

The Credit/Debit Method for Estimating Needs in Compensatory Wetland Mitigation

The Credit/Debit Method (*Calculating Credits and Debits for Compensatory Mitigation in Western Washington*, Ecology Publication #10-06-011) calculates if mitigation actions will replace the functions and value lost at a wetland that is filled or damaged. It is based on the Washington State Wetland Rating System for western Washington (Ecology publication #04-06-025). It also includes new concepts in managing our wetlands that have emerged in the six years since the rating system was published.

Although the rating system provides numeric scores for wetland functions, the scores are not directly usable in estimating how much mitigation is needed (<http://www.ecy.wa.gov/biblio/0806009.html>). The Credit/Debit Method was developed to overcome this shortcoming. Over half of the questions used in the Credit/Debit Method are the same as those in the Rating System, and it provides the same level of scientific rigor.

Scoring

The Credit/Debit Method generates a score for a wetland ranging from 1-9 for each of three wetland functions that are valuable to society. These are:

- Improving water quality
- Flood storage and flow reductions
- Habitat for plants and animals

This score is based on three aspects of each function. These are:

- The potential of the site to provide the function,
- The potential of the landscape to maintain each function at the site scale, and
- The value each function has for society.

The ‘currency’ for comparing the functions lost when a wetland is impacted to the functions gained through mitigation is called an ‘acre-point.’ You calculate the loss of functions at the site that will be impacted by multiplying its score for a function by the size of the

The Credit/Debit Method provides the same level of scientific rigor as the Wetland Rating System.

The Method provides three scores for a wetland for each of three functions valuable to society (Habitat, Improving Water Quality, and Reducing Flooding and Erosion).

The ‘currency’ for comparing the functions lost to the functions gained is called an ‘acre-point.’

MORE INFORMATION

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impact. This is called a Debit. You calculate the gain in functions at a mitigation site by multiplying the increase in a function score that can be expected when the mitigation site is finished by the area of the mitigation. This is called a Credit.

For example, someone proposed to fill two acres of a wetland that scores 6 points for habitat. This generates a Debit of 12 acre-points for habitat (2 acres impacted x 6 points for habitat function). The mitigation proposed will create a 6 acre wetland with a habitat score of 3 points. This generates 18 acre-points of Credit (6 acres created x 3 points for habitat function).

These basic Credit and Debit calculations, however, need to be modified to account for the loss of functions during the time it takes a mitigation site to fully develop its functions (called temporal loss), and for the possible risk that the mitigation project will not fully succeed. Thus, in the example above the 6 acres of mitigation may still not be enough to fully replace the functions lost.

Addressing Temporal Loss

Scientific studies have shown that it may take many decades to fully develop the functions at a mitigation site. Thus, there is a net loss of function between the time an impact occurs and when a mitigation site becomes fully functional. The temporal loss of functions is included in the calculations as a multiplier and increases the number of Debits that need to be replaced. If, however, mitigation is done in advance, and the functions already exist before impacts occur, the temporal loss factor is not included in the calculation of Debits.

Addressing the Risk of Failure

All studies of compensatory mitigation indicate that some projects fail completely or are only partially successful. Thus, the risk of failure needs to be factored into the calculation of how much mitigation is needed to achieve the “No-net-loss Policy.” Earlier studies by Ecology and the National Academy of Sciences have shown 1/2 of mitigation projects failed. This risk was incorporated into permits by requiring a basic mitigation ratio of 2:1. Two acres of mitigation were required for every acre of impacts. In the last three years new data suggest that mitigation is improving. As a result, the risk of failure has been reduced in the calculations. The ratio used to account for the risk of failure is 1.5:1 instead of 2:1 when calculating the Credits. This ratio, can be further reduced to 1.2:1 if the mitigation plan follows the recent guidance from the Department of Ecology, the U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency of choosing mitigation sites using a watershed approach (Ecology publication #09-06-032 <http://www.ecy.wa.gov/biblio/0906032.html>).

A mitigation project is usually deemed adequate when its Credit scores for the three functions are higher than the Debit scores for the impacts.

The acre-points of the functions lost in the wetland being impacted are called ‘Debits. The gains in acre-points for functions that result from the mitigation activities are called ‘Credits.’

The calculations of Debits are corrected to account for the losses in functions during the time it takes a mitigation site to fully develop its functions.

The calculations of Credits are corrected to account for the risk that a mitigation project will fail. The risk factor however, has been reduced from the ratio of 2:1 used in previous guidance to 1.5:1.