

Water in the Colorado River Delta is beneficial for endangered species

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4 March 2018

At the ECL/GEL 290 Grand Canyon Seminar on February 28 2018, Micah Freedman presented on the topic of 'Restoration of the Colorado River Delta: Impacts of the 2014 Environmental pulse flow and future directions'. Freedman reported that just a small amount of water and some help from humans can boost bird habitat and bird numbers by almost 50% in the Colorado River Delta.

Before the damming of the Colorado River in the U.S. it once formed a vast delta between the U.S. – Mexico border and the Gulf of California. This delta provided an important oasis for migratory birds along the Pacific Flyway. The importance of these birds has been acknowledged by the U.S. and its neighbors (Great Britain on behalf of Canada, Mexico, Russia, and Japan) through the Migratory Birds Treaty (1918). At the present time, the Colorado River Delta, even in its much diminished state, is home to two birds federally acknowledged in the U.S. as endangered: the Southwestern Willow Flycatcher, and the Yuma Clapper Rail. Under the Treaty the U.S. (and other signatories) is obligated to protect these migratory birds and their habitat. Under the Endangered Species Act (1973) U.S. agencies are required to protect species deemed endangered.

As well as migratory birds, the Colorado River Delta provides important estuarine habitat for many species including the federally endangered Totoaba fish and the Vaquita - the world's most rare marine mammal (WWF). The estuary is important habitat for fisheries in the Gulf of California, providing a sheltered place for them to spawn.

The International Boundary and Water Commission (IBWC) signed Minute 319 on November 20, 2012. Minute 319 was put in place to provide water to Mexico for both direct human use and to promote the ecological health of the Colorado River Delta. This was effectively a pilot study, in part, to determine if future provision of water to Mexico could have a positive impact on the Colorado River Delta. The stated goals of this environmental flow were:

- 1 Inundate floodplain and stimulate growth of new cottonwood and willow trees
- 2 Fortify existing native vegetation
- 3 Increase bird diversity and abundance adjacent to the river

The project consisted of 105,000 AF of water released from Morelos Dam (U.S. – Mexico Border, operated by IBWC) between March 23 and April 14, 2014 at an average flowrate of approximately 2500 cfs. This flowrate is only approximately 14% of the 1904-1913 discharge (before significant damming of the Colorado River), but it still had a significant impact. The flow was tracked by scientist and eager members of the public as it reached the delta for the first time in 17 years, despite 91% of water being absorbed by the dry riverbed.

While the inundation of the riverbed led to an increase in plant life, there was significant growth of the non-native Tamarisk compared to native cottonwood and willow. The exception to this was where 'active management' was performed. Active management involves the removal of non-native vegetation and planting native seeds. The increase of plant life was accompanied with an increase in birdlife: 19 species of conservation concern (identified by the Migratory Bird Treaty) increased in numbers by 49%. Freedman did not report any assessment on the effects of the flows on marine life.

The flow to the Colorado River Delta was deemed a social and political success, as well as a technical success, by Eloise Kendy of the Nature Conservancy. It demonstrated an impressive feat of cooperation between all levels of government, scientist, water users, and other non-governmental organizations across both the U.S. and Mexico. The success of the flows from Minute 319 led to its extension in Minute 323 (signed in September 2017).

References:

Fund, W. W. (2018). "Vaquita." <<https://www.worldwildlife.org/species/vaquita>>. (March 1, 2018).