



A TRAINING COURSE FOR MITIGATION BANKING INTERAGENCY REVIEW TEAMS



Reference Document 6

Ecological Considerations for Mitigation Bank and In-Lieu Fee Program Site Selection and Design

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B. Site Selection & Design Policy

2008 Compensatory Mitigation for Losses of Aquatic Resources

§332.3 General compensatory mitigation requirements

(d) Site selection

(1) The compensatory mitigation project site must be ecologically suitable for providing the desired aquatic resource functions. In determining the ecological suitability of the compensatory mitigation project site, the district engineer must consider, to the extent practicable, the following factors:

(i) Hydrological conditions, soil characteristics, and other physical and chemical characteristics;

(ii) Watershed-scale features, such as aquatic habitat diversity, habitat connectivity, and other landscape scale functions;

(iii) The size and location of the compensatory mitigation site relative to hydrologic sources (including the availability of water rights) and other ecological features;

(iv) Compatibility with adjacent land uses and watershed management plans;

(v) Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federally- or state-listed threatened and endangered species; and

(vi) Other relevant factors including, but not limited to, development trends, anticipated land use changes, habitat status and trends, the relative locations of the impact and mitigation sites in the stream network, local or regional goals for the restoration or protection of particular habitat types or functions (e.g., re-establishment of habitat corridors or habitat for species of concern), water quality goals, floodplain management goals, and the relative potential for chemical contamination of the aquatic resources.

(2) District engineers may require onsite, off-site, or a combination of on-site and off-site compensatory mitigation to replace permitted losses of aquatic resource functions and services.

(3) Applicants should propose compensation sites adjacent to existing aquatic resources or where aquatic resources previously existed.

§332.4 *Planning and documentation*

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

(3) Site selection. A description of the factors considered during the site selection process. This should include consideration of watershed needs, onsite alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic *resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site*. (See § 332.3(d).)

2001 NRC Report: Compensating for Wetland Losses under the Clean Water Act

- The committee concluded that such a preference for on-site and in-kind mitigation should not be automatic, but should follow from an analytically based assessment of the wetland needs in the watershed and the potential for the compensatory wetland to persist over time. (p. 4.)
- Site selection for wetland conservation and mitigation should be conducted on a watershed scale in order to maintain wetland diversity, connectivity, and appropriate proportions of upland and wetland systems needed to enhance the long-term stability of the wetland and riparian systems. Regional watershed evaluation would greatly enhance the protection of wetlands and/or the creation of wetland corridors that mimic natural distributions of wetlands in the landscape. (p. 4.)
- All mitigation wetlands should become self-sustaining. Proper placement in the landscape to establish hydrogeological equivalence is inherent to wetland sustainability. (pp. 4-5.)
- A mitigation site needs to have the ability to become self-sustaining. This means that the hydrological processes that define a wetland in the ecosystem need to be present and expected to persist in perpetuity. To aid regulators and mitigators in designing projects that will become ecologically self-sustaining, the committee offers 10 operational guidelines.

Operational Guidelines for Creating or Restoring Self-Sustaining Wetlands

1. Consider the hydrogeomorphic and ecological landscape and climate.
2. Adopt a dynamic landscape perspective.
3. Restore or develop naturally variable hydrological conditions.
4. Whenever possible, choose wetland restoration over creation.
5. Avoid over-engineered structures in the wetland's design.
6. Pay particular attention to appropriate planting elevation, depth, soil type, and seasonal timing.
7. Provide appropriately heterogeneous topography.
8. Pay attention to subsurface conditions, including soil and sediment geochemistry and physics, groundwater quantity and quality, and infaunal communities.

9. Consider complications associated with wetland creation or restoration in seriously degraded or disturbed sites.
10. Conduct early monitoring as part of adaptive management. (pp 5-6.)

2003 Operational Guidelines for Creating or Restoring Self-Sustaining Wetlands

Memorandum to the field issued by the Corps on October 29, 2003, which identifies the ten operational guidelines for planning and siting successful mitigation projects drawn directly from the NRC report (above).

2003 Model Compensatory Mitigation Plan Checklist

- Mitigation Site Selection and Justification
 - o Describe process of selecting proposed site
 - o Likelihood of success, future land use compatibility, etc.

3. Mitigation Site Selection & Justification

- a. Site-specific objectives: Description of mitigation type(s),¹ acreage(s) and proposed compensation ratios.
- b. Watershed/regional objectives: Description of how the mitigation project will compensate for the functions identified in the Mitigation Goals section 1(c).
- c. Description of how the mitigation project will contribute to aquatic resource functions within the watershed or region (or sustain/protect existing watershed functions) identified in the Mitigation Goals section 1(d). How will the planned mitigation project contribute to landscape connectivity?
- d. Likely future adjacent land uses and compatibility (show on map or aerial photo).
- e. Description of site selection practicability in terms of cost, existing technology, and logistics.
- f. If the proposed mitigation is off-site and/or out-of-kind, explain why on-site or in-kind options² are not practicable or environmentally preferable.
- g. Existing and proposed mitigation site deed restrictions, easements and rights-of-way. Demonstrate how the existence of any such restriction will be addressed, particularly in the context of incompatible uses.
- h. Explanation of how the design is sustainable and self-maintaining. Show by means of a water budget that there is sufficient water available to sustain long-term wetland or stream hydrology. Provide evidence that a legally defensible, adequate and reliable source of water exists.
- i. USFWS and/or NOAA Fisheries Listed Species Clearance Letter or Biological Opinion.

¹ That is, restoration, enhancement, creation or preservation: see Regulatory Guidance Letter (RGL) 02-2, Mitigation RGL, for definitions for these terms.

² See Federal Guidance on the Use of Off-Site and Out-of-Kind Compensatory Mitigation under Section 404 of the CWA.

j. SHPO Cultural Resource Clearance Letter.

District Site Location Guidelines

Charleston District, U.S. Army Corps of Engineers. Charleston District Mitigation Standard Operating Procedure. September 19, 2002.

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Little Rock District, U.S. Army Corps of Engineers. Little Rock District Stream Methods. March 21, 2008.

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Wilmington District, U.S. Army Corps of Engineers. April 2003. Stream Mitigation Guidelines. Section 6 Selection of Mitigation Sites.

<http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/Stream/STREAM%20MITIGATION%20GUIDELINE%20TEXT.pdf>

State Site Location Guidelines

Washington State Department of Transportation. Preliminary Wetland Mitigation Site Selection Process” February 2008.

<http://www.wsdot.wa.gov/NR/rdonlyres/B67BAF0A-95E8-417A-9E73-0C5F186A0A78/0/WetMitPreSiteSelectGuid.pdf>

Washington State Department of Transportation. Guidance on Wetland Mitigation Site Evaluation Matrix. February 2008

<http://www.wsdot.wa.gov/NR/rdonlyres/0FA8BC87-7B38-43A5-AEC6-EF6A56E36444/0/WetMitSiteEvalMatrixGuid.pdf>

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Washington State Department of Ecology and Seattle District Corps of Engineers “Selecting Wetland Mitigation Sites Using a Watershed Approach”,

<http://www.ecy.wa.gov/pubs/0906032.pdf>

Other Site Location Guidelines

National Marine Fisheries Service, Southwest Regional Office. Southern California Eelgrass Mitigation Policy.

http://swr.nmfs.noaa.gov/hcd/policies/EELPOLrev11_final.pdf



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C. Watershed Approach Policy

2006 Proposed Compensatory Mitigation Regulations

§332.3 General compensatory mitigation requirements

(c) Watershed approach to compensatory mitigation.

(1) The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable. Where a watershed plan is available, the district engineer will determine whether the plan is appropriate for use in the watershed approach for compensatory mitigation. In cases where the district engineer determines that an appropriate watershed plan is available, the watershed approach should be based on that plan. Where no such plan is available, the watershed approach should be based on information provided by the project sponsor or available from other sources. The ultimate goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites.

(2) Considerations.

(i) A watershed approach to compensatory mitigation considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed. Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (e.g., water quality or

habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource.

(ii) Locational factors (e.g., hydrology, surrounding land use) are important to the success of compensatory mitigation for impacted habitat functions and may lead to siting of such mitigation away from the project area. However, consideration should also be given to functions and services (e.g., water quality, flood control, shoreline protection) that will likely need to be addressed at or near the areas impacted by the permitted impacts.

(iii) A watershed approach may include on-site compensatory mitigation, off-site compensatory mitigation (including mitigation banks or in-lieu fee programs), or a combination of on-site and off-site compensatory mitigation.

(iv) A watershed approach to compensatory mitigation should include, to the extent practicable, inventories of historic and existing aquatic resources, including identification of degraded aquatic resources, and identification of immediate and long-term aquatic resource needs within watersheds that can be met through permittee-responsible mitigation projects, mitigation banks, or in-lieu fee programs. Planning efforts should identify and prioritize aquatic resource restoration, establishment, and enhancement activities, and preservation of existing aquatic resources that are important for maintaining or improving ecological functions of the watershed. The identification and prioritization of resource needs should be as specific as possible, to enhance the usefulness of the approach in determining compensatory mitigation requirements.

(v) A watershed approach is not appropriate in areas where watershed boundaries do not exist, such as marine areas. In such cases, an appropriate spatial scale should be used to replace lost functions and services within the same ecological system (e.g., reef complex, littoral drift cell).

(3) *Information Needs.*

(i) In the absence of a watershed plan determined by the district engineer under paragraph (c)(1) of this section to be appropriate for use in the watershed approach, the district engineer will use a watershed approach based on analysis of information regarding watershed conditions and needs, including potential sites for aquatic resource restoration activities and priorities for aquatic resource restoration and preservation. Such information includes: current trends in habitat loss or conversion; cumulative impacts of past development activities, current development trends, the presence and needs of sensitive species; site conditions that favor or hinder the success of compensatory mitigation projects; and chronic environmental problems such as flooding or poor water quality.

(ii) This information may be available from sources such as wetland maps; soil surveys; U.S. Geological Survey topographic and hydrologic maps; aerial photographs; information on rare, endangered and threatened species and critical habitat; local ecological reports or studies; and other information sources that could be used to identify locations for suitable compensatory mitigation projects in the watershed.

(iii) The level of information and analysis needed to support a watershed approach must be commensurate with the scope and scale of the proposed impacts requiring a DA permit, as well as the functions lost as a result of those impacts.

(4) *Watershed scale*. The size of watershed addressed using a watershed approach should not be larger than is appropriate to ensure that the aquatic resources provided through compensation activities will effectively compensate for adverse environmental impacts resulting from activities authorized by DA permits. The district engineer should consider relevant environmental factors and appropriate locally developed standards and criteria when determining the appropriate watershed scale in guiding compensation activities.

2001 NRC Report: Compensating for Wetland Losses under the Clean Water Act

Generally, see pp. 140 – 149.

Examples of In-Lieu Fee Program Guidelines:

Oregon Department of State Lands Fee In Lieu Program Compensation Planning Framework

https://www.nwp.usace.army.mil/op/g/docs/documents/Statewide_Fee_In_Lieu.pdf