



**CHIEF OF ENGINEERS
ENVIRONMENTAL ADVISORY BOARD
WASHINGTON, D.C. 20314-1000 (CECW-P)**

3 December 2015

LTG Thomas P. Bostick,
Commanding
Headquarters, US Army Corps of Engineers
441 G Street NW
Washington, DC 20314-1000

RE: Dam Removal and Regulatory

Dear LTG Bostick,

The Environmental Advisory Board (EAB) recommends that the Corps of Engineers (Corps) propose a new Nationwide Permit (NWP) for the removal of low-head dams. This new NWP would be included in the reissuance of the NWPs in 2017. Many dams have been removed in the U.S. in recent years resulting in improved fish habitat among other ecological purposes. In addition, dams have been removed for dam safety reasons.

The attached discussion paper provides background. The new NWP would

- 1. facilitate authorization of removal of low-head dams to restore streams.**
- 2. streamline authorization for removal of old, deteriorating low-head dams that present a threat to public safety.**
- 3. be consistent with the Corps-wide emphasis on its Environmental Operating Principles.**
- 4. reinforce the concept of Environmental Flows – that is, providing environmental benefits by making small changes to a project.**

This recommendation and attached Discussion Paper was prepared as part of the EAB Work Plan for 2014-2015 (dated 5 March 2014).that addresses “Dam Removal Issues for the USACE.”

Thank you for your consideration of our recommendation. We look forward to our continued discussion with you. Please feel free to call on me or any member of the Board if you have questions.

Sincerely,

A handwritten signature in black ink that reads "Rollin H. Hotchkiss".

Rollin H. Hotchkiss
Chair

Attachment: Discussion Paper on Dam Removals

CC: Mr. Steven L. Stockton

Discussion Paper on Dam Removals and a Recommendation to the Chief of the U.S. Army Corps of Engineers regarding the submission of a proposed Nationwide Permit (NWP) for low-head dam removal

by
Environmental Advisory Board
U.S. Army Corps of Engineers

Recommendation: The U.S. Army Corps of Engineers propose a new Nationwide Permit (NWP) for the removal of low-head dams.

Background

The U.S. Army Corps of Engineers authorizes activities regulated under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 that have only minimal individual and cumulative adverse environmental effects using Nationwide Permits (NWP). Permits for disposal of dredged material associated with small dam removals are most often authorized under NWP 27, which includes “small hydraulic structures.” An attempt to identify “small dams” in NWP 27 as part of the NWP renewals in 2012 was ultimately not approved. There are a very large but unknown number of small dams in the U.S. For example, to date, more than 1,000 dams have been removed in the U.S.; more than one-half were less than 4 m high (American Rivers, 2015). In recent years (2009 through early 2014), 214 permits were issued by the Corps of Engineers for the removal of “small hydraulic structures” in 30 of the 38 Corps Districts. Ecological purposes including restoring stream channel structure and habitat and improving fish habitat accounted for nearly 75% of the issued permits, while dam safety concerns were cited in most of the remaining cases (Brumbaugh et al. 2014).

Definition of Low-Head Dam

For the purposes of this document, the term “low-head dam” will be used in place of “small dams” and “small hydraulic structures.” While there is no universally accepted definition of “low-head dam,” we will define it as a dam built to pass inflows from upstream over the entire width of the dam crest on a continual and uncontrolled basis. There is essentially no storage function provided, and there is continuous overflow across the entire width or a majority of the width of the dam crest. A low-head dam would generally not have a separate spillway or spillway gates. In a few cases there may be a small navigational lock or mill race diversion. Due to dam safety concerns, low-head dams are relatively short in height, although a height descriptor is not recommended as part of the definition.

Rationale for a New Nationwide Permit

NWP 27 mentions only “small hydraulic structures.” The term “low-head dam” is more descriptive of the type and kind of dam that is often described in permit applications. This new nationwide permit would

- facilitate the authorization of the removal of low-head dams to restore streams and enhance stream connectivity for aquatic species.
- streamline the authorization process for the removal of old, deteriorating low-head dams that present a threat to public safety. Low-head dams are notoriously dangerous due to the increasing number of recreationists who elect to traverse the dam crest. When downstream water levels are elevated, a “drowning machine” is created by a reverse roller wave at the base of the downstream side of the dam. Hundreds of fatalities have been documented and recorded to date (Kern and et al., 2015).
- be consistent with the Corps-wide emphasis on its Environmental Operating Principles and ecosystem restoration

Minimal Individual and Cumulative Adverse Environmental Impacts

In order to be considered under the NWP program, a proposed permit action must result in only minimal individual and cumulative adverse environmental impacts. Low-head dams generally do not retain large volumes of sediment but are usually high enough to restrict upstream fish passage. Anticipated issues of concern include potential sediment contamination or release of nutrients downstream to sensitive areas, loss of wetlands and changes to riparian vegetation surrounding the impoundment, safety issues associated with the post-removal site-saturated sediments, upstream headcutting of the stream bed, and addressing any historic designations associate with the dam (Connerton and Brumbaugh, 2014). During the interagency review and public commenting processes required for federal rulemaking, the resource agencies and the public may ask for changes to the proposed nationwide permit to make it more restrictive. Divisions and Districts may add restrictions to any NWP issued by Corps Headquarters to address regional or site-specific environmental concerns.

References

- American Rivers. 2015. Dams Removed in the United States. Database made available by agreement from American Rivers to Rollin H. Hotchkiss.
- Brumbaugh, Robert, Molly Connerton and Jennifer Gillrich. 2014. US Army Corps of Engineers Permits and Dam Removal: Geography and Magnitude Overview DRAFT Internal Working Paper prepared for EAB consideration, June.
- Connerton, Molly, and Robert Brumbaugh. 2014. District Experiences with Permit Applications Involving Dam Removal – DRAFT Internal Working Paper for EAB, June.

Kern, Edward W., Rollin H. Hotchkiss and Daniel P. Ames. 2015. **Introducing a Low-Head Dam Fatality Database and Internet Information Portal.** Journal of the American Water Resources Association (JAWRA) 1-7. DOI: 10.1111/jawr.12289