



A TRAINING COURSE FOR MITIGATION BANKING INTERAGENCY REVIEW TEAMS



Reference Document 13 Stream Credit Determination

A. Federal Stream Credit Determination Policy

2008 Compensatory Mitigation for Losses of Aquatic Resources

§332.2 Definitions

Credit means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved.

Condition means the relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

Functional capacity means the degree to which an area of aquatic resource performs a specific function.

Functions means the physical, chemical, and biological processes that occur in ecosystems.

§332.3 General compensatory mitigation requirements

(h) Preservation.

(1) Preservation may be used to provide compensatory mitigation for activities authorized by DA permits when all the following criteria are met:

(i) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;

(ii) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;

(iii) Preservation is determined by the district engineer to be appropriate and practicable;

(iv) The resources are under threat of destruction or adverse modifications; and

(v) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

(2) Where preservation is used to provide compensatory mitigation, to the extent appropriate and practicable the preservation shall be done in conjunction with aquatic resource restoration, establishment, and/or

enhancement activities. This requirement may be waived by the district engineer where preservation has been identified as a high priority using a watershed approach described in paragraph (c) of this section, but compensation ratios shall be higher.

(i) Buffers. District engineers may require the restoration, establishment, enhancement, and preservation, as well as the maintenance, of riparian areas and/or buffers around aquatic resources where necessary to ensure the long-term viability of those resources. Buffers may also provide habitat or corridors necessary for the ecological functioning of aquatic resources. If buffers are required by the district engineer as part of the compensatory mitigation project, compensatory mitigation credit will be provided for those buffers.

(j) Relationship to other federal, tribal, state, and local programs.

(1) Compensatory mitigation projects for DA permits may also be used to satisfy the environmental requirements of other programs, such as tribal, state, or local wetlands regulatory programs, other federal programs such as the Surface Mining Control and Reclamation Act, Corps civil works projects, and Department of Defense military construction projects, consistent with the terms and requirements of these programs and subject to the following considerations:

(i) The compensatory mitigation project must include appropriate compensation required by the DA permit for unavoidable impacts to aquatic resources authorized by that permit.

(ii) Under no circumstances may the same credits be used to provide mitigation for more than one permitted activity. However, where appropriate, compensatory mitigation projects, including mitigation banks and in-lieu fee projects, may be designed to holistically address requirements under multiple programs and authorities for the same activity.

(2) Except for projects undertaken by federal agencies, or where federal funding is specifically authorized to provide compensatory mitigation, federally-funded aquatic resource restoration or conservation projects undertaken for purposes other than compensatory mitigation, such as the Wetlands Reserve Program, Conservation Reserve Program, and Partners for Wildlife Program activities, cannot be used for the purpose of generating compensatory mitigation credits for activities authorized by DA permits. However, compensatory mitigation credits may be generated by activities undertaken in conjunction with, but supplemental to, such programs in order to maximize the overall ecological benefits of the restoration or conservation project.

(3) Compensatory mitigation projects may also be used to provide compensatory mitigation under the Endangered Species Act or for Habitat Conservation Plans, as long as they comply with the requirements of paragraph (j)(1) of this section.

§332.4 *Planning and documentation*

(c) *Mitigation Plan.* [The mitigation plan must include:]

(6) *Determination of credits.* A description of the number of credits to be provided, including a brief explanation of the rationale for this determination. (See § 332.3(f).)

(i) For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity.

(ii) For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

§332.8 *Mitigation Banks*

(o) *Determining credits.*

(1) *Units of measure.* The principal units for credits and debits are acres, linear feet, functional assessment units, or other suitable metrics of particular resource types. Functional assessment units or other suitable metrics may be linked to acres or linear feet.

(2) *Assessment.* Where practicable, an appropriate assessment method (e.g., hydrogeomorphic approach to wetlands functional assessment, index of biological integrity) or other suitable metric must be used to assess and describe the aquatic resource types that will be restored, established, enhanced and/or preserved by the mitigation bank or in-lieu fee project.

(3) *Credit production.* The number of credits must reflect the difference between pre- and post-compensatory mitigation project site conditions, as determined by a functional or condition assessment or other suitable metric.

(4) *Credit value.* Once a credit is debited (sold or transferred to a permittee), its value cannot change.

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(6) *Credits provided by preservation.* These credits should be specified as acres, linear feet, or other suitable metrics of preservation of a particular resource type. In determining the compensatory mitigation requirements for DA permits using mitigation banks or in-lieu fee programs, the district engineer should apply a higher mitigation ratio if the requirements are to be met through the use of preservation credits. In determining this higher ratio, the district engineer must consider the relative importance of both the impacted and the preserved aquatic resources in sustaining watershed functions.

(7) *Credits provided by riparian areas, buffers, and uplands.* These credits should be specified as acres, linear feet, or other suitable metrics of riparian area, buffer, and uplands, respectively. Non-aquatic resources can only be used as compensatory mitigation for impacts to aquatic resources authorized by DA permits when those resources are essential to maintaining the ecological viability of adjoining aquatic resources. In

determining the compensatory mitigation requirements for DA permits using mitigation banks and in-lieu fee programs, the district engineer may authorize the use of riparian area, buffer, and/or upland credits if he determines that these areas are essential to sustaining aquatic resource functions in the watershed and are the most appropriate compensation for the authorized impacts.



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B. Stream Credit Determination Methods

Stream Mitigation Compendium

- A review of 51 stream assessment protocols from throughout the U.S. The report highlights examples of existing stream assessment/mitigation protocols that may serve as models for other regions of the country.
- Somerville, D.E. and B.A. Pruitt. September 2004. *Physical Stream Assessment: A Review of Selected Protocols for Use in the Clean Water Act Section 404 Program*. Prepared for the U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Wetlands Division (Order No. 3W-0503-NATX). Washington, D.C. 213 pp.
- <http://www.mitigationactionplan.gov/stream%20comp%20page.htm>

Charleston District, U.S. Army Corps of Engineers

- The Charleston district's Compensatory Mitigation SOP includes detailed information and formulas for calculating both wetland and stream impacts and credits.
- U.S. Army Corps of Engineers, Charleston District. September 19, 2002. "Compensatory Mitigation Standard Operating Procedure."
- <http://www.sac.usace.army.mil/permits/sop02-01.pdf>

Little Rock, U.S. Army Corps of Engineers.

- Little Rock, U.S. Army Corps of Engineers. Little Rock Stream Mitigation Functional Assessment Document.
- <http://www.swl.usace.army.mil/regulatory/funassessmethod.html>

Memphis District, U.S. Army Corps of Engineers.

- Memphis District, U.S. Army Corps of Engineers. 2007. State of Missouri Stream Mitigation Method.
- http://www.mvm.usace.army.mil/regulatory/guidelines/MO_Stream_Mitigation_Method.pdf

Mobile District, U.S. Army Corps of Engineers: Stream Mitigation Credits

- The Mobile district has developed guidance for stream mitigation, including information about stream credit generation. The 2009 “Stream Mitigation Guidance” covers various types of stream restoration and enhancement activities, as well as information about riparian buffer restoration and enhancement and credit determination procedures
- <http://www.sam.usace.army.mil/RD/reg/>

Norfolk District, U.S. Army Corps of Engineers: Unified Stream Methodology

- The Norfolk District of the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality developed a Unified Stream Assessment Methodology (USM) for evaluating impacts to streams and assessing compensatory mitigation offered for stream impacts.
- U.S. Army Corps of Engineers, Norfolk District and Virginia Department of Environmental Quality. January 2007. “Unified Stream Methodology for use in Virginia.” (Includes spreadsheets & methodology for determining stream mitigation credit requirements.)
- <https://155.78.20.213/ribits/assessmenttools.php>

USDA Natural Resources Conservation Service: Stream Restoration Design

- U.S. Department of Agriculture, Natural Resources Conservation Service. August 2007. “Stream Restoration Design.” Part 654 National Engineering Handbook.
- <http://directives.sc.egov.usda.gov/viewerFS.aspx?id=3491>

Wilmington District, U.S. Army Corps of Engineers

- Wilmington District, U.S. Army Corps of Engineers. February 13, 2008. “Determining Appropriate Mitigation Credit for Dam Removal Projects in North Carolina.”
<http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/mitigation-dam-removal-NC-2-2008.pdf>
- “Framework for Mitigation Review in NC” April 2008.
http://www.saw.usace.army.mil/wetlands/Mitigation/2008-Updates/SAW-Mitigation-Framework4_22_08.pdf
- U.S. Army Corps of Engineers, Wilmington District, North Carolina Division of Water Quality, U.S. Environmental Protection Agency, Region IV, Natural Resources Conservation Service, and the North Carolina Wildlife Resources Commission. April 2003. “Stream Mitigation Guidelines.”
http://www.saw.usace.army.mil/WETLANDS/Mitigation/stream_mitigation.html

- Guidelines on stream restoration in the coastal plains of North Carolina prepared by U.S. Army Corps of Engineers, Wilmington District and North Carolina Department of Environment and Natural Resources.
- U.S. Army Corps of Engineers, Wilmington District and North Carolina Department of Environment and Natural Resources. April 4, 2007. "Information Regarding Stream Restoration with Emphasis on the Coastal Plain."
- http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/Coastalinfo_4_4_07.pdf