



AMERICAN ZOO AND AQUARIUM ASSOCIATION

November 15, 2003

James D. Watkins
Admiral, U.S. Navy (Retired)
Chairman
U.S. Commission on OCEAN POLICY
1120 20th Street, N.W.
Suite 200 North
Washington, DC 20036

Submitted by email—david@oceancommission.gov

Dear Admiral Watkins,

Thank you for the opportunity to comment further to the U.S. Commission on Ocean Policy on behalf of the American Zoo and Aquarium Association (AZA) and The Ocean Project. As preamble to this supplement we want to relate some lingering impressions from the education panel at Shedd Aquarium on September 25, 2002. These impressions form our working assumptions and influence the content of this reply.

1. **In view of and despite the long list of challenges that follow, we want to begin with an unequivocal statement of optimism. Chances for success are incredibly high.** With sufficient will, focus and resources a coalition of interested parties could reverse, and hopefully halt, the trend of ocean degradation. That end should be the "Big Idea" for any campaign. AZA is an assertive and experienced leader in building effective coalitions to address environmental emergencies, from recovery of black-footed ferrets to current coalitions assembled to address the international Bushmeat crisis and conservation of North American butterflies. Collectively AZA's 209 member institutions, aquariums and zoos alike, offer documented commitment to conservation, significant focus on ocean issues, extensive and respected expertise in education and huge audiences. The Ocean Project has assembled the largest active coalition to date addressing ocean issues and education. As noted throughout this reply, AZA and The Ocean Project offer their leadership, experience and educational networks for planning and implementing this campaign.
2. Ocean literacy for the general public is an ambitious goal. We are effectively starting from scratch.
3. There is significant infrastructure in place, but these resources currently lack the coordination, financial support and leadership to make a significant, measurable impact.
4. Right now the crisis centers on human impacts on the ocean. Although exploratory and basic research remains critically important, the current emergency lies with what

people are doing. Hence, the most critical immediate need for achieving the sustainability of ocean resources is effective education of the public. We must quickly change their minds and their actions in order to protect ocean biodiversity and health.

5. Research presented by Dr. Paul Boyle, Director of the New York Aquarium and founder of The Ocean Project is convincing and a good start. Further educational efforts should include a research component that measures two things—the pre-existing knowledge, attitudes and behaviors (K-A-B) of the target audience and the changes in K-A-B resulting from each educational intervention. The research component is essential to rational planning, fund raising and accountability.
6. Funding, like infrastructure, is scattered and currently not applied to any perceptible "Big Idea."

The Commission asked five follow-up questions.

1. Who should be involved in coordinating a message on the importance and the significance of the ocean?
2. How do we reach aquarium visitors with a message of personal responsibility?
3. How can aquariums get across a multi-disciplinary message to visitors?
4. What can aquariums do to help educate students and excite them about the many other fascinating aspects of ocean sciences, such as geology, physical oceanography, etc. and the opportunities in these areas?
5. How do we diversify the student population and workforce in all areas of the ocean community?

1. Who should be involved in coordinating a message on the importance and the significance of the ocean?

The scope of the task as well as the distribution of useful expertise suggests forming a broad coalition organized for ocean education. The coalition will include vast experience with audience-appropriate educational design and delivery of messages about oceans in all venues. Most coalition members should be employed by an organization with a stated mission of ocean education and ongoing engagement in program design, funding and delivery.

Look everywhere for coalition partners. To begin, invite broad participation from formal science educators (invite National Science Teachers Association, National Association of Biology Teachers), associations dedicated to informal science education with special expertise in oceans that also have public facilities and exhibits (American Zoo and Aquarium Association, Association of Science and Technology Centers), associations dedicated to informal science educators with special interest in oceans (National Marine Educators Association, National Association of Interpretation), NGO's dedicated to conservation (World Wildlife Fund, Conservation International), federal departments and offices (National Oceanic and Atmospheric Administration, National Aeronautics and Space Administration, National Science Foundation) and NGO's committed to essential related topics (Biodiversity Council, Project Learning Tree). Invite all current partners in The Ocean Project. My intent for coalition members is

inclusive invitation and, I do not provide an exhaustive list here. Probe for willing players. These institutions, associations etc. know their audiences and the processes of program design, development and evaluation. Cultivate a group mentality through special conferences that focus on ocean education.

A more critical decision for a coalition is leadership and coordination. Identify primary stakeholders. Select organizations with ocean education as a specific part of the institutional mission, with infrastructure for program development and delivery in place, with a documented commitment to measuring and improving educational impact and, if possible, with an existing audience. Recruits from these institutions will lead most effectively because good ocean education accomplishes their mission. Form a coordinating council from these recruits. First of all, create and communicate a "Big Idea" to guide a concerted program of ocean education across the country.

Nothing will happen without adequate resources. Supply resources for programs and conferences through the coordinating council and hold the council accountable for reporting impact. We recommend permanent staff to guide and coordinate the community building and program administration that will be essential to the coalition's mission. Selecting the best location for coalition staff depends on preliminary decisions on scale and structure that are still pending. Both AZA and The Ocean Project would welcome discussions on hosting coalition staff. AZA's members represent the core of leading public institutions across the U.S. dedicated to ocean education and conservation; The Ocean Project currently has built a coalition of 200 institutions across the U.S. and an additional 200 oversees committed to working together to building ocean awareness among the general public. Together AZA and The Ocean Project represent a willing partnership that offers great potential for leading a nationwide public ocean education effort.

2. How do we reach aquarium visitors with a message of personal responsibility?

This question poses the challenge of all conservation education. There is no single formula because both messages and audiences are diverse. There is, however, the science and the art of informal science education focused on ocean issues. A complete answer to this question is a treatise on education. While The Ocean Project is dedicated to research on this topic and to broadly disseminating the results, a shortcut is to reassert the readiness of aquariums, zoos and related facilities and suggest that their expertise be organized into a program (a campaign) of coordinated delivery and evaluation.

As illustrated during testimony and in accessory materials provided to this Commission, aquariums have the established audience, expertise and image to organize and lead the effort. Aquariums and zoos are certainly the logical choice for concerted delivery of programs and messages to the general public. AZA aquariums and zoos are actively measuring impact of current programs and engaged in research to improve our understanding of educational effectiveness. Indications of success are encouraging at the institutional level. Aquariums stand ready to perform the design and delivery. The Ocean Project, working with AZA, has built a coalition of 200 institutions which will likely become 400 institutions nationwide eager to engage the public in learning about oceans. What is lacking is a support mechanism to ensure the unity and focus of this massive educational effort.

Measurable changes in public understanding and responsible behaviors towards oceans require a coordinated effort and broad delivery. The experience and expertise of the aquarium network assure clear messages adapted for local delivery. AZA institutions are currently operating in 209 markets in the U.S. including all primary population centers and secondary markets. These institutions are trusted for their roles as messengers on the environment as indicated by huge existing audiences. With sufficient coordination, messages could be defined and sequenced for coordinated delivery through the coalitions exhibits, programs, special events and public relations. Provide resources to incorporate these messages into all exhibits, programs and messages. Again, AZA and The Ocean Project are uniquely positioned to lead such an effort.

3. How can aquariums get across a multi-disciplinary message to visitors?

The core of conservation education is to relate ocean messages to the perceived needs of the individual, especially for the volunteer learner. Issues of self, family and future preempt scientific, aesthetic or moral arguments. The Ocean Project's national survey demonstrated the widespread existence of this ethical perspective among the U.S. population. How will the information affect my family, my immediate future and myself? Aquarium educators know this and craft messages and programs accordingly. There are models for centering school curricula around selected environmental topics, with encouraging results. I believe that many facilities and organizations would rally to a broadly conceived and well-supported program of ocean education.

For the general public the answer becomes more complicated. The learner can walk away at will. Again, many credible experts might be invited. The key to more impact is to conceive and build consensus on common messages, synchronize delivery and measure impact in an ongoing national program.

4. What can aquaria do to help educate students and excite them about the many other fascinating aspects of ocean sciences, such as geology, physical oceanography, etc. and the opportunities in these areas?

For the scientific disciplines provide opportunities for students to study at aquaria. Develop programs to host undergraduate research, internships, research fellows and post-doctoral fellows with aquarium research staff as principal advisors. Draw these connections through experience. These experiences also identify employment opportunities for scientists interested in oceans.

Organize existing programs for professional development and education and create new ones. AZA is currently working to create a Master's Degree in Zoo and Aquarium Leadership by fall, 2003. This program combines university course work with existing AZA professional development programs leading to a Master's degree from George Mason University, the AZA's academic partner. AZA would be interested in assessing interest in innovative degree programs on ocean science and in developing such programs if needed.

But wait a minute, let's return to ocean education. When research is mentioned it very rarely includes educational research. Why is that? What about similar approaches at aquaria for ocean educators? We need trained minds and committed voices in these areas as well. What we know is only step one. What the public does is step two. Who

will tell them? Linked programs for students at any level in both science and education would benefit everyone.

Success for this model depends on deliberate, strategic approaches. Start small by identifying model systems and their requirements. Ask the coalition on ocean education to address this area as well. Provide a stable source of support for this process.

AZA would be happy to work on development of such a program. Resources and coordination are essential elements for success.

5. How do we diversify the student population and workforce in all areas of the ocean community?

Diversity is another pervasive challenge and not unique to ocean issues. Recruit leaders and participants for the coalition who recognize the importance of cultural and national distinctions and the influence of these factors upon conservation and education. Seek and select partners who deal with diversity challenges on a daily basis.

AZA aquariums and zoos live the shifting demographic on a daily basis through the linked issues of workforce and visitors. Our business depends on innovative and proactive approaches to diversity. Our leaders are also firmly committed to diversity as the right thing to do. AZA currently addresses such questions association-wide through a Diversity Special Committee. This permanent committee plans and recommends diversity strategies to all members through an active program of conferences and workshops. Committee members are also researching the business case for diversity.

The steps are straightforward given the will to address diversity. Assess, recognize and expand successful efforts to identify and include underserved audiences. This is a suitable topic for coalition guidance. Again, impact will depend on availability of resources. Zoos and Aquariums have long experiences and ample models of diversity recruitment. These institutions also have recognized the importance of continued efforts to engage diverse audiences and workforce. Again, AZA would be happy to participate.

Thank you again for this opportunity. Please contact me for any additional assistance.

Sincerely

Bruce L. Carr, Ph.D.
Roy Disney Chair of Conservation Education
American Zoo and Aquarium Association

Paul J. Boyle, Ph.D.
Director, New York Aquarium, Wildlife Conservation Society
Chairman, The Ocean Project