Thriving coastal communities, sustainable livelihoods, and healthy ecosystems!
CEDO fosters vibrant communities and resilient ecosystems in the northern Gulf of California and other ecoregions by bringing together people, knowledge and solutions.
In 1980 when the doors of the Intercultural Center for the Study of Deserts and Ocean (CEDO) first opened in Puerto Peñasco, Sonora, an environmental vision emerged for the Northern Gulf of California: we saw a future where coastal communities would participate actively in creating vibrant and sustainable livelihoods that are in balance with healthy and resilient ecosystems.

Field research was among the first activities of this young institution. Through partnerships with visiting researchers from across the U.S. and Mexico, community monitoring projects, and its own studies, CEDO built a research program that advanced understanding of biophysical, ecological and socio-economic processes, making the Northern Gulf one of the best understood ecosystems in all of Mexico.

From the beginning, CEDO committed to sharing this knowledge with the community of Puerto Peñasco, and later with eight other coastal communities, fostering an environmental culture among residents and visitors, and impacting hundreds of thousands of lives throughout southwestern U.S. and northwestern Mexico. But with population growth, the influx of tourism, and increasing pressure on marine and coastal resources, the resulting impacts to species, habitats and processes grew to unsustainable levels. CEDO has responded with strategic conservation and management initiatives that bring together people, knowledge and solutions.

Thirty-five years later, CEDO has gleaned the local solutions and ideas offered during hundreds of initiatives as diverse as kids participating in environmental contests, commercial divers establishing a voluntary marine reserve, women making jewelry and handcrafts from recycled materials, and fishermen sharing thousands of hours of conversation and on-board observation to form the building blocks of CEDO’s integrated approach. Tried and proven technical solutions in an array of disciplines (education & training, research & monitoring, climate change assessment & adaptation, and economic initiatives) are today being scaled to address the socio-economic needs of nine communities that depend critically on the sustainable management of two interdependent ecological systems across the Northern Gulf of California. CEDO has grown from a staff of two to 26 with annual budget of almost $2 million and is now an international leader in ecosystem-based management. We believe that successful holistic solutions for complex systems can only spring from a core of community engagement and development. We invite you to join us as we continue to strengthen and challenge coastal communities to become stewards of their future and our oceans.

CEDO Intercultural is a unique collaboration between Mexican and U.S. not-for-profit organizations. Board members are drawn from five cities across the U.S. and Mexico. Operating through a United Executive Committee and inspired by a shared vision, mission and program strategies, CEDO pools its resources and experiences to offer realistic environmental and community-based solutions that recognize, respect, and leverage the cultural, socio-economic and biological interconnections between the U.S. and Mexico.
ABOUT CEDO

CEDO owns and operates an environmental resource center at Puerto Peñasco, Sonora, on the shore of the Sea of Cortez. The CEDO campus houses administrative and program offices, a laboratory, library, dorm rooms, conference rooms, and an earthship visitor center, with exhibits and a gift shop. Tens of thousands of people visit the center yearly including local and U.S. school kids, fishermen, university faculty and students, and tourists. CEDO also has offices in Tucson, Arizona, and La Paz, Baja California Sur.
For 35 years CEDO has tested and developed six essential building blocks focused on strengthening communities to participate in the design and realization of sustainable livelihoods to ensure their future and the health of the ecosystems on which they depend. The blocks are integrated to achieve seascape and ecosystem management and co-management of fisheries in two eco-regions of the Northern Gulf of California: The Upper Gulf of California/Colorado River Delta Biosphere Reserve and the Puerto Peñasco- Puerto Lobos Biological Corridor.
COMMUNITY ENVIRONMENTAL CULTURE

Field-based environmental education programs, workshops and curriculum built for youth, teachers, fishermen, coastal landowners and community leaders give local stakeholders a deep appreciation and understanding of the ecosystems on which they depend and the regulations that govern them. Empowered by knowledge and an atmosphere of respect, CEDO staff and community members build an ecologically literate public and work together to train future generations.

YOUTH ENVIRONMENTAL CONTESTS

For 20 years CEDO has involved thousands of youth in Northern Gulf communities to understand and help solve environmental problems through an environmental contest. Themes have addressed urban issues such as trash management, recycling, and water conservation and natural resource problems such as fisheries and ecosystem management, climate change, and wetland conservation. Student work has caught the attention of officials and resulted in meaningful changes at the local level. CEDO’s 2017 contest theme will be “From Ocean to Table”. Students will explore and raise awareness in their communities about the inter-connections between sustainable fisheries, sustainable livelihoods and the production of food for their tables and markets.

PUBLICATIONS AND OUTREACH

CEDO has filled a void by publishing bilingual information about the Northern Gulf of California that is accessible to tourists, fishermen, teachers, students, and local residents and businessmen. Our Tide Calendar is the regional standard. Our guides on local biodiversity have served to increase knowledge and encourage conservation.

CEDO hosts students and researchers from all over the world at its field station and offers inspiring field-based programs. Tourists also participate, visiting the diverse habitats of the region.
PARTICIPATION & TRAINING

Promoting Collective Action

MANAGEMENT GROUPS

CEDO participates in and facilitates the creation of groups and management councils for collective action on issues of importance to local coastal communities. By offering leadership training, strengthening communication and negotiation skills, and by connecting groups with other networks, authorities and other resources, we help local communities and government build the social structure needed for positive change.

FISHER EDUCATION & TRAINING

From 2010 to 2014 CEDO offered workshops for 2000 small-scale fishermen participating in the Upper Gulf of California Environmental Impact Assessment Program to raise awareness about the benefits of different management instruments and the regulations that fishers must comply with. The program trained fishermen to maintain logbooks of their daily fishing activities and to identify and document bycatch. This was the most comprehensive education program ever conducted for fishermen of the Upper Gulf of California Reserve. Fisher education has continued in 2015-16 to reach the 1400 fishermen of the Puerto Peñasco-Puerto Lobos Biological Corridor, who are actively participating in design of management instruments, such as fisheries refugia and locally managed areas.

UPPER GULF RESERVE, 2010 – 2014

90 workshops, 791/906 boats participating in learning rules

PEÑASCO-LOBOS CORRIDOR, 2015 – 2016

33 education trainings, 400 participants in management design

51 community workshops, 970 participants validating management

MODEL OF MANAGEMENT TEAM FOR PEÑASCO-LOBOS CORRIDOR

PUERTO PEÑASCO
BANIA SAN JORGE
PUNTA JAGUEY
SANTO TOMÁS
DESEMBOQUE DE CABORCA
PUERTO LOBOS
DEFINING INDICATORS WITH STAKEHOLDERS

Working with management groups to define goals and biophysical, socio-economic and governance indicators, we create a language for adaptive management that is strengthened with participatory monitoring.

MONITORING CHANGE

BIODIVERSITY
CEDO has generated baseline data to characterize the region’s diverse habitats: estuaries, offshore sandy-muddy bottoms, intertidal and subtidal reefs. Local communities and visiting students help monitor individual species: sea lions, the least tern, migratory birds and rocky intertidal organisms.

FISHERIES
CEDO has developed protocols and manuals for monitoring fisheries, and implements them with local communities to improve management.

- In situ monitoring of benthic invertebrates
- Community fisheries catch monitoring (6 communities, 2010 to date)
- Fishing logbooks (3 Upper Gulf communities, 25,000 days registered, 2013-14)
- Bycatch monitoring (commercial & endangered species: vaquita, totoaba, sea turtles)
  - Onboard observations (Upper Gulf, 996 observations, 9 fisheries 2013-14)
  - Video-camera technology (Gulf of Ulloa, 200 boats, 2016-17)
CEDO USES MODELING TO ASSESS:

- Effects of increased ocean temperature and acidification on ecosystem processes and function
- Effectiveness of current marine reserves under future climate change
- Effectiveness of different fisheries management instruments under future climate change impacts
- Vulnerability of coastal fishing communities to climate change impacts

RESULTS ARE USED TO:

- Guide establishment of appropriate management tools to adapt to climate change impacts
- Incorporate climate change adaptation actions into formal management instruments
- Work with communities to understand climate change impacts and implement management tools

DATA INTEGRATION & MODELING
CEDO houses its data in a comprehensive Northern Gulf geo-referenced database with over 200,000 biodiversity records, existing legal zones, fishing intensity from 3 data sources, conflict zones and more. Using various modeling programs (Atlantis, Zonation and Invest), and cost-benefit analysis, CEDO creates decision support tools to guide spatial and temporal planning of the coasts and seascapes. Suggested management measures include no-take zones and locally managed areas which will consider adaptation to climate change.

Research results are published in peer reviewed journals and in CEDO publications directed towards stakeholders and managers. For a complete list, visit cedointercultural.org
CEDO takes an ecosystem approach to fisheries management and biodiversity conservation with comprehensive programs in two eco-regions. Different ecosystem management tools are applied by CEDO in each of these regions.

UPPER GULF OF CALIFORNIA BIOSPHERE RESERVE / VAQUITA REFUGE

Vaquita and totoaba, both endemic and endangered species, are the primary drivers for management in this Biosphere Reserve. Many environmental agencies are working to improve the management of the Reserve and protect its vulnerable species, but improvement is needed in the fishing sector to reduce the primary threats: open access of small scale fisheries and bycatch in gillnets.

The Environmental Impact Assessment (EIA) is an ecosystem management tool. CEDO piloted Mexico’s use of this in protected areas of the Upper Gulf. We develop and implement comprehensive EIA to reduce ecosystem and fisheries impacts through participatory approaches with fishers, creating management groups, building capacity, generating information for management and documenting compliance through onboard and fisheries monitoring programs. Alternative gear to replace gillnet fisheries is urgently needed. CEDO works with fishers and the community at large to generate ideas, get involved, and make the needed changes.
Six fishing communities in Northern Sonora share the use of this rich ecosystem, abundant with benthic and demersal fisheries, rocky, sandy and muddy-bottom habitats and wetlands. Open access to fisheries and lack of management cause conflict and over-fishing, which threatens the primary economic activity and destabilizes small communities.

Coastal-Marine Spatial Planning offers an ecosystem level solution. CEDO facilitates a process which brings together six fishing communities, regional and national authorities, and experts, to define and formalize management instruments for the effective use of the coastal and marine space. This management team is informed by a comprehensive spatially explicit database generated with community monitoring and other research. This science and community-driven decision-making process is working to establish: 1) locally managed areas; 2) fisheries refuges; 3) fishing quotas, and 4) other measures that reduce fishing effort and conflict.
The coastal communities of the Northern Gulf of California have few economic opportunities. Fishing is the mainstay of the economy, with tourism an alternative in some communities. CEDO works with communities to diversify their opportunities, increase value of existing activities and, assure that their economies are environmentally sustainable for the future.

**NATURARTE ECOTOURISM CORRIDOR**
Promotes development of local ecotourism businesses, with training and marketing support.

**SUSTAINABLE FISHERIES & SEAFOOD**
This initiative seeks to promote sustainable fisheries by connecting responsible fishers to interested markets. CEDO can assist by laying the groundwork to close the information and economic loop between producers from the Northern Gulf and environmentally conscious consumers in Southwestern US. and Northwestern Mexico.

**COMMUNITY ECONOMIC ASSESSMENT**
CEDO works with local communities to identify viable alternative livelihoods, assess capacity and find resources to incubate businesses.
INVESTMENT OPPORTUNITIES

CEDO is looking for institutional investors, please consider us if you believe:

...community empowerment can fuel the future of conservation.
...that building on 35 years of proven experience makes sense.
...conservation moves forward fastest when motivated, creative people come together.
...conservation and a healthy economy can coexist.
...complex systems need integrated solutions.
...that recognizing, respecting and leveraging the socio-economic and biological interconnections between the U.S. and Mexico is mutually beneficial.
INSTITUTIONAL SUPPORTERS

Alianza Carlos Slim Foundation–World Wildlife Fund
American Cetacean Society – Monterey Bay Chapter
Blue Solutions Initiative on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora
Comisión Nacional de Acuacultura y Pesca
Consejo Nacional de Ciencia y Tecnología (CONACYT)
David and Lucile Packard Foundation
Disney Conservation Fund
Environmental Defense Fund
Fondo de Acción Solidaria, A.C.
Federación de Sociedades Cooperativas de Producción Pesquera Ribereña del Puerto de San Felipe, S. de. R. L. de C.V.
Federación de Cooperativas Ribereñas Andrés Rubio Castro, S. P. R. de R.L.
Agrupación de Cooperativas de Pescadores Ribereños de Puerto Peñasco y Golfo de Santa Clara, Sonora
Fondo Mexicano para la Conservación de la Naturaleza, A.C.
Fondo para la Conservación del Golfo de California
Fondo Noroeste, A.C.
Fundación Televisa
George A. Binney Conservation Foundation
Instituto de Acuacultura del Estado de Sonora
Lawrence and Jaqueline Stern Foundation
Maricopa Audubon Society
Marisla Foundation
National Oceanic and Atmospheric Administration, National Marine Fisheries Service (Northwest Fisheries Science Center)
Pronatura A.C.
RARE
San Diego Zoo Global
Save the Whales
Secretaría del Medio Ambiente y Recursos Naturales (Comisión Nacional de Áreas Naturales Protegidas; Dirección General de Vida Silvestre)
Secretaría de Pesca y Acuacultura del Gobierno de Baja California
Steven C. Leuthold Family Foundation
Voces por la Naturaleza, A.C.
The Living Desert
The Nature Conservancy
United Nations Development Program
University of Arizona
Universidad de Baja California Sur
University of South Florida
U.S. Fish and Wildlife Service, Southwest Division
Vecinos de Las Conchas Homeowners Association
Walton Family Foundation