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Small Aral Sea brings hope for Lake Balkhash

In the recent Letter "Save Kazakhstan's shrinking Lake Balkhash" (16 October, p. 303), A. Ussenaliyeva calls for international attention to the ecological crisis now facing Lake Balkhash. Similar problems face other water bodies without effluents, such as the Great Salt Lake (*1*) and Lake Urmia in Iran (*2*). A parallel crisis severely damaged the Aral Sea (*2*, *3*), located between Kazakhstan and Uzbekistan. The action taken in response could provide a model for lakes suffering from desiccation.

Starting around 1960, diversion of inflowing water for irrigation purposes caused an accelerating regression and salinization of the Aral Sea (*3*). By 1990, the remaining waters sustained only organisms able to thrive in polyhaline conditions, and commercial fisheries, formerly of prime importance, had vanished (*4*). The desiccation also caused multiple severe health problems due to airborne dust (*5*). In 1992, a primitive dam was constructed across the Berg Strait to retain water in the northern Small Aral Sea, demonstrating a cost-effective way to maintain a low level of salinity. With financial help from the World Bank, the structure was later replaced by a stronger dam (*3*, *6*), which succeeded in rapidly restoring the Small Aral.

With increasing water volume and decreasing salinity, species that had become extinct during the regression crisis repopulated the sea by natural means from refugia in the affluent Syr Darya river system (*7*). Commercial fisheries that depend on the lake are thriving again (*7*, *8*). The Aral Sea crisis foreshadows what may face Lake Balkhash if no timely action is taken. It also shows that a relatively small financial effort can yield substantial results. The Aral Sea is surrounded by several countries that should, jointly with the international community, take renewed action to preserve even more of this system. This coalition should also lend its expertise to determine how attention and investment can best prevent a similar ecological crisis at Lake Balkhash and the Great Salt Lake.

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Brazil's areas of not-so-permanent preservation

Recently, the National Council for the Environment in Brazil (CONAMA) repealed CONAMA Resolution 303/2002 (*1*), which has, for nearly two decades, set the rules for nation-wide Areas of Permanent Preservation (APPs). Unlike the Protected Areas officially set aside for conservation by the government or private property owners (*2*), APPs in Brazil require no governmental intervention to remain protected. Those who favor this repeal argue that CONAMA 303/2002 and its rules for APPs have been overwritten by the Forest Act approved in 2012 as Federal Law 12.651 (*3*, *4*). Although the Forest Act does cover the protection of some important ecosystems, such as mangroves (*3*), there are crucial environmental safeguards at risk should the repeal of CONAMA 303/2002 go into effect.

Under the Forest Act alone, coastal vegetation is an APP only if it acts to stabilize sand dunes, whereas CONAMA 303/2002 considers as APP all the coastal vegetation within 300 meters of the maximum height reached by a rising tide. Conversely, sand dunes will lose their protection as APPs unless they are stabilized by coastal vegetation. In addition, areas used for reproduction of migratory birds will no longer be classified as APPs. With the repeal of CONAMA 303/2002, habitat areas for threatened species will retain their categorization as APPs only if officially declared by the government, which rarely occurs.

After weeks under criticism (*5*), the repeal of CONAMA 303/2002 was temporarily suspended until the ultimate decision by the Supreme Federal Court in Brazil (*6*). We urge the Court to recognize the importance of these environmental safeguards remaining in place. In times of rapid climate change (*7*), sea level rise (*8*), and extinction crisis (*9*), the repeal of CONAMA 303/2002 will only jeopardize coastal management efforts and increase threats to species of conservation concern.

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PHOTO: SANCHEZ/ALAMY STOCK PHOTO

The sand dunes of Joaquina Beach in southern Brazil could soon lose their protected status.

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