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

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

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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:

Bureau of Reclamation: mostly water supply

Corps of Engineers: 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 area
- considering 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)