

Total Maximum Daily Loads and Water Quality Trading

In the 1972 Clean Water Act (CWA), Congress included a provision in Section 303, which called upon states to develop and implement water quality standards for surface waters. Section 303(d) of the CWA requires states to implement their standards through the development of total maximum daily loads (TMDLs). Although this requirement has been in existence for 27 years, most of the effort to date in implementing TMDLs has focused on point-source discharge requirements.

In July 2000, EPA promulgated the "2000 Watershed Rule" with the vision to provide a framework to advance state and local efforts to achieve the highest attainable uses of waters by promoting flexible, effective watershed approaches. The objectives of the new rule include improving monitoring and assessment programs; strengthening the watershed planning process through a Continuing Planning Process, increasing TMDL program flexibility to enhance stakeholder involvement, and enhancing opportunities for innovation including trading. A draft of the proposed "Watershed Rule" is anticipated in November 2002, with the final rule in spring of 2004.

As water quality planning takes on a holistic perspective, looking at all activities within a watershed, TMDLs have become a valuable tool in translating water quality standards to a combination of point and non-point source control needed to achieve in-stream water quality goals.

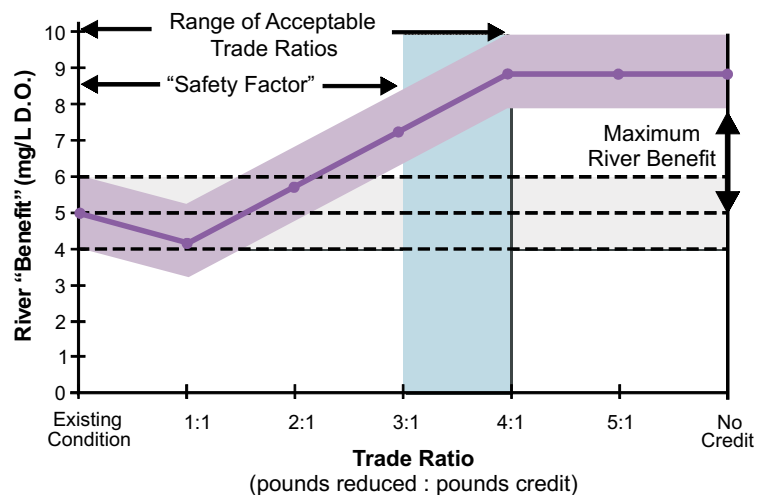
The goal of the TMDL program is to identify impaired water bodies and allocate pollution control responsibilities amongst pollution sources in a watershed. The TMDL program encourages the use of a watershed approach to systematically identify, evaluate, and prioritize point and non-point sources of pollution for additional controls. Implementation of a watershed management program that addresses TMDL development offers the greatest opportunity for local watershed programs.

With the establishment of TMDLs, there may be serious implications for counties, cities, municipalities, agriculture, and industries. With increasing populations comes the necessity for more expanded wastewater treatment plant and storm water management

controls that combined with landuse changes, may severely impact receiving water quality. Because of the potential ramifications of revising existing TMDLs and establishing new TMDLs on existing and new sources of pollutant loading, local stakeholders must provide input to EPA and local state agencies at every stage in the TMDL setting process.

Communities must take a proactive interest in the TMDL development and implementation processes to ensure that their interests are represented. Communities who hesitate to become involved until their permits are up for renewal may find it too late to have any influence on the outcome of the TMDL and load allocation process.

CONCEPT OF TRADE RATIO



Water Quality Trading

As part of the TMDL program, EPA has developed and is supporting a water quality-trading program, which encourages the trading of non-point and point source pollutant loads. EPA recently released its Proposed Water Quality Trading Policy, with the goal of addressing issues and limitations encountered while implementing projects and programs under the 1996 Draft Framework for Watershed-Based Trading. Through this market-based approach, trading provides greater flexibility and has the potential to achieve water quality and environmental benefits greater than can be achieved under current practices. This approach accounts for the fact that it may be more cost effective and efficient to improve water quality by investing in non-point source reductions rather than in point source reductions.

"Dedicated to creative, responsive, quality solutions for those we serve."

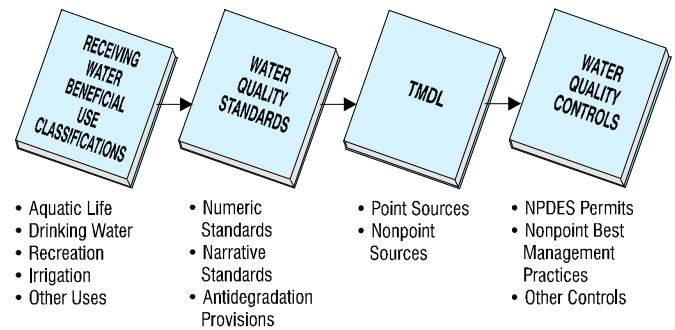


For water quality trading to occur, a minimum of two entities responsible for controlling pollution must be involved. One entity must achieve a reduction of a given pollutant within the watershed, creating a “credit.” This credit can then be purchased by the other entity, permitting it to discharge a higher pollutant load. EPA has identified five trade categories including: point and point sources (e.g. WWTP); non-point and non-point sources (e.g. agricultural runoff, storm water); point and non-point sources; pretreatment and intra-plant trades.

There are several essential issues that need to be addressed to successfully develop a water quality trading program, to ensure that the program is accepted, and that the desired water quality improvements are achieved.

- ▼ **Technical Basis** –Typically the technical basis includes watershed and water quality modeling tools to evaluate the effectiveness of watershed alternatives and the costs and benefits of proposed trades. Through the development of modeling tools, key concerns in the watershed can be identified and anticipated pollutant load reductions estimated.
- ▼ **Equivalence** - Trades must meet three minimum criteria: 1) exceeds baseline requirements; 2) are equivalent; and 3) are quantifiable. Credits are only granted for those BMP measures implemented beyond those “baseline” measures that are normally implemented. Of these, the most critical technical issue is the question of equivalence. To address this a trade ratio is developed which accounts for factors including chemical speciation; temporal issues; spatial issues and credit life. The trade ratio addresses the uncertainties associated with these factors and to provide a margin of safety.

Carollo Engineers can provide municipalities and industries with professional assistance with TMDLs and Water Quality Trading programs. Carollo can help municipalities with permit negotiations; permit language development; watershed and water quality assessments; modeling (including watershed, water quality and storm water); structural and non-structural alternatives identification and evaluation; cost-benefit analysis, Use Attainability Analyses, TMDL development, and water quality trading feasibility and implementation.



A TMDL helps to define the water quality controls required to achieve water quality standards in impaired water bodies.