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Coping with Water Scarcity in River Basins Worldwide: Lessons Learned from Shared Experiences (Martz Summer Conference, June 9-10)

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## SLIDES: Dam Operations: Does a Changing World Call for Changing Plans?

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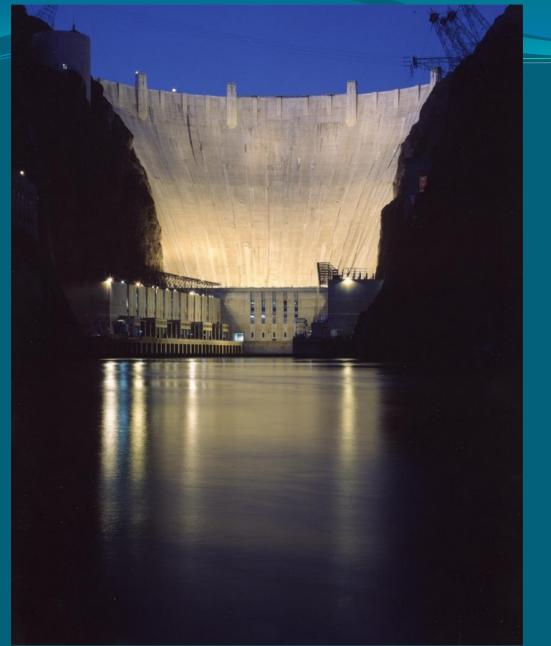
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Dam operations: Does a changing world call for changing plans?

Reed D. Benson University of New Mexico School of Law Why are reservoirs important? **Numbers**: about 75,000 dams across the US **Benefits**: esp. storage for water supply, flood control, hydropower, reservoir recreation **Impacts**: dams have altered many rivers and have major, ongoing environmental impacts **Adaptation**: revised operations could bring much-needed flexibility to a system of laws and institutions that is otherwise pretty rigid

Federal dam-building agencies 2 agencies built most of the West's big dams: <u>Bureau of Reclamation</u>: mostly water supply <u>Corps of Engineers</u>: mostly flood control Hydropower became a major purpose of both Congress directly authorized most projects - authorizing statutes set project purposes - many projects authorized for > 1 purpose



USBR's Hoover Dam on the Colorado Federal dam operating plans A project's authorized purposes largely determine its operating priorities Most federal projects are decades old, and many operate under plans about equally old Corps has detailed rules and guidance regarding dam operating plans, incl. updates USBR has no parallel rules/guidance Neither regularly revises/updates its ops plans

# In contrast: hydro relicensing

- US requires periodic review of operating regimes for non-federal hydropower projects - Federal Power Act licenses last 30-50 years
- expiration requires "relicensing" by FERC
- new license may change terms & conditions greatly to address environmental problems

# Why revise operating plans?

- Changing the operating regime may increase net benefits of a project (or avoid problems)
- incorporating latest science on flow regimes
- addressing observed or projected impacts of climate change on timing and rate of runoff
- responding to changes in the project areaconsidering public values and priorities



Dam operating plans in Alberta In southern Alberta, key reservoirs are owned and operated by a provincial agency, AEP - water supply (esp. irrigation) is main benefit AEP has great discretion re project operations - AEP is license issuer as well as holder - license terms allow for operational changes Still, AEP hasn't regularly revised its ops plans - but has shown some flexibility in operations

Why the inertia on gov't dams? Why might operating agencies be reluctant to revise/update their operating documents? - resistance from existing users/beneficiaries - time, cost, flak associated w/ public review - in US, avoiding NEPA by keeping status quo What has brought about ops plan reviews? - Endangered Species Act (US federal dams) - influential local player seeks some change



### The Corp's Lake Lanier in Georgia

Climate change and dam ops SECURE Water Act (2009) directed USBR to set up a Climate Change and Water Program - it has emphasized reports and basin studies - it has done less in developing adaptation strategies, incl. changes in reservoir ops USBR's agency-wide Climate Change Adaptation Strategy (2014) stresses water management flexibility, enhanced planning Congress is pushing Corps to review ops plans Why dam ops need attention "While it is true that global climate change will be likely to have environmental effects on the nation's delicately balanced river and riparian systems, the construction and operation of dams has already had greater hydrologic and ecologic impacts on American rivers than any changes that might reasonably be expected from global climate changes in the near future." W. Graf, "Dam Nation" (1999)