Running Head: WETLANDS RESTORATION GROUP FINAL RESEARCH PROJECT

Final Research Project

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John Bolthouse

Dear Mr. Bolthouse,

I am writing today to thank you for the time and effort you put into the Wetland Restoration and Education project that was developed for YMCA Camp Surf. After discussing the concept of the program with Mark Thompson, Associate Executive Director of YMCA Camp Surf and fellow team member, we agreed to embark on finding a funding source.

Mr. Thompson was successful in securing a grant from the Recreation Equipment Inc. (REI) Foundation for a little more than $22,000 to conduct a pilot of this program that is called el fresco. REI has recently adopted a goal of increasing participation by people of color in outdoor education and outdoor recreation activities for their foundation grants and were extremely impressed with the research based approach of the program you played a key role in developing.

This program will be kicking off on March 30th, 2008 and excitement is already apparent with both YMCA staff and the target audience. The social marketing plan, goals and objectives and extensive research components of your project are being applied in the el fresco program.

Thank you once again for the time, talent and energy you contributed toward a program that is in conformance with our Mission and Strategic Plan. Good luck with the remainder of the Leadership and Nonprofit Management Program at the University of San Diego.

Sincerely,

Tom Madeyski
Executive Director

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Needs Assessment

Introduction

Problem statement. California has lost 91% of its historical ***wetlands***, and now fewer than 450,000 of the state's original 5 million acres are estimated to remain without ***environmental stewardship*** (U.S. Department of the Interior, 1997; Dahl, 1990). San Diego County wetlands are among the most threatened resource on the California coast (SeaWorld Adventure Parks, 2002). The destruction of these wetlands has an irreversible effect on native plant life and wildlife, but this environmental degradation also affects humans. Research indicates that the demise of a community's natural environment can threaten the physical, social and economic health of populations that live within the community (Horwitz, et al., 2001).

Operational definitions. In November 2005, the United States Environmental Protection Agency's (EPA) Innovation Council developed a report entitled "Everyday Choices, Opportunities for Environmental Stewardship." The Council defines *environmental stewardship* as the commitment of all people in a given community to take responsibility for their choices to improve environmental quality, maintain a higher quality of life, preserve natural resources and achieve sustainable results. The Council states that environmental stewardship is reflected in the choices of individuals, companies, communities and government organizations, and is shaped by unique environmental, social and economic interests. Environmental stewardship is also a behavior demonstrated through continuous improvement of environmental performance and a commitment to efficient use of natural resources and ecosystem protection.

YMCA Camp Surf's Outdoor Education Program exemplifies the definition of environmental stewardship through efforts to educate and empower students to take responsibility for their actions that impact the environment. The wetlands adjacent to YMCA

Camp Surf serve as a living outdoor classroom environment for this learning to occur. *Wetlands*, as defined in SeaWorld/Busch Gardens' Animal Information Database, are low-lying marshy areas saturated or covered by water at least part of the year that connect inland waterways to the sea (n.d.). According to Naval Base Coronado's Integrated Natural Resource Management Plan (2002), the wetlands at YMCA Camp Surf are comprised of vernal pools, native and exotic plant cover, dunes and their adjacent beaches, salt marsh and inter-tidal flats within the Tijuana, Otay and Sweetwater River floodplains. Wetlands filter nutrients and sediments and enhance water quality. They also provide flood control, nutrient cycling, sediment capture, groundwater recharge and corridors for wildlife. Environmental stewardship is necessary to prevent this ecologically sensitive natural resource from becoming irreversibly altered or destroyed.

Needs Assessment

The objective of this Needs Assessment is to summarize the necessity to restore and preserve the 22-acre wetlands property adjacent to the communities of Imperial Beach and Coronado in San Diego, California. This document provides information on the target population of the restoration – the students attending YMCA Camp Surf, where the wetlands are located. Also described are the communities of Imperial Beach and Coronado, two cities that surround YMCA Camp Surf that stand to benefit from this restoration. Support for this Needs Assessment is provided through research of scholarly journals, community demographic information and anecdotal evidence gathered through a series of key informant interviews and a survey of YMCA Camp Surf participant teachers.

As the target population of this assessment, students attending YMCA Camp Surf are integral to the restoration of the wetlands through their participation in YMCA's program for Outdoor Education in Coastal Marine Studies. This diverse group consists of 2,502 students ages

11 to 13. With a near-even ratio of males to females, the participating schools are nearly 50% Hispanic and 40% white. Figures are based on the demographic information for the fifth and sixth grades of the schools most actively involved in YMCA Camp Surf through subsidized participation for 2007. Approximately 20% of the schools involved in YMCA Camp Surf were not integrated with this analysis due to lack of information.

The target community of this Needs Assessment consists of the two cities of Imperial Beach and Coronado in San Diego County. These cities were chosen because YMCA Camp Surf is located in Imperial Beach. Coronado is a bordering community, and the two communities stand to benefit immediately from wetlands restoration. Comprising approximately 20 square miles, the two cities border each other but have vastly different demographics. Coronado's population is 76% white, with a median income of $92,943 in 2006. With a larger total population but a smaller median income of $48,598, Imperial Beach holds a majority of Hispanics who make up 45% of its population (San Diego Association of Governments, 2006). Both Imperial Beach and Coronado house portions of Naval Base Coronado (Naval Base Coronado, 2006).

An interactive relationship between a community and its environment is a way to address people's underlying values and attitudes towards their surroundings (Roach, et al. 2006). In-person site visits to areas of environmental degradation successfully increase participants' understanding of environmental health problems and their effect on communities (Backus, et al., 2004). Environmental stewardship programs prove to be a catalyst in healing a community's well-being by informing, instructing and reinforcing the importance of outdoor surroundings. Research done through the implementation of environmental stewardship programs also shows

that hands-on learning can be effective in cultivating positive community attitudes (Miller, 2004).

In order to formulate the needs of this restoration proposal, it was necessary to gather a body of information on prevalent attitudes regarding local conservation efforts and the role of the YMCA Outdoor Education program in conserving the Camp Surf Wetlands. The objectives of using key informant interviews and a survey were to collect information on community attitudes and efforts toward conservation of the wetlands, to spread awareness of the restoration proposal and to document the salient interests of YMCA Camp Surf participant teachers, who act as intermediaries to the target population (students) in the Outdoor Education Program. Interviews were conducted with five key informants: two executive directors of local environmental nonprofit organizations, the director of Veterinary Pathology at SeaWorld San Diego, a retail manager at an outdoor equipment store and a prominent, respected volunteer member of Friends of Famosa Slough, another San Diego wetlands. An online survey sent to 38 YMCA Camp Surf teachers resulted in 14 responses, which were compiled for the purposes of this Needs Assessment.

Key informants were interviewed over the phone using a script containing six questions. The questions pertained to the informants' assessment of community support for restoration efforts and the informants' opinions of current restoration projects and the socioeconomic benefits of restoration. The key informant interview results indicate significant barriers to restoration of the wetlands, including negative associations with property development, apathy, a lack of corporate interest in restoration and a general lack of knowledge of the benefits of restoration of natural environments. The key informants strongly encouraged greater educational

efforts, aggressive and pragmatic initiatives to create resource-leveraging partnerships and cultivation of community interest in wetlands restoration.

In response to the online survey, YMCA Camp Surf teachers shared their observations of students participating in the Outdoor Education Program. The teachers also answered questions regarding their assessment of the program and ancillary restoration efforts. Overall, teachers emphasized the importance of teambuilding as well as individual empowerment through outdoor activities. The teacher's observations of students reflect significant transformation in student attitudes toward wetlands conservation. Students from a variety of backgrounds learn that their hands-on experiences restore not only the wetlands property, but also their enthusiasm to be involved in local environmental stewardship.

A comprehensive review of literature integrated with primary research of pertinent individuals reinforces the need for a major restoration of the YMCA Camp Surf Wetlands. Findings show that community well-being depends, in part, on the condition and maintenance of the community's natural surroundings (Horwitz, et al., 2001). Interviews with key informants and a survey of YMCA Camp Surf participant teachers indicate that current attitudes toward wetlands conservation are at a low point, but that environmental stewardship programs such as YMCA Camp Surf's Outdoor Education program visibly increase community enthusiasm among participating students. It is the hope of this restoration project that the students attending this program will be the catalyst for improving the individual and community quality of life in Imperial Beach and Coronado.

Program Design

Literature Review

The environment and the community. It has been well established in economic literature that the character and environmental health of an area or location in which an individual lives affects individual quality of life. In the 1990s, researchers questioned the condition of the wider environment and its ability to increase or decrease community satisfaction (Brereton, et al., 2007). The most recent studies explore the role of natural resources and the environment, as fundamental aspects of well-being (Costantini & Monni, 2007). On a psychological level, sense of environment or place greatly contributes to a person's identity. This sense is linked to the physical location of the person's community, the attributes of that community's surroundings and the interaction between the community and its residents (Horwitz, et al., 2001).

The physical characteristics of a community consist of natural and non-natural features, leading to variegated effects on community health. Findings show positive relationships between well-being and factors such as climate and proximity to coastline. In contrast, research indicates a negative correlation between well-being and proximity to landfills and environmental noise (Brereton, et al., 2007). Contact with natural surroundings has also been shown to be a determinant of community mental health and emotional well-being of children and the elderly (Gill, 2005; Troxel, 2005). Outdoor activities such as gardening encourage individual and group interaction and enhance physical health. Physical activity in outdoor spaces has been shown to also result in a decrease in childhood obesity, relieve the symptoms of Attention-Hyperactivity Deficit Disorder (ADHD), foster creative play and improve interactions with adults (Gill, 2005). Elderly individuals suffering from dementia in long-term residential care experience comforting sensory stimulation and expend excess energy when they are outdoors (Troxel, 2005). Finally, a

community's stewardship of its natural environment creates a sense of uniqueness, pride and ownership of that community (Horwitz, et al., 2001).

If natural surroundings have physical, mental and emotional impacts on quality of life, then change and loss of these environments may have negative consequences on health and well-being. A local example is the flow of raw sewage that has entered the Tijuana River near the YMCA Camp Surf Wetlands from Tijuana, Mexico. For decades, this raw sewage has polluted marine recreational beaches in San Diego County and threatens the public health of Imperial Beach and Coronado residents. Exposure to water of poor microbial quality has long been linked to multiple adverse health outcomes, such as elevated endemic diarrhea-inducing diseases and infectious hepatitis (Gersberg, et al., 2006). Beyond the physical effects of environmental degradation are emotional and mental effects, including higher levels of stress, feelings of marginalization and avoidant coping and lower levels of self-esteem (Horwitz, et al., 2001).

Increasing public accessibility. Integrating the public with the scientific community is a critical approach, proven to strengthen public consciousness of environmental stewardship. Research projects designed to engage participation in direct, hands-on involvement have made a difference in participants' attitudes towards the natural resources of their community (Ben-Ari, 2000). This effect extends beyond the experiences of the participants, who become effective ambassadors and advocates of local environmental causes. Experiences in nature with learned or improved skills develop self-confidence and feelings of safety which, in turn, increase willingness to participate in future outdoor activities (Palmberg & Kuru, 2000). As a consequence, participants become more inclined to share the knowledge of their experiences with non-participants. However, not all environmental education programs can be counted on to exhibit consistent positive residual effects (Tung, Huang & Kawata, 2002). Expectations of any

program outcome must take into account the inevitability of human nature — particularly in adults — that beliefs, attitudes and values are difficult to alter, regardless of the success these program designs might have on youths (Tung, et al., 2002).

When given the opportunity to work hand-in-hand with scientific professionals during their involvement in environmental stewardship activities, participants interpret the biological aspects of the natural environment and their relevance to everyday life, making this information more accessible to the non-scientific community (Brewer, 2002). For example, there is a growing demand among educators for more and stronger partnership between schoolteachers and scientists to develop and execute unique curricula centered on environmental stewardship (Blumstein, 2007). Grade school educators report that having the opportunity to discuss natural science issues with ecologists was the most valuable training for using their schoolyards as ecological laboratories. By conducting field research studies or by participating in workshops on the ecology of schoolyards, teachers create a foundation of educated ambassadors for their students (Brewer, 2002).

True measures of success. The effectiveness of "nature interpretation education" programs indicates a growing desire amongst communities to become more engaged in their natural surroundings (Ben-Ari, 2000). This trend represents a shift in attitudes towards the environment, although much work remains to be done to educate younger people, particularly pre-teen adolescents. Studies show that many youth hold misconceptions of the environment in relationship to people, not viewing humans as part of the environment or man-made environments as environments themselves (Shepardson, 2005). In recent years, parents have increasingly asked that their children be exposed to curricula with emphasis on environmental sensitivity (Blumstein, 2007). In addition, educators in under-funded public schools have made

more efforts to collaborate with the private sector to develop extracurricular environmental stewardship activities for students. Extending the environmental curriculum from strictly textbooks and the classroom to the students' physical outdoor surroundings enables the students to observe the natural environment and gain three-dimensional exposure to environmental phenomena (Farmer, et al., 2007).

However, the effectiveness of this educational approach remains uncertain. Few studies that compare and contrast in-class instruction and field experience have been measured with proper scientific constraints (Blumstein, 2007). Pre- and post-assessments of attitudes and behaviors towards consumption patterns, waste management, environmental restoration, cognizance towards natural beauty, etc., have been few. Most testing has been conducted over a period of time that is arguably insufficient to obtain reliable measures (Blumstein, 2007).

Sustainability as the ultimate goal. Nevertheless, hands-on environmental education seems to make a difference in young people's perceptions over time. In a study of forty fourth graders who participated in an all-day ecology field trip to the Great Smoky Mountains, children exhibited both short-term and long-term knowledge and appreciation for ecological issues — even one year after the experience — and an increase in levels of pro-environmental attitudes (Farmer, et al., 2007). Furthermore, the specific actions of the subject youths, as examined by observers during the field trip, showed cognizance of and interest in the environment. Touching, smelling, measuring, studying, drawing and note-taking were just a few of the actions observed in virtually every student during the excursion. Comments and body language during post-trip interviews included excitement about discoveries and further inquest both within peers and with adult supervisors (Farmer, et al., 2007).

The growth of hands-on environmental education initiatives shows great promise in causing sustainable shifts in behaviors. When measuring the progression of participants in these programs, starting from program introduction, through field experience and finally, in post-test indicators of participants' "intention to act" (i.e., changed behaviors), a higher level of altered behaviors is consistently observed, a key element to sustainability and, thus, program success (Zint, Kraemer, Northway, & Lim., 2002). Conversely, brief and non-experiential programs show the least impact in changing ecology-based attitudes and behaviors (Tung, et al., 2002; Zint, et al., 2002).

In another example of sustainable attitude shifts resulting from hands-on environmental education programs, Kruse and Card (2004), in evaluating a ten-week-long animal husbandry camp program for youths ages 10-18 at a Florida zoo, showed that campers of all age levels retained a significant degree of knowledge, attitude and behaviors regarding environmental stewardship, as measured with both post-assessments (one week later) and delayed post-assessments (three weeks later). The Kruse and Card study also showed that lower scores were found among campers who had spent the shortest amount of time in the program, while higher scores were found among the campers who had spent more time in the program. The overall trend showed that as campers spent more time in the animal husbandry program, the conservation-oriented behavior of campers increased proportionately as youths who were exposed to the program repeatedly over the course of multiple years. These findings suggest that repeated participation in conservation education programs can effectively build and reinforce conservation-oriented attitudes.

Purpose of Study

We propose an intervention consisting of a hands-on wetlands restoration education program for children ages 11-13 at YMCA Camp Surf, through which we will increase environmental stewardship among participants and preserve the YMCA Camp Surf wetlands.

Program Design Narrative

The YMCA Camp Surf Outdoor Education program will undergo a significant re-development with a focus on changing students' attitude and behaviors with regard to environmental stewardship. Students 11-13 years old will spend three days and two nights in a coastal wetland environment participating in a variety of activities and classes. This program will demonstrate the importance of learning in the natural environment and the positive changes in behavior students plan to make after participating in the program.

Students will receive a twelve-class science curriculum with hands-on activities that follow the California Department of Education mandated science standards. Examples of some of the activities include strategically placed interpretive displays through out the camp, a beach cleanup activity that culminates in recycling all of the garbage collected and educating children about waste and ways to reduce it and the depletion of natural resources by people and how students can make choices to reduce their own impact on these resources.

Another key component to the curriculum is to positively change students' attitudes, values and beliefs about the environment through reflective journaling, discussions and the sharing of ideas. Additionally, an environmental issue from the students' locality will be highlighted in one of their classes for learning stewardship principles. Students will share and

discuss ways they can apply stewardship principles for the conservation and preservation of their own local natural environment.

Methods

Research and Design. This program will be measured via use of an experimental study design of the Outdoor Education Program at YMCA Camp Surf, to include an identified target population, control and experimental samples, intervention, pre- and post-assessments of both sample cohorts and data analysis.

Study Sites. The control group and experimental groups will be randomly selected from two different sites to reduce cross-contamination of either sample. The control group participants will be selected from a variety of after-school sites administered by the Border View YMCA. These sites are located in San Ysidro, South San Diego and Imperial Beach in San Diego County, California. The experimental group participants will be randomly selected from the 2,500 students that attend the Outdoor Education Program at YMCA Camp Surf.

Participant Recruitment. YMCA staff will recruit participants through permission of the teachers bringing schools to the Outdoor Education Program at YMCA Camp Surf. YMCA staff will request permission from the parents of the children that attend the Border View YMCA after school programs. Materials will be developed that explain the purpose of the study. In addition, teachers will be contacted to explain the intervention program to parents.

Selection of Study Participants. Participants in both the control and experimental groups will be randomly selected from the sites described in the previous section. The proposed intervention will be implemented weekly for 16 weeks. Four hundred students ages 11-13 will be selected for the intervention. The Border View YMCA students will be randomly selected from one of the 12 sites currently implementing YMCA programs. Site names will be randomly

drawn the week before administering the intervention. The students participating in YMCA Camp Surf's Outdoor Education Program will be selected randomly by activity group. There are four to six activity groups for the beach cleanup, journal and restoration activities each week. The activity group will be identified at the beginning of the week via a random drawing.

Instrument Development and Pilot Testing. Pre- and post- intervention instruments will be developed using extensive literature review research and feedback from both key informant interviews and teacher surveys. Instruments will measure students' attitudes toward environmental stewardship and wetlands restoration and current activities that contribute positively toward environmental stewardship and wetlands restoration. Instruments will also test students' knowledge and understanding of the wetlands' functions and importance to individual and community quality of life.

All students will then receive educational materials on environmental stewardship and wetlands restoration. The post-test will measure students' understanding of environmental stewardship and wetlands restoration at the conclusion of the program. Desired outcomes of the post-test will demonstrate that hands-on outdoor experiences produce much higher results than traditional classroom learning, thus supporting the program's hypothesis. Pre- and post-test instruments will be conducted by staff as part of staff training component.

Staff Training. Staff training will consist of two, two-hour staff orientations on the program, target population and pre- and post-test instruments. Border View YMCA and YMCA Camp Surf staff will both participate in staff orientations. The Outdoor Education Coordinator will be responsible to lead the orientation administered to staff. The first session will begin with staff taking the pre-test instrument followed by an overview session on program goals and objectives. All staff will leave the training session with educational materials on environmental

stewardship. Three to five days later, the second training session will begin with staff taking the post-test instrument, then participating in one of the intervention activities and finally taking the post-test instrument again and exploring results. Staff also will be coached on how to effectively implement both pre- and post-tests with an emphasis on eliminating bias and sample contamination.

Intervention vs. Control Protocol. Staff will administer the pre-test to the intervention sample at the beginning of the students' first class session of the Outdoor Education Program at YMCA Camp Surf. Students in the intervention sample will then take the post-test at the end of the program. The control group at the school sites at the Border View YMCA will take the pre-test and post-tests on the same days as the intervention sample. Pre- and post-tests will be administered by staff members that have participated in appropriate training to ensure all tests are administered in the same manner. Tests will be administered by both Border View and YMCA Camp Surf staff and collected by program coordinators to ensure integrity of process. All students will receive educational materials on environmental stewardship and wetlands restoration following pre-test administration.

Social Marketing Plan

Target Audience

Target audience segmentation. For the proposed wetlands restoration program at YMCA Camp Surf, the target audiences are students (the target audience of this social marketing plan); students' families; teachers; current and future funders of YMCA Camp Surf wetlands restoration; and the communities of Imperial Beach and Coronado where Camp Surf is located. The target audience comprises students ages 11-13 attending schools that participate in the Outdoor Education Program. The target audience racial/ethnic demographic is 41% white, 47% Hispanic, 2% black, 7% Asian and 3% other ethnicities. Students enroll in YMCA Camp Surf through their schools which pay a portion of the fees of the three- or five-day Outdoor Education Program. The balance of fees is paid for by the program attendees' families. YMCA Camp Surf also has limited funding to subsidize lower-income Title 1 schools.

Objective for target audience. The purpose of this social marketing plan is to raise the profile of the Camp Surf program in order to generate interest among potential first-time attendees and sustained engagement with past attendees. The objective for the target audience is to change attitudes and behaviors to attain an increased level of environmental stewardship.

Marketing Strategies

Product. YMCA Camp Surf's Outdoor Education Program is the product of this marketing plan. The program runs for three or five days during the spring (March – June) and fall (September – November). Students entering the program are housed with nine to ten peers and one teacher-supervisor per group. Included in the schedule of activities are a marine science lab with a variety of local ocean wildlife, classes on habitat restoration, marine biology, environmental biology and a variety of recreational activities. This intensive program schedule is

designed to keep students engaged and accounted for at all times. This program appeals to the target audience with the promise of games, interacting with a range of wildlife, meeting similar-aged children and taking a welcome respite from a typical school week. The opportunities for personal growth that the program offers including community involvement, learning by doing and an elevated sense of fulfillment and self-worth, highlight the unique characteristics available in few other outdoor education programs in San Diego County. Finally, because Camp Surf is part of the YMCA – one of the most recognized and respected youth-oriented organizations in America – the program boasts credibility that holds its own appeal.

Place. YMCA Camp Surf is a 45-acre oceanfront facility in Imperial Beach and Coronado, California. Bordered by Mexico and the Pacific Ocean, this outdoor recreational camp is located on some of the last undeveloped coastline in the Southern California region. As part of YMCA Camp Surf, the wetlands are residence to a fragile ecosystem of native San Diego flora and fauna and numerous federally-listed endangered species, including the coastal dune milk vetch, fairy shrimp and California brown pelican. The camp has 13 rustic cabins with centralized restrooms. This location is especially attractive to the target audience because of its distinctiveness to the typical household and the camp's unique blend of sensory stimuli: sight and smell of the ocean, taste of toasted marshmallows, texture of sand and slippery water plants and sounds of birds and critters, each enhancing the targeted appeal of YMCA Camp Surf.

Price. The monetary price of this program includes a $123 enrollment fee per student and costs incurred by parents for transportation to and from YMCA Camp Surf in their personal vehicles. Students make several intangible compromises: time commitment of three to five days, reduced amount of privacy, being away from home and numerous risks associated with spending extensive time outdoors such as sunburn, heat exhaustion and increased physical exertion.

Promotion. The YMCA Camp Surf staff spends more than $5,000 per year to produce promotional print materials, including newsletters, full-color information brochures and fliers for the Outdoor Education Program. As a digital companion to these print materials, YMCA Camp Surf's website is colorful and easy to navigate. The website includes a comprehensive presentation of the program with biographical profiles of key professional staff, a listing of program activities and an online evaluation that parents and students can complete and submit to YMCA Camp Surf. Future possibilities for promotion include news articles on YMCA Camp Surf and its contributions to environmental stewardship to be published in *The San Diego Union-Tribune* and local periodicals in Imperial Beach, Coronado, participating schools and Baja California, Mexico. Highlights of program successes are also proposed for the websites of the YMCA of San Diego County and the Chambers of Commerce of Imperial Beach and Coronado.

Promotional initiatives will target primarily parents who recognize the benefits of the program and encourage their children—the target audience—to participate in Camp Surf, ultimately becoming more sensitive to the importance of environmental stewardship. Sustainability in changed attitudes and behavior within the attendees themselves is just as vital, and a number of initiatives aimed to engage attendees in the weeks, months and years following their experience at the camp will be introduced. These will be designed to appeal specifically to the target population, including: informational DVDs with demographic-targeted music tracks; streaming video highlighting recreational and educational elements; presence on Facebook to provide social networking with other camp participants; blogs; special memberships; newsletters; camp alumni events; and invitations to participate in upper-tier level programs. These tools are intended to maintain the elevated levels of interest and consciousness in environmental stewardship expected to follow YMCA Camp Surf's Outdoor Education Program participation.

Cultural Competency Plan

Students ages 11-13 enrolled in YMCA Camp Surf's Outdoor Education Program are diverse along racial, ethnic, linguistic, religious, ability and economic lines. A working definition that captures the nuances of cultural competency is, "...the ability to successfully teach students who come from cultures other than your own. [Cultural competency] entails mastering certain personal and interpersonal awareness and sensitivities, learning specific bodies of cultural knowledge and mastering a set of skills that, taken together, underlie effective cross-cultural teaching" (Diller and Moule, 2005). The following is a proposed plan for addressing issues related to cultural competency in the YMCA Camp Surf Outdoor Education Program.

Involvement with Target Population

For 38 years, YMCA Camp Surf has provided services to youth from racially/ethnically diverse backgrounds. Forty-eight percent of current participants are Hispanic from border communities in San Diego County, California, Nevada and Arizona. Outreach efforts have helped YMCA Camp Surf recognize that some youth from culturally diverse backgrounds may be unable to afford the cost of attending the Outdoor Education Program, necessitating collaborations with a number of agencies to provide camp scholarships. Efforts to reach underserved racially/ethnically diverse youth include collaborations with Barrio Logan Institute; County of San Diego Foster Care; Nativity Prep Academy, San Pasqual Academy; Monarch School; Voices for Children; Calexico Orthopedic Clinic; and Court Advocacy.

Training and Staffing

The YMCA of San Diego County is committed to addressing organizational cultural competency. The agency provides half-day cultural awareness training upon employment for all full-time employees. Each YMCA operating unit has a "diversity champion" to implement

strategies of branch diversity plans. YMCA Camp Surf is aware of the growing diversity of the student population in San Diego County. To ensure cultural competency, key YMCA Camp Surf staff representing racially/ethnically diverse backgrounds assist as cultural brokers in the development of staff training and youth programs. For example, the YMCA Camp Surf Administrative Specialist is a Mexican national and serves as chair of the YMCA of San Diego County's Hispanic Marketing Committee. This individual provides relevant experience and insight into training and communicating with monolingual and bilingual parents and families. Efforts are made to hire diverse staff reflecting the diversity of the demographics of students, including Hispanic, Asian, Black, and White populations. The staff's cultural competency skills will be assessed and evaluated annually by supervisor observations, valid and reliable self-assessment surveys and focus groups comprised of racially/ethnically diverse YMCA staff.

Community Representation

The YMCA Camp Surf program committee of the board of managers continues to attract diverse community and youth education leaders to focus on culturally competent programs. This committee will provide staff with guidance to develop a task force of multicultural and multiethnic community and youth education leaders to guide program development. The committee will be involved in directing the development of cultural competency for the Outdoor Education Program guided by the principles that YMCA Camp Surf is a place for youth to make new friends and build togetherness and multicultural appreciation where everyone feels accepted. To highlight the importance of this task force they will report directly to the program committee of the board of managers, providing recommendations and feedback.

Language

Currently, YMCA Camp Surf requires that the front desk staff is bilingual. Thirty percent

of promotional materials have been translated into Spanish including parent information, health forms, equipment lists and registration information. YMCA Camp Surf uses professional marketing and translation services to ensure linguistic accuracy and cultural sensitivity. Program take-home materials will be offered in languages spoken in students' homes, as indicated in pre-assessment surveys in an effort to engage monolingual parents in environmental stewardship. Staff will work closely with consultants to review materials to ensure cultural and linguistic accuracy. Materials will be pilot-tested with representative parents and youth to determine cultural, linguistic and age appropriateness.

Materials

To address language barriers and spark the interest of youth, YMCA Camp Surf will offer visual and verbal messages in informational materials. Materials will portray positive images of multicultural youth in the outdoors. Specific messages and themes will speak to unifying values and beliefs and address common stereotypes that present possible barriers to learning and participating in outdoor activities. Staff will guide the development of the YMCA Camp Surf Outdoor Education Program materials, including information posted on the website, interpretive signage at the wetlands, newsletters, brochures and flyers. Staff will also select students and parents representative of the communities to be served for testing all materials before they are developed and distributed.

Evaluation

To ensure evaluation tools are appropriate for target population they will be translated by a professional marketing firm with experience developing culturally competent materials. Materials will also be reviewed by task force and piloted with a small group of 11-13 year old children representative of the population not but not part of the program cohort.

Evaluation Plan

Today, high quality education programs are needed that succeed in moving values and changing behaviors in the direction of environmental stewardship and sustainability. Currently, there is a scarcity of techniques to measure challenging outcomes such as value shifts and behavior change in children. Effective relevant evaluation offers a very powerful way to improve YMCA's Outdoor Education Program and enables YMCA Camp Surf to succeed in accomplishing more of its objectives and goals (Thomson & Hoffman, 2003).

Evaluation Design

The goal of the Outdoor Education Program is to increase student involvement in the restoration and preservation of the natural environment. By attending the program, 400 students will learn ways to reduce environmental degradation and practice environmental stewardship. YMCA Camp Surf proposes redevelopment of their education curriculum to align with the California Department of Education and Environment Initiative on natural sciences. Upon completion, the curriculum will be implemented as a hands-on outdoor wetlands conservation experience. YMCA Camp Surf will strategically display signage throughout the outdoor facilities to provide positive environmental interpretive messaging for students. Signage will be installed after the Associate Executive Director and advisory group receive bidder quotes, secure grant funding and develop a signage and maintenance plan. YMCA Camp Surf proposes to increase 400 students' knowledge of the human impact on the environment by 30% quantitatively measured by a pre- and post-assessment survey. Scales will include information on pollution and recycling. YMCA Camp Surf intends to have 75% (300 of 400) of students complete a self-reflective journal describing and illustrating student's views on conservation to qualitatively measure attitudes, values and beliefs about the environment. Additionally, we purpose 50%

(200) students' attitudes, values and beliefs on environmental issues will increase by 30% quantitatively measured by a pre- and post-assessment survey. Scales will include information on concerns about the environment including pollution, recycling and wasting water. YMCA Camp Surf plans to increase 400 students' knowledge and skills of environmental stewardship by 30% measured quantitatively by a pre- and post assessment survey. Scales will include information on conservation methods, including riding the bus, conserving energy and water and informing others about pollution.

Measurement of Demographics

The scale for demographic collection is based on a California statewide data management initiative called California School Information Services (CSIS). After the passage of the No Child Left Behind Act (NCLB) in 2001, the California State Legislature passed Senate Bill 1453 tasking CSIS with the responsibility of ensuring all students have a Statewide Student Identifier (SSID). The SSID ensures that students changing schools or districts in California maintain a unique identity so demographic and student information remains accurate. CSIS is a comprehensive tool used to collect information and includes staff training, proprietary software, web-based training, instructional tools and formal processes. Specific demographic information on each school was collected on the California Department of Education's website, DataQuest. The California Public Schools-School Report provided a specific breakdown of gender, ethnicity and total enrollment by grade for each school. According to CSIS website significant time, effort and testing went into the development and implementation of the CSIS system.

Measurement of Knowledge

Students' knowledge will be measured using the American Institutes for Research (AIR) student survey. The survey addressed students' knowledge of the environment through science

concepts. Information about this instrument was obtained at the National American Association for Environmental Education 2007 national conference and downloaded from the Internet. The validity and reliability of the instrument ensures science standards for California public schools were being addressed during five-day outdoor programs. The instrument is appropriate for this student population because it measures the sixth-grade science curriculum in a resident outdoor science program.

Measurement of Attitude

Student attitudes will be measured also using the AIR student survey instrument designed for sixth-grade students in a resident outdoor program. The study addressed how participation in outdoor education programs foster students' stewardship of the environment. The reliability and validity of the instrument was measured for internal consistencies of three environmental attitudes scales using Cronbach's alpha of .70 and higher.

Measurement of Behavior

The AIR student survey will be used to measure whether and how students intend to, or actually engage in, environmental stewardship activities. In addition, the CMaP Texas Student Survey will also be used to measure the extent to which students intend to or actually become involved in environmental stewardship within their own communities. While this tool has not been tested for reliability and validity, it is the best tool available for measuring students' community involvement. The survey was obtained from a website listing 75 evaluation tools compiled July 2004 by the Bay Area Environmental Education Evaluation Learning Community. The Community Mapping Project (CMaP) was a founding member of the Place-Based Education Evaluation Collaborative, which invests in the development of place-based education models of professional development and whole school improvement through more rigorous evaluation

(Powers, 2004). CMaP supports youth, educators and community partners in a process of discovery and learning about their community and its resources by tackling authentic issues using hands-on resources and mapping technologies to identify and solve local problems. The CMaP Texas Student Survey is age appropriate because it was designed to evaluate three different CMaP programs that took place during the 2004-2005 school year with students in the sixth through eighth grades in three Texas communities. The survey was also adapted for use with similar programs in Vermont and Maine.

Evaluation Methods

Trained Program Assistants will administer the pre-assessment survey to both the intervention and control groups at YMCA Camp Surf and Border View sites respectively. The students will receive the survey once at the beginning of the first class session of each incoming weekly school group. Similarly, the post-assessment survey will be administered once on the last day of the program to both groups. Student journals will be handed out to both groups by the Program Assistants at the first class session and collected on the last day of each weekly program. Students will be given time daily to complete their journals at the end of each day. The pre- and post-assessment surveys and journals will be collected by the Program Coordinators.

Databases

All collected information will be recorded using two software programs, Excel and N-Vivo. The pre- and post-assessment survey responses will be entered in Excel, which works best with the small sample size of 400. To capture themes and changes in attitude about conservation, students' journal writings will be entered into N-Vivo. The Program Coordinator will enter all data and the YMCA Camp Surf Department Head will conduct the analysis.

Closing Statement

The YMCA Outdoor Education Program takes children beyond the traditional classroom and out into nature. Here rich opportunities abound for children to simultaneously learn about and experience nature while also developing action strategies to protect it. The program teaches students that they are capable of doing something to restore, enhance and preserve the natural environment. Students are given the opportunity to develop a sense of ownership and empowerment, so that they are prompted to become responsible, active citizens who can also affect the attitudes and behaviors of the older generation (Palmberg, 2000).

While this study measures the immediate effect of the Outdoor Education Program, it does not measure the long-term program effect over a period of years. This information would be useful for evaluating the long-standing success and sustainability of this program and similar programs. If the Outdoor Education Program is to meet its full potential in terms of promoting environmentally responsible behavior, more work is needed to provide multiple experiences over extending periods that coordinate with other interventions (Zint, 2002).

Changing human behavior is challenging. Early attitudes and knowledge shape the later thinking of adolescents and adults and empirical research in the past has underrepresented children (Constantinos, et al. 2007). Further studies are needed to determine whether residential outdoor education programs produce long-term shifts in knowledge, attitudes and behavior of children. It is these sustained value and behavior changes that ultimately assist in the preservation of natural resources into the next generation. Additional research is also needed to determine what actions parents and communities are taking to reinforce the information taught in residential outdoor education programs and whether they should be offering more resources to orient youth toward environmental stewardship and natural resource preservation.

Budget and Justifications

Budget Narrative

The budget for the Wetlands Restoration program at YMCA Camp Surf has been itemized out into three primary expense categories; personnel, operating and other expenses. The following narrative provides detailed explanation for each category and supports the proposed total program budget of $102,000.

Personnel Expenses. The staff structure for this program is based on Full Time Equivalent (FTE) allocation. For the purposes of the budget the Program Department Head will be responsible for program re-development, budget oversight, staff training development and data review and analysis. This position will allocate 5% of their work time to perform these duties.

The Outdoor Education Coordinator at YMCA Camp Surf and four After School Program Coordinators at the Border View Family YMCA will be involved in program implementation, delivery of staff training and collection of pre- and post-assessments. The time allotted is equivalent to one full-time coordinator. YMCA Camp Surf Outdoor Education Instructors will administer the intervention to program participants as part of the revised Outdoor Education Curriculum. Instructors will also proctor pre- and post-assessments for these participants. The additional curriculum and assessment tool proctoring will require one additional FTE instructor to administer the program.

Fringe Benefits include tax and benefit burden on the YMCA of San Diego County. This item includes federal and state payroll taxes, unemployment, Workers Compensation, FICA (Social Security and Medicare), YMCA Retirement Plan contribution and healthcare plan.

Operating Expenses. This line item represents those direct, non-personnel expenses incurred to administer the Outdoor Education program. Wetlands restoration supplies include work gloves, shovels, rakes, weeding tools, hoes, a shade tent and temporary irrigation systems for restored wetlands plants. Program supplies are associated with teaching the activities that will be implemented, and include binoculars, field guides, weather station gauges, whiteboards, markers, backpacks and compasses.

First aid supplies are provided to all instructors in the field to ensure that administrators have basic tools at their disposal in the rare event of injury. Each instructor carries with them a small first aid kit at all times while a larger, more extensive medical kit is on site with trained coordinators in case of serious injury. Assessment Printing comprises copying and paper supplies for both pre- and post-assessment tools.

Other Expenses. To ensure students comprehend the extent of the importance of the wetlands environment and fully grasp the need for environmental stewardship, an interpretive center and interpretive trail will be developed as part of this program. The interpretive trail will consist of 20 interpretative signs that describe local plant and animal species that rely on the health of the wetlands environment. This trail will provide a great teaching aid for instructors and be available as a self-guided interpretative discovery activity.

At times, students will not be able to see everything that takes place in a wetlands environment due to seasonal phenomenon, migration patterns or timing. To ensure this is mitigated to every extent possible a nature interpretative center will provide displays, exhibits and multi-media capability to support field classes and outdoor activities. The center will also contrast human impact on the wetlands environment and provide students with changes they can

make in their daily lives to reduce the impact that they currently have on the environment at large.

The final two components of the proposed budget are the development and translation of marketing materials and overhead costs to support the 45-acre camp facility, provide quarters for the students that stay overnight and provide food service for those students. Overhead also includes regular administrative costs including, but not limited to liability insurance, accounting, payroll and human resources, utilities and facility wear and tear.

Program Budget

Personnel Expenses			
Program Dept. Head		$	3,100
1 FTE Coordinator		$	22,000
1 FTE Instructor		$	16,900
Fringe Benefits @ 33.5%		$	14,000
	Total Personnel	$	56,000
Operating Expenses			
Wetland Restoration Supplies		$	2,000
Teaching Supplies		$	1,000
First Aid Supplies		$	600
Assessment Printing		$	200
	Total Operating Expense	$	3,800
Other Expenses			
Interprative Signage (design, fabrication & installation)		$	2,000
Exhibits Development (design, fabrication & installation)		$	15,000
Promotional and Marketing Materials		$	5,000
Translation subcontract		$	1,800
	Total Other Expenses	$	23,800
Overhead			
Overhead at 22%		$	18,400
Total Budget		$	102,000

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APPENDICES

Appendix I: Literature Review Matrix

Journal Name, Article Title, Author(s), Date Published	Target Population	Intervention Program	Measures	Results/Findings	Study Limitations	Recommendations for Further Exploration
The Journal of Environmental Education "Effects of a Conversation Education Program on Campers' Self-Reported Knowledge, Attitude and Behavior" C.K. Kruse & J.A. Card Summer 2004, Vol. 35, No. 4	Youth between the ages of 10 and 18 years who attended one summer conservation education camp in Florida during the summer of 2002. The camp was located at the American Zoo and Aquarium Association (AZA) accredited zoo in Florida. Youth between the ages of 10 and 14 years took part in the Zooventures camp (beginners), whereas youth between the ages of 15 and 18 years took part in the Terratrekkers camp (advanced beginners). Advanced Terratrekkers camp (intermediate) and the Zoo Careers camp (advanced). The population included 383 campers, with 22 camps held throughout the summer over a 10-week period. Between 7 and 28 campers participated in each camp. Of the 383 campers, 107 (27.9%) attended Zooventures, 135 (35.3%) attended Terratrekkers, 90 (23.5%) attended Advanced Terratrekkers and 51 (13.3%) attended the Zoo Careers camp.	This study, explored the effectiveness of a conservation education camp program on self-reported knowledge, attitude and behavior of campers who attended a summer youth resident conservation education program at an accredited Florida zoo. This study was a quantitative assessment using a quasi-experimental, comparative research design with repeated measures. A survey approach based on the St. Louis Zoo environmental literacy evaluation was implemented using a pretest, posttest and delayed posttest design.	The researchers based their instrument on one developed by the St. Louis Zoo staff. Questions and answer scales pertaining to knowledge, attitude and behavior remained in the questionnaire, but the section on values was omitted because no studies supported value as a dominant factor in increasing conservation knowledge, attitude, or behavior. The pretest, posttest and delayed posttest questionnaires assessed these three characteristics of the conservation education programs: 1. Knowledge gained and retained from the program 2. Attitude change as a result of the program 3. Behavior modifications as a result of the program. A panel of experts, including a board at the zoo and a statistician from the University of Missouri, examined the instrument to establish content-related validity. A Cronbachs alpha internal consistency reliability test was conducted for the knowledge and attitude sections of the instrument. The first author spent the summer of 2002 as a resident camp counselor at the camp. She trained 10 summer camp counselors on the purpose and administration procedures for the study. A week before campers arrived, the trained counselors made phone calls to campers and their parents,	Results indicated that conservation knowledge scores increased over the study period, as did attitude and behavior, though patterns of change were varied in each level of camp. Campers' self-reported knowledge, attitude and behavior also increased with increased levels of animal husbandry. And, campers with previous conservation education camp experience had higher knowledge and attitude self-ratings than did those without experience. Some important implications for those working in conservation education include supporting and implementing repeated and reinforced positive conservation education programming. The hands-on learning environment affects conservation knowledge, attitude and behavior, and further increases may be possible by extending camp length, providing follow-up sessions and increasing additional animal husbandry hands-on experiences while at camp. Another suggestion for increasing and retaining knowledge and attitude is for professionals to send campers follow-up materials such as newsletters on conservation issues.	Authors identified the following limitations: First, campers from only one zoo were involved in the study and the results may not represent camp participants from other camps. Next, the camp environment is a fast-changing environment and campers' knowledge, attitudes and behavior will change, requiring constant monitoring of differences. As with most self-reported data, the results may not be a pure reflection of actual score increases. And lastly, though age was not included in the analysis, some differences may be attributed to the maturation process along with the effect of the conservation education program. The Wetlands Group would add that the low response rates of the delayed post-test were also a limitation in the generalization of the findings.	Authors make the following recommendations: Much more re-search is needed to determine the effects of conservation education programs on the knowledge, attitude and behavior of campers. This study is only one step in ensuring the future of conservation efforts. Just as results from this study have opened new opportunities for growth in a conservation education program, other research should investigate other conservation education programs. For conservation education programs to be effective and continue to grow, further research is needed to enhance environ-mental knowledge, attitudes and behaviors for future preservation of natural resources. And, as a means of increasing the development of conservation approaches, zoos must

			requesting oral consent for participation in the study. Data were collected during and after the educational program. Immediately after camp registration, the counselors asked the campers to complete the pretest questionnaire before the zoo department presented any of the camp program materials. During the last night of camp, the counselors asked the participants to complete the post-test questionnaire. The follow-up included the delayed posttest, which was mailed to the campers 1 month after the completion of the conservation education program.			remain dedicated to providing conservation education to the public.
The Journal of Environmental Education "Outdoor Activities as a Basis for Environmental Responsibility" I.E. Palmberg & J. Kuru, 2000, Vol. 31, No. 4	The participants were 11- and 12-year-old pupil(s) from the Teacher Training School of the University of Lapland, Rovaniemi (n=22; 16 boys, 6 girls) and the Reacher Training School of Abo Akademi University, Vasa (n=8; 6 boys, 2 girls) and a municipal comprehensive school in Vassa, Finland (n=6; 2 boys, 4 girls).	No intervention administered. Different environmental education programs (field trips, hiking, camps, adventure activities) aim to develop pupils' affective relationship to the natural environment, their environmental sensitivity and outdoor behavior, as well as their social relationships, through personal experiences. This qualitative study involved gathering data from the two schools with outdoor programs designed to develop students in the ways listed in	The qualitative research methods comprised case studies involving questionnaires, individual interviews, drawings, photographs of landscapes and participant observations during camps. The first selection of pupils was based on the questionnaire. Then the participants were interviewed individually about their conceptions of and feelings for nature and asked what nature means to them and how they can protect it. They were asked to name some local and global problems that they knew and to suggest what they could do to eliminate these problems. They were also told to describe pleasant and unpleasant experiences in nature. Furthermore, the pupils could express their feelings and emotions by drawing a natural environment in Finland that attached them most and by choosing the most and the least attractive environments from a display of photographs and landscapes. Their concrete actions	The results from this investigation together with previous studies are analyzed as overviews and tendencies in relation to the main questions, including comparisons between pupils with and without outdoor education experience. The findings agree well with previous research that shows experiences in nature with learned or improved action skills developed pupils' self-confidence and feelings of safety, in particular, which in turn increased their willingness to participate in future outdoor activities. Nature experiences developed the pupils' self-confidence and feelings of safety, in particular, which in turn increased their willingness to participate in future outdoor activities. In this way, nature began to have new meanings for them on a personal level. Comparing pupils who were	The Wetlands Group believes that while questionnaires were administered to determine students levels of outdoor education for the purpose of assigning them to groups, it would have been helpful if they had done a pretest and post-test prior to and after the pupils participated in the outdoor education programs for the purpose of gathering baseline knowledge that addresses the research question they are seeking to answer.	The authors make the following recommendation: Further research is still needed about scouting in practice and its effects on the development of environmentally friendly behavior. The results of this study and previous one still show that there is a deficiency in action competence among pupils in primary schools. Another important matter to address then is pupils' feelings of being capable of doing something important in order to save nature (in their own neighborhood). This is one way of making environmental issues an integral part of instruction designed to

		previous sentence. The purpose of this research was, in the context of responsible action to get answers to and understand possible tendencies related to the following questions: Do experiences in nature develop pupils' self-confidence and action skills? What kind of relationship with the natural environment do pupils have? What does protection of nature mean to pupils? What kind of responsible action skills do pupils have?	were observed by participant observations and filmed during the nature trips and camps in the school program, which included hiking to a campsite, pitching and unpitching a tent, preparing food and participating in several adventure games and the camp fire program. Their ability to orient, to find their way in the varied terrain, to take responsibility for their equipment and to take into account the natural environment were observed, as were their ways of cooperating, taking initiative, being creative and leading the group.	experienced in outdoor activities with pupils who were not, it was found that the former seemed to have a strong and clearly definable empathic relationship to nature. They also exhibited better social behavior and higher moral judgments. The reason for conflicts between environmental attitudes and action, still observable in some experienced boys of the Vassa group, are discussed in terms of conscious action and applied knowledge. The role and possibilities of outdoor education in environmental education and natural studies are emphasized for schools as well as for teacher education.		change action, with instruction going beyond "awareness and knowledge" of the issues. It is essential that pupils are given the opportunity to develop a sense of ownership and empowerment, so that they are prompted to become responsible, active citizens who can also affect the attitudes and behavior of the older generation.
The Journal of Environmental Education "Student Ideas: What is an Environment?" D. P. Shepardson, Summer 2005, Vol. 36, No. 4	The sample in this study came from four randomly selected, intact classrooms in a rural junior–senior high school. A total of 81 students participated: 18 seventh graders, 20 eighth graders and 24 ninth graders from general biology and 19 ninth graders from college preparatory biology. All students came from a rural, agricultural community in Indiana. The students' primary experiences with environments consisted of agricultural lands, lakes and streams and deciduous forests. Because the students were from different grades and course levels, they had different educational experiences. All students, however, had completed some studies associated with the	No intervention administered. The author investigated students' ideas about what defines an environment and how these ideas change across grade level and educational experience. The purpose of this study was to explore this question by investigating students' ideas about what constitutes an environment and how these ideas might change across grade level and educational	A constructivist perspective guided this qualitative study. Constructivism, as a research referent, aims to understand the meanings constructed by students participating in context-specific activities using language. Central to this study is the language used by students for transmitting meanings about what an environment is, how students interpret the world and what it means to them. In this study, the author interpreted and constructed an understanding of the student's language for explaining their understandings about the environment, that is, he created constructions about the student's constructions. He sought to understand how participants, within a specified group, see and	In general, these students understood an environment from a limited ecological perspective, meaning an environment is a location where animals live or is an area that supports animal life (a habitat perspective). Furthermore, an environment is a natural landscape; human-managed or built landscapes are not seen as environments. For these students, humans do not appear to be a part of an environment but are separate from it. Educational experience seems to expand students' views about an environment to include the need for food, water and shelter. Not surprising, these drawings represented Midwestern environments (i.e.,	While not necessarily a limitation, it is interesting to note that students came from a rural, agricultural community. It makes us wonder whether results would have differed if the same study had been done in an urban, highly developed city (like San Diego, Seattle, New York, Phoenix or Boston.) Therefore, we believe these results would be difficult to generalize. In addition, a different researcher may draw different conclusions by analyzing the same drawings. Perhaps the author could have cross-	The Wetlands Group believes that based on the results of this study, an intervention could be developed that would teach students the interconnectedness of humans and the environment since this study showed that students see them separately. In addition, the intervention could educate students about the cycling of matter and flow of energy in an environment and the inter-dependence and interrelationship between biotic and abiotic components.

	environment prior to data collection.	experience. This study is significant in that it contributes to the knowledge base about students' understandings of the environment. It is essential for research in environmental education to ID students' conceptions and understandings about the environment. By understanding students' ideas, potential impediments to learning may be identified and insight toward planning curriculum, designing instruction and developing assessments that build on students' ideas is gained.	understand what an environment is (i.e., what the word environment means to them). He did this by asking participants to respond by writing and drawing to written prompts and photographs in an "environments task." The participants' responses were based on their experiences with and understandings about the environment. He then analyzed participants' responses for their ideas and understandings about the environment by grouping or categorizing their responses. This approach is hermeneutic in that it analyzes participants' written and drawn responses. He administered the environments task to the students during the first week of May. Students were given a full class period, approximately 50 min, to complete the task. He used methods of inductive analysis to analyze the data.	forests, streams, lakes) that the students have experienced, however, none of the students drew agricultural environments. From an environmental literacy perspective, the majority of students understood an environment from an ecological stance but did not identify the cycling of matter and flow of energy in an environment. Furthermore, the interdependence and interrelationship of biotic and abiotic components was not well developed and the physical and earth processes were not identified as understandings of an environment.	referenced his analysis with other researchers to determine whether they had a different interpretation to add to his own.	
Journal of Environmental Health "The Effects of Different Environmental Education Programs on the Environ-mental Behavior of Seventh-Grade Students and Related Factors" C. Tung, C. Huang, C. Kawata March 2002, Vol.64, No. 7	453 subjects for the study were found among municipal junior high schools in Taipei, Taiwan. (Individual school names are not listed.)	The researchers used a quasi-experimental design for their study. The authors of the current study focused their research on an education concept called resource conservation. The present study was designed to include school activities and family participation in addition to the development of classroom	First, a general overview was taken of the environmental education programs already in effect at the schools and of the extent to which each school was willing to participate. The number of students at the school and the community environment, among other factors, were assessed and four schools were very similar in these respects were selected. Three seventh grade class sections were randomly selected from each of the schools—453 individuals altogether. After implementation of the educational program, post-program testing and follow-up testing were conducted.	Increasing student knowledge is reasonably simple, but the affective realm, which encompasses beliefs, attitudes and values, is generally difficult to change. Among the four schools that participated in this study, only Experimental School III, which combined teaching and activities, had improvement in the area of environmental behavior. Curriculum or school activities alone simply aren't enough to change environmental behavior. Results indicated that an instruct-ional curriculum focusing on the individual could	The Wetlands Group believes that while maybe not considered a limitation, this study seems generalizable only in Taiwan and may yield completely different results if done in U.S.-based schools.	Taiwanese junior high schools should develop an intervention that coordinates the teaching of environmental programs with other school activities to obtain the most ideal results. The Wetlands Group believes that other geographical areas may consider doing a similar study to this one developed in Taiwan and compare results.

		curriculum. The ideal intervention thus had three components: curriculum design, school activities and family participation. The study used random allocation to separate groups of students from four Taipei junior high schools, each to undergo a different environmental education program, in order to examine the effectiveness of difference approaches.	Students who had not participated in half our more of the educational activities and students who did not fill out one or more surveys were eliminated. In total 365 individuals (85.2% of the initial sample) participated in the experiment and constituted the population used for statistical data analyses. Curriculum design included classroom instruction aimed at the study of important concepts related to resource conservation. In total, five hours of classroom instruction was conducted. A field trip provided four hours of observation at a waste incineration plant. Audiovisual learning consisted of one hour spent viewing and discussing a cartoon video about the environment. School activities included class discussion—one hour in each class was spent on discussion and recording of ideas about predetermined topics related to resource conservation; speaker—a presentation was given on waste classification and re-cycling; and answering 10 questions for prizes after the speaker's lecture. The family-participation component included a family forum consisting of an informal discussion session on recycling and distribution of pamphlets to families.	markedly increase knowledge and self efficacy. An approach that created an atmosphere of environmental preservation through school-wide educational activities and improvement of the school environment significantly increased recycling behaviors of students but otherwise produced no marked cognitive or affective changes. An educational program that combined both of these approaches was effective in both ways. In addition, the overall rate at which environmental education programs in Taiwan junior high schools should be implemented within a learning base of related curricula and should complement this classroom education with school activities in order to obtain greater results. Teacher training and the design of teaching materials to complement this classroom education with school activities in order to obtain greater results. Teacher training and the design of teaching materials to complement goals of environmental education are especially important now and in the future.		
Conservation Biology "Evaluation of the Chesapeake Bay Foundation's Conservation Education Programs" M. Zint, A. Kraemer, H. Northway, M. Lim June 2002, Volume 16, No. 3	Researchers evaluated the following CBF education programs: (1) field trips of 1 and 3 days held during the school year that immersed youth aged 11–18 in on-the-water activities such as canoeing, water-testing and fishing with nets; (2) 2-week field trips held in summer during which "gifted" youth aged 11–18 learned	Quasi-experimental design was used for an evaluation of Chesapeake Bay Foundation's (CBF) education programs to shed light on the ability of conservation education programs	The researchers developed evaluation instruments including pre-, post- and retention-tests for youth and teachers who participated in programs during 1998, an activity log for 1998 curriculum teachers and mail surveys for individuals who participated in CBF's education programs before 1998. These instruments were administered to	Education programs like CBF's are not meeting their full potential in terms of promoting ERB characteristics and, thus, ERB. Based on improvements in characteristics that promote environmentally responsible behavior, such as perceived knowledge of issues and actions, environmental sensitivity and—	Individuals were not randomly assigned to treatment and control groups. Similarly to another study the Wetlands Group reviewed, this study had a low response rate in the retention surveys. In fact, it was too low to report the results of it.	Now that CBF has changed its curriculum based the findings of this study, it would be interesting to conduct another study to determine whether the changes implemented have been successful and whether they could be

	about bay ecology, conservation issues and the local fishing culture while traveling on tributaries and staying on bay islands; (3) the "Catch of the Bay" module of CBF's curriculum for youth aged 11–14. The CBF educators encouraged teachers to use the module's 11 activities and to complete at least one of three recommended service-learning projects; (4) 2-day workshops teachers attended to receive and learn about the curriculum; (5) a "Schools in Schools" shad-restoration project in which youth aged 11–14 raised juvenile shad in a tank and then released them at a local waterway (pilot phase of the program); and (6) 5-day field services held in the summer for primary and secondary teachers that pro-vided hands-on opportunities to learn about the bay.	determine to what extent they promote participants' environ-mentally responsible behavior (ERB) and reduce teachers' perceived barriers to teaching on the bay.	groups of individuals or individuals from simple random samples, surveys and convenience samples. Because we could not randomly assign groups or individuals to treatment and comparison groups, this part of our evaluation consisted of a quasi-experimental design. Researchers asked youth and teachers in the 1998 treatment groups to complete a pre-test the day before or at the beginning of CBF education programs and a post-test the day after or at the end of the programs. Youth received a retention-test about 6 months later and field in-service teachers about 2 months later. We also administered pre-, post- and retention-tests to youth comparison groups. To determine extent CBF education programs changed individuals' ERB, our instruments were designed to assess participants actual and perceived improvements in characteristics associated with ERB.	particularly—intention to act, researchers concluded that the education programs increased some youths' and many teachers' environmentally responsible behavior. Researchers also concluded that the teacher-education programs facilitated teaching about the bay by reducing teachers' constraints. As a result of our evaluation, the Chesapeake Bay Foundation implemented several changes that administrators of similar conservation education programs may also want to consider. These changes include focusing programs to target specific, suitable goals; coordinating programs to provide experiences that build on one another; and conducting periodic evaluations.		replicated elsewhere outside of the organization.
Conservation Biology "Conservation Education Partnership in Schoolyard Laboratories: a Call Back to Action" C. Brewer, June 2002, Vol. 16, No. 3	Elementary teachers from North and South America	This article was commentary. Conservation biologist partner with elementary teachers to bring ecological studies into the schoolyard and act as instructional support on matters of science and ecological literacy.	Teachers report their experience	Scientist partners provided an ecological lens through which to view the schoolyard so that, instead of a playground and weed patch, teachers see a laboratory filled with organisms with interesting adaptations and interactions, dynamic populations, gradients and microhabitats, patterns of disturbance and successional change. This allowed teachers to participate in scientific field investigations through venues such as their own research studies or by participating in or leading local workshops on the ecology of schoolyards.	Participation by conservation biologist in the education of children through partnership or other programs is rarely valued or rewarded in our institutions and may actually jeopardize career. Science support came from undergraduates and graduate students rather than the scientist.	Changing the system that devalues accomplishments other than "research productivity" and to overcome the institutional barriers that limit participation in promoting eco-logical literacy through school partnerships.

				Teacher increase in knowledge of science and become as students in the process of learning with their students.		
Conservation Biology "Outreach and Partnership Programs for Conservation Education Where Endangered Species Conservation and Research Occur" C. Brewer, February, 2002	High school student in Costa Rica in the Sea Turtle Education Program	Students monitor sea-turtle in Costa Rica through the Sea Turtle Education Program (STEP) The objectives of STEP are (1) to increase appreciation and understanding of the ecology and conservation of endangered leatherback sea turtles and lowland rainforest ecosystems, thereby fostering awareness in the local community of their role in the conservation of the eco-systems and the species that live in them; and (2) to facilitate collaboration between Costa Rican students, teachers and researchers for long-term monitoring of endangered leatherback sea turtles at the Pacuare Nature Reserve on the Caribbean coast of Costa Rica.	Pre- and post-tests on sea-turtle ecology and conservation during STEP. Data collected by program participants was vetted by comparison with data collected previously and/or simultaneously by students.	Student understanding had improved significantly ($p \leq 0.01$) by the conclusion of the program. Teachers reported that STEP had a very positive impact on the students. Students recaptured several turtles that had nested and been measured by scientists within 3 weeks of their field work at the reserve. Measurements collected by student teams on carapace length and width varied from prior measurements, on average, by only 1–2%. What's more, student teams collected 60% more core monitoring data during their stay than could be collected by staff at the reserve during a similar time period.	Scientists need guidance on how to make the experience successful for the participants and themselves. For example, biologists working with students for the first time may have limited knowledge of how to account for the different ways students learn. Moreover, the maturity level and attention span of students are important considerations because students can get bored and lose interest after hours or days of watching or doing the same (tedious) research protocol. Scientist lack of experience on teaching outside higher education settings. Requires the key element of collaboration with a scientist-educator who is skilled at translating information across knowledge levels and disciplines.	Further knowledge on the effects of outreach programs and partnerships in conservation biology is needed. Student experiences beyond the visit to the field and the effects of such programs on them need to be further explored.

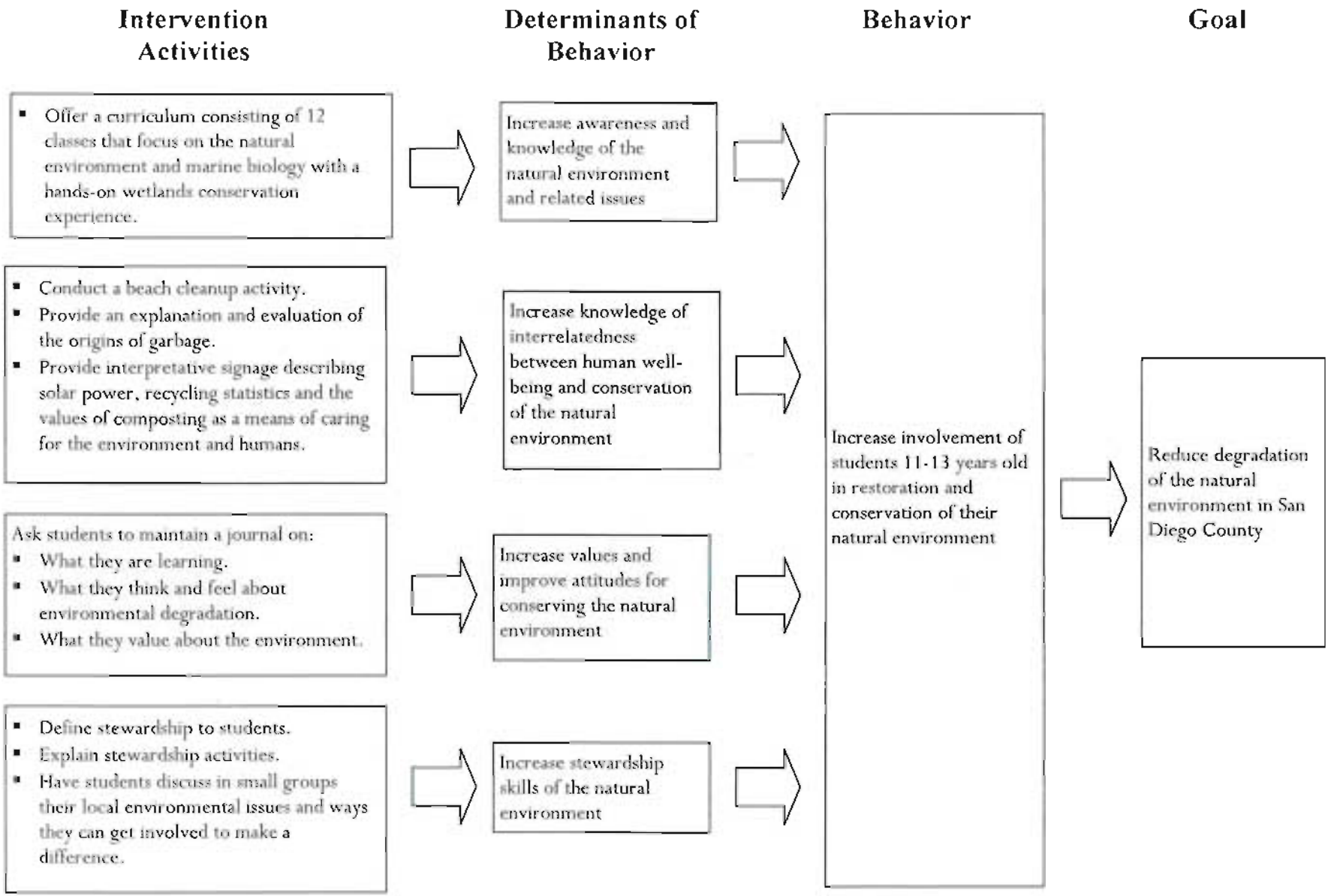
Journal of Environmental Health "Factors Associated With K-12 Teachers' Use of Environment Based Education" J. Ernst Spring 2007, Vol. 38, No. 3	Researcher mailed the questionnaire to a national, convenience sample of 287 K–12 teachers who used some form of EE in their classrooms. I identified the majority of these teachers from Internet lists of schools with environment-based programs and from environ-mental educators who knew teachers using EBE or other forms of EE in their classrooms. I invited the teachers to participate in the study by e-mail; I also posted announcements to participate in this study on various online professional lists relating to education and EE. I paid particular attention to inviting teachers who used EBE to participate. The rationale behind this sampling method was to obtain variation in the type of EE used in the participants' classroom and to en-sure that EBE was among the EE methods used. Two weeks after I mailed the questionnaire, I sent a follow-up e-mail with a questionnaire to all 287 teachers, encouraging them to return the attached questionnaire if they had not already done so. The response rate was 70% (n = 200).	The term environment-based education (EBE) describes a form of school-based environmental education (EE) in which an instructor uses the local environment as a context for integrating subjects and a source of real world learning experiences. Research has shown that relatively few teachers seem to practice environment-based education. In the context of encouraging more widespread adoption of this formal instructional approach, the author used exploratory survey research to investigate influences on teachers' decisions to use their abilities to implement environment-based education.	Researcher used a review of EE and service-learning literature and conversations with teachers using EBE to develop a list of factors that were potential influences on EBE. I formatted these potential influences into statements, resulting in 69 questionnaire items that I organized conceptually into groups. The response format for each item was a rating scale, ranging from a value of 1 (no influence/did not help) to 4 (very strong influence/ very strongly helped); I scored the response, does not apply/did not experience, as zero. There were two additional sections on the questionnaire. One section addressed potential barriers and included 18 items based on the EE and service-learning literature and conversations with EBE teachers. The response format for these items ranged from a value of 1 (was not an obstacle) to 5 (very strong obstacle). The second section included a series of questions for gathering demographic data and determining whether teachers used EBE or some other form of school-based EE. Respondents selected the approach that best described the type of EE they used. Those using EBE also indicated if it served as their primary instructional strategy, or if they used it to frame a unit or a course. To confirm their self-selection of EE type, respondents indicated all applicable characteristics that described the type of EE they used (e.g., inter-disciplinary; environment as integrating context; project-, problem-, or issue-based learning; team-teaching; cooperative learning). Furthermore, respondents	Results suggest that environmental literacy knowledge and skills and environmental sensitivity are important in teachers' decisions to use and their abilities to implement environment-based education. The results of this study suggest that an emphasis on the following areas will encourage decisions to use EBE: (a) environmental literacy knowledge and skills, (b) environmental sensitivity, (c) receptiveness to EBE, (d) supportive school climate and (e) positive environmental attitudes. In efforts to facilitate the implementation of EBE, the results of this study suggest an emphasis on the following areas, particularly when the target audience is teachers who already implement some other form of EE: (a) environment-al sensitivity, (b) environmental literacy knowledge and skills, (c) receptiveness to EBE, (d) training in environmental content, (e) EBE training, (f) awareness of positive student outcomes and (g) supportive school climate. An emphasis on environmental sensitivity may be particularly useful because this is the strongest influence on teachers' abilities to use EBE, as well as the primary influence where EBE teachers differed from teachers implementing other forms of EE. In this study, I also sought to understand barriers to teachers' implementation of EBE, in efforts to make EBE a more accessible formal instructional approach.	There are several factors that limit the generalizability of this study, including the convenience sampling method, teachers' self-identification of their approach to EE and the less-than-desirable reliability of several of the composites.	Because the focus in this study was on understanding the influences on teachers' use of EBE and how these influences differ from influences on teachers' use of other types of EE, future researchers should investigate the influences on teachers who do not use any form of EE is the logical next step toward more conclusive recommendations for professional development. Investigating how teachers using EBE differ from teachers who use a non-environmental context for their inter-disciplinary, project-based instruction would also be instrumental in this effort. As a part of these investigations, it would be helpful to understand the role that EBE awareness plays. Additional analysis of the misclassified DFA in this study could be useful in understanding the role of variation within group membership, as well as additional analyses where quality of implementation is factored into group membership. Future

			noted if their approach was associated with a state or national EE program or with a training or professional development program. 3 EE researchers and one social scientist examined the questionnaire for completeness in terms of potential influences and barriers and concluded that the questionnaire as a whole reflected the research questions. I pilot-tested the revised questionnaire with 15 teachers at a local, environment-based school. I conducted a reliability analysis using Cronbach's alpha correlation coefficient on the clusters of conceptually-related questionnaire items.	Teachers perceived the same five barriers as strongest, regardless of their approach to EE: (a) emphasis on state testing, (b) lack of funding, (c) lack of planning time, (d) emphasis on state standards and (e) lack of transportation. Because perceptions of barriers did not seem to differ by approach to EE and that even the strongest barriers were perceived as relatively minor, efforts to reduce teachers' perceptions of these barriers might be more useful when targeting teachers who do not implement any form of EE, but not as integral to encouraging teachers who already implement another form of EE.		researchers should also concentrate on social norms because influences on teachers who believe they should teach a form of EE might differ from more intrinsic influences on teachers' who have chosen to do so. Finally, it would be helpful to understand influences on teachers' persistence in using EBE. It seems possible that what influences teachers to continue to use EBE might be different from what motivates and assists them initially. This understanding could provide additional recommendations for future professional development and other capacity-building efforts.
The Journal of Environmental Education "An Elementary School Environmental Education Field Trip: Long-Term Effects on the Ecological and Environmental Knowledge and Attitude Development" J. Farmer, D. Knapp, G.M. Benton Spring 2007, Vol. 38, No. 3	The participants were 30 students in a fourth grade class at a public elementary school in an urban town in eastern Tennessee, who in 2001 took an all-day field trip to Great Smokey Mountains National Park. The cultural heritage of the class was primarily Caucasian (92.4%). In 2002, 460 students attended the school; 49% were girls and 51% were boys. Approximately 51 children were in fourth grade.	Using phenomenological analysis, the authors examined the long-term effects of an environmental education school field trip on fourth grade elementary students who visited Great Smoky Mountains National Park.	The day's activities included a visit to Clingman's Dome, the highest mountain peak in the park, hands-on learning activities and group discussions led by a National Park Service Ranger. Students examined red spruce and Frasier fir trees; discussed the role of the moss spider before the forest ecosystem underwent change; participated in a tree identification, food web activities and an insect and tree discussion; hiked a short portion of the Appalachian Trail; completed an inter-active learning experience using straws, cups and thumbtacks to understand the effect of the Balsam	Four themes relating to the long-term recollections of the students about the environmental education field trip to Great Smoky Mountains National Park emerged through our interpretation of the analysis of the interview data: (a) student actions, (b) general content knowledge, (c) ecological and environmental knowledge and (d) perceived pro-environment attitude. The findings of this study suggest that several student participants retained long-term environmental and ecological content and evidenced a	Authors list the following: Although one might directly relate the content covered by the environ-mental education program at Great Smoky Mountains National Park to the content taught in the fourth grade classroom, we believe the data derived from the interviews pertain directly to the students' experiences while at the park. Their statements referred directly to what they did or what they heard while on the field trip.	Authors suggest that their findings prompts the need for further inquiry into the long-term effects of environmental education field trip programs that seek to convey similar pro-environmental beliefs and values. The significance of having this type of long-term data to evaluate the usefulness and impact of environmental education programs is

			wooly adelgid on the Frasier fir. The rangers discussed the effect and possible causes of air pollution and led the students through activities at an air quality monitoring station. Finally, students discussed cars, pollution, environmental impact and conservation behavior that could help address the problem. We conducted informal, in-depth interviews a year after the trip, to explore the students' long-term memory recollections of the field trip experience. We solicited student participation for the study, after receiving approval of the university's Internal Review Board. We performed a qualitative analysis on the data from the in-depth interviews of 15 self-selected students out of the 30 who had participated in the program. Initial contact with the students included an explanation for contacting them; we scheduled the interviews a week later, to give the students time to prepare for the interview by attempting to recall the program.	potentially perceived increase in pro-environmental attitude. Fourteen of the 15 students discussed ecological and environmental tangibles that were derived from the program		paramount to understanding and achieving the goals of environmental education and the overall long-term success of its programs.

The Journal of Environmental Education "The Effects of an Environmental Education Program on Students, Parents and Community" T.L. Volk & M. Cheak Spring 2007, Vol. 38, No. 3	The population all 5th and 6th graders enrolled in a public elementary school (101 students) in Molokai, Hawaii. Each 5th and 6th grade student was assigned to one of four 5th-6th grade combination teachers.	This study evaluated the impact of an environmental education program called on students, parents and the community. The program was in place for five years in 5th and 6th grade classes and was designed to help learners take an in-depth look at environmental issues in their community, make data-based decisions about those issues and participate in resolving those issues.	Qualitative and quantitative methods were employed over a 6-day period in May 2001. A 5-member research team collected the majority of the research data. For the qualitative portion of the research, existing instruments were used to measure environmental literacy and critical thinking skills. Additional quantitative data included the results of the survey, which had been conducted by a group of students in the school. Roughly half of the fifth and half of the sixth grade students at the school participated in the program, providing researchers with a comparison group (the remainder of the students who participated in a traditional 5th/6th grade curriculum) for these quantitative measures. To capture ideas on how the environmental education program influenced the students and the community, researchers gathered qualitative data through interviews with students, parents, school teachers, administrators and community members. Additional qualitative data included newspaper articles written by and about the students in the school from 1999 to 2001, the proceedings from the symposia and information from the teachers.	Students who were involved in the IEEIA program were more skilled in the use of critical thinking and other cognitive strategies than were their non-IEEIA peers. IEEIA students also appear to be more knowledgeable about ecology, the environment and environmental issues. Thus, it appears that the IEEA program, as it is used in this instructional setting, promotes critical thinking and cognitive abilities. Furthermore, students became familiar with and adept at using a wide variety of technologies.	The authors state that it is recognized that all components of general literacy abilities are addressed in this study. Certain limitations surfaced due to the nature of qualitative research and the design of the study. Although some attempt was made to explore these types of literacy independently in the interpretation there was evidence that considerable overlap existed in the data. It may be prudent to note that students' development of these multiple expressions of literacy appeared to occur synergistically over an extended course of study. Short episodic courses of study are unlikely to produce such effects.	Researchers suggest further study into the following dimensions: parent involvement and its relationship to students' community investigations, cognitive apprenticeships (teacher, community, student), programmatic applications to technology, teachers as instructional team and teacher preparation for communities of learning involving students, parents, communities and the school, multi-grade classrooms and students as mentors, long-term effects of IEEIA on student learning and life/career decisions, impacts of the IEEIA program in other schools and community contexts.

Appendix II: Logic Model



Appendix III: Workplan Matrix

GOAL: *Student ages 11-13 attending YMCA Camp Surf in San Diego County will learn ways to reduce the degradation of the natural environment.*

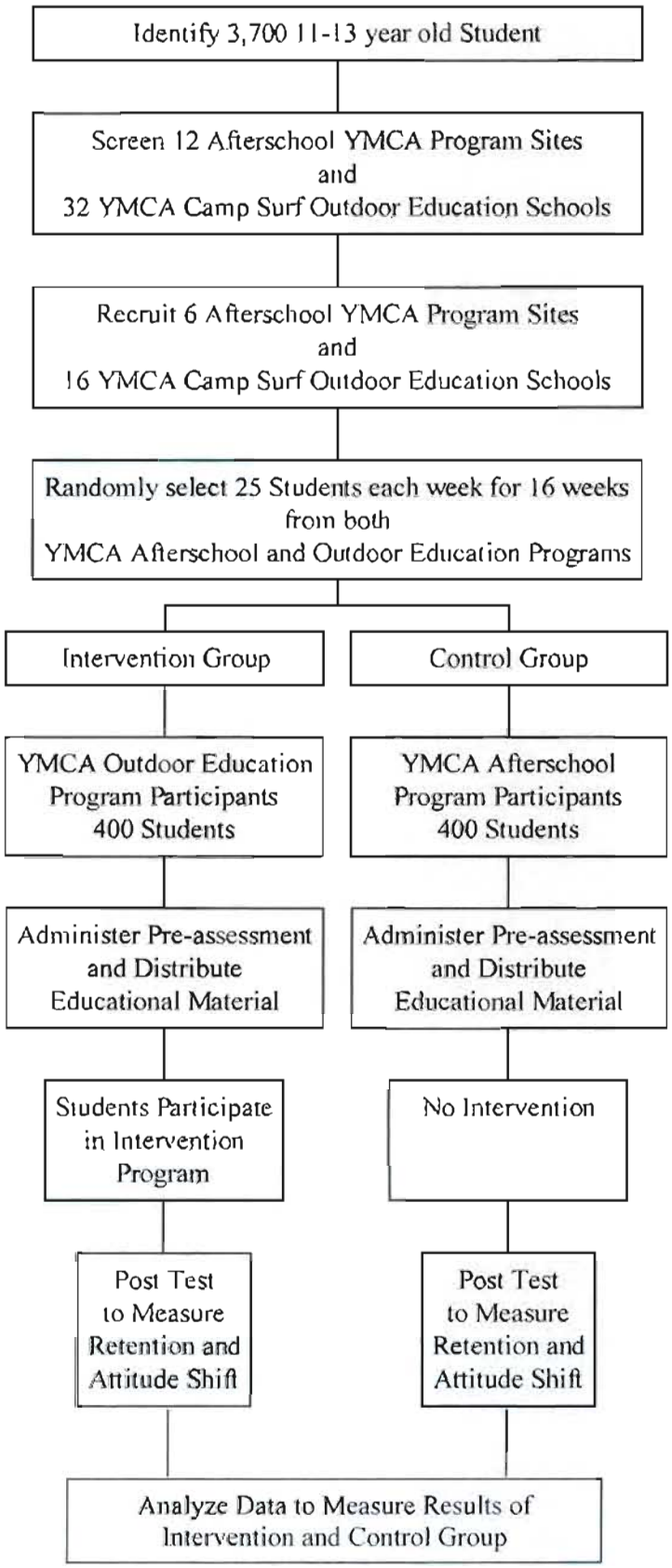
	OBJECTIVE	IMPLEMENTATION ACTIVITIES	TIMELINE	PERSON(S) RESPONSIBLE	PROCESS & OUTCOME MEASURES
1	By February 29, 2008, the Program Department Head at YMCA Camp Surf will re-develop the twelve-class Outdoor Education Program curriculum on the natural environment and marine biology to include hands-on wetlands conservation experience and environmental stewardship principles.	• Develop three-person task force, lead by YMCA Camp Surf Program Department Head. • Review scope and effectiveness of current program at YMCA Camp Surf. • Reconcile current program curriculum to a natural sciences curriculum as outlined in the California Education and the Environment Initiative. • Use needs assessment teacher survey baseline responses to address and strengthen current curriculum components.	3 months (12/1/07 - 2/29/08)	YMCA Camp Surf Program Department Head	▪ Process: science-based curriculum with learning objectives will be completed and implemented ▪ Outcome: none ▪ Evaluation Measures: none
2	By December 31, 2008, outdoor interpretive displays will be installed throughout YMCA Camp Surf (featuring topics on solar power, recycling statistics and value of composting), framing the major restoration and preservation goals of organization. Quantity and location of signs to be installed will be determined by the design and interpretive goals established by the Associate Executive Director and project advisors.	• Develop project budget, including costs for staff, display fabrication, installation, three-year maintenance, potential online versions of displays (i.e., virtual tours); consider iPod version of display signs to complement physical labels • Determine interpretive label writer (consider partnership with another ecology-based nonprofit) and at least two qualified label proof readers • Issue RFP for display fabricators; obtain and review cost estimates • Secure funding • Select display fabricator • Prior to final printing and installation, solicit input of third-party educators to test (consider developing project advisory committee for this task)	12 months (1/1/08 – 12/31/08)	YMCA Camp Surf Associate Executive Director	▪ Process: funding secured and signage installed ▪ Outcome: none ▪ Evaluation Measures: none
3	By December 31, 2008, 400 11-13 year-old students participating in the YCMA Camp Surf Outdoor Education Program beach cleanup activity will increase their knowledge of human impacts on the environment by 30% as measured by a pre- and post-assessment administered by project coordinators.	• Identify sector of YMCA Camp Surf properties to be cleaned up • Provide students with instructions and materials for safe beach cleaning. • Assist students with identifying and evaluating organic and inorganic materials collected during beach clean up activity. • Assist students with differentiating of recyclable & non-recyclable materials • Instruct students to separate all recyclable items for recycling. • Facilitate discussion with students on beginning to recycle at school & home.	9 months (3/1/08 – 11/30/08)	YMCA Camp Surf Outdoor Education Coordinator and Outdoor Education Instructors	▪ Process: none ▪ Outcome: minimum of 30% of 400 students will increase their knowledge of the human impact on the environment ▪ Evaluation Measures: o Pre- and post-knowledge assessment o Scales to include information on pollution and recycling

	OBJECTIVE	IMPLEMENTATION ACTIVITIES	TIMELINE	PERSON(S) RESPONSIBLE	PROCESS & OUTCOME MEASURES
4	By December 30, 2008, 300 of the 400 11-13 year-old students participating in the YMCA Camp Surf Outdoor Education Program will complete a self-reflective journal as instructed by the Outdoor Education Coordinator describing and illustrating their attitudes, values and beliefs on environmental conservation.	• Create journals for students to write and draw daily entries. • Design journal to ask a penetrating question on environmental conservation based on the learning objectives of each day. • Add to journal design a daily reflections entry. • Instruct students to answer the daily question and to reflect on their ideas, thoughts and feelings on the day's activities, instructions, and discussions as they relate to environmental conservation. • Instruct students that there are no right or wrong answers. • Provide students art and writing supplies and materials.	9 months (3/1/08 – 11/30/08)	YMCA Camp Surf Program Department Head	• Process: minimum of 300 completed journals will be turned in to Project Coordinator by students • Outcome: none • Evaluation Measures: none

5	By December 30, 2008, 200 of the 400 11-13 year-old students completing the YMCA Camp Surf Outdoor Education Program will increase their attitudes, values and beliefs of environmental issues by 30% as measured by a pre- and post-assessment administered by project coordinators.	• Plan small group daily collage activities as part of instructional design that address environmental conservation.
		• Design different collage themes based on each day's learning objective for each small group to compile e.g. recycling, stewardship, conservation.
		• Instruct students to form small groups and to design a collage on the lesson learned.
		• Provide students with magazine clippings, photographs, drawings, etc.
		• Ask each student group present/explain their collage to their peers.
			9 months (3/1/08 – 11/30/08)	YMCA Camp Surf Outdoor Education Instructors	• Process: none
					• Outcome:
					  ○ 200 students will increase their attitudes, values and beliefs of environmental issues by 30%
					• Evaluation Measures:
					  ○ Pre- and post-attitude assessment
					  ○ Scales to include information on concerns about the environment including pollution, recycling, and wasting water

6	By December 30, 2008, 400, 11-13 year-old students completing the YMCA Camp Surf Outdoor Education Program will increase their knowledge and skills of environmental stewardship by 30% as measured by a pre- and post-assessment administered by project coordinators	• Design definition and examples of environmental stewardship as part of curriculum.
		• Recruit participating teachers to provide an example of a local environmental issue from their area.
		• Instruct students on environmental stewardship.
		• Instruct students of the environmental issue from their area as provided by their teacher.
		• Solicit student discussion of their local environmental issue.
		• Implement "Think, Pair, Share" activity asking students to partner and share one idea with one another on stewardship for their local environmental issue.
		• Ask students to share each others stewardship idea to the other students.
		• Write stewardship ideas on a flip chart.
		• Provide flip chart ideas to teachers.
			8 months (3/1/2008-10/31/08)	YMCA Camp Surf Outdoor Education Instructors	• Process: none
					• Outcome: minimum of 30% of 400 students will increase their knowledge and skills of environmental stewardship
					• Evaluation Measures:
					  ○ Pre- and post-stewardship assessment
					  ○ Scales to include information on riding the bus, conserving energy and water, and informing others about pollution

Appendix IV: Research Design Outline



Appendix V: Social Marketing Materials


What makes us unique?
Outdoor Education
Leadership Development
Staff make the difference.
Mountain Camps too!
Outdoor Education and Leadership Development Programs
IT'S FOR EVERYBODY


Outdoor Education
Leadership Development
Program Pricing
Facilities
Phone: 619.423.5850
email: campsurf@ymca.org
or visit http://camp.ymca.org

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