

Reclamation Manual

Directives and Standards

Subject:	Floodplain Management
Purpose:	To (1) reduce the vulnerability of the nation to loss of life and property and the disruption of societal and economic pursuits caused by flooding or facility operations; and (2) sustain, restore, or enhance the natural resources, ecosystems, and other functions of the floodplain. The benefits of this Directive and Standard (D&S) are to ensure the Bureau of Reclamation's compliance with Federal laws, protect life, and preserve the functions of floodplain.
Authority:	Reclamation Project Act of 1902 (32 Stat. 388), as amended and supplemented; Reclamation Safety of Dams Act of 1978 (Pub. L. 95-578), as amended; National Environmental Policy Act of 1969 (Pub. L. 91-190; 83. Stat. 832), as amended; Executive Order (EO) 11988 Floodplain Management; EO 11990 Protection of Wetlands; Energy Policy Act of 1992 (Pub. L. 102-486); Principles and Requirements for Federal Investments in Water Resources (Council on Environmental Quality, March 2013); Federal Water Project Recreation Act (Pub. L. 89-72; 79 Stat. 213), as amended; Migratory Bird Conservation Act (45 Stat. 1222), as amended; Watershed Protection and Flood Prevention Act (Pub. L. 83-566); Intermodal Surface Transportation Efficiency Act of 1991 (Pub. L. 102-240); Water Resources Development Act of 2007 (Pub. L. 110-114); 520 Departmental Manual Chapter 1 (Floodplain Management and Wetlands Protection Policy and Responsibilities) and Chapter 2 (Floodplain Management and Wetlands Protection Program Requirements); EO 13690 - <i>Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input</i> (January 30, 2015), <i>amending EO 11988</i> ; EO 14030 – <i>Climate-Related Financial Risk</i> (May 20, 2021); and project-specific authorizations.
Approving Official:	Director, Policy and Programs
Contact:	Environmental Compliance Division (84-53000)

1. **Introduction.** Reclamation will proactively seek and implement appropriate floodplain management activities to sustain, restore, or enhance the functions of the floodplain. Reclamation will approach watershed and floodplain management issues on an integrated systems approach accounting for watershed hydrology, river hydraulics, land form and channel geomorphology, river mechanics and sedimentation, land use, water quality and quantity, ecosystems, and functions of the floodplain. This D&S will be implemented within existing funding and under existing authorities, which are described in more detail in the *Floodplain Management Guidelines for Implementing Executive Order 11988* (Federal Register, Volume 43, 6030).

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When evaluating the potential effects of the proposed actions covered by this D&S, Reclamation will establish the floodplain and associated wetlands based on the type of action and whether the action is critical. For actions that are not either critical or Federally funded projects, the minimum standard is the 100-year or 1-percent annual exceedance probability event elevation and corresponding horizontal floodplain and associated wetlands. For critical actions, Reclamation should use the 500-year or 0.2-percent annual exceedance probability event elevation and corresponding horizontal floodplain and associated wetlands. For Federally funded projects, and any other action Reclamation determines is warranted, the floodplain and associated wetlands is the Federal Flood Risk Management Standard (FFRMS). To the maximum extent practicable, the climate-informed science approach, using paragraph (A) below, establishes the FFRMS. If using the climate-informed science approach is not practicable, Reclamation offices may use one of the below approaches (B-D), unless an exception is made under 520 DM 1.5 B (4), 1.5 C (3), or E (2). Offices may use:

- A. the elevation and flood hazard area resulting from a climate-informed science approach and the best-available/actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding as an approach. This approach also includes an emphasis on whether the action is critical as one of the factors for consideration when conducting the analysis.
 - B. the elevation and flood hazard area that results from using the freeboard value, reached by adding an additional 2 feet to the base flood elevation (100-year or 1-percent annual exceedance probability event elevation) for non-critical actions and from adding an additional 3 feet to the base flood elevation (100-year or 1-percent annual exceedance probability event elevation) for critical actions (Freeboard Value Approach) as an approach.
 - C. the area subject to flooding by a 0.2-percent annual exceedance probability event (500-year flood elevation) as an approach.
 - D. the elevation and flood hazard area that results from using any other method identified in an update to the FFRMS as an approach.
2. **Applicability.** This D&S is applicable to all Reclamation activities in floodplains or affecting floodplain management.
 3. **Requirements and Responsibilities.**
 - A. **Policy Making and Enforcement**
 - (1) The Commissioner will establish all Reclamation directives and standards regarding floodplain management.

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- (2) The regional directors and the directors of offices in Denver, must ensure compliance with policies regarding floodplain management, as applicable. This includes reviewing their programs for compliance with the EOs and policies and requirements in 520 DM 1, *Floodplain Management and Wetlands Protection Policy and Responsibilities* and 2, *Floodplain Management and Wetlands Protection Program Requirements*.

B. Public Safety/Hazard Mitigation/Emergency Management and Preparedness.

- (1) Reclamation will take reasonable and prudent actions, consistent with Policies and Directives and Standards related to emergency management and dam safety, to provide for the safety of the public and reduce risk of property damages and economic loss stemming from flood flows, operations, or failure of its dams, levees, canals, or other facilities.
- (2) Reclamation will emphasize cost-effective nonstructural approaches to reduce potential flood damages, reduce threat to public safety from its dams or other facilities, and enhance functions of the floodplain.
- (3) Reclamation will consider reasonable alternatives to development in the floodplain unless the action is unavoidable. If the only practical alternative involves development in the floodplain, Reclamation will (1) reduce, to the greatest extent practicable, the potential adverse impacts of the proposed action, (2) take steps to restore or preserve the functions of the floodplain, (3) reduce the vulnerability of that development to repetitive flood damages, and (4) incorporate notification and early public involvement into any floodplain management as required by EO 11988 and 520 DM 1 and 2, either through the existing National Environmental Policy Act processes, where applicable, or through a separate process when necessary. This notification will include an explanation of why the action is proposed to be in the floodplain.
- (4) All resource management plans, reservoir operating procedures, and Emergency Action Plans will consider the health and safety of the public along with protection and enhancement of other functions of floodplain.

C. Channel Capacity Management/Encroachment.

- (1) Reclamation will operate and maintain its facilities to sustain or improve channel and floodplain flow carrying capacities in an effort to minimize property damage when large releases are necessary. When appropriate, Reclamation will conduct channel maintenance to prevent river aggradation which adversely affects floodplain drainage and the ability to convey and deliver water and sediment through a river system. Reclamation will take advantage of opportunities to periodically provide controlled releases to enhance functions of the floodplain and to improve channel capacity. Channel maintenance work will allow natural

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geomorphic processes to occur to the maximum practical extent while at the same time providing for prudent public safety.

- (2) Reclamation will actively participate in or conduct public awareness activities to educate the public on the risks and problems related to development within floodplains. Offices will address and actively discourage encroachment into floodplain and floodways below and around Reclamation facilities. Reclamation will support the acquisition of additional flood easements, where appropriate, to accomplish the purposes of RM Policy, *Floodplain Management* (CMP P01).

D. Environmental Preservation, Restoration, or Enhancement.

- (1) Reclamation will protect, restore, or enhance the natural resources and functions of the floodplain. To fulfill this responsibility, Reclamation will pursue opportunities to reanalyze and modify operations and maintenance of its facilities to benefit floodplain ecosystems and to sustain, restore, or enhance aquatic riparian and wetland habitats. Reclamation will seek to minimize disruptive effects of projects on naturally established floodplain and sediment transport processes, natural water filtering processes, ecosystems, natural habitat, special status species, recreation, and cultural and archeological sites.
- (2) Reclamation will promote opportunities to create or enhance habitat by reconnecting rivers to their floodplains or enhance ecosystems by controlled flooding of riparian habitats.
- (3) Protection and enhancement of floodplains includes activities in watersheds above Reclamation facilities. Reclamation will proactively pursue resolution of water quality and sediment problems such as toxic mine and industrial drainage, erosion, and thermal enhancement by watershed reforestation, revegetation, and channel shaping. This includes working towards effective land use planning with other Federal agencies such as the Bureau of Land Management, Natural Resource Conservation Service, Bureau of Indian Affairs, National Park Service, and the Forest Service, plus tribal, State, and local agencies and non-governmental organizations.
- (4) Reclamation will manage for biodiversity and ecosystems resource management under memorandums of agreement and Federal statutes.

E. Floodplain Management Partnerships/Flood Recovery.

- (1) Reclamation, in partnership with traditional and new constituencies, will assist in developing community-based solutions to current and anticipated floodplain management goals that build local responsibility for sustainable floodplain management decisions consistent with Reclamation's goals and operational requirements.

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- (2) Reclamation will pursue opportunities to partner with local interests to enable them to manage for the 100-year event (or more severe flood event, as appropriate), to prevent unacceptable risks, and to enhance or protect functions of the floodplain.
 - (3) Reclamation will strive to reduce potentially serious flood problems in a manner consistent with protecting and enhancing the functions of floodplain. This can be accomplished through close coordination with the public and private operating entities, Federal Emergency Management Agency, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and other Federal, State, tribal, and local resource and emergency management agencies as appropriate, during Reclamation studies, operational plan reviews, and flood response and recovery activities.
 - (4) If deemed to be in the Federal interest, Reclamation will provide technical assistance to States, tribes, local interests, and other Federal agencies to assist community-based floodplain management solutions. Technical assistance can include, but is not limited to, watershed modeling; design and installation of early warning systems; flood forecasting; emergency management related information such as inundation maps and emergency action and operations plans; and integrated floodplain planning, design, implementation, and operation. Such technical assistance will generally be provided on a fully reimbursable basis unless the floodplain in question is associated with or influenced by a Reclamation facility
 - (5) Working in partnership with the State and local communities and jurisdictions, Reclamation will improve and clarify flood event disaster recovery plans and capabilities, identify Reclamation's and other stakeholder's roles, and acquire state-of-the-art flood event communication systems where appropriate.
 - (6) Reclamation will, if possible and appropriate, participate in Federal Emergency Management Agency's Hazard Mitigation Teams.
4. **Definitions.** The definitions under Paragraph 5 of CMP P01 apply to this D&S. In addition, the following definitions apply.
- A. **Critical Action.** Any activity for which even a slight chance of flooding would be too great.
 - B. **Federally Funded Projects.** Federally funded projects, for the purpose of the FFRMS, are a subset of actions, as defined above and in EO 13690 and include projects where Federal funds are used for new construction, substantial improvement, or to address substantial damage to structures and facilities.
5. **Review Period.** The originating office will review this release every 4 years.