GORDON AND BETTY MOORE FOUNDATION

CREATING POSITIVE OUTCOMES FOR FUTURE GENERATIONS

FOUNDATION AT A GLANCE

FOUNDED

September 2000

PROGRAM AREAS

Environmental Conservation Science San Francisco Bay Area

LOCATION

San Francisco, California

FACTS & FIGURES

Number of Employees:	70
Endowment:	\$5.3 billion
Number of Grants:	371
Grants Awarded:	\$1 billion

CONTACT INFORMATION

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When we contemplate the future, we envision a world 10,000 years from today. At the current rate of global resource extraction and development, our natural environment will be depleted beyond levels that can sustain the population. We have the opportunity to catalyze change to slow the rate of depletion and protect the planet through advancements in environmental conservation and science. By establishing the Foundation, we have created an opportunity to contribute on a scale that we hope can make a significant, positive impact on the world for generations to come.

Gordon and Betty Moore



OVERVIEW

S ince its inception in 2000, the Gordon and Betty Moore Foundation has made great strides toward advancing environmental conservation and science as well as giving back to the local community through its San Francisco Bay Area Program. By the end of 2005, 371 grants representing more than \$1 billion were awarded to a wide range of nonprofit organizations including academic and research institutions,

During our 5th anniversary, we celebrate the achievements of our grantees and collaborators. They have demonstrated untiring efforts and commitment to positive changes in their respective fields. The strength and creativity of our grantee

community combined with the Foundation's pragmatic results-oriented approach to grantmaking will increase the probability of creating sustainable large-scale impact.



Edward E. Penhoet, President

nongovernmental organizations focused on environmental conservation, science and technology museums, nursing schools, and hospitals. Illustrated throughout this report is the Foundation's approach to grantmaking, highlights of important programmatic efforts, and outcomes achieved during five years of collaboration with grantees and other partners. The Foundation's science-based and resultsdriven orientation stems from Gordon and Betty Moore's principles of being clear in purpose with an unwavering commitment to mission, values, goals, and execution. Gordon attributes the success in his career, and of the companies he has founded, to these principles, which are clearly visible as fundamental tenets in the Foundation's grantmaking.

The Foundation operates proactively in specific areas of focus where a significant and measurable impact can be achieved during an agreed upon time frame. Time-bound initiatives have been created within three programmatic areas: environmental conservation, science, and the San Francisco Bay Area.

Initiatives include: ENVIRONMENTAL CONSERVATION Andes-Amazon Initiative Marine Conservation Initiative Wild Salmon Ecosystems Initiative SCIENCE Marine Microbiology Initiative SAN FRANCISCO BAY AREA Betty Irene Moore Nursing Initiative

n initiative employs a portfolio of strategies implemented through grants that are expected to achieve targeted large-scale outcomes. Each initiative is grounded on a specific theory of change (a rationale for why strategies and activities are selected and a detailed explanation of how they will produce positive transformations) which informs grantmaking and mobilizes grantees to achieve shared goals. Achievement at this scale requires strong partnerships with communities, government entities, other nonprofit organizations, and the private sector. It is through initiatives that these collaborations work to create change. For example, grantees may be working together to protect the Amazon Basin and the contiguous forest; or combining research efforts to enhance the understanding of viruses, bacteria, and microbial proteins in the ocean, which advance the field of marine microbiology; or bringing together hospitals and nursing institutions to reduce preventable medical errors in acute care hospitals.

As conditions shift and circumstances evolve, initiatives respond to changing dynamics through adaptive management. This allows staff and grantees to assess risks, costs, and benefits as a means to ensure sustainability of outcomes.

O utside initiative-based grantmaking, the Foundation is providing significant funding to Conservation International and the California Institute of Technology to support the programmatic priorities of conserving the environment and fostering scientific progress. Long-term funding commitments have been made to support these two organizations on multiple projects that will lead to large-scale outcomes. A dditionally, the Foundation awards grants for unique and opportunistic projects leading to significant outcomes in the three programs. By the end of 2005, the Foundation had awarded \$127 million for special opportunity projects. Examples of this grantmaking include a \$35 million grant to support development of the largest ground-based thirty-meter telescope and a \$3.4 million grant to determine the cause of, and treatment for, Sudden Oak Death – a forest

THE FOUR FILTERS

The Foundation applies four "filters," or criteria, to develop initiatives and to evaluate potential grants:

- 1. Importance
- 2. Potential to make a difference and lead to an enduring impact
- 3. Measurable outcomes
- 4. Portfolio effect

disease responsible for killing tens of thousands of coastal oak trees from California's Big Sur to the Oregon border. Across all initiatives, commitments and special opportunity grants, the Gordon and Betty Moore Foundation's grantees and partners seek to make positive changes in the world. GORDON AND BETTY MOORE FOUNDATION 2000-2005

Celebrating five years of collaboration with grantees and the communities in which we work.

ENVIRONMENTAL CONSERVATION

he Environmental Conservation Program reflects Gordon and Betty Moore's dedication to the environment. To ensure transformative changes, initiatives are designed to be long-term engagements. Through a balanced portfolio of strategies, which combine high risk, high return grants; use of practical means; and leverage of catalytic opportunities,



initiatives within this program seek to preserve the Amazon Basin, protect North Pacific salmon ecosystems, and improve marine management resources to revolutionize the management of coastal oceans. The Foundation's commitment to Conservation International will further enhance biodiversity science and protection of ecosystems in key geographies.

SCIENCE

A pplying the Foundation's principle of funding fields where grant dollars can have a significant impact, the Science Program supports advancement of scientific research in areas otherwise overlooked or under funded. By promoting science not typically funded by government sources, the Foundation provides critical seed grants to researchers at the

SAN FRANCISCO BAY AREA

he focus on the Bay Area is the result of Gordon and Betty Moore's desire to give back to the community that has been their home for more than 70 years in a way that reflects their values and priorities. The Foundation is working to make a lasting contribution to the quality of life in the Bay Area through the Betty Irene Moore



forefront of new discoveries and scientific knowledge. A portfolio of science grants support the Marine Microbiology Initiative and our commitment to the California Institute of Technology. Additionally, grant dollars are dedicated to special and opportunistic science projects with potential for high impact. Nursing Initiative to improve patient safety in acute care hospitals, by protecting valuable and irreplaceable lands, and by promoting science through support of science and technology museums. Over the next quarter century, we have an extraordinary opportunity in the Amazon Basin to safeguard a fully functioning and diverse conservation landscape for future generations to use and enjoy. Jaime Cavelier, Senior Program Officer, Andes-Amazon Initiative



ANDES-AMAZON INITIATIVE

The Andes-Amazon region is the world's foremost terrestrial and freshwater conservation target. It is the world's largest river basin, covering approximately 2.5 million square miles across major portions of nine countries, and is the source of one-fifth of Earth's freshwater, discharging 75 million gallons of freshwater into the Atlantic Ocean every second. It is also the most abundant wilderness on the planet, supporting the world's highest diversity of birds and concentration of primate diversity, one-third of all freshwater fish species, and more than 60,000 plant species of which 30,000 are endemic. Today, nearly 20 percent of the intact forest in the Amazon Basin has been lost. Logging, cattle ranching, mining, and agriculture account for the bulk of deforestation in the region. In addition, major infrastructure projects, such as road projects and dam construction, add to the problem. Although serious threats remain a constant pressure on the Amazon Basin's ecosystems, a window of opportunity exists to protect the health of the region. AT A CONTINUED RATE OF DEFORESTATION, THE AMAZONIAN FOREST WILL BE REDUCED TO LEVELS THAT WILL SEVERELY IMPACT THE CLIMATE FUNCTION OF THE REGION AND WILL ULTIMATELY LEAD TO SIGNIFICANT LOSS OF BIODIVERSITY.

VISION AND STRATEGIES

The Andes-Amazon Initiative seeks to maintain the ecological function of the Amazon Basin. Achieving this outcome will require the conservation of Amazonian forests, which provide habitat for biodiversity and regulate the regional climate cycle through the process of evapotranspiration.

The initiative's strategies include creating and consolidating a key set of protected areas based on the best science available, building capacity among local organizations and decision-makers, stimulating appropriate policy, and securing long-term financing to maintain the protected areas. In doing so, the initiative strives to protect more than half of the world's remaining tropical forest that includes the Amazon Basin and adjacent forests of the Guiana Shield, a territory spread across nine countries: Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, Suriname, and French Guiana.

INITIATIVE AT A GLANCE

Outcome:	To maintain the	
	ecological function and	
	representative biodiver-	
	sity of the Amazon Basin.	
Amount:	\$325 million	
Time frame:	2003-2014	
Grantees to date:	58	



AMAZON CONSERVATION ASSOCIATION

he Amazon Conservation Association has received two grants, totaling \$5.2 million, to implement conservation concessions, or financial incentives to resource owners, thereby encouraging conservation in Peru's Andean cloud forests and eastern lowlands. Conservation concessions provide a unique opportunity to safeguard large tracts of state-owned land with high biodiversity value, complementing national protected area systems.

WORLD WILDLIFE FUND

he World Wildlife Fund is applying a \$17.9 million grant to advance the largest effort ever made to protect biodiversity and triple the amount of protected areas in the Amazon Basin. Through a collaborative endeavor with the Brazilian government known as Amazon Region Protected Areas (ARPA) Program, 28.5 million hectares of new national parks, ecological stations, and biological reserves in the Brazilian Amazon will be created over 10 years. All told, ARPA will protect an area 1.5 times the size of the entire United States' national park system. Additionally, ARPA will implement management in each of the program's newly created protected areas and improve management of 12.5 million hectares of existing parks. ARPA's future priorities involve aggressive fundraising and the establishment of trust funds to sustain program achievements in perpetuity.



The Amazon is an unmatched natural resource and the Foundation is doing much to preserve it for generations to come. The Foundation's support to the Amazon Region Protected Areas Program and related efforts to build a world-class system of parks and reserves demonstrates how we can protect the Amazon while helping to meet the needs of its people. Matt Perl, Director, Amazon Region Protected Areas Program, World Wildlife Fund

WOODS HOLE RESEARCH CENTER

With a \$3.3 million grant, the Woods Hole Research Center, in partnership with other organizations, is developing an integrated computer simulation model for identifying conservation threats and opportunities in the Andes-Amazon region. Once developed, utilization of the simulation model will lead to mitigation of development threats and, ultimately, increase biodiversity conservation throughout the region. CONSERVATION INTERNATIONAL'S MISSION IS TO CONSERVE EARTH'S LIVING HERITAGE, OUR GLOBAL BIODIVERSITY, AND TO DEMONSTRATE THAT HUMAN SOCIETIES ARE ABLE TO LIVE HARMONIOUSLY WITH NATURE. Our commitment to Conservation International supports the organization's tremendous capability, expertise, and growing network of partners to achieve long-term biodiversity conservation outcomes and to advance conservation science. Bill Green, Chief Program Officer, Environment



COMMITMENT TO CONSERVATION INTERNATIONAL

Earth's rich diversity of plant and animal life is being lost at a rate unprecedented in human history, making protecting our natural heritage one of the great challenges of the 21st century. As the world's population grows from six to nine billion by 2050, the pressure on the remaining wild places will only increase. Since its founding in 1987, Conservation International has championed a conservation strategy based on the fact that much of the world's biodiversity is concentrated in a relatively small number of places; protect these biodiversity hotspots, wilderness areas, and marine regions to save much of the biodiversity of life on Earth.

CENTERS FOR BIODIVERSITY CONSERVATION

Decentralized Centers for Biodiversity Conservation in the Andes, Brazil/Guianas, Melanesia, and Madagascar have allowed Conservation International to forge strategic partnerships and build better foundations for biodiversity conservation.

GLOBAL CONSERVATION FUND

he Global Conservation Fund finances the creation, expansion, and long-term management of protected areas in regions of high biodiversity.

TROPICAL ECOLOGY, ASSESSMENT

AND MONITORING INITIATIVE

he Tropical Ecology, Assessment and Monitoring (TEAM) Initiative allowed Conservation International to initiate the creation of a network of 10 scientific field stations and a surveillance system to capture the first standardized set of data on tropical biodiversity. In 2005, four field sites were collecting data and the TEAM initiative began a rigorous strategic review and site-selection process that will guide its further development.



The Gordon and Betty Moore Foundation and Conservation International are transforming global biodiversity conservation. Thanks to the Foundation's commitment, Conservation International empowers partners worldwide to achieve unprecedented conservation of species-rich lands on a scale visible from outer space. The legacy is already apparent, with clear and measurable results that benefit millions of people who rely on their natural heritage in some of the most remote areas of South America, Africa, and Asia. Conservation International and our partners are grateful for the Foundation's continued support and for the shared vision of an Earth that can provide people everywhere a secure, healthy, and prosperous future.

Peter Seligmann, Chief Executive Officer, Conservation International

MARINE MANAGED AREA SCIENCE

he Marine Managed Area (MMA) Science Program within CABS conducts science on MMA effectiveness and marine ecosystem processes. The program shares the science to increase stakeholder awareness and improve management decisions. Additionally, the program builds local capacity within Conservation International and its partners to produce outcomes in Belize, Brazil, the eastern tropical Pacific, and Fiji.



CENTER FOR APPLIED BIODIVERSITY SCIENCE

he Center for Applied Biodiversity Science (CABS) functions as the scientific research core of Conservation International. CABS compiles and analyzes baseline data on biodiversity, develops responses to possible threats, and works closely with partner organizations to establish targets and priorities for conservation actions.

VISION AND STRATEGIES

he Foundation's \$261 million commitment made in December 2001 and additional \$17 million awarded by the end of 2005 has allowed Conservation International to significantly scale up its efforts in slowing the rate of species extinctions across the world and to develop marine conservation science, respectively. With the initial grant support, Conservation International has made substantial contributions to biodiversity science and, in partnership with other organizations, is working to protect key regions. In addition, Conservation International transformed itself from a centralized, Washington, DC-based operation into a more efficient, decentralized organization, operating directly and through partners in more than 40 countries. Their work is focused on a set of scientifically defined conservation outcomes at the species, site, and corridor levels.

With the right blend of collaboration and ingenuity guided by principles of science, sustainability, and stewardship, we can steer a course toward better management of our oceans. When oceans are healthier, conservation values will be protected and communities that depend on the oceans for their livelihoods can sustain their way of life for future generations. Barry D. Gold, Marine Conservation Initiative Lead



MARINE CONSERVATION INITIATIVE

For thousands of years, global communities have used oceans and the adjacent land and watersheds without understanding the effects of human actions on these life-sustaining resources. As a result, oceans are in trouble, with chief threats including habitat modification and destruction, overfishing and bycatch, pollution from agricultural runoff and toxins, invasive species, resource extraction, and climate change. Scientists agree that more than a quarter of the world's major fisheries are struggling with depleted stocks due to overfishing, and more than 70 percent of the ocean's top predators, like sharks and tuna, are gone. Around the globe, communities have deep relationships with and dependence on ocean goods and services. For example, two million Americans rely on ocean related jobs from fishing to shipping to tourism. These activities contribute more than \$117 billion to the US economy. Yet, the ability to continue obtaining these benefits from productive ocean ecosystems is increasingly being called into question. While the magnitude of these changes is daunting, it is not too late to turn the tide of failing ocean health.

FOR THOUSANDS OF YEARS, PEOPLE HAVE TREATED THE OCEANS AS A FRONTIER OF LIMITLESS BOUNTY. ONLY WHEN FACED WITH EVIDENCE OF WIDESPREAD DEGRADATION HAVE WE BEGUN TO ACCEPT THAT OCEAN RESOURCES ARE IN FACT FINITE.

VISION AND STRATEGIES

The Marine Conservation Initiative is working to promote approaches to marine conservation and management that have the potential to transform management of the world's oceans. Efforts are currently focused on two of the largest yet most clearly solvable threats: overfishing and habitat destruction. Key initiative strategies include:

Advancing comprehensive "area-based management," an approach that reduces conflict and promotes conservation by specifying how particular marine areas may be used;

Supporting fisheries management that aligns economic incentives with resource protection and promotes a conservation ethic among users; and

Promoting conservation-minded technological innovations, including eco-friendly fishing gear, spatial planning tools, and monitoring and enforcement technology.

These tools and approaches will be implemented in targeted geographies selected for their significant ecosystem goods and services, including important fisheries, momentum to pursue innovative solutions, and potential to serve as models for sustainable ocean management. The initiative's target areas are British Columbia, the California Current, Fiji, and New England.

RESOURCE LEGACY FUND FOUNDATION

he 1999 Marine Life Protection Act (MLPA) called for the establishment of a network of Marine Protected Areas off the California coast. Due to state budget problems the MLPA fell short of full implementation. The Foundation's \$3.2 million grant along with funding from other partners, helped re-launch the MLPA as a public-private partnership to protect vital areas of California's coastal ocean.

INITIATIVE AT A GLANCE

Outcome:	To advance globally
	applicable marine conser-
	vation management
	tools and approaches
	that contribute to the
	sustainable use of ocean
	resources.
Amount:	\$146 million
Time frame:	2004-2015
Grantees to date:	18

CAPE COD COMMERCIAL HOOK

FISHERMEN'S ASSOCIATION

n response to the collapse of the Georges Bank New England cod fishery, some fishing industry groups, such as the Cape Cod Commercial Hook Fishermen's Association, have begun to address the underlying economic incentives that can lead to unsustainable overfishing. The Foundation awarded a \$492,000 grant to the Association to develop an incentive system for the Georges Bank gillnet fishery to foster ecosystem health and protect the livelihood of fishing communities while advancing the use of new video-monitoring technologies.



The entire Northeast fishing community is skeptical about whether they will share in the success of rebuilding stocks. But, I don't think that improving profitability, providing community and social benefits, and protecting the environment are mutually exclusive. On the contrary, together they form an economic, social, and biological triangle. Paul Parker, Executive Director, Cape Cod Commercial Hook Fishermen's Association

WILDLIFE CONSERVATION SOCIETY

Wildlife Conservation Society (WCS) is working with partners to protect Fiji's coral reef ecosystems and adjacent watersheds by establishing marine managed areas in the Vatu-i-Ra and Cakau Levu reefs. This will transform the current system of small, locally managed marine areas into a network of communitymanaged, scientifically based conservation zones. The Foundation awarded a \$750,000 grant to WCS for the biological and socioeconomic data collection, analysis, and subsequent guidelines needed to implement and enforce effective management strategies. HEALTHY SALMON ECOSYSTEMS ARE VAST RESERVOIRS OF ECOLOGICAL, ECONOMIC, AND CULTURAL VALUE. OUR GOAL IS TO MAINTAIN WELL-FUNCTIONING SALMON ECOSYSTEMS AT THE SCALE OF THE NORTH PACIFIC. Our challenge is not to learn to manage the salmon, but to manage ourselves for the sake of the salmon: to tap into the collective wisdom that we have accumulated over time and disparate geographies, to coordinate our independent actions through innovative partnerships that align our divergent talents and visions, and, most importantly, to find the courage to do the right thing. Aileen Lee, Program Director, Wild Salmon Ecosystems Initiative



WILD SALMON ECOSYSTEMS INITIATIVE

The salmon ecosystems of the North Pacific are among Earth's most productive biological communities. They generate roughly 500 million wild Pacific salmon each year. Those salmon, in turn, sustain a large and diverse array of terrestrial and aquatic life, and provide the cultural and commercial backbone that supports many of the region's long-standing indigenous and fishing communities.
As human activity and development edge northward along both Pacific coasts, these rich salmon ecosystems are increasingly imperiled. Land use activities threaten to alter the structure and natural processes of coastal watersheds, reducing the available salmon habitat. The biological diversity of salmon populations is also at risk due to the mismanaged harvest of some stocks, the use of imprudent hatchery production practices in some programs, and the dramatic growth of open net-cage aquaculture. With habitat availability and biological diversity under simultaneous attack, the threat of large-scale declines in salmon ecosystems is dangerously amplified creating a much greater risk of sudden, large-scale declines in function.

CONSERVATION FUND

n 2003, The Conservation Fund (TCF) received a \$4.5 million grant to launch its Southwest Alaska Salmon Habitat Initiative – a broad-based, partner-driven project to secure salmon habitat on important and vulnerable salmon systems. By end of 2005, TCF had, in part, completed the acquisition of 50,400 acres of critical salmon habitat, made great progress with conserving all lands within the 1.6 million-acre Wood-Tikchik State Park, and provided public access to an additional 56,783 acres across this region.

STATE OF THE SALMON

n order to understand how salmon are faring across the North Pacific a clearinghouse for data was needed. Supporting the Wild Salmon Center and Ecotrust, the Foundation helped launch the State of the Salmon program to provide a centralized, integrated, and credible source of information on the status of salmon across the North Pacific. In addition to annual reports, a triennial conference, and the creation of international monitoring standards, their website integrates all this information and more: www.stateofthesalmon.org.



ROUND RIVER CONSERVATION SOCIETY

he Foundation awarded Round River Conservation Studies (RRCS) a total of \$2 million to support their work on an integrated approach to the long-term conservation of the wild salmon and the wilderness character of the Taku River – a 4.5 million-acre transboundary watershed that flows from the interior mountains to the Alaskan coast. RRCS and the Taku River Tlingit First Nation (TRTFN) completed a Conservation Area Design (CAD) for the region. The CAD was used as the conservation science basis for other aspects of land planning efforts. The most significant of these was the completion of Our Land Is Our Future, Vision and Management Direction for Land and Resources of the TRTFN Territory.

INITIATIVE AT A GLANCE

Outcome:	To maintain well-	
	functioning salmon	
	ecosystems at the scale	
	of the North Pacific.	
Amount:	\$190 million	
Time frame:	2002-2011	
Grantees to date:	56	



Few animals have been as central to the human experience as salmon. Their annual migrations are a miracle of nature, they

> feed us and their presence tells us that our rivers are still healthy. Guido Rahr, President and CEO, The Wild Salmon Center

VISION AND STRATEGIES

D espite these mounting threats, the Foundation has identified a real opportunity to craft enduring solutions that safeguard the health of salmon ecosystems at the scale of the North Pacific. Building around a proactive vision of the components of habitat and biodiversity required to preserve ecosystem function for the long term, Foundation grantees and partners work to secure the changes required to lock these elements into place. Key strategic outcomes being pursued include:

Establishing a stable network of protected watersheds. Specific plans have been developed and implemented in the initiative's key geographies: Russia's Kamchatka Peninsula, Alaska, and British Columbia;

Reforming aquaculture practices to substantially reduce the risk to wild fish from escapes, disease/ lice transfer, and unprocessed waste outflow;

Promoting hatchery propagation practices that safeguard the productivity and diversity of wild fish; and

Ensuring that salmon fisheries are managed in a sustainable manner.

The most important achievement of the initiative has been to expand the scale of salmon ecosystem conservation by working with grantees and other collaborators and helping to coordinate their work across a large region.



The Gordon and Betty Moore Foundation celebrates the successes of our grantees and partners in advancing the Foundation's mission.

- ENVIRONMENTAL CONSERVATION
- SCIENCE
- SAN FRANCISCO BAY AREA



The Gordon and Betty Moore Foundation was incorporated



Foundation opened its office in the Presidio of San Francisco



Established a large-scale partnership with the California Institute of Technology



Established a largescale partnership with Conservation International

All-Species Summit was held at Harvard University, bringing together dozens of biodiversity scientists, journalists, and philanthropists to explore ways of coordinating efforts to complete a global biotic survey Four million hectares of Tumucumaque Mountains National Park was declared protected



Foundation approved Wild Salmon Ecosystems Initiative



Peninsula Open Space Trust protected 10,608 acres in rural San Mateo County, California, through their "Saving the Endangered Coast" campaign





Foundation approved Andes-Amazon Initiative



Newly described and critically endangered pygmy owl

species was discovered in Brazil and named after Gordon Moore. It is named Glaucidium mooreorum, or the Pernambuco pygmy owl



Public-private acquisition of 16,596 acres of saltproducing land at the edge of San Francisco Bay for 🦳 restoration and wildlife habitat was finalized



Conservation International designed and implemented four Centers for Biodiversity Conservation in the Andes, Brazil and Guianas, Melanesia, and Madagascar to provide regional technical capacity for conservation actions in the tropics

University of California researchers, at Berkeley and Davis, gained approval from the Department of Pesticide Regulation for the first and only treatment against Phytophthora ramorum. P. ramorum, the pathogen causing Sudden Oak Death, is responsible for killing tens of thousands of coastal oak trees from California's Big Sur to the Oregon border

Public Library of Science was established to develop online publications to make scientific and medical literature a public resource. First monthly issue of PLoS Biology published



Foundation approved Betty Irene Moore Nursing Initiative





The Kamchatka Peninsula in Far East, Russia produces an estimated 18 percent of North Pacific salmon, or some 89 million fish every year. A decree authorizing the creation of a new, first-ofits-kind 544,000-acre Kol River Salmon Refuge was signed through efforts of the Wild Salmon Center, a variety of partners, and the Governor of the Kamchatka Regional Administration

Foundation approved Marine Microbiology Initiative

The Global Amphibian Assessment was completed, representing the first time that each of the 5,743 known amphibian species had been analyzed to assess their



Madagascar President, HE Marc Ravalomanana,

committed to tripling the country's protected area

system to 6 million hectares at the 2004 World

Park's Congress in Durban. With support from

the Global Conservation Fund, the Madagascar

Center for Biodiversity Conservation and various

donors, the first set of newly protected areas was

established

threat status and distribution. More than 520 scientists from over 60 countries contributed to the three-year study First monthly issue of PLoS Medicine was published

Draft genome sequence of *Xenopus tropicalis* was completed and extensively used by the worldwide research community

Sonoma Land Trust acquired 2,329 acres at the far northern end of San Pablo Bay for permanent protection and restoration



Community designation of a sciencebased network of marine reserves was established in Fiji

Center for Integrated Genomics completed Metazome, a comprehensive web-based tool, which permits the rapid comparison of all protein coding genes in 10 different animal genomes: human, mouse, rat, chicken, frog, zebrafish, fugu, fruitfly, mosquito, and worm



The Conservation Fund completed a landscape-scale conservation easement on a major system in Southwest Alaska by closing a deal with Aleknagik Native Corporation on 23,000-acre parcel on the Agulowak River within the Wood-**Tikchik State Park**



Thirty-three Bay Area acute care hospitals participated in the newly created Bay Area Patient Safety Collaborative to improve quality of patient care

Massachusetts Institute of Technology

The Chisholm Lab, at the Massachusetts Institute of Technology, discovered that some Prochlorococcus (a globally important marine phytoplankton) viruses are more productive than others, containing host photosynthetic genes capable of augmenting energy in their dying host to produce more viruses

The DeLong Lab, at the Massachusetts Institute of Technology, discovered that the oceanic microorganism group, Archaea, have photoproteins that absorb the sun's energy in order to drive cell metabolism

J. Craig Venter Institute completed sequencing the genomes of 39 of 155 marine bacteria, which represent 75 percent of the world's efforts to sequence marine bacteria. These data will become



entific community and, more specifically, serve as a reference for metagenomic studies of the



Foundation approved Marine **Conservation Initiative**





Brazil created two large protected areas in the east-1 Anezo 1 (cof Pará totaling 3.8 million hectares. The newly decreed Terra do Meio Ecological Station (3.3 million hectares) and Serra do Pardo National Park protect an area roughly twice the size of Massachusetts

First Nations in central and north coast British Columbia substantially increased community awareness for protection of critical habitat for



salmon and other species One hundred percent of Bay Area nursing schools participated in the Centralized Clinical Placement System, a web-based tool developed to increase nursing school capacity



To achieve our goal of helping to transform marine microbiology, we will identify the very best investigators working in this area – researchers who are driving the field – and provide them with the resources to advance their best research ideas. David Kingsbury, Chief Program Officer, Science



MARINE MICROBIOLOGY INITIATIVE

Marine microorganisms are invisible to the naked eye, yet they form the base of our planet's ocean ecosystem and account for more than 90 percent of the ocean's biomass. By virtue of their enormous numbers and high rates of activity, they also regulate global nutrient and mineral cycles that shape Earth's biomes and climate. • Despite their importance, little is known about them; in fact, ocean bacteria were only discovered 70 years ago. Research has been hampered by a lack of tools and resources. Until recently, less than one percent of marine microorganisms could be grown – and studied – in the laboratory. • Today, momentum in this field is picking up. Some of the tools developed for the Human Genome Project – for example, large-scale genome sequencing – are being adapted and applied to marine microbiology and scientists from different disciplines are collaborating in an effort to shed light on the pivotal role of marine microorganisms. MILLIONS OF BACTERIA AND TENS OF MILLION OF VIRUSES CAN BE FOUND IN A TEASPOON OF SEAWATER ANYWHERE IN THE

WORLD'S OCEANS.

VISION AND STRATEGIES

n the long term, a better understanding of microorganisms' role in the ocean ecosystem may be used to monitor the overall health of oceans and climates. The Foundation strives to help generate important new knowledge about the distribution, function, and ecological role of marine microbes and grow this rapidly emerging field of research.

In order to reach these goals, the Marine Microbiology Initiative is focused on three strategies:

Supporting outstanding researchers with the resources and flexibility needed to follow their scientific instincts and address "big questions" in marine microbiology;

Stimulating new collaborations among scientists from disparate fields and the creation of multidisciplinary research centers; and

Supporting a limited number of large, highimpact research projects that will affect ocean science as a whole.

INITIATIVE AT A GLANCE

Outcome:	To generate new knowl-	
	edge on the distribution,	
	composition, function,	
	and ecological role of	
	microbial communities in	
	the world's oceans.	
Amount:	\$145 million	
Time frame:	2004-2013	
Grantees to date:	23	



J. CRAIG VENTER INSTITUTE

Nown for his role in sequencing the human genome, Venter more recently has set his sights on analyzing the genetics of microorganisms in the atmosphere and oceans. With the Foundation's support, Dr. Venter led a research expedition across the northwest Atlantic Ocean to sample and analyze marine microbes and is currently working on a project to sequence the genomes of 155 marine microorganisms. The work has led to the discovery of hundreds of new species of microorganisms and 1.2 million new genes.

PRINCIPAL INVESTIGATORS

A dozen outstanding individuals – a combination of senior and early stage scientists – have been selected as Foundation Principal Investigators. These investigators, chosen for their research productivity and demonstrated potential, range in expertise from biological oceanography to developmental biology. The group is highly collaborative and defines the full range of modern marine microbiology.

Investigators:

- E. Virginia Armbrust, University of Washington
- Sallie Chisholm, Massachusetts Institute of Technology
- Edward F. DeLong, Massachusetts Institute of Technology
- Stephen Giovannoni, Oregon State University
- Jennifer B. Hughes, Brown University
- David M. Karl, University of Hawaii
- Nicole King, University of California, Berkeley
- Mary Ann Moran, University of Georgia
- Victoria J. Orphan, California Institute of Technology
- Forest Rohwer, San Diego State University
- Alexandra Z. Worden, University of Miami
- Jonathan P. Zehr, University of California, Santa Cruz



In the latter half of the 19th century, Pasteur, Lister, and Koch established the first golden era of microbiology. Today, armed with new genomic-based technologies and a more comprehensive understanding of the ocean as an ecosystem, we are poised to enter the second golden era of microbiology that will

lead to major advances in our understanding of the role of marine microbes in global habitability. Dave Karl, Professor of Oceanography, University of Hawaii, Investigator

PROCHLOROCOCCUS

nvestigator Sallie Chisholm has led the research on *Prochlorococcus* – the most numerous photosynthetic organism on Earth. Chisholm and her co-workers continue to publish revolutionary analyses, such as the discovery of *Prochlorococcus* ecotypes (species subgroups characterized by environmental parameters). Although the ecotypes' rRNA sequences differ less than three percent, the identified ecotypes have very different physiological characteristics and several ecological variables are correlated with global population variability and geographical and ecosystem distribution. THE MISSION OF THE CALIFORNIA INSTITUTE OF TECHNOLOGY IS TO EXPAND HUMAN KNOWLEDGE AND BENEFIT SOCIETY THROUGH RESEARCH INTEGRATED WITH EDUCATION. This commitment gives Caltech the ability to take risks, to pioneer research areas they might not normally be able to pursue. Jim Omura, Technology Strategist



COMMITMENT TO THE CALIFORNIA INSTITUTE OF TECHNOLOGY

Gordon and Betty Moore have a special connection to the California Institute of Technology (Caltech). Gordon received his PhD in chemistry and physics in 1954 from Caltech and today serves on its Board of Trustees. ¶ In 2001, the Foundation committed \$300 million over 10 years to Caltech to support the institution in maintaining its position at the forefront of higher education and scientific research. The grants, combined with an additional personal gift of \$300 million from Gordon and Betty Moore, make Caltech the recipient of the largest donation ever made to an institution of higher learning. While Caltech is relatively small, with a faculty and student population a fraction the size of similar leading institutions, it attracts world renowned scientists and engineers, and is pursuing some of the most extraordinary and poignant research in science today. Partly because of its small size, it has a unique capacity to conduct multidisciplinary research.

TECTONIC OBSERVATORY

W ith a \$13.2 million grant, Caltech established the Tectonic Observatory to bring together scientists from multiple disciplines in order to provide a new picture of how and why Earth's crust is deforming. Although geologists have known for more than 40 years that Earth's crust is composed of rigid plates that "crawl" around the surface of the planet, the Caltech team is investigating the unknown question of what makes the plates move.



CENTER FOR ANALYSIS OF HIGHER BRAIN FUNCTION

C altech scientists are working to understand the scientific basis of human consciousness, one of today's most challenging and important scientific problems. A \$27.7 million grant enabled Caltech to construct a state-of-the-art MRI facility where scientists from a variety of disciplines – neuroscience, molecular biology, computer science, economics, and philosophy – come together to study higher brain function.

The \$600 million commitment we received in 2001 was a transformational event for Caltech. It has allowed us to realize research dreams, to maintain our greatness in the many areas in which we are preeminent, and to provide a special Caltech education for generations of students to come. David Baltimore, President, California Institute of Technology

CENTER FOR ULTRAFAST

SCIENCE AND TECHNOLOGY

magine watching movies of molecules in motion – "seeing" life in action at the atomic level. Ability to observe the complex interactions among molecules and cells may help answer fundamental scientific questions and illuminate new and unexpected areas of our world. Ahmed Zewail, Caltech scientist and Nobel Prize-winning chemist, is using a \$17.5 million grant to create the Interdisciplinary Center for Ultrafast Science and Technology, which will bring together chemists, physicists, and biologists to propel the field forward.



VISION AND STRATEGIES

The Foundation has encouraged Caltech to think big – to envision projects of high impact, to explore path-breaking ideas, and to seek support for projects where no other funding exists. By the end of 2005, the Foundation had funded 14 projects totaling \$203 million. From astrophysics to nanotechnology, the common theme among these projects is interdisciplinary collaboration.

Grants awarded support the following Caltech projects:

- Center for Analysis of Higher Brain Function
- Thirty-Meter Telescope
- Molecular Observatory for Structural Molecular Biology
- Laboratory for Nanoscale Systems
- Tectonic Observatory
- Science and Engineering Information Initiative
- Combined Array for Research in Millimeter-Wave Astronomy
- Center for Ultrafast Science and Technology
- Center for Geochemical and Cosmochemical Microanalysis
- Proteome Exploration Laboratory
- Center for Theoretical Cosmology and Physics
- Cyroelectron Microscopy Laboratory

SPECIAL OPPORTUNITY GRANTS

While most grantmaking takes place through initiatives, the Foundation maintains flexibility to respond quickly to unique opportunities outside of the initiative structure, particularly when the potential yield is high impact. While these grants may be opportunistic, a rigorous due diligence is conducted and grantmaking criteria are applied with a long-term view and a focus on measurable results.

The special opportunity grants cover a broad range of scientific disciplines, from astronomy to taxonomy. Many of these grants have promoted novel applications for DNA technology and information technology, while others have focused on more open access to scientific research and data. In some cases, projects indirectly support the Foundation's work in environmental conservation through the development of new tools and techniques. For example, a grant was awarded to Stanford University biologist, Barbara Block, to map the migratory routes of large ocean-going species, which has contributed to the identification of marine areas in need of greater protection.



DNA BARCODES

Just as retailers use barcodes to identify items in a store, DNA barcodes can be used to identify unique species, based on a short, distinctive sequence of DNA. Researchers at the University of Guelph, in Ontario, Canada are using a \$2.4 million grant to develop the use of DNA barcodes, a potentially powerful new tool for biologists in the field. One potential application will help scientists identify hotspots of biological diversity for protection. The technology has spurred international efforts to develop DNA barcodes for entire categories of animals, including all fish and bird species.

TAGGING OF PACIFIC PELAGICS

S tanford University scientist, Barbara Block, and her colleagues have pioneered the use of electronic tags to study the movement of large migratory pelagic species, including endangered bluefin tuna, sharks, whales, seals, and sea turtles. The results have been surprising; tuna, for example, traverse the ocean several times in a single season. These studies will lead to a better understanding of ocean-going predators, which, in turn, may help identify areas of the ocean that need better protection to save threatened species. The Foundation supports this project with a \$3.9 million grant.

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PUBLIC LIBRARY OF SCIENCE

n 2002, the Foundation made a \$9 million grant to help launch the Public Library of Science (PLoS), a new scientific publishing venture aimed at making the published results of scientific research more accessible and useful to scientists, physicians, and the public. Since then, PLoS began publishing two peer-reviewed journals – *PLoS Biology* and *PLoS Medicine* – that have attracted top-tier articles and widespread respect in the academic world. Already, PLoS has had an important impact in promoting the free and open access to scientific research. The San Francisco Bay Estuary has lost approximately 80 percent of its tidal marshes over the past 150 years. The Baylands Project constitutes the only effort in the Bay Area to safeguard a complete landscape from upland hills and streams to seasonal wetlands and tidal marshes. With the help of the Gordon and Betty Moore Foundation we've been able to permanently protect 2,329 acres of critically important habitat. John Brosnan, Baylands Project Manager, Sonoma Land Trust



SAN FRANCISCO BAY AREA

Through the San Francisco Bay Area Program, the Foundation's objective is to make a lasting contribution to the quality of life in the Bay Area. Since its inception, the Foundation awarded more than \$174 million in grants to Bay Area nonprofit organizations. The program's grantmaking supports the Betty Irene Moore Nursing Initiative. In addition, the program makes grants to protect valuable lands and to advance science and technology museums in Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma counties. THE SPECTACULAR NATURAL LANDSCAPE OF THE BAY AREA IS ONE OF THE REGION'S GREATEST RESOURCES.

THE INSTITUTE OF MEDICINE ESTIMATES THAT

AT LEAST 44,000-98,000 AMERICANS DIE EACH YEAR IN HOSPITALS

DUE TO MEDICAL ERRORS.

The creation of our nursing initiative is the direct result of Betty Irene Moore's compassion, vision, and dedication to ensuring patient safety and improving patient outcomes in our acute care hospitals. Helen Kim, Chief Program Officer, San Francisco Bay Area, Betty Irene Moore Nursing Initiative



BETTY IRENE MOORE NURSING INITIATIVE

Every day, millions of people are admitted into United States' hospitals seeking the best available care. However, receiving the safest and most effective care is not guaranteed for routine or emergency procedures from private or public hospitals.

Hospitals are highly complex environments in which providing perfect care is a challenge. Patient care is increasingly a team effort (rather than individual doctor or nurse) with more demand for seamless communications and information exchange. In addition, hospitals face an aging patient population with increasing acuity of illness. ¶ Nurses provide approximately 95 percent of patient care in hospitals and are essential for safe and effective care. However, the nursing profession faces challenges on multiple fronts: systems within which registered nurses (RN) function do not consistently safeguard against avoidable medical errors that result in deaths and serious complications; RN training has not kept pace with technological advancements and the changing needs of more seriously ill patients; and a serious and growing shortage of RNs is occurring across most of the United States, including the San Francisco Bay Area.

BAY AREA PATIENT SAFETY COLLABORATIVE

hrough multiple grants totaling \$2.2 million, the Foundation supported the creation of a patient safety collaborative among the Bay Area hospitals participating in the "100K Lives Campaign." This national Campaign is an initiative led by the Institute for Healthcare Improvement (IHI) to address leading sources of mortality and complications within hospitals. IHI advocates implementing six scientifically based clinical interventions, including the creation of Rapid Response Teams to respond at the first signs of patient distress and techniques to further prevent infection

following surgery. To implement these best practices locally, the Foundation has provided funding to 20 Bay Area hospitals, the Hospital Council of Northern and Central California to launch a regional collaborative, and IHI for technical assistance and measurement. In addition, the newly formed Bay Area Patient Safety Collaborative provides hospitals with access to expert faculty and a peer-to-peer learning community.



SHARED SERVICES PROGRAMS

Despite a shortage of nurses in the San Francisco Bay Area, nursing schools turn away 45 percent of qualified applicants each year due to insufficient clinical placement opportunities for students and lack of faculty. In order to increase the efficiency of nursing education and increase the number of qualified students enrolled in Bay Area nursing programs, a \$1.9 million grant was awarded to the Foundation for California Community Colleges to support the creation of a Centralized Clinical Placement System (CCPS), a Centralized Faculty Resource Center (CFRC), and regional simulation laboratories. The 2005 launch of CCPS garnered over 90 percent participation from hospitals and schools. The CFRC is scheduled to launch mid-2006.

INITIATIVE AT A GLANCE

Outcome:	come: Improve the quality of	
	nursing-related patient	
	outcomes in adult acute	
	care hospitals in five	
	San Francisco	
	Bay Area counties.	
Amount:	\$123 million	
Time frame:	2003-2013	

Grantees to date: 53



We are in the midst of a revolution – a patient safety revolution in which hospitals are working to eliminate every avoidable medical error. The Bay Area Patient Safety Collaborative is

accelerating the adoption of patient safety techniques in Bay Area hospitals and improving quality for current and future patients. Art Sponseller, President and CEO, Hospital Council of Northern and Central California

VISION AND STRATEGIES

The Betty Irene Moore Nursing Initiative is working to improve the quality of nursingrelated patient outcomes in adult acute care hospitals in five San Francisco Bay Area counties: Alameda, Marin, San Francisco, San Mateo, and Santa Clara. The success of the initiative will be measured by comparing changes in patient outcomes related to nursing care, such as adverse events, complications, patient/family satisfaction, and other indicators.

The initiative is focused on two overall strategies: Development of a larger, more highly skilled nursing workforce by training more nursing educators, expanding current nursing education programs, creating continuing clinical training, and optimizing the nursing education system while increasing collaboration among stakeholders; and

Implementation of more effective hospital practices through the support of best practices in nursing, a systems approach to patient safety, and improved discharge planning for the highest risk patients. The Betty Irene Moore Nursing Initiative aims to create a model regional system for improving nursing-related patient outcomes in Bay Area hospitals that can be replicated in other regions of the state and country.

LAND PROTECTION

The Bay Area's unique mix of coastal bluffs and beaches, rolling oak woodlands, and tidal and seasonal wetlands – all within easy reach of urban centers – is a major reason the Bay Area is a desirable place to live and visit. This landscape is under constant threat from development, and over the next 25 years an estimated half-million acres of open space are at risk from suburban sprawl.

Over the past 50 years, many individuals and organizations have helped to make the Bay Area a model for urban areas prospering in a mixture of protected landscapes. The Foundation's efforts are supporting and building on that work.

The Foundation has awarded more than \$85 million in land protection grants that helped to protect 22,000 acres, an area nearly the size of the city and county of San Francisco.



SONOMA LAND TRUST

\$7.9 million grant to the Sonoma Land Trust contributes to permanent protection of threatened wetland and related habitats at the northern end of San Pablo Bay as part of the larger Sonoma Baylands Project, which protects a tidal marsh ecosystem capable of providing habitat for threatened species, migratory shorebirds, and waterfowl. Since 1976, Sonoma Land Trust has collaborated with landowners and government agencies to protect nearly 15,000 acres in Sonoma County.

SCIENCE AND

TECHNOLOGY MUSEUMS

The Foundation supports Bay Area science and technology museums – some of the world's most innovative – in their efforts to find new ways to engage the public about science and technology. Foundation grantees, leaders in the movement to promote museums as educational centers, focus their efforts on developing educational programs for students and teachers.

The Foundation has awarded more than \$25 million in grants to Bay Area science and technology museums. Together, these museums attract 2.9 million visitors annually.



CHABOT SPACE & SCIENCE CENTER

\$2.1 million grant supports the Chabot Space & Science Center's Techbridge program, which promotes science, technology, mathematics, and engineering among young women in the Bay Area. Young women in the program benefit from hands-on projects, mentoring from female scientists and engineers, as well as worksite visits, internships, teacher training, and specialized curricula.

Women constitute only 10 percent of the engineering workforce and female university enrollment in computer science is dropping. Women are desperately needed in the areas of technology, science, and engineering in both business and academia. Techbridge tackles the problem at its roots by targeting young women to increase their technical competence, confidence, and interest in these fields for future careers. Jennifer Wei, Techbridge Business Development Specialist, Chabot Space & Science Center

ASSET ALLOCATION

December 31, 2005 Market Value: \$5.3 Billion



GRANT HIGHLIGHTS

Grants awarded from inception to December 31, 2005 Total Grants Awarded: \$1 Billion (\$ millions)



FINANCIAL INFORMATION

The Gordon and Betty Moore Foundation has grown rapidly over its first five years and currently employs 70 people and manages over \$5 billion in assets. In total, the Foundation has awarded over \$1 billion in grants. The Foundation began operations in January 2001 with an initial donation from the Moore family of five million Intel Corporation shares.

The Foundation's investment objective is to protect the purchasing power of the endowment in perpetuity. As such, the investment portfolio is a collection of diversified assets designed to deliver relatively stable returns in a variety of market environments. The Foundation strives to balance the competing goals of generating a long-term return in excess of spending and inflation while providing a predictable, stable source of funds for current programs. Success in this approach will enable the Foundation to address the challenges of today and those of future generations.

FOUNDATION LEADERSHIP

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PRESIDENT Edward E. Penhoet

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ABOUT THE FOUNDERS

A rule-of-thumb prediction made by Gordon Moore in 1965, later dubbed "Moore's Law," became a guiding principle for the delivery of ever more powerful semiconductor chips at proportionally lower costs. Today, this standard continues to set the pace of technology development and progress. Gordon has been committed to technological progress throughout his career as a leader in the new semiconductor industry, first as co-founder of Fairchild Semiconductor in 1957 and then as co-founder of Intel Corporation, creator of the world's first microprocessor,

in 1968.

¶ Betty met Gordon at San Jose State College where she received
her bachelor's degree in Journalism in 1949. Gordon and Betty were married the
following year. While Gordon attended graduate school at the California Institute of
Technology in Pasadena, Betty worked for Consolidated Engineering Corporation in
advertising and public relations before joining the Ford Foundation.

the Gordon and Betty Moore Foundation together in 2000, the Moore's philanthropic contributions build on the work they have dedicated to science and the environment for decades, both at home and abroad. ¶ Today, Gordon and Betty are active on several philanthropic and corporate boards. They reside in the Bay Area and in Hawaii, and have two sons and four grandchildren.



DESIGN

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Jack Unruh

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INTRODUCTION Gordon and Betty Moore, San Jose Mercury News Macaws, Frans Lanting Marine microbe, Karie Holtermann

ANDES-AMAZON Waterfall, Conservation International Flower, Conservation International Fisherman, The Nature Conservancy, Haroldo Palo, Jr.

CONSERVATION INTERNATIONAL

Frog, Conservation International *Girl*, Conservation International *Baobab*, Gerry Ellis *Snake*, Conservation International

MARINE CONSERVATION

Kelp, Flip Nicklin *Fishermen*, Cape Cod Commercial Hook Fishermen's Association *Starfish*, The Nature Conservancy

WILD SALMON ECOSYSTEMS Salmon, Greg Syverson Landscape, Gary Braasch Bear, Greg Syverson

MILESTONES INTRODUCTION Marine microbes, Jeremy Young, Natural History Museum, London Anemone, The Nature Conservancy Frog, Conservation International Salmon, Greg Syverson Jaguar, Howard Buffett

FIVE-YEAR MILESTONES Building 38, Gordon and Betty Moore Foundation Salmon, Greg Syverson Lemur, Conservation International Lighthouse, Robert Buelteman, Peninsula Open Space Trust Jaguar, World Wildlife Fund

Owl, Carl Tofte, Conservation International Saltponds aerial, Gordon and Betty Moore Foundation Indigenous child, Conservation International Sudden Oak Death zoospores, Edwin R. Florance, Ph.D. PLoS logo, Public Library of Science Kamchatka aerial, Guido Rahr, The Wild Salmon Center PLoS magazine, Public Library of Science Frog, Conservation International Sonoma aerial, Sonoma Land Trust CIG logo, Center for Integrated Genomics MIT logo, Massachusetts Institute of Technology Conservation Fund aerial, Charles Horan Marine microbe, Karie Holtermann Sea turtle, Conservation International Tropical fish, Conservation International Wolf, The Nature Conservancy

MARINE MICROBIOLOGY

Marine microbe, The Diatoms, Round et al., 1990 Marine microbe (page 30), Karie Holtermann Researchers, David M. Karl Marine microbe (page 31), Karie Holtermann

CALTECH All photography courtesy of the California Institute of Technology

SCIENCE SPECIAL OPPORTUNITIES

DNA barcoding, Mehrdad Hajibabaei and Paul Hebert, Biodiversity Institute of Ontario, University of Guelph Sea lion, Jason Bradley PLoS magazines, Public Library of Science

SAN FRANCISCO BAY AREA

Sonoma aerial, Sonoma Land Trust Bubble, Exploratorium Chabot Space & Science Center, Chabot Space & Science Center

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