

Confidence Evaluation Matrix

August 2018 - NCDWR

The following matrix helps evaluate confidence in the available science used to determine nutrient credits. It is intended to lend structure and consistency to a qualitative evaluation process and can help determine the need for incorporating conservatism into final credit assignments. In addition, it can guide further research. The matrix focuses mainly on the studies behind estimates, but also on the estimation methods themselves.

The matrix is a structured decision-making tool, designed to help compare different options by choosing one of the confidence levels for each of the eleven factors. Some factors may be more relevant to certain practices and studies. Lack of information or a low-confidence result for a factor does not connote disapproval.

Confidence Matrix for Practice Credit Assignment

Study Factors	Confidence Level		
	High	Medium	Low
Applicability			
Setting	Study done within a regulated geography; or climate, physiography, soils, & biology match a regulatory setting well	Reasonable degree of study site match or similarity to a regulated geography across site attributes	Significant differences between more than one aspect of study setting and the regulated geography
Loading source, dynamics	'Natural' vs. simulated, range of expected conditions captured	Some artificiality vs. expected conditions but reasonably similar	Entirely simulated design, partial to poor similarity to expected
Practice type	Well-described design that matches proposed nutrient design features	Some design differences from proposed nutrient conditions; learning-stage design; or details unclear but reasonably similar	Significant design differences studied from proposed here
Nutrient measurement	Reports TN, TP annual mass load changes to surface water	Some assumptions required to determine TN, TP load changes or regarding delivery	Limited N, P species, concentrations only; or delivery uncertainties
Data Scope and Depth			
Sampling frequency and project timespan	Robust characterization of events, > 1 annual cycle, varied meteorology &/or source management	Captures an annual cycle, reasonable intra-event representation and total <i>n</i>	< 1 annual cycle; or low sample frequency and total <i>n</i>
Sampling scheme	Fully captures of effects via pre/post, up/down, paired watershed	Adequate capture of practice effects; some data limitations	Partial capture of practice effects; incomplete picture

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Data Quality			
Field methods / lab analysis	Approved state or federal methods used; or certified lab	Other well-documented protocol and methods	Unapproved methods; or inconclusive documentation
Data analysis	Methods sound, relevant; conclusions well-supported by statistics	Methods sound, conclusions plausible but not fully supported by data; moderate unexplained variability	Methods not the most relevant, inconclusive; insufficient evidence, substantial uncertainty
Peer review	Published in peer-reviewed journal	Published/reported with some level of professional or expert review	Minimal or no critical review
Set of Studies			
Number, diversity of studies	Good body of literature	Small number of studies, some diversity captured	One or two studies, significant gaps in range of conditions
Variability across studies	Variability well-understood, defensible	Some unexplained variability	Range of unexplained variability; poorly understood function