# Environment

> "Growing at the expense of the environment is not sustainable, nor is it fair for future generations. We must thus perceive priority conservation regions and the natural protected areas as implementation zones for alternate models that are able to reconcile and harmonize conservation and social goals. As it is both our responsibility and advisable to do so, we have renewed our commitment to conservation of the natural protected areas to make them the pride of Mexico. [1]"
>
> Mexican National Commission of Natural Protected Areas (CONANP)

## Introduction

When seen through the lens of economic development, the dramatic landscapes and marine environment in Baja California Sur can be viewed as one of the state's major obstacles or as one of its most important assets. The state's rugged coastline and mountainous terrain exacerbates connectivity and infrastructure problems for its isolated rural populations; yet it is those very same qualities that have enabled the diverse and fragile ecosystems to maintain their integrity and beauty.

Baja California Sur contains pristine and diverse plant and animal life throughout its coastal, mountain, marine, and desert ecosystems. Recognizing this, the federal government, through the National Commission for Natural Protected Areas (CONANP), agreed to protect and manage 41% of the territory of Baja California Sur by declaring six Natural Protected Areas (ANPs). These ANPs presently occupy 8.7% of Mexico's protected territory, representing over 65,637 $mi^2$.

As a result, the state ranks second only to Baja California as the state with the greatest amount of territory under protected status. One of the significant challenges facing the ANPs is to overcome the perception that conservation is an opponent of development, and indeed to show that conservation is indispensable to maintaining a continual source of natural resources for future economic growth and development.

Despite the federal interest in protecting these unique resources, federal agencies are out of synch with their municipal and state counterparts, some of which do not even exist. Because so much territory is already devoted to protected areas, the state government is reluctant to embrace new protected areas, especially in the state's coastal zone. For this reason, models of sustainable development projects need to be given high visibility and promotion.[2]

Although the six ANPs located in Baja California Sur are outstanding examples of the unique biodiversity of the Baja California peninsula, they all suffer from insufficient financial resources and external pressures from land speculation and coastal development.[3] The World Bank's Global Environment Facility (GEF), other multilateral organizations, private businesses, and international nonprofits are currently supporting conservation, restoration, sustainable usage, and scientific research projects; funding is channeled through CONANP or through third parties that support the ANP management programs.[4] New donors and funding partnerships must emerge to continue to preserve these diverse and globally significant ecosystems. The good news is that efforts are now underway on this front through the leadership of Fondo Mexicano para la Conservación de la Naturaleza (FMCN) and the Guaymas-based nonprofit, Comunidad y Biodiversidad (COBI).

The role of the natural protected areas and their management policy is to provide a sustainable orientation to development in Baja California Sur. There is still, however, a great lack of knowledge regarding the natural wealth offered by the ANPs at the local, regional, national, and international levels. The management programs considered to be the guiding documents for each ANP have not been well-circulated, and tools to orient and inform the public in general as to the programs' existence, such as signs, are scarce or non-existent in some ANPs.[5]

Consequently, there are areas in the state that still lack protection and that are unique because of their ecological values. However, before increasing the protected area under management in the state, sustainable opportunities must be pursued on the ANPs that *already* exist so that decision-makers can see the true value of these resources.

Figure 20:
Size, Declaration Date, and Data for Natural Protected Areas in Baja California Sur

| Name | Size | Date Declared | Ecosystem/Other data |
|---|---|---|---|
| *Cabo San Lucas Natural Protected Area* | 3,996 hectares (9,874.3 acres) | 1973 (re-categorized in 2000) | Underwater sand waterfall; rocky and marine habitats |
| *Vizcaíno Biosphere Reserve* | 2,493,091 hectares (6,160,562 acres) | 1988 | Pine forest; coastal dunes and mangroves; microphyllous desert; UNESCO (1993); |
| *Sierra La Laguna Biosphere Reserve* | 112,437 hectares (277,837.9 acres) | 1994 | Coniferous forest; tropical jungle; palm oases; desert scrub; and pine forests. |
| *Cabo Pulmo National Park* | 7,111 hectares (17,571.7 acres) | 1995 | Coral reef |
| *Loreto Bay National Marine Park* | 206,581 hectares (510,472.8 acres) | 1996 | Mangroves and spiny desert scrub; coastal dunes; xerophyllous scrub; two marine no-take zones. |
| *Islands of the Gulf of California Flora and Fauna Protected Area* | 244 islands in the Gulf of California; 321,631 hectares (794,767.5 acres) | 2000 | Sarcocaulescent desert; microphyllous desert; desert scrub; received UNESCO World Heritage status in July 2005 |

Source: CONANP website http://www.conanp.gob.mx/anp/anp.php, 2005.

By the same token, it is important to highlight the leadership role that promotes sustainable development in the ANPs and other fragile areas.

# Key Findings

Baja California Sur has insufficient water, forest, pasturelands, and fertile soil resources to support its existing and future population growth. Foremost among the major threats are: marine influence (e.g. abrasion, corrosion, saline intrusion, sea penetration); occasional intense fluvial phenomena (e.g. flooding, erosion, migration of water courses and streams, water freshets); slumping (e.g. landslides, inadequate drainage, unstable slopes); wind effects; and problems caused by pollution, dumping, over-exploitation of aquifers, disorderly construction development, extraction of materials, and grading or leveling fragile areas.[6]

Another extremely fragile element in Baja California Sur is its landscape. Many poor households are forced to cut down trees and vegetation in the surrounding rural areas because they lack the money to produce goods or services for self-consumption or for the market. This practice often creates dangerous conditions in times of fire or flood when natural vegetation would otherwise mitigate these disasters.[7]

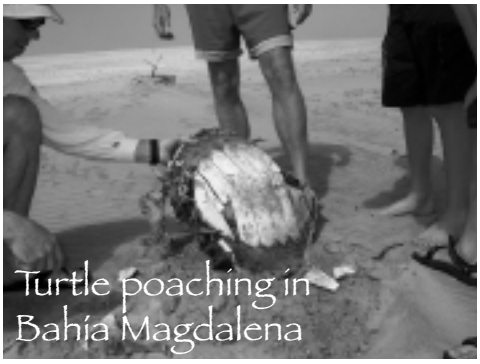
The desert characteristics of the islands in the Gulf of California, their isolation, and scarce fresh water have all protected the islands from adverse uses, thus turning them into some of the most protected island ecosystems in the world. However, human activity on the islands and in their adjacent waters is on the rise, and consequently, threats to the island ecosystems have also multiplied. The state's vast coastline, in general, and the coastline between the municipalities of Los Cabos and La Paz, in particular, are exposed to a risk of deterioration caused by the ever-increasing commercial development over the past two decades.[8]

Finally, we cannot exclude the 171 oases that occur in Baja California Sur. These isolated ecosystems (relics of tropical environments now in arid zones) play an important role in bio-geographical mix of flora and fauna. The oases account for less than 1% of the state's geographic territory, yet an important proportion of the biodiversity are concentrated in them, as well a number of endemic species, which co-exist with abundant human activities and population centers.[9] Some oases have been affected by the drainage of the aquifers, palm and reed cutting, and introduction of exotic species; these have lost structural complexity and biological diversity.

## 1. Water

Perhaps the most critical environmental problem facing the

state is the depletion of its aquifers. Simply put, the aquifers have been over-exploited; the sparse and random rainfall inherent in an arid climate cannot keep pace with the region's water usage. In addition, the depleted wells often result in saline intrusion, which occurs when the water level in those wells falls below sea level.[10] Fully 60% of the state's surface area has either limited or no possibility whatsoever of using surface or groundwater resources. Only 35% of the state's surface area has usable groundwater resources; however, the aquifers in those areas are in serious danger of depletion. It is worth noting that the state has a mere 4% of its territory where water might be extracted. In addition, what little water that does exist has not been actively investigated in terms of its quality.


Turtle poaching in Bahía Magdalena

In addition, there is evidence that fecal and arsenic contamination is occurring in groundwater wells, mainly in small, rural communities in Baja California Sur. Arsenic, when consumed over a period of 5-10 years can cause cancer and diabetes. During 2004, "Engineers for a Better World" at the University of California-Berkeley conducted tests in 24 communities, finding that 34% were contaminated above the federal drinking water standards.[11] This study was expanded to include 500 groundwater wells throughout the state in 2005; to date, 34 communities have arsenic-contaminated groundwater. Floride and saline contamination are also significant in terms of negative human health impacts.[12] Clearly, it is crucial that the water quality and water supply crisis be addressed.[13]

Finally, there is statewide concern about the high level of wasted water in the densely-populated urban areas, as well as in the large hotel zones. In the former, water needs exceed water supply by 20% or more in Comondú and Los Cabos.[14] Aging infrastructure, poor distribution networks, and irresponsible water use are the main culprits behind wasted water.[15] In the hotel zones, which are much newer, proliferation of golf courses and swimming pools in hotel developments (and those under construction) is a prerequisite, despite limited water supplies. It is particularly noteworthy that in Los Cabos, water distribution tends to favor tourist resorts, while supply is not enough to meet the local population's demand. According to the Municipality of Los Cabos, the city's water deficit is close to 30% - the highest in the state.[16] Accordingly, absent the construction of new desalinization facilities and/or the adoption of proactive water conservation, Los Cabos will be unable to sustain its current rates of urban growth.

## 2. Marine Resources

While agro-industry and the tourism industry depend on available fresh water, the fishing sector depends on a healthy marine environment.[17] The marine areas near Baja California Sur are considered the most productive zones in Mexico and among the most bio-diverse zones in the world.[18] Coastal upwelling, water mass surges, and tidal circulation help create a marine environment that supports a large-scale primary productivity zone that feeds a whole array of species.[19]

As a consequence of the high marine productivity, Baja California Sur enjoys the largest volume of fishing resources in Mexico, and represents one of the four most important fishing regions of the world. The state's fleet – made up of approximately 4,000 vessels – however, accounts for just 3.5% of the national total and most of them are small boats (*pangas)* for small-scale coastal fishing, an activity that supports almost all of the small villages on both coasts. 650 species that can be used for human consumption and industrialization have been identified. 122 of them are currently being exploited; among them are pelagic fish (tuna, sardines, anchovies, shrimp, and giant squid). Near-shore fishing relies on abalones and other medium and large gastropods (Cortez conch and panocha), lobster, clams (e.g. catarina, *mano de león*, hachet clam, Mule's paw), rock oysters, octopus, crayfish, flake fish, sharks, and rays. Overall, fishing activities generate numerous jobs; production is estimated to be 9% of the national gross domestic product.[21]

According to local fishermen, over the past twenty years the major high commercial value resources (red snapper, leatherback bass, grouper, clams, and shark) have been over-exploited and depleted. The causes of this depletion can be traced to several prevalent practices: the use of "*chinchorro*" nets during bottom trawling in enclosed areas, and the use of small mesh nets that catch juveniles when sailing adrift; illegal fishing, using spear guns and scuba diving equipment; incidental catches of juveniles of species that are of interest to coastal fishing (sea bream, leatherback bass, grouper, sole, etc.); and the arrival of fishermen from other states who want to maximize their earnings in the least amount of time possible.

If carefully managed, aquaculture could be an attractive and

economically viable option in Baja California Sur. The state has native species with high socio-economic potential, including 18 species of shellfish with high commercial market value (e.g. oyster, scallops, *mano de león* oyster, abalone, pearl oyster, nacar shell, medium and large snails).[22] The paradox is that during the last five years, initiatives to install white shrimp farms (Magdalena-Almejas and La Paz Bay) have been submitted by private businessmen, disregarding available native species that might be better suited to local environmental conditions. In addition, the state government and its research consultants are promoting the installation of yellowfin tuna, jurel, and sea bass farms in La Paz Bay, with foreign companies that have restrictions on aquaculture in their home regions and are looking for investment opportunities in Mexico.

Other species also depend on healthy fisheries in the Gulf of California. The Gulf of California hosts more than one dozen cetacean species, including eight of the eleven known whale species that occur in the world.[23] Sea turtles, dolphins, seals, and sea lions are just some of the other species that have resident and migratory populations in the Gulf of California.

## 3. Biodiversity

Endemic species are found in almost all of the families that make up Baja California Sur's flora. The families of cactae, agave, and tree and bush mimosas (e.g. Willard's acacia, Desert Ironwood, Cat's Claw, *tabardillo)* are eye-catching because of their variety and high degree of endemism. Almost 75% of cactus species are endemic.[24] Other less diverse groups also have numerous endemic species such as the Burseras (Red Elephant Tree), palms, flowering plants, figs, and several other species associated with the oases.[25]

Among the terrestrial mammals, the Peninsular Bighorn Sheep (*Ovis canadiensis*) and the Pronghorn Antelope (*Antilocarpa Americana*) are the emblem species in the terrestrial ecosystem. Other terrestrial and flying mammals[26] as well as the herpetofauna and insects have been the recent focus of population studies, bringing to light new facts about endemism, geographic range, or special limits.[27]

The islands in the Gulf of California are particularly high in endemism and biodiversity. Isla Espíritu Santo has been a focus for conservation because of its proximity to La Paz and its tourism potential. The owners, *Ejido* Alfredo Bonfil, decided to begin residential development there in 2000, sparking a fundraising effort to purchase the island. In 2002, the island was purchased and immediately expropriated by the federal government for the national park system. [28] An endowment for conservation management was established at the Fondo Mexicano para la Conservación de la Naturaleza in Mexico City and additional funds were raised by ICF and the United Nations Foundation for early infrastructure needs, eradication of non-native species, and the pursuit of UNESCO World Heritage status for the island. In July 2005, all 244 islands in the Gulf of California were declared as UNESCO World Heritage sites – a designation that was 25% terrestrial and 75% marine, the first formal recognition of the importance of the islands' adjacent marine areas. In October 2005, Sociedad de Historia Natural de Niparajá delivered a justification study to SEMARNAT formally requesting a marine extension of the protected area at Isla Espíritu Santo, as well as upgrading that site to a national park.


## 4. Land Use and Conservation

With changes to Article 27 in the Mexican constitution that provide ownership to *ejiditario*s of their communally-held lands, land speculation is growing in Baja California Sur. Indiscriminate coastal development is affecting large parts of the landscape, while at the same time, closing access to other development and recreational assets available to the community. Gradual privatization and the growing exclusivity of coastal land in what is now known as "tourism corridors" has created tension in Los Cabos, La Paz and Loreto.

Forestry has not been well-regulated either, and is intensifying due to demand for construction. Mangrove trees, mesquite, fig, ditch reed, palm trees (both the trunk

and palms), lapacho, desert ironwood, and highland grove are the target resources sought by real estate developers. In addition to reducing the number of native trees, the gardens of these tourism complexes have non-native flora, transplanted without any kind of quality control.

With the changes to Article 27 in mind, the daily practices and behavior of the rural population, who live and work in the most vulnerable environments, should be a statewide priority for conservation. The responsible use of the natural resources, rejection of practices that have a negative impact on the environment, and improved living standards are indicators of the success of this awareness-raising and outreach process. Increasing these communities' voice in environmental decision-making is another critical component to conservation success in Baja California Sur.


Future marine biologist

These communities' adaptation to the conservation process should largely be pursuant to the accrued benefits reflecting a behavior shift on their part. For instance, if a community is granted a permit to take a certain number of Peninsular Bighorn Sheep (*Borrego cimmaron*) in exchange for habitat management (known as an UMA), subsequent management of the species and its habitat should improve local environmental conditions.

In Baja California Sur, there are forty-eight UMAs, as of October 2003. Their number has increased considerably since 2001, which reflects the increasing importance granted to the sustainable use of regional wildlife. These UMAs handle fourteen species of plants and fourteen species of animals, the purpose of 8% is conservation, 35% for commercial use, and 57% for hunting. Among them are two cactus nurseries, a recreational serpentarium, and a therapeutical dolphinarium. The UMAs for commercial use breed and sell deer, quail, ostriches and reptiles. Hunting activities target Pronghorn antelope, hares, puma, and Peninsular bighorn sheep.[29]

In another example, if a community establishes a *servidumbre ecológico,* or conservation easement, they should be financially compensated for giving up transferable development rights on their land. For example, in October 2005, *Ejido* Luis Echeverria Alvarez signed an historic conservation easement that zones the 120,000 communally-owned acres of the *ejido* into conservation areas, economic development areas, and buffer zones. In return, a local nonprofit, Maijañuí, will receive an annual payment to implement community development activities on behalf of the *ejido*.

# 5. Waste Management

In the coastal zones and the marine environment, pollution occurs around the urban settlements, in the areas for commercial fishing and tourism, and near industrial plants to a lesser degree. Improvements to garbage and sewage disposal would tremendously improve the state's waste management. Privatization of collection services could be one opportunity to manage this more efficiently.

## Urban Waste

Despite the impact on coastal and marine environment (and individual health) from other types of water contamination, garbage on the beaches is a very public and prevalent nuisance (used tires, casings, mechanical pieces, flexible plastic waste, miscellaneous containers, pieces of branches, and solid waste in general). The large municipal landfills also continue to be a high priority — the plagues of flies, mosquitoes, rats, and domestic and street animals are visible public health threats.

Pollution that has resulted from increased tourism is more of an indirect problem that could potentially be solved through improved urban planning, regulatory enforcement, and updated infrastructure. For example, in the marinas of Cabo San Lucas and La Paz, oil, cleaning products, paint, and sewage are dumped overboard; these practices also occur offshore near the islands and in the secluded bays that are commonly used for anchorages and coastal fishing.

There are approximately nine million used tires in and around La Paz, located in official and unofficial dumps. Regulations to the contrary aside, tires are imported on a daily basis from the U.S. that have been used and discarded. Sometimes, fires break out, creating toxic plumes that must burn themselves out because the local fire department does not have the proper equipment to extinguish them. They are also a breeding habitat for

mosquitoes, the vector for dengue and hemorrhagic dengue.[30] Examples exist in many place for recycling used tires, using them for playground surfaces, as a replacement for asphalt, and for recreational facilities and schools.

### Hazardous and Industrial Waste

Waste from the fishery slaughterhouses is frequent in coastal zones throughout the state, but its volume is small because it coming mainly from small-scale, riverside fishing. However, in the shellfish fisheries (catarina scallop and *mano de león* oyster) in the Pacific Ocean and in the squid fishery in the Gulf of California, the waste is disposed of directly on the beach and into the sea. In addition, trawl and flake fishing contribute considerably to organic contamination even though the fleet is relatively small. This practice is called "bycatch disposal", defined as non-target fish, reptile, and marine mammal species that are thrown dead back into the sea. Although the Upper Gulf of California Biosphere Reserve is generally cited as the main area threatened by "bycatch disposal", this could be a problem is areas such as the Magdalena-Almejas lagoon complex, which contains 90% of the Baja California Sur's shrimp fishing.[31]

Industrial liquid waste is also visible to the general public[32], mainly from spent oil waste in mechanical and private shops.

### Wastewater

The state government signed the Agreement for the Prevention, Control and Combating of Contamination of the Marine Environment due to waste water and other discharges into the sea, which four coastal states along the Gulf of California took part in after an initiative from the Navy. Inspection and surveillance actions are a major part of this agreement. As a result, agreements have also been signed with UABCS, CIBNOR, and the Interdisciplinary Marine Science Center (CICIMAR) to focus on sea bird and sea lion protection.[33]

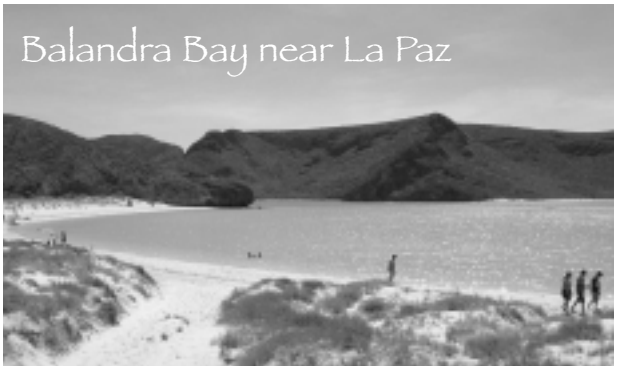
The greatest threat is to the San José del Cabo estuary, which has been affected by nearby construction and water pollution to the maximum extent.

# Needs by Municipality

## 1. Comondú

The considerable impact of intensive agriculture undertaken in the municipality of Comondú since the 1960s, and the later abandoning of that activity, has fueled erosive processes, saline soil intrusion, severe degradation of natural plant life, and over-exploitation of aquifers. As described more fully in the community development chapter, these impacts have triggered population migration and other social challenges.[34]

The lack of employment in mountain areas has resulted in excessive felling of trees and other plant species, which has a serious effect on the ecological equilibrium of the area. A large number of trees are also felled for carbon production. The impact is twofold: soils are destabilized as trees are removed, which causes landslides and flooding during natural disasters; and wildlife habitat for Peninsular bighorn sheep is affected by logging roads and the increased human presence. Because there are several UMAs in the region for this endangered species, habitat management and illegal logging must be addressed.




Environmental challenges from the thermo-electric plant and canneries at Puerto San Carlos continue. Five of the seven sea turtle species that exist in the world arrive in this area for reproduction, but poaching, habitat destruction (mangroves and wetlands), and coastal contamination affect this important cycle.[35]

## 2. La Paz

The municipality of La Paz is composed of hills and mountains that surround the tectonic-erosive La Paz valley. The municipality possesses significant solar energy, fishery resources, and tourism resources particularly associated with its coastline and nearby islands. It is, however, in this area that a series of environmentally-degrading processes are accumulating, associated with uncontrolled growth of urban areas and roads, over-exploitation of aquifers, inadequate waste disposal, coastal pollution, and degradation and substitution of natural plant life.

The population of La Paz in general, and the environmental sector in particular, is monitoring existing and proposed coastal developments, such as the planned "Paraíso del Mar" tourist development on the Mogote peninsula and another planned for Balandra Bay, as well as Costa Baja, Bahía de Los Sueños, Tecolote, Caleritas-Coyote, and Todos Santos. The destruction of mangrove swamps and vegetation, reduction in public access to fishing and

recreational areas, as well as the high level of impact on water consumption in the city, are several issues that local citizens are watching.

Environmental planning and ecological ordinance[36], efficient administration[37] and environmental conservation[38] instruments, along with the control and prevention of pollution[39], should be the foundation for decision-makers to improve the quality of life for the inhabitants of the city and the municipality.[40] For example, the "Alternative Futures for La Paz" study in 2004 showed that 25% of the region's wells were at risk for saline intrusion, especially those providing municipal drinking water. With improvements to water and sewer infrastructure, conservation measures, and good planning, the municipality could relieve the pressure on its taxed groundwater system.

Environmental education is also a priority. There are few communication campaigns, although some school programs are teaching an environmental ethic. The *Ocean Oasis* movie has been a wonderful tool for describing the marine resources that lie just offshore of many of the populated urban areas but more remains to be done as many of La Paz's children, particularly those living in the city's poorer neighborhoods, remain disconnected to the Sea of Cortez and its biodiversity. Audiences such as housewives, businessmen, and government officials could also benefit from targeted environmental training and awareness campaigns.


Young artist in La Paz

## 3. Loreto

The municipality of Loreto, with its very small surface area, is almost completely made up of hills and mountains. The municipality registers high solar energy values; Loreto also has substantial fishery and tourism services associated with its coastline and nearby islands, which are part of the Loreto Bay National Marine Park and Gulf of California Islands National Park. As for other natural resources, the municipality registers very low values, with the possible exception of its wind energy, although this resource has still to be definitively assessed. Likewise, the valley of San Juan Londó experiences degraded natural plant life, loss of agricultural areas, erosion, and over-exploitation of soils.[41]

Most current ecotourism activities on the islands do not create direct benefits for conservation. This situation is exacerbated by private boats and yachts that anchor in local bays without contributing to park maintenance and upkeep. The presence of independent tourists, and tourists accompanied by untrained guides, generates a potential damage to the islands; this is worsened by the presence of "pirate" companies that carry out trips without the corresponding permits.

An example of this is illicit recreational fishing activities, which are either organized by a tourist service company or carried out independently. This leads to a lack of knowledge of the extractive capacity of the fleet and actual catch levels, which means it is impossible to enforce effective regulatory measures of fishing practices. Another problem (noted by commercial fishermen) is that current legislation does not establish closed season periods for recreational fishing activities, which means species are caught during pregnancy.

The upcoming decision regarding Loreto's urban development plan will also have substantial environmental impacts. If a proposed plan to bring the population to 120,000 over the next 20 years is passed, Loreto's regulatory and enforcement networks will be severely strained, in addition to the impacts on the local aquifer. Recent groundwater modeling studies by the University of Arizona have indicated that Loreto has less than 15 years before its aquifers are empty or contaminated with saline intrusion at current population levels.

## 4. Los Cabos

The Cabo Pulmo reef is threatened by coral bleaching, coastal development on adjacent land, which increases sediment in the area, and a lack of enforcement of fishing and snorkeling regulations. The park has always suffered a shortage of financing, a management plan, and personnel. The beaches of the Cabo Pulmo National Park are used for nesting purposes by five of the seven marine turtle species in danger of extinction, which are threatened by furtive hunting and unrestricted vehicle transit.[42]

In the municipal urban areas, contamination caused by garbage (solid waste) is mainly found in beach areas,

Oasis in San Ignacio

streams, streets, freeways and dumps, while water pollution is considered a serious problem in the marine and coastal environment, such as the San José marshland area and Enlatadora beach in Cabo San Lucas.

Sand removal from river beds, illegal fishing, and illegal tree-cutting are a few notable results of increased construction and population growth along the Los Cabos coast.

The lack of resources and support for environmental programs means it is impossible to carry out environmental education programs, surveillance, monitoring, conservation, information campaigns, etc. Supporting environmental education programs and campaigns often results in action at the individual level, without intervention from government. Building awareness of the above-mentioned issues is critical in this growing metropolis. The need for training programs for authorities and nonprofits was also expressed by community residents.

## 5. Mulegé

The elaboration of a municipal hydraulic plan with the federal and state governments, and a comprehensive sustainable agriculture and productive re-conversion plan in areas of recurring drought, are major priorities for Mulegé. These plans will help identify sites to store water for animal use (construction of dikes, rubblework walls and water basins) and develop plans to recharge the aquifers. In accordance with the state water law, the Town Hall will propose that the Potable Water and Drainage System define more precise and strict rules regarding volumes of potable water for industrial use, including tourist service companies such as hotels, marinas, port services, etc.[43] In the municipality of Mulegé, the state Governor has reported that eight desalination plants have already been built.[44]

The Ministry of the Environment, Natural Resources and Fisheries, the El Vizcaíno Biosphere Reserve, local nonprofits, and the Ford Motor Company launched the "Peninsular Pronghorn Antelope Recovery Plan" by means of a campaign entitled "Save the Pronghorn". The aim of this plan was reproduction in semi-captivity, elimination of furtive hunting, increase of knowledge of the behavior of the species and environmental education among local inhabitants.[45]

One environmental challenge for Mulegé is marine contamination, caused by solid waste and other waste products emptied into the coastal area during the squid fishing season. There is also a lack of sanitary landfills or drainage in many communities, nor is there a garbage management program (added to the fact that the local population has a lack of education in this matter). Management of waste water does not guarantee sanitation and potable water supplies, of which there are little, are badly used. Surveillance and enforcement by environmental authorities is extremely limited. Abandoned land and water vehicles, often with badly-kept engines, also generate a great deal of pollution.

Fin whale, Cabo San Lucas