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Managing Salt Lakes in the Neotropics: Challenges and Alternatives The Case of Mar Chiquita, Argentina

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The Bañados del Río Dulce and Laguna Mar Chiquita Ramsar site (Córdoba province, central Argentina) includes a large, terminal salt lake (present area = 5000 km²) and its associated grasslands and wetlands. The area is very rich in biodiversity, particularly migratory shorebirds and three species of flamingos. Climate change has altered the region dramatically. Between 1970 and 2000 the rainfall regime in the Mar Chiquita basin increased by about 30%, which resulted in a 9 m increase in the lake's water level, together with a substantial decrease in water salinity, from 23‰ to 2.7‰ (Figure 1). Lower salinity levels allowed the Argentine silverside, or pejerrey (*Odontesthes bonariensis*) to expand into the lake in the early 1980s, becoming an important economic resource. Although the lake is still largely pristine, the region is becoming increasingly threatened by man-induced environmental problems. Main negative factors include: a) water appropriation in the upper tributary rivers, b) increasing water pollution, and c) unregulated sport hunting, including international bird-hunting tourism. Water appropriation is driven mostly by agriculture expansion and urban growth along the three main Mar Chiquita tributaries. A decrease in water availability and new projected dams in the upper tributaries may result in changes in the annual flooding

and fire regime, which in turn may have profound effects on the grasslands and wetlands that surround the lake. Water pollution originates mostly from urban and agricultural sources. Lead pollution is also a growing problem because of increased hunting pressure from international waterfowl hunting tourism. Unfortunately, lead ammunition is still allowed in wetlands under the present Argentine legislation. An integrated, long-term management plan for the area is an urgent need. Management priorities include a) water-use policies in the tributaries' river basin that ensure adequate water supply to the system, including safeguarding of the annual flooding pulse, b) control of nonpoint source agricultural pollution, c) banning lead ammunition use, and d) sustainable urban planning and development. The University of Córdoba, through the PROMAR initiative, is promoting development and implementation of a management plan for the site, following Ramsar guidelines and criteria. As a first step, a comprehensive baseline study has been published recently [Bucher, E.H., ed. 2006. Laguna Mar Chiquita y Bañados del río Dulce (Córdoba, Argentina). Academia Nacional de Ciencias, Córdoba].

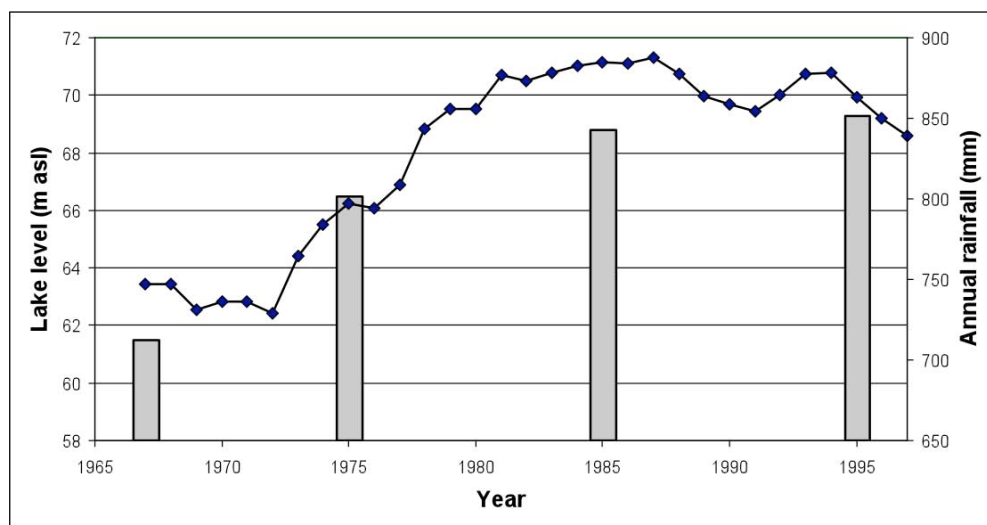


Figure 1—Mar Chiquita water level (line) and average annual rainfall for each decade in the lake's basin in 1967–1997.