

“TODAY’S DISCOVERY LEADS TO TOMORROW’S INVENTION AND NEXT WEEK’S IMPROVEMENT IN THE QUALITY OF LIFE. ALL POSITIVE CHANGE CAN BE TRACED TO ONE OR MORE SCIENTIFIC DISCOVERIES AND FOR THAT REASON IT IS BOTH LOGICAL AND WISE TO INVEST IN CUTTING-EDGE SCIENCE, ENGINEERING, AND TECHNOLOGY TRANSFER.”

~ DR. DAVID KARL, PHD, PROFESSOR, OCEANOGRAPHER AND MICROBIAL BIOLOGIST SCHOOL OF OCEAN AND EARTH SCIENCES AND TECHNOLOGY, UH MĀNOA

A L I F E T I M E [O F D I S C O V E R Y]



It was one of the most dramatic discoveries in the annals of science. Nearly, 8,000 feet below the ocean’s surface, scientists discovered boiling ocean-thermal vents, chimney-like structures, rising from the ocean floor expelling plumes of black smoke.

These dramatic fissures were coming from cracks in the ocean floor in the Pacific near the Galapagos Islands. What was even more amazing than the undersea landscape was the variety and quantity of life surrounding these super-heated vents—an ecosystem that had never been seen before. Tiny bacteria, small shrimps, crabs, and giant tube worms, some as large as eight feet long, all sustained by the intense heat of the deep sea.

Until then, science assumed that all life obtained its energy from the sun and that without sunlight, life simply could not exist. Yet here, thousands of feet beyond the reach of any light, was proof that life could be sustained by the earth itself.

Dr. David Karl, who had recently joined the University of Hawai i faculty, joined the first biological expeditions to the hydrothermal vents. While the discovery of these unique marine ecosystems was fascinating in itself, it said something

more to Dr. Karl about the role the ocean plays in the environmental stability of the entire planet.

“Life on earth most likely originated as microbes in the sea.” says Dr. Karl, who has spent his entire career studying marine microorganisms and ecology. Dr. Karl contends that life not only began as microbes, but these microorganisms shaped and defined earth’s biosphere and consequently were instrumental in creating conditions that allowed for the evolution of larger, more complex forms of life.

Moreover, he believes solutions to current and future global ecological and environmental issues, including global warming, may be found in part through the study of our oceans and how they affect the consumption of earth’s greenhouse gases and its climate.

Since joining UH, his work has continuously attracted funding from the National Science Foundation, and in 2006 he was elected into the prestigious National Academy of Sciences.

Dr. David Karl is but one of the many, highly productive, globally-respected UH researchers who educate and inspire students from our centers of research excellence every day.

SOMEWHERE, SOMETHING INCREDIBLE IS WAITING TO BE KNOWN.
~ DR CARL SAGAN



THE THIRST [FOR KNOWLEDGE]

The first Hawaiians were consummate explorers and researchers. When an intrepid group of Polynesians set sail more than 1,200 years ago with nothing but the stars to guide them and an insatiable need to discover, they established a thirst for knowledge that thrives at the University of Hawai'i today.

Intellectual investigation defines the very core of the University of Hawai'i System. With ten campuses statewide, UH is uniquely positioned to leverage its mid-Pacific setting into world-class research. From the depths of the ocean that surround the islands to the farthest stars above, University of Hawai'i faculty and students are engaged in a range and intensity of research unparalleled in the world.

This research reflects the diversity that defines Hawai'i. These islands are home to an unequalled breadth and confluence of ethnic and cultural humanity, surrounded by extraordinary natural resources. UH faculty and student researchers excel in

a rainbow of fields – from languages, fine arts, culinary programs and performing arts, to astronomy, the oceans and all that makes up our living earth. This considerable range and balance of study is no accident – it has arisen from a mix of persistent investigation and the attributes of our unique location.

In an increasingly competitive world, top universities cannot rely solely on government funding to support research. It is the foresight of private donors that fuels the groundbreaking stages of research – research that may then be supported by government funding. It is the investment from the private donor that unleashes the incredible potential of a brilliant researcher.

Private donors have within their means the power to fund the thirst for knowledge of visionary researchers at the University of Hawai'i. It is the partnership between donor, faculty, and students that will create new knowledge and transform lives in Hawai'i and the world.



F U L F I L L I N G [OUR RESEARCH MISSION]

Each day, hundreds of faculty members and students throughout the state are engaged in groundbreaking research in areas as diverse as astronomy, cancer studies, teacher training and education, ethnic and cultural studies, government and public policies, ocean and earth science, international relations, high technology development, and business development in general.

Here are just a few examples of UH research and recent breakthroughs

- A UH Mānoa oceanographer's research on microorganisms has increased the world's understanding of how vital the seas are to the health of our planet.
- Astronomers using Mauna Kea's newest telescope have confirmed for the first time that many young stars in the Orion Nebula are surrounded by enough orbiting material to form new planetary systems.
- UH Mānoa linguists and the high technology firm DataHouse, Inc. created Wordcorr, a new tool for tracking language history. Wordcorr is capable of organizing massive amounts of data needed to analyze the history of language families.
- Using a transgenic mouse model, UH Mānoa molecular biologists demonstrated that enhanced muscle growth during developmental stages can play a significant role in the prevention of obesity and hyperinsulinemia, a symptom of pre-diabetes.
- A Pacific Biosciences Research Center researcher and a John A. Burns School of Medicine professor discovered a genetic variant that helps to explain a high incidence of two neurodegenerative disorders (amyotrophic lateral sclerosis

and Parkinsonism dementia complex) in the Pacific Islands of Guam and Rota.

- A UH Mānoa professor of Hawaiian, Indo-Pacific Languages and Literature found a 700-year-old, legal code document in a Sumatran village. Recorded in Malay with a few sentences of Sanskrit on bark paper, the Tan Jung Tenaha document is the oldest known Malay manuscript. UH and the Yayasan Pernaskahan Nusantara Foundation are coordinating translations, publication, and its preservation.
- A UH Mānoa School of Ocean and Earth Science and Technology (SOEST) team has developed a carbon fuel cell powered by charcoal. Carbon fuel cells have the potential to produce power more efficiently than current commercialized hydrogen cells. Unlike fossil fuels, biomass charcoal is renewable, and the plants that supply this fuel source also remove CO₂ from the atmosphere.
- A collaboration between SOEST and the College of Engineering, the new UH Mānoa Hawai'i Space Flight Laboratory, will launch its first space mission from the island of Kauai by 2009. This project will facilitate studies of oceans and continents, as well as conduct engineering experiments in outer space.



"THE HUMAN CONDITION CAN BEST BE IMPROVED BY RESEARCH. TRANSLATIONAL RESEARCH CAN IMPACT DISEASE, POVERTY, FOOD PRODUCTION, AND EVEN PREDICTION OF NATURAL DISASTERS. THESE ARE THE SAME THINGS THAT HAVE BEEN PROBLEMS SINCE THE DAWN OF CIVILIZATION."

~ GARY K. OSTRANDER PHD, VICE CHANCELLOR FOR RESEARCH AND GRADUATE EDUCATION, UH MĀNOA



AN INVITATION

[TO JOIN US]

With our unique geographic locations, our campuses continue to be magnets for creators of leading-edge technology, for those who seek to develop new sectors for the economy, and for researchers who push the boundaries of our knowledge of ourselves and our world.

UH researchers are leaders in a range of disciplines including marine biology, intercultural relations, linguistics, astronomy, the arts, oceanography and underwater robotic technology, genetics and tropical medicine, philosophy and religion, geology and geophysics, and agriculture and aquaculture.

The mixture of star faculty, our Pacific location, and hard work

have produced numerous centers of excellence. The Institute for Astronomy, School of Ocean and Earth Science and Technology, Pacific Aquaculture and Coastal Resources Center, John A. Burns School of Medicine, College of Natural Sciences, College of Education, and Cancer Research Center of Hawai i are all internationally recognized as sites of cutting-edge developments and education.

UH has been extremely successful in garnering federal support, but the nation's finances are under stress. The search for knowledge may ultimately rely primarily on private philanthropy.

To fulfill the UH vision for research, the Centennial Campaign is securing funds for:

- Five endowed faculty/researcher positions in core areas, such as the Department of Physics and Astronomy and in the School of Ocean and Earth Science and Technology, offering more endowed positions, UH will build upon its reputation for research excellence. Endowments serve as powerful vehicles to honor, attract and retain outstanding faculty, offering them prestige and recognition in the wider academic community. Additionally, donors experience the deep satisfaction of knowing their investment in academic excellence will impact students and the university, in perpetuity.
- Developing the Research Venture Fund, which will support investments in intellectual activities across the scientific and engineering disciplines at UH. These will range in scope from novel high-risk research projects that, if successful, could transform the way we function in our society, to shared

investments in existing research endeavors at one of UH's centers of excellence.

- Programmatic support provides key funding for research projects and programs across the UH system that may require additional monies to sustain the potential for significant breakthrough discoveries.

Private funding is critical to the University of Hawai i's strategy to sustain and advance areas of research strength, seize new opportunities, create and develop new sectors for the economy, and capitalize on Hawai i's natural resources and surroundings.

During the Centennial Campaign, the University of Hawai i invites you to keep the stream of research and advancements in science and the arts flowing at UH. Investing in research is an investment in our future. Investing in research is an investment in new discoveries, and a better life now and for future generations.

FULFILLING OUR RESEARCH MISSION

ONE ENDOWED FACULTY/RESEARCHER POSITION IN THE DEPARTMENT OF PHYSICS AND ASTRONOMY

TWO ENDOWED FACULTY/RESEARCHER POSITIONS IN THE SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY

TWO ENDOWED FACULTY/RESEARCHER POSITIONS IN THE JOHN A. BURNS SCHOOL OF MEDICINE
RESEARCH "VENTURE" FUND TO START NEW RESEARCH PROJECTS

PROGRAMMATIC SUPPORT

TOTAL \$55,000,000



EDUCATE

THE UNIVERSITY OF HAWAI'I SYSTEM OFFERS HIGHER PUBLIC EDUCATION AT TEN CAMPUSES ACROSS THE HAWAIIAN ISLANDS WITH 80,000 STUDENTS ATTENDING CLASSES EACH YEAR. THE UH INCLUDES THREE UNIVERSITIES: UNIVERSITY OF HAWAI'I AT MĀNOA, UNIVERSITY OF HAWAI'I AT HILO AND UNIVERSITY OF HAWAI'I - WEST O'AHU. THE SEVEN COMMUNITY COLLEGES ARE HAWAI'I COMMUNITY COLLEGE, HONOLULU COMMUNITY COLLEGE, KAPI'OLANI COMMUNITY COLLEGE, KAUA'I COMMUNITY COLLEGE, LEEWARD COMMUNITY COLLEGE, MAUI COMMUNITY COLLEGE, AND WINDWARD COMMUNITY COLLEGE.

DISCOVER

THE UNIVERSITY OF HAWAI'I FOUNDATION, A NONPROFIT ORGANIZATION, RAISES PRIVATE FUNDS TO SUPPORT ALL TEN CAMPUSES OF THE UH SYSTEM. ITS MISSION IS TO TRANSFORM AND CREATE A BETTER FUTURE FOR HAWAI'I THROUGH ALUMNI AND COMMUNITY PHILANTHROPIC SUPPORT FOR PUBLIC HIGHER EDUCATION, TO BE A TRUSTED MANAGER OF PRIVATE INVESTMENTS, AND TO BUILD AND SUSTAIN THE UNIVERSITY'S RELATIONSHIPS WITH DONORS, ALUMNI, THE COMMUNITY, AND INSTITUTIONAL AND UNIVERSITY PARTNERS.

INSPIRE

THE CENTENNIAL CAMPAIGN IS A HIGHLY INCLUSIVE DEVELOPMENT EFFORT UNDERWAY IN CONJUNCTION WITH THE 100TH ANNIVERSARY OF PUBLIC HIGHER EDUCATION IN HAWAI'I. SUCCESS IS VITAL TO THE UNIVERSITY'S EXCELLENCE IN ITS SECOND CENTURY. THE GOAL OF THE CENTENNIAL CAMPAIGN AS, APPROVED BY THE BOARD OF REGENTS, IS \$250 MILLION.

AN INVESTMENT IN THE UNIVERSITY OF HAWAI'I IS
AN INVESTMENT IN OUR COMMUNITY.



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