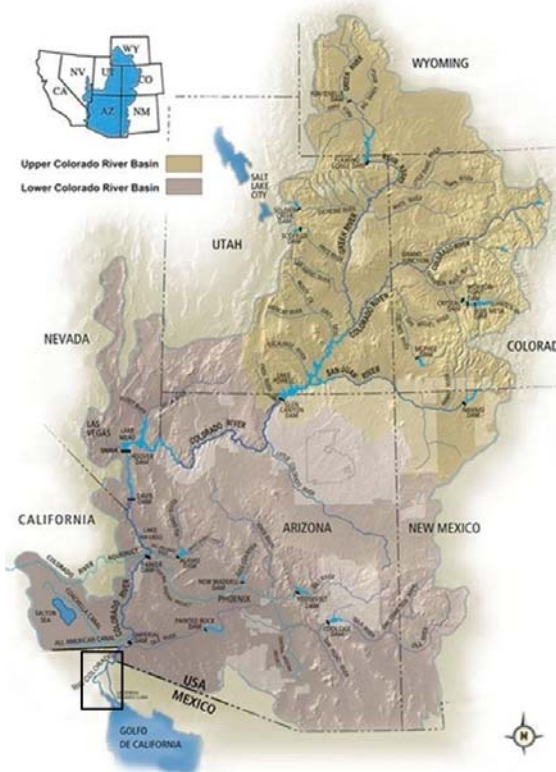




Binational Restoration Efforts to Revive the Colorado River Delta

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The Colorado River Delta



"On the map the Delta was bisected by the river, but in fact the river was nowhere and everywhere, for he could not decide which of a hundred lagoons offered the most pleasant and least speedy path to the Gulf...For the last word in procrastination, go travel with a river reluctant to lose its freedom to the sea."

— Aldo Leopold, A Sand County Almanac

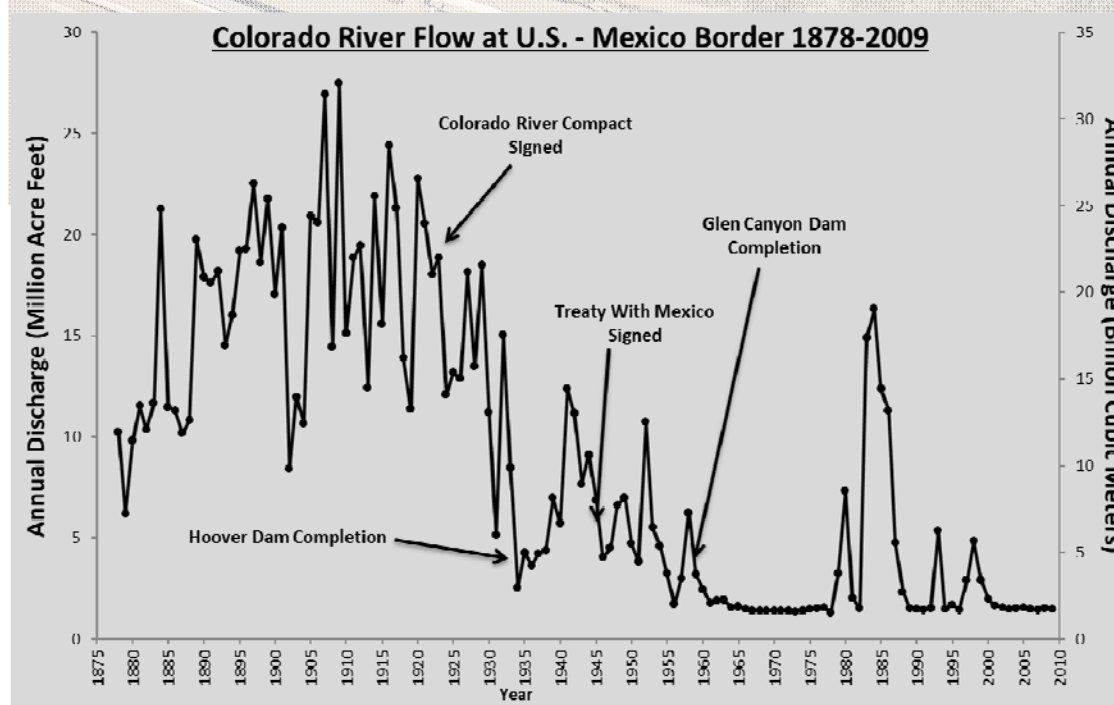


Restoration: Restore, Renew, Reconnect



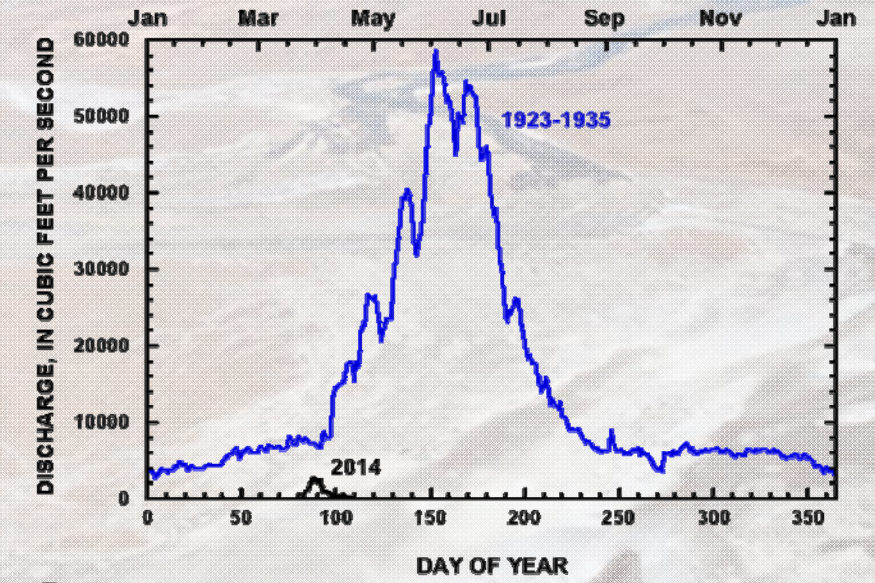
The "American Nile"

- Annual economic impact of \$1.4 trillion.
- 16.5 Million acre-feet allocated to the US basin states and Mexico, which is greater than the long-term annual yield of the basin.
- Irrigation of over 5 million acres, using approximately 80% of Colorado River water.
- Municipal water support for an estimated 40 million people.
- One of the most litigated rivers in the world.
- Numerous dams along the mainstem, with the final in the limitrophe, where all water is diverted.
- Approximately 10% of the historic 2 million acres of the Delta remain.
- Dependent on accidental flows, agricultural drainage.



Minute 319 of the US-Mexico Water Treaty

- A 5-year agreement signed in 2012 by the US and Mexico.
- Establishes guidelines for the management of Colorado River water during drought.
- Promotes investments in water conservation projects.
- Dedicates ecological flows to the Colorado River Delta for the first time in history.



Results to Date:

- The pulse flow unexpectedly connected the Colorado River to the Gulf of California.
 - Water deliveries resulted in establishment of both native and non-native riparian vegetation.
 - A 13-year trend of decline in vegetation greenness was reversed.
 - A tremendous positive social response was observed from local to international scales.
 - The international scientific team has developed an enhanced understanding of Colorado River Delta hydrology and ecology.
- Ongoing:
- Continued analysis of environmental flow effects.
 - Active restoration implementation and monitoring.
 - Using lessons of Minute 319 to develop recommendations for future environmental water deliveries.

Restoration Design and Implementation

- Revitalize the Delta within the realistic constraints of the highly-managed Colorado River.
- Create a diversity of habitat types to support wildlife and encourage community engagement.
- Optimize water resources to maximize the quality and sustainability of created habitat.
- Develop an integrated restoration approach to consider ecologic, abiotic, and public interactions.

Site Selection Considerations

- Existing habitat features.
- Shallow groundwater.
- Acceptable salinity.
- Water delivery feasibility.

Design Components

- A mosaic of diverse habitat types.
- Maximized species diversity.
- Use of both established and newly-developed revegetation techniques.



The Future of the Colorado River Delta

Environmental flows:

- Continue acquisition of long-term water rights.
- Work toward longer-term international agreements.

Restoration:

- Complete implementation at existing concession polygons.
- Secure additional riparian restoration concessions.
- Improve conditions in the Hardy River, a tributary to the Colorado River receiving agricultural return flows and treated wastewater.
- Improve tidal connections in the upper Colorado River estuary, and implement large-scale revegetation.

Monitoring and Adaptive Management:

- Implement ecological monitoring in restoration sites.
- Develop applied research projects to inform long-term restoration site sustainability.

Outreach

- Diversify outreach on the local, national, and international scales.
- Lead tours for audiences ranging from stakeholders and decision-makers to local schools.

Collaboration

- Work with other conservation organizations in the Delta to implement a unified conservation vision.

Priority restoration areas by habitat type for the Sonoran Institute Colorado River Delta Program 2015 - 2035

