

Location and Description of Laguna San Ignacio, Baja California Sur, Mexico.

Laguna San Ignacio is one of the four calving-breeding lagoons of the Eastern North Pacific gray whale that remains mostly undeveloped (Fig. 1). It is located on the Pacific coast of Baja California Sur, Mexico adjacent to Bahia Ballenas,



approximately 680 km south of the International Border between 26° 42' and 27° 00' N and 113° 7' and 113° 18' W. Laguna San Ignacio is within the southern portion of Mexico's "Vizcaino Desert Biosphere Reserve," the largest wildlife refuge in Latin America, which is administrated by the Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT), de Mexico (SEMARNAT).

This lagoon borders a gently sloping, dry, coastal flood plain composed of sediments which are presumed to be Cretaceous and Tertiary, capped by Pleistocene alluvium (Fig. 2). The climate is arid with an annual average rainfall of 56 mm which falls mainly during winter months. There is no runoff and no freshwater streams or rivers flow into the lagoon. The interior of the lagoon consists of a series of narrow, relatively deep channels surrounded by large intertidal sand and mudflats. It lies on a north-to-south axis, extends inland approximately 32 km, ranges from 1.8 to 6.5 km wide, and has an area of 152 km², of which only approximately 57% or 87 km² is of sufficient depth (> 2m) to be utilized by gray whales. The semi-diurnal tide ranges from 0.9m to 2.4m, and the strong tidal currents keep the inlet and the interior channels open.

Laguna San Ignacio has a distinctive topography characteristic of lagoons with an appreciable tidal range, and can be divided into five areas: the Inlet, the East channel, the Lower, Middle and Upper lagoons (Figs. 3-10). The 3.5 km wide Inlet is defined by a line of surf and shallow sand bars with a 1 km wide entry channel with a maximum depth of 17 m. This steep walled channel runs northward, paralleling the western shore of the barrier island Isla Ana. The Lower Lagoon consists of a steep-walled channel with a maximum depth of 26 m. It narrows from 3 km wide near the Inlet to a constriction 1.8 km wide at Punta Piedra where it terminates. West of Isla Ana the East Channel tributary leaves the main lagoon, turns southwest behind Isla Ana, and runs 5 km into the shallow Estero Pitaya. The Middle Lagoon is characterized by a system of three channels ranging from 8m to 21m deep, which become shallower and irregular west of the La Freidera ranch. The Upper Lagoon is a gently sloping basin with an average depth of 5m. Two islands, Isla Garzas and Isla Pelicano, are located approximately mid-lagoon, and separated by a shallow isthmus exposed at low tides. The area north of the Islands at the head of the lagoon is a shallow basin that averages 2 m deep.

Regulations of the Biosphere Reserve restrict whale-watching Eco-Tourism to the Lower Lagoon nearest the lagoon entrance between 15 December and 15 April each winter and spring. Thus, approximately two-thirds of the lagoon (the Middle and Upper lagoon areas) are a sanctuary with only local fishing and scientific research boats allowed to operate in these areas.

Illustrations and Photos:

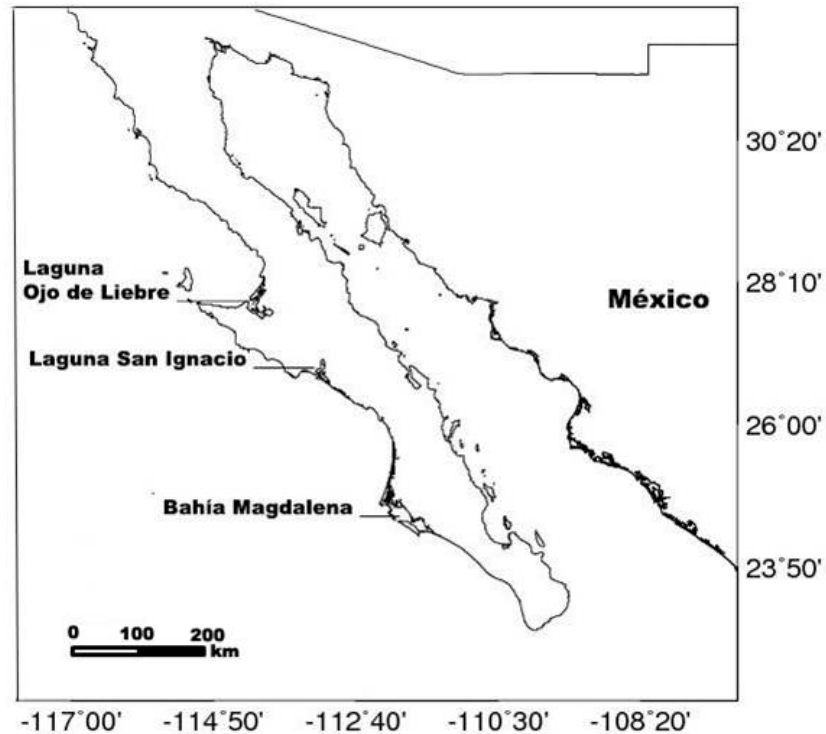


Figure 1. The three main winter aggregation areas of North Eastern Pacific gray whales in Baja California: Laguna Ojo de Liebre in the North, Laguna San Ignacio in the middle, and Bahía Magdalena in the south.



Figure 2. Laguna San Ignacio, Bahia Ballenas, and the surrounding desert flood plain.

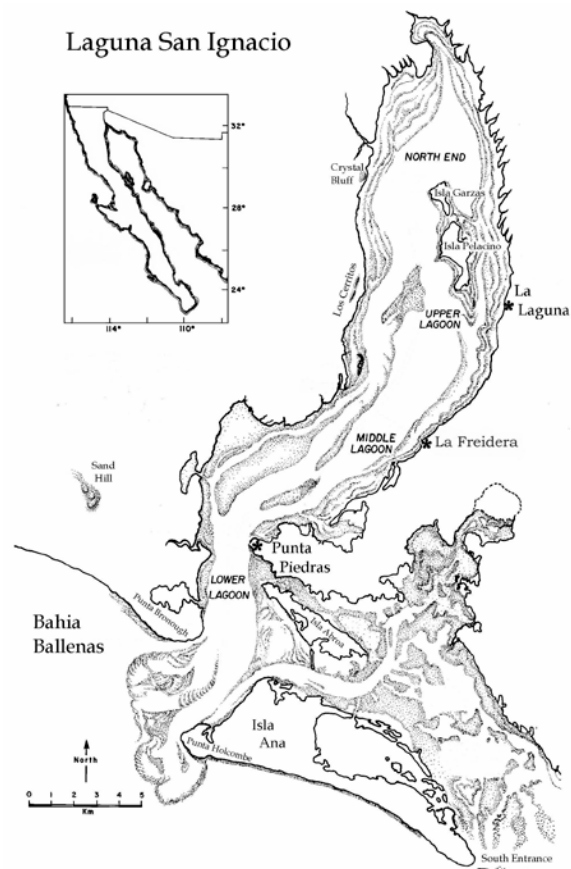


Figure 3. Map of Laguna San Ignacio.



Figure 4. The entrance of Laguna San Ignacio seen from Bahia Ballenas looking north-east toward San Hill or Morro Amarillo, and the Santa Clara mountains in the distance.



Figure 5. Rocky Point or Punta Piedras, the narrowest point of the lagoon on the southern shore that borders the Lower and Middle lagoon areas.



Figure 6. Extensive mud and sand flats that border the shore line of the lagoon, looking north from the southern shore with the Santa Clara mountains in the distance.



Figure 7. Double Hill or Los Cerritos in the Middle Lagoon as seen from the southern shore.



Figure 8. Crystal Bluff or Cantil Cristal on the western shore of the upper lagoon.



Figure 9. The Upper Lagoon basin as seen looking west from the northern end of Isla Garzas.



Figure 10. Isla Garzas in the northern end of Laguna San Ignacio.



Figure 11. Rancho La Frederia on the southern shore of the lagoon is the home of the Aguilar family. It was the site of a 19th century whaler's camp, but now supports winter time whale-watching eco-tourism.



Figure 12. Mangroves estuaries grow in dense thickets around many areas of the lagoon's inner shoreline, and provide a safe haven for marine birds.



Figure 13. Salt-water tolerant plants rim the margins of the sand/mud flats and mangrove estuaries along many of the lagoon's inner shores.



Figure 14. Sand Dunes typically border the shoreline of the outer barrier islands at the entrance of the lagoon from Bahia Ballenas.



Figure 15. Areas that flood on the high tides support vast salt-marshes that are areas of transition from the lagoon's interior into the desert.



Figure 16. Much of the desert surrounding Laguna San Igancio typically consists of low growing shrub vegetation.