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FEATURED

Dam management plan aims to boost native fish, bugs

EMERY COWAN Sun Staff Reporter 3 hrs ago

Stacey Smith/ USBR

Water gushes out of Glen Canyon Dam during a high flow release in 2012. A new plan for long term management of the dam to continue high flow releases and expand opportunities for them in the spring and the fall.

The Bureau of Reclamation is proposing new strategies to manage trout numbers, boost native humpback chub and promote insect populations on the Colorado River downstream from Glen Canyon Dam.

The agency in December released its draft plan for managing operations at the dam over the next 20 years and is accepting public comments until May 9.

The Bureau of Reclamation's proposed management options include expanded opportunities for high flow dam releases aimed at building up sandbars as well as new experiments with flow volume to better manage ecosystems downstream.

Many other actions outlined in the document build on dam operations that are currently in place, said Scott Vanderkooi, chief of the Grand Canyon Monitoring and Research Center in Flagstaff, which contributed scientific data and review of the document.

"In a sense it's fine tuning a number of the things we have been doing, learning from high-flow experiments we've done to date and experimental approaches that have been implemented downstream," Vanderkooi said.

In addition to spring and fall releases that have been allowed under current operations, the proposed plan expands opportunities for spring high flow releases and fall releases that last up to 10 days. So far, the higher flows have proved positive for sandbar health and longevity downstream of the dam, said Joe Hazel a research associate at Northern Arizona University who has studied Grand Canyon's sandbars for 25 years.

The rush of water from the floods acts to sweep up sand that has settled on the bed of the river and elevate it onto the banks.

"I'm a big believer in the high flow protocol and floods and I also believe science shows that if we don't do floods that sediment is just going to Lake Mead," Hazel said.

FISH AND BUG FLOWS

Lower summertime flows to help chub numbers, weekend low flows for the benefit of invertebrate production and trout management flows are all new experiments proposed in the Bureau of Reclamation's draft management plan, spokesman Marlon Duke wrote in an email.

Flows to manage nonnative trout near Glen Canyon Dam work by holding water discharges from the dam at a moderately high level for a certain number of days to lure young fish to the shallow edges of the river. Then dam releases are severely restricted to quickly drop water levels and leave those fish, just a few inches in length, stranded, Vanderkooi said.

The goal is to stabilize trout populations so they are less boom and bust and also keep significant numbers of trout from moving downstream and affecting native humpback chub populations, which has happened during high population years, Vanderkooi said.

Another experimental strategy aims to promote the growth of insect populations by holding the river's water level steady at a minimum level on the weekends during the summer months.

It was research by Ted Kennedy with the Grand Canyon Monitoring and Research Center that showed fish populations in the canyon are limited by the abundance and diversity of invertebrate prey like mayflies, stoneflies, and caddisflies. Because insects cement their eggs to rocks and vegetation along the river's edge, the hypothesis is that the varying flows either dry out or drown the eggs before they have a chance to hatch, Kennedy said.

The steady flows would help create better egg-laying conditions and doing so on the weekends when the cost of electricity drops makes it a more cost effective way to buffer aquatic insects against the dam's artificial flows, Kennedy said.

Kennedy said he's unaware of any other dam regulated system where these "bug flows" have been tried. He also acknowledged there is some skepticism about whether the strategy will work considering the many other stressors on the ecosystem in Grand Canyon.

Improving conditions for humpback chub is the idea behind a proposal to lower flows from the dam in June, July and August to create the warmer water conditions important for chub spawning and growth. Lower water levels allow the river to warm up by the time it gets to the Little Colorado River confluence, where chub are concentrated.

Joe Shannon a research professor in NAU's biology department, took a more skeptical view of the Bureau of Reclamations proposal for dam operations. No matter how flow releases are tweaked, the reality remains that this is an engineered system with conflicting demands, Shannon said.

"There are a huge number of objectives they're trying to reach and essentially it's impossible. They can't bring back native fish populations by just twisting the valve," he said. Dam releases can't be managed to mimic pre-dam conditions, which is in some ways what the long-term management plan is trying to do.

"The whole concept is impossible," he said. "You can't go back in time."

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