

BASIC PRIMER ON MITIGATION

Introduction

The Council for Environmental Quality's National Environmental Policy Act guidelines (40 Code of Federal Regulations (CFR) 1508.20) define mitigation as a hierarchical set of decisions or actions taken to:

- (a) Avoid the impact altogether by not taking a certain action or parts of an action.
- (b) Minimize impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensate for the impact by replacing or providing substitute resources or environments.

Most compensatory mitigation programs around the world follow this hierarchy (McKenney and Kiesecker 2009).

Types of Mitigation Programs

Mitigation Programs fall into one of the following three basic types:

Permittee-responsible mitigation: In Permittee-Responsible Mitigation, all of the actions required to meet the compensatory (offset) mitigation obligations are undertaken by the entities seeking a permit to impact a regulated natural resource or an authorized agent or contractor working on their behalf. In this type of program, the permittee retains full responsibility for meeting all of the terms of the permit they receive.

In-Lieu Fee Program: In an In-Lieu Fee Mitigation Program, entities seeking a permit to impact a regulated natural resource pay an In-lieu fee mitigation program administrator or sponsor to fulfill their obligation to provide compensatory mitigation (sometimes referred to as "debits") associated with their project. Under the Clean Water Act, governmental and non-profit natural resources management entities are authorized to administer in-lieu fee programs. The operation and use of an in-lieu fee program is governed by an in-lieu fee program instrument (agreement). Once the landowner has paid the required fees, the administrator has the obligation to invest the funds in actions [restoration, establishment, enhancement, and/ or preservation] under the terms of the program instrument.

Habitat Credit Trading Program: Habitat Credit Trading Programs or "marketplace programs" connect entities seeking a permit (permittee) to impact a regulated natural resource with those interested in committing to fulfill some or all of the permittee's compensatory mitigation obligations. As in an In Lieu Program, a permittee make a payment(s) or purchase 'credits' to meet their compensatory mitigation requirements.

Under all three types of programs offsets can be met permit by permit or bundled into larger offset projects or 'banks'. Federal Agencies have defined Mitigation Banks as a site, or suite of sites, where natural resources are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts to similar resources authorized by federal or state permits. This general term is often used synonymously with more specific terms such as "wetland mitigation bank" or "conservation bank." Mitigation "bankers" are required to enter into a legal agreement with the

regulatory agency based on a set of actions they will take on a given tract of land. The regulatory agency determines how many “credits” the activities will generate and sets conditions the banker must meet in order to sell the credits to offset adverse but authorized impacts (debits). The obligation to fulfill the compensatory offset obligations then transfers to the mitigation banker.

No matter which type of mitigation program is being employed, the following issues need to be addressed to ensure that the actions being taken will produce effective conservation benefits:

- **Additionality**: do the mitigation actions generate conservation benefits above and beyond those that would otherwise exist and or be required by existing laws and/or legal commitments? Determining additionality requires an assessment of existing laws and/or legal commitments associated with the potential mitigation site, and comparing the pre- and post offset action condition of the site. Defining additionality on public lands is especially challenging and therefore actions taken on public lands are not universally eligible for offset credits.
- **Sufficiency**: will the offset generate enough conservation benefits? At a minimum, compensatory mitigation should replace the proposed action’s unavoidable impacts to result in “no net loss” of habitat function in the landscape. ODFW’s policy requires compensatory offsets to exceed unavoidable impacts to produce “net benefits” for some categories of habitat. Mitigation ratios are often used to address sufficiency.
- **Certainty**: what is the probability that mitigation actions will produce the anticipated conservation benefits? Success rates for habitat restoration and enhancement actions often vary widely, and credits need to be adjusted to reflect the risks of failure to ensure that authorized impacts are fully offset. Compensatory mitigation programs should require demonstration of successful restoration or enhancement before the permittee or banker’s obligations are met. There are two main approaches to addressing lack of certainty: performance bonds and application of increased offset ratios.
- **Timeliness**: when will the impacts to a species or habitat be replaced? Most compensatory offset programs require that the benefits from offset actions are achieved before project impacts occur. Time lags between impacts and offsets may impact reproductive success, survival rates and over time population structure which may have long-term consequences. However, because there are a number of practical challenges in requiring advanced mitigation, some programs discount the credits based on the length of time between the time the impact occur and full offset benefits are realized.
- **Durability**: what assurances are there that the conservation benefits of mitigation actions will be sustained for the anticipated duration of authorized impacts? Provisions for long-term protection and management to sustain conservation values may include acquisition of lands or conservation easements, or other formal protection, and establishment of stewardship endowments or other commitments of funding for long-term management.

Types of Actions that may be Eligible to Generate Offset Credits

Creation (Establishment): The manipulation of the physical, chemical, or biological characteristics present to develop a habitat where it didn’t originally exist. Generally this type of action is not recommended.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site, with the goal of returning natural or historic functions to the habitat.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of habitat or site to heighten, intensify, or improve a specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes, such as water quality improvement, flood water retention, or wildlife habitat.

Preservation (Protection/Maintenance): Removing a threat to, or preventing the decline of habitat conditions. This term includes the purchase of land or conservation easements. Generally, mitigation programs only use preservation for generating credits “only in exceptional circumstances” because it does not result in a gain in habitat or habitat functions.

Trends in Mitigation Programs and Practices

Compensatory mitigation has been used as a tool for offsetting the impacts of infrastructure development on species and habitats for over two decades (McKenney and Kiesecker 2009). Through time approaches to compensatory mitigation have evolved. Increasingly, mitigation programs:

- 1) Focus on functions based credit and debit accounting, assessing the quantity, quality and ecological processes or functions impacted and proposed for offsets;
- 2) Use landscape level assessments to inform avoidance, minimization and to strategically target conservation investments; and
- 4) Are managed through a regional or landscape level program rather than project by project;
- 5) Use mitigation banking and other market-based approaches to offset impacts rather than project by project investments; and
- 6) Include a structured, transparent, and defensible accounting framework.

Developing a Mitigation Framework/System for Sage-Grouse

There are substantial challenges inherent in restoring ecological systems, reducing threats and recovering species populations, especially in arid ecosystems. For example, published research, anecdotal evidence and expert opinion suggest that the failure rate in re-seeding native species in shrub steppe ecosystems may be as high as 90 percent. As such, the first step in developing any mitigation program is to take stock of the best available science on the species, habitat and threats. In addition effective compensatory offset programs must address a number of challenging questions, including: What offset actions are eligible? Who and how will funds be administered? Where should they be targeted to produce the greatest benefit? How much benefit can you expect and when will it accrue over time? How should risks of project failure be addressed? What measures are necessary to ensure the offset benefits last through time? The following is a draft outline of the components or steps involved in developing a mitigation program:

I. Take stock of existing science on the species and habitat to inform the design of the mitigation program.

II. Set Regional conservation goals and priorities to identify what mitigation investments are most important and a process for updating the goals and priorities through time.

III. Develop adaptive landscape assessment tools to:

- Inform areas to be avoided.

- Inform the assessment of impacts from projects seeking permits.
- Inform cumulative effects analysis.
- Inform offset priorities (where and what actions are most important).

IV. Develop methods to address each step in the mitigation hierarchy:

b) Methods for defining locations/conditions to be avoided.

c) Best Management Practices for minimizing project impacts.

d) Landscape and project-level methods for analyzing and defining unavoidable project-related direct and indirect impacts (debits) for each major type of development (wind, solar, oil and gas, etc.) including:

- Direct habitat loss;
- Loss due to habitat fragmentation;
- Loss due to habitat avoidance;
- Loss due to increased mortality if applicable; and/or
- Indirect project impacts related to changes in land use patterns or growth rate caused by the project.
- Cumulative effects.

e) Methods for generating offset credits.

- Identification of practices and practice specifications eligible for generating offsets and
- Definition of service territories (where credits can be traded to offset impacts).
- Rules for determining additionality.
- Failure rates for each (to inform bonding and/or ratios to create assurance pools).
- Estimates of uplift and time-to-benefit from each practice.
- If in lieu mitigation approaches are eligible, average costs for implementing actions to translate project impacts into offset payments.
- Methods for Calculating Offset Credits for eligible practice(s).

f) Rules for implementing advanced mitigation for projects if applicable.

g) Methods for addressing time delays between project impacts and offset benefits.

V. Design the Mitigation Program Structure:

- Define eligible approaches for offsetting unavoidable impacts (developer generated mitigation, In-lieu Programs, Marketplace Programs for generating offsets)
- Develop necessary implementing instruments, procedures and mechanisms to streamline how proposed development projects/permit applications are reviewed by the agencies (BLM, USFS, USFWS, ODFW, ODOE) including:
 - Development of a coordinated permitting process
 - Evaluation of agency guidance, policies, and procedures to identify opportunities for better aligning rules and/or streamlining, processes, etc.
 - Definition of roles and responsibilities for reviewing and approving permit requests, mitigation bank proposals, and/or the equivalent of a compensation planning framework for an In Lieu projects.
 - Design of legal documents for use in each of the eligible programs.
 - Development of mechanisms/instruments for collecting and investing mitigation payments for in lieu programs if it is included as an eligible approach.

- Legal, regulatory or administrative mechanisms/instruments for ensuring long-term benefits including:
 - ✓ Performance of requirements and delivery of offset benefits (bonds, increased ratios to cover risk of failure).
 - ✓ Long-term protection for offset sites.
 - ✓ Funding to ensure long-term maintenance.
- Develop procedures/infrastructure for facilitating offset transactions
 - Third-party verification and credit certification procedures for in lieu or marketplace offset programs.
 - A transparent credit registry and accounting system to manage offset/debit trades.
- Identify and develop a research program as needed to evaluate new practices for reducing threats and improving habitat conditions.

Resources

Business and Biodiversity Offsets Programme (BBOP). 2013. *To No Net Loss and Beyond: An Overview of the Business and Biodiversity Offsets Programme (BBOP)*, Washington, D.C. http://www.forest-trends.org/documents/files/doc_3319.pdf

Environmental Law Institute and Land Trust Alliance. 2012. Wetland and Stream Mitigation: A Handbook for Land Trusts. <https://www.landtrustalliance.org/land-trusts/wetland-and-stream-mitigation-handbook>

McKenney B.A. and J. M. Kiesecker. 2009. Policy Development for Biodiversity Offsets: A Review of Offset Frameworks. *Environmental Management* (2010) 45:165–176. DOI 10.1007/s00267-009-9396-3 <http://www.cbd.int/financial/doc/tnc-innovative-financial-mechanisms-07-2011-en.pdf>

USFWS. 2003. Guidance for the Establishment, Use, and Operation of Conservation Banks http://www.fws.gov/endangered/esa-library/pdf/Conservation_Banking_Guidance.pdf

Council for Environmental Quality. 1984. Regulations for Implementing NEPA. (49 Fed. Reg. 49750, December 21, 1984) <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm#1508.20>

US Environmental Protection Agency & US Department of the Army. 1990. Memorandum of agreement between the Environmental Protection Agency and the Department of the Army concerning the determination of mitigation under the Clean Water Act Section 404(b)(1) guidelines. <http://water.epa.gov/lawsregs/guidance/wetlands/mitigate.cfm>