
*To create a novel ultrafast electron pump, electron probe instrument.*

**Emory University**  
Atlanta, GA  
\$1,200,000  
*To perform mechanistic studies of wind-borne microbes in the laboratory.*

**Michigan State University**  
East Lansing, MI  
\$1,300,000  
*To develop diffraction-less optical imaging: achieving the resolution of electron microscopy with light in living systems.*

**Rice University**  
Houston, TX  
\$1,200,000  
*To realize theoretically predicted intrinsic and macroscopic quantum squeezing in materials.*

**Rutgers, The State University of New Jersey**  
New Brunswick, NJ  
\$1,100,000  
*To control topological quantum magnetism using vortex light beams.*

**University of California, Berkeley**  
Berkeley, CA  
\$1,000,000  
*To develop a carbon-13 nuclear magnetic resonance probe to study the chemistry of confined systems.*

**University of California, Berkeley**  
Berkeley, CA  
\$1,000,000  
*To detect dinitrogen fluxes from terrestrial ecosystems.*



2022 REPRESENTATIVE GRANTS

University of Minnesota, Twin Cities  
Minneapolis, MN  
\$1,400,000  
*To fabricate topological quantum architectures through DNA programmable molecular assembly.*

University of North Texas  
Denton, TX  
\$1,400,000  
*To test whether tobacco plants can support production of bioactive fungal products.*

University of Oklahoma  
Norman, OK  
\$1,000,000  
*To explore self-organization across the classical to quantum transition.*

University of Utah  
Salt Lake City, UT  
\$1,000,000  
*To predict the kinetics of molecular crystallization based on solution species.*

SOUTHERN CALIFORNIA

Arts and Culture

Japanese American Cultural & Community Center  
Los Angeles, CA  
\$250,000  
*To create a permanent teaching space for elder “culture-bearers” to instruct the next generation in traditional arts and crafts at the Center’s Little Tokyo campus.*

Venice Arts  
Venice, CA  
\$300,000  
*To expand a model career pathway program that prepares diverse young people for jobs in digital media arts.*

Civic and Community

America on Tech  
Los Angeles, CA  
\$300,000  
*To engage high school students in a year-long exploration of technology careers in partnership with industry professionals.*

CASA of Los Angeles  
Monterey Park, CA  
\$300,000  
*To establish a program that provides access to housing, case management, and life skills workshops so system-involved youth can become self-sufficient.*

East Los Angeles Women’s Center  
Los Angeles, CA  
\$250,000  
*To assist survivors of domestic violence by renovating a facility that will be the organization’s first permanent service center.*

L.A. Family Housing Corporation  
North Hollywood, CA  
\$350,000  
*To provide furnishings for a new permanent supportive housing development for families in the Antelope Valley.*

The People Concern  
Los Angeles, CA  
\$350,000  
*To increase the inventory of permanent supportive housing by establishing in-house expertise to manage new builds, adaptive reuse, and master leasing.*

Wellnest  
Los Angeles, CA  
\$400,000  
*To create a pathway to independence for vulnerable young adults/families in South Los Angeles by constructing permanent supportive housing.*

Early Childhood

Child Lane  
Long Beach, CA  
\$250,000  
*To establish an infant care center and expand services to toddlers by renovating space at a child development center.*

Health Care

California Hospital Medical Center  
Los Angeles, CA  
\$500,000  
*To increase capacity and improve the quality of care by constructing a state-of-the-art emergency and trauma department in downtown Los Angeles.*

Providence Holy Cross Medical Center  
Mission Hills, CA  
\$250,000  
*To increase the capacity of the neonatal intensive care unit by renovating space and purchasing state-of-the-art equipment.*

Special Needs Network, Inc.  
Los Angeles, CA  
\$500,000  
*To furnish and equip a new Center for Autism and Developmental Disabilities in South Los Angeles.*

Universal Community Health Center  
Los Angeles, CA  
\$300,000  
*To expand access to comprehensive health services for residents in South Los Angeles by constructing a new clinic.*

Precollegiate Education

9 Dots  
Los Angeles, CA  
\$300,000  
*To implement a computer science program serving all students in grades K-6 at two elementary schools in South Los Angeles.*

Alliance College-Ready Public Schools  
Los Angeles, CA  
\$300,000  
*To increase college enrollment and persistence by refining a college matching framework and expanding the mentorship program.*

Da Vinci Schools  
El Segundo, CA  
\$500,000  
*To provide new opportunities for students to gain in-demand STEM skills by creating a Career and Technical Education Studio.*

Girls Athletic Leadership School of Los Angeles  
Panorama City, CA  
\$350,000  
*To expand enrollment by constructing a permanent facility for an all-girls charter middle school in the San Fernando Valley.*

Villa Esperanza  
Pasadena, CA  
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*To expand enrollment and enhance services for students with disabilities by upgrading its campus.*

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*Endogenous Psychedelics in Health and Disease*



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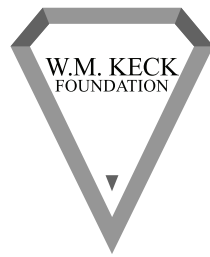
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