Ocean Connectors:
Connecting Youth for Conservation

Planning for the Future

Scripps Institution of Oceanography

Center for Marine Biodiversity & Conservation

M.A.S. Capstone Report 2013

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CONTENTS

CAPSTONE SUMMARY

The goal of this capstone project is to develop new materials that support the long-term growth, effectiveness, and sustainability of the Ocean Connectors program. The capstone includes implementing a "sister city" model, redesigning the classroom presentations, creating promotional brochures, new resources for teachers, and producing a five year vision plan. Ocean Connectors is an existing non-profit program that uses migratory marine life including sea turtles (grade four), whales (grade five), and seabirds (grade six) as tools to educate and connect youth in underserved communities on the Pacific Coast of the U.S. and Mexico. The materials developed through this capstone project fuse conservation psychology with proven educational techniques to teach coastal conservation more effectively.

The basis of the Ocean Connectors program involves using "knowledge exchanges" to connect youth and build global stewardship. A "knowledge exchange" consists of scientific communications between students in the U.S. and Mexico using artwork, letters, and video to share information about migratory marine life. Students are encouraged to communicate with English and Spanish to build dual language skills. This binational dialog fosters stewardship and benefits students in both areas. Participants come from similar coastal environments that rely on the ocean for their community livelihood, economy, and culture, yet they lack awareness of the threats facing ocean health. Throughout its history, Ocean Connectors opportunities have been provided to underserved children that lack access to marine science resources and knowledge. When presented with the information, this impressionable young audience is more willing to take action on ocean, climate change and related issues than adults (The Ocean Project 2009).

The bilingual curriculum of the Ocean Connectors program meets California Common Core learning standards, as well as national learning standards for the U.S. and Mexico, using classroom presentations, journaling, field trips, and knowledge exchanges. As a result of this capstone project, Ocean Connectors now integrates influential communication styles and conservation-behavior psychology into existing lessons to more thoroughly engage the student audience in marine conservation in the long-term. New activities, materials, and teacher resources were also developed to promote sustainability and foster a future generation of dedicated environmental stewards.

OCEAN CONNECTORS GOALS

PROMOTE ENVIRONMENTAL STEWARDSHIP BEHAVIORS BY GIVING YOUTH THE CAPACITY AND AWARENESS TO PRACTICE COASTAL CONSERVATION.

In today's increasingly industrialized and populated world, many species of marine life face significant challenges for the future. Factors such as climate change, coastal development, marine pollution, bycatch, and hunting threaten ocean health. Migratory species face particular pressure as they depend on habitats located in widespread geographical regions, which often fall under the jurisdiction of different nations. The greatest hope for the future lies in giving children the tools they need to make environmentally-conscious decisions. This can be accomplished by building a sense of connectedness to the coastal environment and the marine life within it.

INCREASE STUDENT ACADEMIC ACHIEVEMENT AND SUPPORT CLASSROOM LEARNING GOALS.

The educational system in California is struggling. California ranks 49th in per-pupil spending and 36th overall, according to the National Center for Education Statistics (2012). Mexico's educational system faces major obstacles as well. It is saturated with corruption and ranks last in educational achievement among the 34 member countries of the Organization for Economic Cooperation and Development (2013). Classrooms are overcrowded and underfunded, often exceeding the allowable number of students per class. Public school curriculums lack support for diverse student learning styles, abilities, and cultural backgrounds. It is essential that the Ocean Connectors program works to improve educational conditions in the areas served through hands-on learning, science inquiry, and critical thinking.

GIVE UNDERSERVED YOUTH ACCESS TO DIVERSE AND INSPIRING LEARNING OPPORTUNITIES IN THE COASTAL ENVIRONMENT.

The ocean is a public resource, and coastal residents from all economic standings deserve the opportunity to interact with the unique marine life found in their own community. While people living in coastal areas often depend on marine resources for income, they tend to lack opportunities to simply enjoy the wonders of the marine environment. Low-income populations face particular challenges due to the high cost of transportation and marine recreation activities. Ocean Connectors breaks down these barriers, enabling underserved students to experience rare and inspiring coastal adventures in their own "backyard", the Pacific Ocean.

PROGRAM BACKGROUND

Ocean Connectors is an interdisciplinary program that fuses science, technology, reading, writing, art, geography, culture, and language studies with marine conservation lessons. The Climate and Ocean Literacy Principles are integrated into the lessons, using migratory sea life as case studies. Migratory species rely on feeding, breeding, and nesting sites across the Pacific region, and Ocean Connectors works to spread awareness about the importance of protecting these habitat areas. Binational knowledge exchanges are used to illustrate the interconnectedness of the oceans and the importance of collaborative global stewardship. To date, around ten thousand students have communicated conservation to their "pen-pals" living hundreds of miles away as part of the Ocean Connectors program.

In recent years Ocean Connectors has experienced significant growth, reaching students in La Paz, Laguna San Ignacio, and Loreto, Mexico, and Kodiak, Alaska, in addition to spanning five school districts in San Diego County. This growth produced a sudden increase in geographic scope – reaching students over 2,000 miles apart from Alaska to Mexico. While this increase in demand reflects positively on program methods, the Ocean Connectors program was not equipped for such rapid expansion. This capstone project has helped to build a sustainable program structure that can manage future growth.

The plan moving forward is to use a "sister city" model that focuses on two coastal communities, thus reaching low-income students for three consecutive years during a critical developmental time in childhood. The work is being targeted in National City, California, U.S.A. and San Francisco, Nayarit, Mexico. This will have the greatest long-term impact by concentrating program efforts in communities that show a distinct need for environmental education. The sister city model will eventually be replicated in other communities as part of the Ocean Connectors five year vision plan, to establish a sense of stewardship across the entire Pacific region.

THE OCEAN FOUNDATION

Ocean Connectors is a fiscal sponsorship project of the non-profit organization The Ocean Foundation. The Ocean Foundation is a 501(c)(3) independent, international community foundation with a mission to support, strengthen, and promote those organizations dedicated to reversing the trend of destruction to ocean environments around the world. In 2002 a group of experienced marine conservationists founded the Coral Reef Foundation in response to research that showed major obstacles to coral reef funding and protection. In May 2003 the Coral Reef Foundation formally expanded its mission and changed its name to The Ocean Foundation (the Coral Reef Foundation was retained to become The Ocean Foundation's first donor-advised fund).

Ocean Connectors was created in San Diego under the grass-roots non-profit organization Pro Peninsula in 2007. During the economic downturn of 2009, Pro Peninsula merged with The Ocean Foundation, thus uniting two complementary nonprofit groups into a single, more sustainable and more successful entity. This melding brought Ocean Connectors and the other Pro Peninsula projects to The Ocean Foundation, thus enabling the important conservation work taking place on the Baja California peninsula to continue under a single nonprofit organization. Partnering with The Ocean Foundation has allowed Ocean Connectors to better serve the conservation goals of communities in the U.S. and Mexico and has enabled our project team to connect with leading experts in the marine conservation community.

Since being established The Ocean Foundation has undertaken a wide array of conservation projects and has successfully brought about new funding sources for marine conservation, supporting both site-specific efforts and global work focused on strengthening coastal and ocean ecosystem resiliency. The Ocean Foundation Board of Directors is comprised of individuals with significant experience in marine conservation, complemented by an expert, professional staff, and a growing international advisory board of scientists, policy makers, and educational specialists. The Ocean Foundation slogan is "Tell Us What You Want to Do for the Ocean, We Will Take Care of the Rest."

ISSUES ADDRESSED

The Ocean Connectors program addresses a wide array of community issues in the U.S. and Mexico. Some of the key issues emphasized by program activities are described below.

WILDLIFE & HABITAT CONSERVATION

Ocean Connectors engages youth in conservation so they form an understanding of the importance of protecting the marine environment. They gain awareness of the connection between terrestrial and aquatic ecosystems, and the value of coastal habitats for humanity. Habitat conservation is a critical issue along the entire Pacific Coast. Coastal wetlands provide essential fish nursery habitat and ecological services, yet California has less than 10% of native wetlands remaining today (Zedler 2005; Mitchell 1992). Approximately 97% of natural habitat around San Diego Bay has been lost due to development (Tratnyek 2013). Additionally, San Diego County has one of the highest counts of species that appear on the endangered species list in the entire U.S. (Lee 2007). In Mexico, the state of Nayarit is considered a biodiversity hotspot, yet less than one third of natural habitat remains to support this biodiversity (Brooks 2002). Developing environmental education programs is listed as a key way to prevent the future destruction of coastal habitats and wildlife in the Coastal Zone Management Plan and Development Guidelines for the state of Nayarit (Brown 1992).

EDUCATIONAL ATTAINMENT

The audience for Ocean Connectors includes students from low-income communities where there are significant barriers to educational success. Program lessons are designed to strengthen student academic skills and increase educational achievement. By the fourth grade children growing up in low-income communities are on average three grade levels behind their peers in high-income communities (Smith 2005). In the U.S., 99% of Ocean Connectors students are eligible for the free lunch program. In Mexico, over half the population currently lives in poverty (López-Calva 2007). The Ocean Connectors audience is 95% Latino, including both communities in the U.S. and Mexico. Only 56% percent of Latinos graduate from high school in the U.S. (Education Week 2010), and in Mexico only 62% of children reach secondary school, at which point about half the students drop out (Mexicanos Primeros 2009). Ocean Connectors is designed to enrich the public school system, keeping students engaged, stimulated, and inspired by the learning process.

CONNECTING YOUTH WITH NATURE

Ocean Connectors brings students on exciting field trips in the coastal environment. A substantial amount of research now indicates that children who spend time out in the natural world and develop a connection with the plants and creatures that inhabit it are more likely to grow up to be active stewards of the planet (White 2004). Ocean Connectors field trips include whale watching excursions, visits to sea turtle research sites, habitat restoration outings, and visits to local aquariums. These types of environmental education efforts that promote connectedness to nature will increase the probability of creating conservation behaviors in Ocean Connectors students (Schultz 2011).

COMMUNICATING COASTAL STEWARDSHIP

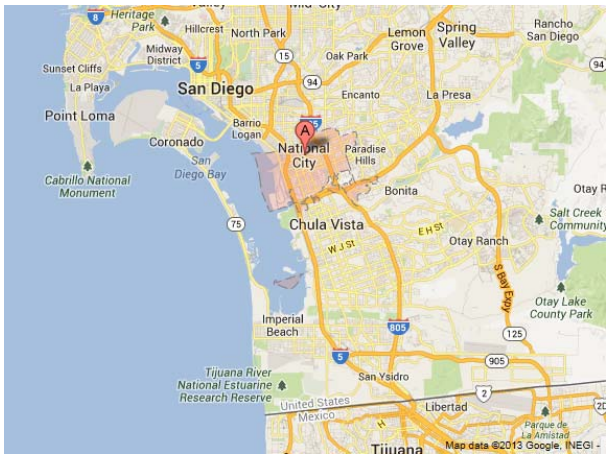
Ocean Connectors produces long-term change and makes a lasting impact on participants using communication methods that are easily understood, remembered, and attention-grabbing, such as credible stories and examples (Heath 2007). Humans, and in particular children, tend to look to the behavior of others as a guide for choosing a course of action (Schultz 2011), so Ocean Connectors encourages teachers, parents and students to adopt sustainable lifestyle practices to serve as positive role models. At the end of each school year students make “eco-pledges” because making specific environmental commitments can substantially influence stewardship behaviors (Baca-Motes 2013). Eco-pledges are made even more effective by having students write them down in their journals and share them with their correspondents in the knowledge exchanges (Cialdini 2007).

CREATING REAL-WORLD SCIENTIFIC SKILLS

Ocean Connectors enables students to effectively use program content knowledge and scientific skills so they are equipped to transfer their learning experience to the real-world. While students typically have the most difficulty with assignments that require transferring and applying their understanding to other situations, Ocean Connectors uses experiential learning techniques to form linkages between scientific inquiry and everyday life (McTighe & Wiggins 2012). Ocean Connectors encourages students to think and act like scientists by employing important critical thinking skills such as observation, identification, and reflection. This exposure during early childhood expands knowledge of broader aspects of marine biology and enhances the ability of children to draw analogies from their experiences (Selhub & Logan 2012).

FOCAL CITIES

NATIONAL CITY, SAN DIEGO COUNTY, CALIFORNIA, U.S.A.



National City is indicated by the red shading in the map above, located just south of San Diego and north of Chula Vista in San Diego County.

While Ocean Connectors has grown into schools across San Diego County, the focus is now being refined to National City for several reasons. For one, there is an apparent lack of environmental education programming in National School District by other non-profits in the area. Secondly, educational attainment in National City is very low. Nearly half (42.8%) of residents over the age of twenty five have achieved less than a high school-level education. National City is number 17 on the list of "Least-Educated U.S. Cities" and residents are very poor. A third of children in National City live below the poverty level. The unemployment rate in National City is 17.2%, almost twice the California state average and still growing. Finally, the population density of National City is extremely high and local environmental conditions are poor. Air quality is significantly worse than average and pollution rates are elevated (Advameg 2013).

Ocean Connectors has enrolled five elementary schools in National School District for the 2013-2014 school year, consisting of mostly small schools located on the

western side of National City. Over the next five years the goal is to enlist all ten National City elementary schools to constitute the entire School District.

SAN FRANCISCO, BAHÍA DE BANDERAS, NAYARIT, MÉXICO

The red mark in the map above indicates the community of San Francisco, Mexico. Ocean Connectors will reach schools throughout the state of Nayarit, indicated by the green shading.

The public school system in Mexico faces major challenges. Only 8% of Mexican children enrolled in primary school actually make it to class on the first day, less than half of Mexican students finish secondary school, and Mexico has one of the lowest levels of college graduation rates (Hallack 2010). Mexico also ranked last in scientific, mathematic, and reading literacy in a study of 27 countries by the UNESCO Institute of Statistics (OECD 2012).

The Ocean Connectors program is currently shifting focus from the Baja California peninsula to the Pacific Coast of mainland Mexico in an effort to reach communities that are not currently exposed to any form of environmental education programming. The Baja California peninsula is the focus of many environmental non-profit organizations based in the U.S. and Mexico, whereas communities on the coast of mainland Mexico appear to lack any type of academic enrichment from environmental groups.

Southern Nayarit is the ideal location for the Ocean Connectors program because the area contains numerous small, underserved coastal communities that are located just miles apart. The beaches of Nayarit are rich in marine biodiversity, which opens the door for future field trip opportunities for Ocean Connectors students in this area. While Nayarit is one of the least developed coastal Mexican states, it contains sixteen species listed as threatened or endangered by the International Union for the Conservation of Nature (Brown 1992). A lack of government enforcement of existing environmental regulations in Mexico places marine life in major jeopardy. Ocean Connectors will generate awareness that instills the public with a desire to voluntarily protect marine species for the future.

Non-profit groups and sea turtle conservation teams located in Nayarit have been highly supportive of Ocean Connectors, helping to form relationships with public schools in the area. The following groups are helping to establish the Ocean Connectors program in Southern Nayarit.

- Entre Amigos (http://entreamigos.org.mx/)
- Red Tortuguera, A.C. (http://www.redtortuguera.org/)
- Centro Cultural Comunitario de Jaltemba

The goal is to grow the student audiences in Nayarit and National City at a similar rate, adding new schools and participants each year.

STEWARDSHIP MESSAGES

Ocean Connectors builds stewardship in students by focusing on developing a specific sustainable behavior in each grade level. Each of the sustainable behaviors makes a valuable contribution to advancing the overarching goal of protecting ocean health. Stewardship messages pull from the students' cognitive and personal experiences to build a desire for positive environmental action.

AVOID SINGLE USE

Fourth grade students learn proper waste management techniques, such as the "Three R's" – reduce, reuse, and recycle. Students receive practical tools to help avoid single use, such as reusable water bottles and shopping bags. Avoiding single use benefits the health of the marine environment by reducing the amount of trash reaching landfills, waterways, and ultimately, sea life. Ingestion of trash is documented in six of the seven species of sea turtles, 111 species of seabirds (around a third of all seabird species), and 26 species of marine mammals (U.S. Marine Mammal Commission).

CONSIDER A FISH

This stewardship message draws the attention of fifth grade students to the problems associated with capturing and processing seafood. Consumers are often unaware of the issue of bycatch, but Ocean Connectors gives children the tools to inform and advocate to their families about the importance of putting thought and careful consideration into seafood purchases. Students are encouraged to buy seafood caught in the U.S., and to be on the lookout for the Marine Stewardship Council (MSC) logo. While the MSC faces public scrutiny, it is still important for youth to take note of this labeling mechanism in the marketplace to generate awareness for the bycatch problem. 136 marine species have been documented in entanglement incidents according to the U.S. Marine Mammal Commission, although the actual number is likely much higher as a result of entanglements that go undetected, such as in ghost nets and abandoned fishing gear.

PROTECT COASTAL HABITATS

Students learn that a variety of coastal habitats are in serious jeopardy, which poses a significant risk to the survival of seabirds. Migratory species in general are more threatened by habitat destruction and global environmental change because as coastal habitat is gradually lost, the consequences of further losses increase (Sutherland 1996). Sixth grade students learn that they can personally work to remediate this situation by picking up litter in their community, cleaning up after pets, and planting native flora. These actions improve the quality of coastal habitats for marine life by benefiting watershed hydrology, preventing erosion, and filtering nutrient runoff. This also builds a sense of ownership of the coastal environment among participating youth.

CURRICULUM METHODS

CLASSROOM VISITS

- An Ocean Connectors instructor visits each classroom at the start of the school year and engages students using Prezi, videos, and life-like marine models.
- Students in the fourth grade are given waterproof journals to take notes. Students in grades five and six collect their journals from previous years (retained by Ocean Connectors over the summer).
- Students complete Pretests at the start of the program to assess initial knowledge of marine conservation.
- At the end of the school year the instructor returns to the classroom for a concluding discussion and to collect eco-pledges.
- The instructor implements Posttests and Program Evaluation Forms to assess student knowledge and collect teacher feedback at the conclusion.

KNOWLEDGE EXCHANGES

After the presentations, Ocean Connectors students in the U.S. and Mexico communicate with one another about the marine life they share, particularly migratory species that travel across the Pacific ecosystem. Knowledge exchanges serve many important purposes, such as:

- Contributing to meeting academic learning objectives by allowing children to practice reading, writing, and technical skills.

- Providing support for diverse student learning styles using interdisciplinary mediums including artwork (grade four), letters (grade five), and video (grade six).
- Fostering bilingual communication abilities with English and Spanish.
- Building global stewardship by illustrating the interconnectedness of the oceans.
- Creating lasting behavior change because children are most influenced by other children of the same age (Cialdini 2007).

JOURNALING

Students receive waterproof journals at the start of the program. The journals are retained each year so that students can continue adding information and building a portfolio of marine conservation knowledge over the course of their three-year involvement in the program. The journals are used for all written assignments, field trip observations, and program reflections, so that students compile a comprehensive personal tool that will continue to influence them following the program's conclusion.

Waterproof journals are used so that students can experience field work.

FIELD TRIPS

Ocean Connectors field trips expose underserved students to diverse aspects of the coastal environment. Students are led by their Ocean Connectors instructor on unique learning adventures that place them in direct contact with marine life. In each grade level the field trips are focused on a different marine animal – sea turtles (grade four), whales (grade five), and seabirds (grade six).

- Ocean Connectors enables San Diego students to view sea turtles firsthand during field trips to the Living Coast Discovery Center in Chula Vista and to the National Marine Fisheries Service sea turtle research site in the South San Diego Bay (Permit No 1591). Students in Nayarit will be able to watch as sea turtle hatchlings are released by biologists on local nesting beaches.

- San Diego students attend whale watching adventures aboard San Diego Harbor Excursion vessels to interact with migrating gray whales. For the majority of the students it is their first time aboard any type of boat. Ocean Connectors is establishing a similar partnership with tour boat companies in Nayarit so that the Mexican students can have an incredible whale watching experience of their own.

- Ocean Connectors bird watching field trips are enhanced by the presence of habitat experts from the U.S. Fish & Wildlife Service in San Diego. With their guidance, students participate in planting, weeding, and litter abatement to build a sense of ownership of the natural environment. In Nayarit, local habitat experts will be utilized in a similar way to educate students during nature walks to coastal estuaries.

ECO-PLEDGES

At the end of the school year the students make creative eco-pledges to benefit the ocean environment. They can choose any eco-pledge they find appealing, although the intention is for pledges to reflect the targeted Ocean Connectors stewardship messages. Students write down and share their eco-pledges with classmates, family, and their pen-pals. This activity brings about genuine personal change because children have a natural desire to follow through with written commitments, particularly when shared with the public (Cialdini 2007). Students are offered rewards for publicizing their eco-pledges on the Ocean Connectors Message Board on the program website (www.oceanconnectors.org) to further reinforce their sense of personal commitment to the environment.

EVALUATIONS

The Ocean Connectors program uses several key forms of evaluation mechanisms to measure success. The evaluation process has been improved as part of this capstone project, using *Backward Design* principles to create and gather meaningful evaluation data on progress towards the most essential program goal, creating stewardship in students (McTighe & Wiggins 2012).

Student Pretests and Posttests

Pretests and Posttests are five-question surveys administered at the start and end of each school year to measure knowledge improvement relative to marine conservation. Tests conducted in the sixth grade (after two years of program participation) will indicate whether conservation knowledge is being retained year to year.

Program Evaluation Forms for Teachers

Evaluation Forms give teachers the opportunity to provide anonymous feedback on the Ocean Connectors activities. This reflects on the academic impact of the program and alignment with classroom learning standards.

Habitat Impact Assessments
Success is partly measured by the ability of Ocean Connectors to engage students firsthand in habitat restoration. Data is collected such as number of native plants installed, total acreage improved, and amount of litter and invasive plants removed.

Audience Size
Ocean Connectors reaches a binational audience of students in the U.S. and Mexico. Success will be indicated by a consistent increase in program growth and demand. The five year goal is to replicate the Ocean Connectors program model in additional sister cities along the Pacific Coast of the U.S. and Mexico.

Student Eco-Pledges
Students have the option to make a written pledge to adopt a sustainable lifestyle behavior of their choice. A categorization of responses determines whether the Ocean Connectors stewardship messages appeal to students following their participation in the program.

Accuracy of Timeline and Budget
Assessing the timeline and budget is a form of implementation evaluation that allows for future adjustments and adaptive management based on any changes. This encourages long-term programmatic and planning success.

CAPSTONE DELIVERABLES

This list defines the main goals associated with each of the new program materials developed as part of this capstone project. See the Appendix for examples, images, and more information.

PROMOTIONAL PAMPHLETS

- Recruit new schools, teachers, and communities,
- Cite past successes and spotlight current program partners, and
- List how Ocean Connectors meets learning standards in the U.S. and Mexico.

TEACHER USER GUIDES

- Assist teachers with demonstrating environmental behaviors,
- Encourage more frequent incorporation of environmental lessons in the classroom (in addition to visits from the Ocean Connectors instructor), and
- Contain all logistical information to prepare students for program field trips.

CLASSROOM "PREZI-TATIONS"

- Replace PowerPoint to modernize and visually-enhance program lessons,
- Create more dynamic, memorable, and engaging classroom visits, and
- Utilize conservation psychology and powerful communication techniques to have a lasting impact on student behaviors.

SCHOOL COMMITMENTS IN SISTER CITIES

- Include five elementary schools from National School District in 2013-2014,
- Include a corresponding number of students in public primaria schools in Southern Nayarit in 2013-2014, and
- Expand into new schools in both communities each year, building on existing academic relationships.

FIVE YEAR VISION PLAN

- Shows timely engagement of all elementary schools in National School District and a corresponding number of students in Nayarit,
- Develops field trip opportunities in Nayarit so students in the U.S. and Mexico receive similar opportunities to connect with the marine environment, and
- Leads to continued growth and replication of the sister city model in other areas on the Pacific Coast.

APPENDIX

PROMOTIONAL PAMPHLETS

ENGLISH

OCEAN CONNECTORS

Bilingual Knowledge Exchanges

Knowledge exchanges consist of scientific communication between students using artwork, letters, and video to share information about marine life.

- Strengthen student bilingual skills using English and Spanish
- Support interdisciplinary learning styles through peer-to-peer learning
- Improve student critical thinking skills and academic performance

History of Success

- Created the **first ever Community Education Workshops** as part of the 31st Annual International Sea Turtle Symposium
- Received **Ocean Science Leadership Award** for Informal Teaching Excellence from the University of Southern California QuikSCience Program, emphasizing program success and leadership on a binational scale
- Received **American Meteorological Society Distinguished Educator Award** for Non-Formal Education, one of only three awards presented nationwide

Contact OCEAN CONNECTORS
PO Box 34103
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www.oceanconnectors.org

Ocean Connectors is a project of the 501(c)(3) non-profit organization The Ocean Foundation.

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Connecting Youth for Conservation
OCEAN CONNECTORS
www.oceanconnectors.org

Using migratory marine life to educate and connect youth in coastal communities of the U.S. and Mexico.

OCEAN CONNECTORS

Community Partners

A diverse array of partners supports the Ocean Connectors program through funding, in-kind donations, volunteers, and expert advice on the Advisory Board. Collaboration with this unique group benefits students and increases the quality of the learning experience.

- Flagship San Diego Harbor Excursion
- NOAA National Marine Fisheries Service
- Qualcomm Foundation
- SDG&E
- Unified Port of San Diego
- US Fish & Wildlife Service

For a complete list visit the website.

Emphasizes Technology

Students build technical and leadership skills using:

- Microscopes
- Video cameras
- Measuring tools
- Websites

Learning Standards

Ocean Connectors aligns with national learning standards and fulfills Common Core for grades 4-6:

- Reading
- Writing
- Speaking & Listening
- Language
- Science & Technical Subjects

Additionally Ocean Connectors:

- Covers Ocean Literacy & Climate Literacy Principles
- Aligns with Marine Activities, Resources & Education (M.A.R.E.) curriculum

Promotes Academic Success

High-Quality Instruction
Contributing to student achievement by meeting learning standards and ensuring measurable progress in academic and social development.

Student Safety & Health
Supporting a safe and healthy community by promoting behaviors that lead to a cleaner, healthier environment.

Communication & Outreach
Fostering meaningful communication between students, teachers, parents, scientists, and the surrounding community through diverse partnerships.

Background image by Renée Martin Del Campo

SPANISH

CONECTORES DEL OCÉANO

Intercambios Bilingües de Conocimiento

Intercambios de conocimiento consisten de comunicaciones científicas entre estudiantes que usan ilustraciones, cartas, y vídeo para compartir información sobre la vida marina.

- Refuerzan en el estudiante habilidades bilingües usando actividades tanto en inglés como en español
- Apoyan a todos estudiantes por métodos interdisciplinarios
- Mejoran las habilidades del estudiante para pensar críticamente y aumentar la interpretación académica

Historia de Éxito

- Se formó **los primeros Talleres de Educación de Comunidad** como parte del 31 Anual Simposio Internacional de la Tortuga Marina.
- Recibió el **premio en Liderazgo de Ciencia del Océano** por la Excelencia en Enseñanza Informal del programa QuickSCience de la Universidad del Sur de California, resaltando el éxito del programa a una escala binacional.
- Recibió el **premio de Educador Distinguido de la Sociedad Meteorológica de América** por Educación Informal, uno de sólo tres premios presentados a escala nacional.

Contacta OCEAN CONNECTORS

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Conectores del Océano es un proyecto de la Fundación del Océano, una corporación sin fines de lucro 501 (c)(3).

*Impreso sobre papel reciclado a **North Shores Printery** de San Diego, CA.*

Uniendo a la Juventud para la Conservación
CONECTORES DEL OCÉANO
www.oceanconnectors.org

Utilizando a especies marinas migratorias para educar y unir a la juventud en comunidades costeras de los Estados Unidos y México.

CONECTORES DEL OCÉANO

Socios Comunitarios

Varios grupos apoyan el programa Conectores del Océano a través de financiamiento otorgado, donaciones, voluntarios, y participación de nuestro Consejo Consultivo. Esta colaboración mantiene la calidad de experiencia y aprendizaje de los estudiantes.

- Flagship San Diego Harbor Excursion
- NOAA National Marine Fisheries Service
- Qualcomm Foundation
- SDG&E
- Unified Port of San Diego
- US Fish & Wildlife Service

Para una lista completa visite la página internet.

Enfatiza Tecnología

Estudiantes construyen habilidades técnicas utilizando:

- Microscopios
- Cámaras de vídeo
- Instrumentos de medición
- Páginas internet

Estándares Curriculares

Las actividades realizan los estándares curriculares de la Secretaría de Educación Pública para grados 4-6, mejorar interpretación académica y reforzar los objetivos de las escuelas.

- Habilidad Lectora
- Español e Inglés
- Ciencias
- Habilidades Digitales
- Lenguaje y Comunicación

Promueve Éxito Académico

Instrucción de Alta Calidad
Contribuye al rendimiento académico de los estudiantes, alineando con los estándares curriculares de aprendizaje y asegurando progreso mensurable en desarrollo académico y social.

Seguridad y Salud
Apoyando una comunidad segura y saludable y promoviendo comportamientos que conducen a un medio ambiente más limpio.

Comunicaciones Públicas
Crea una relación significativa entre estudiantes, profesores, padres, científicos, y las comunidades involucradas a nivel binacional.

Imagen artística por Renee Martin Del Campo

TEACHER USER GUIDES

User Guides are intended to facilitate the implementation of the Ocean Connectors program for participating teachers, and to give teachers resources to build on Ocean Connectors topics in their classroom while meeting academic learning standards. User Guides are assembled using recycled materials, including binders and dividers from www.guidedproducts.com. Each participating teacher receives a hard copy of the User Guide specific to their grade level, and all contents are also available online on the Ocean Connectors website under "Resources" (http://oceanconnectors.org/resources). A summary of the User Guide contents is below.

INTRODUCTORY INFORMATION

- Welcome letter for teachers
- Welcome letter for parents (English and Spanish)
- Student liability release form (English and Spanish)
- 10 ways to role model environmental behaviors

READING ASSIGNMENT

- Age-appropriate background reading on case study migratory marine animal (sea turtles, whales, or seabirds)
- Follow-up questions to reading and answer key

FIELD TRIP MATERIALS

- Field trip logistical information and take-home information for parents (English and Spanish)
- Field trip behavior guidelines
- Scientific observation, data collection, and interpretation activities for use during the field trip
- Follow-up questions for students to complete in class after the trip and answer key

REFLECTION ASSIGNMENT

- Students respond to questions to reflect on their experience at the end of the school year and to prepare for the upcoming year
- Students report on progress with their eco-pledges from previous years
- Journals are collected and retained over the summer to review the student responses, and then redistributed for use in the upcoming year

CLASSROOM "PREZI-TATIONS"

This capstone project included the design and creation of new Ocean Connectors classroom presentations, using Prezi software instead of PowerPoint to create more visually-engaging and dynamic classroom discussions. The basic design of the presentations is described below, and more information will be added as the program continues to evolve based on evaluation results.

FOURTH GRADE

- Introduction to sea turtle biology
- Explain green sea turtle migration patterns
- Describe historical and current conservation issues
- Empower students to help by avoiding single use products

FIFTH GRADE

- Introduction to whale biology
- Explain gray whale migration pattern
- Describe history and conservation success story
- Empower students to help by putting thought into their seafood purchases

SIXTH GRADE

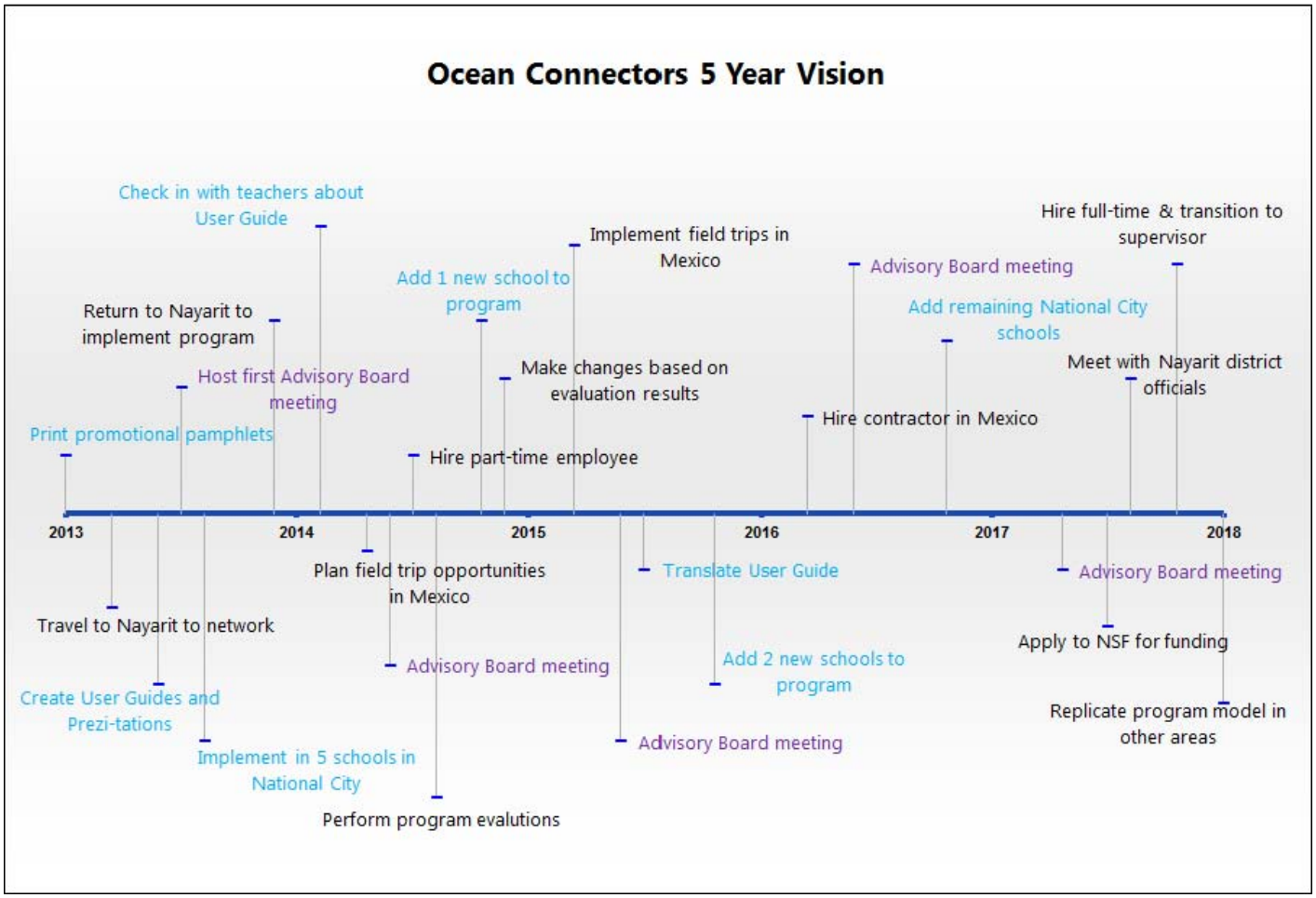
- Introduction to seabird biology
- Explain the Pacific Flyway is a migratory route for numerous bird species
- Describe history and importance of coastal habitats
- Empower students to help by benefitting coastal habitats firsthand

ELEMENTARY SCHOOL COMMITMENTS FOR 2013-2014

National City, California
1. El Toyon
2. Kimball
3. Olivewood
4. John Otis
5. Rancho de la Nación

Southern Nayarit, Mexico
1. 18 de Marzo (San Francisco)
2. Ángel Quintero Dominguez (Los Ayala)
3. Benito Juárez (Las Lomas)
4. Damián Carmona (Sayulita)
5. Hermanos Flores Magón (Ursulo Galván)
6. Ignacio Manuel Altamirano (San Ignacio)
7. Juan Escutia (La Peñita de Jaltemba)
8. Justo Sierra/José Vasconcelos (La Peñita)
9. Lázaro Cárdenas (La Peñita de Jaltemba)
10. Raúl Ernesto Delgado Barrios (Villa Morelos)

FIVE YEAR VISION PLAN



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Capstone Advisory Committee Final Capstone Project Signature Form

Ocean Connectors: Planning for the Future

Frances Kinney

Spring 2013
MAS in Marine Biodiversity and Conservation
Capstone Project

Capstone Advisory Committee

Committee Chair:

Signature: SIGNED VIA EMAIL Print Name: Richard Norris Date: June 11, 2013

Affiliation: SIO Email: RNorris@ucsd.edu Phone: 858-822-1868

Signature: SIGNED VIA EMAIL Print Name: Stephen Bennett Date: June 9, 2013

Affiliation: EarthRisk Technologies Email: Stephen.Bennett@earthrisktech.com Phone: 858-413-7475

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