



Quantitative Mitigation Analysis

A real need exists for quantitative approaches on restoring (or mitigating) impacted natural resources.

WHAT IS QUANTITATIVE MITIGATION ANALYSIS?

Quantitative Mitigation Analysis (QMA) is a methodology developed to assist project proponents and regulatory agencies alike with developing cost-effective, defensible, quantitatively based compensatory mitigation strategies for, especially, large and/or complex developments/betterments that result in the taking of, or diminution in quality to, habitats and related natural resources.

QMA quantifies loss of ecological function from proposed development and determines the amount of mitigation required as compensation. The cost of compensatory mitigation required is the cost of a project required to provide an equivalent nature, type, and degree of ecological and/or public use services which were directly or indirectly lost by a development.

ESTABLISHED ANALYTICAL TOOLS SUPPORT QMA

QMA leverages Habitat/Resource Equivalency Analysis (HEA/REA), an accepted analytical tool developed to determine compensation for losses to natural resources from a spectrum of human-induced impacts. HEA/REA applies a framework for scaling project impacts for quantifying compensatory mitigation. HEA/REA computes resource losses over time as equal to resource gains over time and may be used for calculating mitigation requirements for practically any habitat or natural resource.

CURRENT STATUS OF COMPENSATORY MITIGATION

Current guidance for compensatory mitigation (CM) is developed for wetlands, but despite a 2015 Presidential Executive Memorandum to mitigate all sensitive habitats, proven strategies for CM in many habitats (e.g., upland, intertidal, subtidal lands) are not adequately considered under the current policies and regulations. Regulatory agencies and developers alike seek a quantitative tool for scientifically based mitigation strategies to quantify losses in order to make the public whole and cost effectively mitigate for development-induced losses.

THE NEED FOR A NEW ANALYSIS TOOL

Instead of traditional and often arbitrary methods for gauging environmental impacts (or damages) on a single resource or habitat, impacts of development activities may be reviewed on an ecosystem level with a focus on services provided by ecosystem components. This way, relative impacts to ecosystem services can be evaluated in order to determine the overall impacts to the system as a whole, rather than simply to a few targeted resources that exclude critical ecosystem components, functions, and services, resulting in a more comprehensive approach to quantifying environmental impacts and respective mitigation.



The Steps of QMA

STEP 1

Proposed Project Review

STEP 2

Compliance Review, as needed

STEP 3

Invitation of Developer/Permitting Authority to Participate in QMA (not required)

STEP 4

Site Visit/(Field) Data Collection

STEP 5

Derivation of Direct/Indirect Habitat or Natural Resource Losses (e.g., using literature, field, HEA, REA, computer modeling, or other procedures as appropriate)

STEP 6

Identify/Review Candidate Compensatory Mitigation Projects and Select Project(s) That Best Compensate for Type and Scale of Project

STEP 7

Scale Compensatory Mitigation Projects Using Service-to-Service or Other (Value-to-Cost) Scaling Methodologies

STEP 8

Report Results to Permitting Authority/Developer for Discussion, Approval, and Implementation

QMA IN ACTION

QMA can be, and has been, successfully applied to a variety of projects and industries, from major construction developments to linear projects spanning tens of thousands of miles to offshore wind farms. QMA is flexible across habitats and locations, and useful for an array of land and resource betterment projects. Developers and regulators alike benefit from QMA by knowing that quantified mitigation is sufficient and cost effective for a given development, thereby limiting arbitrary decisions regarding mitigation sufficiency

HOW CAN STANTEC HELP?

Stantec has a wealth of experience and can provide support at every step of the QMA process. We have extensive and broad experience with state and federal regulations – the drivers for compensatory mitigation. And because the quality and reliability of good data inputs are imperative to the QMA process, Stantec has the capacity and expertise to provide concrete and defensible numbers to use in QMA development and compensatory mitigation implementation, drawing on a team of over 2,500 environmental services staff across North America.

SERVICES WE CAN PROVIDE

- Developer and Agency Consultations
- Compensatory Mitigation Quantification
- Habitat Assessments (field and GIS-based)
- Compensatory Mitigation Design
- Cost Engineering and Bid Development
- Project Permitting
- Compensatory Mitigation Site Search
- Compensatory Mitigation Implementation
- Mitigation Success Monitoring and Adaptive Management
- Compensatory Mitigation Negotiation Facilitation/Support

Connect with us



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