

**PROPOSAL TO THE AGAPE FOUNDATION**  
**Aquatic Biodiversity Program**  
**New England Aquarium**

**Amount requested:** \$19,000 for one year

**Purpose of grant:** To continue the development and expansion of the New England Aquarium's new program of Aquatic Biodiversity. Funds will primarily be used to support a Conservation Associate for assistance across all program areas. Established in 1998, the Aquatic Biodiversity Program works in support of the New England Aquarium-wide mission: *to present, promote, and protect the world of water.*

**Background:** Worldwide, humanity has severely degraded both aquatic and land habitats, leading to a dramatic and unprecedented loss of species. Freshwater and marine species are the most threatened of all, yet they are also the most neglected. Humans have transformed close to 50 percent of Earth's land surface through practices such as converting forests into urban areas, filling in wetlands and converting prairies into agricultural land. Deterioration of the oceans has resulted in toxic algal blooms, coral bleaching and disappearance of key fisheries (XVI International Botanical Congress 1999). The Food and Agricultural Organization (1994) estimates that nearly 70% of global marine resources are "fully to heavily exploited, overexploited, depleted, or slowly recovering from overfishing." Rates of extinction are 100 to 1,000 times what they would be without human-induced changes. Environmental damage has also resulted in increased threats to human health and a diminished quality of life.

The New England Aquarium (NEAq) has a strong commitment to conservation. This is reflected in NEAq's many well-known research and conservation programs, ten years of successful fieldwork, and the development of innovative conservation-related public policy, grassroots efforts, and education. The Aquarium supports the Aquatic Biodiversity Program for its new and creative ideas, and its efforts to change the general public's attitudes and practices toward the environment.

**Approach:** Our Aquatic Biodiversity Program underscores the value of science in understanding and answering pressing questions in aquatic biodiversity, the interdependence of humans with other species and ecosystems, and the importance of changing human behavior. Our efforts are varied and far reaching – spanning grassroots and non-profit organizations, community groups, scientific research, and public education and outreach. Our program establishes the necessary long-term relationships, and ongoing projects, which will encourage people to integrate environmental values into their daily lives.

Environmentalists' efforts to stop this destruction of the Earth's natural resources have not convinced sufficient numbers of people to make the necessary behavioral changes. Providing people with information does not necessarily result in behavior change, for behavior is also the product of existing attitudes, values, gender, social norms, skills, economics, time, options, laws, habit, and beliefs (Byers, 1996). To change behavior, we have to identify and build upon fundamental values and attitudes as well as understand other motivating factors. It is more effective to show people that their values already include environmental conservation than to persuade them to adopt new environmental values.

Our program is based on the premise that the environmental community must implement innovative approaches to reawaken the human sense of reverence and gratitude for nature, and inspire urgency in addressing threats. We must reawaken a sense of reverence and gratitude for nature, and inspire urgency in addressing threats. The public needs to begin to understand the extent of humanity's impact, and the importance of aquatic biodiversity and associated key ecological concepts if they are to make informed choices. The challenge – and the potential rewards – are enormous for changing the way people view and behave towards aquatic biodiversity, and the natural world in general.

**Program areas:** The Aquatic Biodiversity Program has established several valuable program areas within the New England Aquarium. Program areas include:

- Scientists without Borders

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- Changing Hearts and Minds: A Values-Based Approach to Environmental Stewardship
- Congo River Environment and Development Project
- Living Links (exhibit)

***Scientists without Borders:*** Scientists without Borders is a community-based research and networking program designed to provide scientific advice and research assistance directly to community and grassroots organizations in developing countries. The research questions will originate from the communities themselves. Our project will allow communities and organizations to move towards conservation and sustainable management of aquatic resources, freshwater and marine. The conservation and sustainable management of aquatic life in developing countries is often constrained by a lack of scientific and nongovernmental capacity. Scientists without Borders has been designed to address this problem.

We will establish relationships between scientists in the United States and other developed countries with community and grassroots organizations in developing countries. Our program will be organized around several networks of scientists and organizations. All scientific disciplines relevant to aquatic conservation will be included. The program is mutually beneficial – the communities receive the free research and expert advice they need, and the participants receive valuable training coupled with course credit and/or small stipends

Development over the past year has included the creation of a timeline and the identification of potential collaborators. In addition, specific contacts have been identified within the World Conservation Union (IUCN), the Society for Conservation Biology, and the American Association for the Advancement of Science (AAAS). A small grant from the Conservation Action Fund has funded the above activities.

Funding will be used to 1) identify and solidify collaborators; 2) establish a pilot site; 3) develop a database of interested scientists and conservationists; and 4) seek additional outside funding.

***Changing Hearts and Minds: A Values-based Approach to Environmental Stewardship:*** Changing Hearts and Minds is an interdenominational and interdisciplinary grassroots project linking environment and religion in Papua New Guinea (PNG), Fiji, the Solomon Islands, and the United States. This program tests a **new conservation model** in changing behavior: a collaborative partnership between scientists, conservationists, and the faith community which rearticulates the environmental messages inherent in existing religious texts and value systems. Globally, religious beliefs often shape fundamental values, particularly how individuals view their relationship to the natural world. A recent U.S. poll indicates that stewardship is a top reason for environmental concern (Elder et al., 1999). Our program includes outreach and education (such as the development of environmental materials for churches); establishing networks of churches in the South Pacific and the United States committed to environmental values; facilitating churches in their efforts to initiate environmental service projects and links to policy makers; documenting attitudinal change; and creating a web site to assist others worldwide with similar projects.

We launched this project in 1999 with a successful PNG sermon trip. In June 1999, with grants from the Agape Foundation and the Charizma Foundation, our partnership organized and sponsored Reverend Peter Illyn from Target Earth on a thirty-day lecture trip. *Environment and Values* rallies in these five cities reached 7,000 individuals, and 3 million learned about the effort through the media. At the rallies, both Reverend Illyn and PNG ministers presented passages from the Bible that support the message of environmental stewardship and responsibility. A filmmaker documented several rallies, and our group also met with 350 PNG leaders during the trip.

In July of 2001, Peter Illyn returned to PNG for a second lecture trip. Throughout his tour, Illyn was able to engage nearly 550 pastors and seminarians. In addition, meetings were held with nearly 50 leaders,

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administrators, and instructors. This trip allowed us to refine our strategy, extend our message of environmental stewardship to key leaders, and continue to build strong support for the future.

Funding will be used to 1) broaden our environment and values efforts in the South Pacific and the United States (with emphasis placed on outreach in New England and Alaska); and 2) seek additional outside funding.

***Congo River Environment and Development Project (CREDP):*** This USAID-funded project will work to create a framework for linking governmental and non-governmental organizations in the Democratic Republic of Congo (DRC) with organizations international to DRC. Throughout DRC, cities and communities face severe environmental crises with respect to erosion, water quality, waste control, and spread of disease. CREDP will work to establish common goals in relation to economic development and biodiversity conservation, with a focus on 1) biodiversity conservation, 2) livelihood security, and 3) adapting technologies to enhance conservation and livelihood security. The Aquatic Biodiversity Program will provide the sole external technical assistance to four Congolese NGOs.

Still in a formative stage, likely outcomes include: a biodiversity assessment of freshwater fish species in relation to livelihood indices and fishing practices along the Congo River, classification of freshwater management systems along the river and suggested improvements to those systems, and investigating methods for improved storage and transport of fish catch in regards to biodiversity conservation. Most important, this project seeks to empower Congolese institutions to take on increasingly proactive roles in determining and implementing national, regional, and local environment and development agendas.

Agape provided funding will be used to link this project with both Changing Hearts and Minds and Scientists without Borders. CREDP may be the ideal pilot site for Scientists without Borders, and one of the participants is a religious NGO with an interest in the environment – an ideal link with Changing Hearts and Minds.

***Living Links (exhibit):*** This NSF-funded exhibit looks at aquatic biodiversity with a fresh and accessible approach - inviting visitors along on a journey with popular animals through their interconnected habitats and life cycles. The visitor to this exhibit will experience the wonders and fragility of aquatic biodiversity, and the interconnectedness of all habitats by traveling with sea turtles, frogs, and fish. Each journey is an exploration of linked habitats (fresh and salt water, land and sea, land and freshwater) through which visitors will be shown how their individual and collective decisions have an impact on ecosystems both near and far, affecting both aquatic and human health. The exhibit will open at the New England Aquarium in April of 2002, and will begin to travel to at least five different zoos and aquaria throughout the United States in January of 2004. This exciting exhibit promises to do more than any other - to increase knowledge, to raise awareness, and to promote action. And, because this exhibit is designed to travel, this important message will be carried throughout the country.

Funding provided by Agape will support content development, literature reviews, and organizational assistance through to the opening of the exhibit in April of 2002.

**Expected outcome:** The proposed grant from the Agape Foundation will be used to further plan and develop all program areas within the Aquatic Biodiversity Program. By the end of this year, we expect that the majority of these programs will be fully or partially funded through outside sources.

**Organizational capability statement:** The New England Aquarium, which opened on Central Wharf in 1969, offers 1.3 million visitors annually the opportunity to view exciting exhibits and participate in educational and public programs that interpret current regional and global aquatic issues in engaging ways. NEAq's mission is the *present, promote, and protect the world of water*, emphasis on *protect*.

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The Aquarium was the first aquarium in the world to create a Conservation Department (1993). The Conservation Department's mission is to resolve aquatic conservation problems worldwide by creating and linking community efforts with science-based policy development and public education. Besides the Aquatic Biodiversity Program, the Department is involved in: 1) timely support for grassroots conservation efforts worldwide – both management and policy – through the Conservation Action Fund; 2) Aquatic forums that draw diverse stakeholders together for consensus-building on contentious marine policy issues; 3) production of award-winning conservation films for free distribution to zoos, aquaria, and science centers worldwide; 4) involvement in fisheries and marine mammal policy and management at the national, regional, and international level; 5) applied community-building research that addresses pressing conservation problems; and 6) aquatic biodiversity surveys in Kiribati, the Antarctic, and New England.

**Qualifications of requestor:** Ms. Cristina Santiestevan is a Conservation Associate in the Aquatic Biodiversity Program, Department of Conservation, at the New England Aquarium. She assists with all projects throughout the Aquatic Biodiversity Program, including grant development and writing (USAID, NMFS, Prescott Fund, NSF). She also assists with programmatic support of NEAq's NSF funded Informal Science Education grant (*Living Links*) to develop a traveling exhibit and associated programs related to aquatic biodiversity. Responsibilities include assistance with exhibit content development, literature searches to verify content accuracy throughout the exhibit, assistance with organizational tasks, development and maintenance of contacts both internal to NEAq and with external conservation organizations. She comes to this position with experience in literature reviews, field work, and lab research. Ms. Santiestevan was recently awarded the John Prescott Fund for Marine Conservation Research to support her work with behavior and conservation in juvenile cod. In June, 2000, she received her Bachelor of Arts degrees in Biology and English from Williams College. She was awarded a Research Experience for Undergraduates grant in 1999, for independent research with behavioral and population ecology of a cohort of sub-alpine ants (publication pending). In winter 1998 and winter 2000, she was a research associate with the Bioko Biodiversity Protection Program, training new volunteers, leading primate censuses, and recording daily census data. In recognition of her undergraduate work, Ms. Santiestevan was named a 1960's Scholar for Environmental Studies in 1999. She received the Broadbent Scholarship (1998-99) and the Florence Chapman-Grace C. Dickinson Scholarship (1998-00) to support her studies at Williams College.

**Budget information:** Please see attached sheet for the New England Aquarium's FY2001 Operating Budget. NEAq is a registered 501(c)3 organization, and documentation is available upon request. The Conservation Department maintains an annual budget of \$597,000 (84% grant funded). Salary (plus fringe) for a Conservation Associate for one year is \$35,123. Support provided by the Agape Foundation would amount to 54% of time for one year. We are actively seeking additional outside funding for the remainder of the time.