

Stormwater and Pollutant Trading

Determining stormwater credits involves understanding how the TMDL stormwater wasteload allocations were derived and using that same methodology (the Simple Method) to determine reduced stormwater loading based on an individual discharge. In order to get the pollutant trading program started, it is critical to use the assumptions in the TMDL for the stormwater load calculations. It also requires a cursory understanding of the requirements of the associated stormwater permits and BMP selection menus from the Eastern Washington stormwater manual (or appropriate manual in Idaho).

Listed below is a quick itemization of the possible work that could be associated with the stormwater analysis and the development of credits that would help support a pollutant trading program along with a brief description of the Eastern Washington Phase II municipal stormwater permit requirements and BMPs from the stormwater manual.

Steps for quantifying stormwater credits:

1. Using the Simple Method or some other comparable method, determine the individual TP loading value for each municipality in an appropriate proportional distribution. The sum of all the facilities cannot exceed the total allocation for stormwater TP identified in the TMDL. This distribution of stormwater TP will establish the potential baseline for each of the cities. Currently all of the stormwater nutrient discharge is lumped together in the TMDL modeling analysis and the loading calculations were based on the Simple Method technique.
2. The TMDL does not require any reductions in stormwater nutrient discharges to meet the requirements of TMDL scenario #1. Therefore, any TP reductions that are achieved from stormwater discharge are eligible to generate credits in the pollutant trading program.
3. Evaluate stormwater BMP's for effectiveness at controlling TP and other nutrients (see table below for example BMPs). This will help the cities potentially prioritize the work they need to do for the MS4 permits and get the maximum benefit in the form of credits that could be applied to a trading program. BMPs should be assigned effectiveness ratios for calculation in the Simple Method described in Step 4.
4. Using the Simple Method or other techniques that estimate flow and loading from stormwater drainage areas, run alternate scenarios where BMPs from the table below can potentially be employed; MS4s would likely need to target large drainages that discharge into the Spokane River. Use a flow or load weighted average approach to account for multiple BMP's employed in the same stormwater drainage.
5. Stormwater projects that have been completed after 2001 can also be considered (such as the Lincoln Street and Broadway SURGE projects in the City of Spokane) to determine overall stormwater reduction as long as the BMP(s) are still operational and effective. Credits do not accrue until trading program is operational (i.e., credits cannot be "banked.")
6. Taking the percentage reduction in stormwater discharge from step 4, apply the river location ratio to that reduction to determine the final credit that is available for trading.

For example, following steps 1 through 6 above, an MS4 has determined that upon installation of BMPs in the drainage area, stormwater phosphorus will be reduced from 2 lbs/day (calculated from step 1) to 1.5 lbs/day or a 25% total reduction (calculated from step 4). $2 \text{ lbs/day} \times .25 = 0.5 \text{ lb/day}$ phosphorus reduced. The river location ratio for this particular MS4 discharge location is 70%. Multiplying 0.5 lbs/day by 0.7 = 0.35 lbs/day of phosphorus credit. The effectiveness of the BMP's will be evaluated as the municipalities continue to collect monitoring data and the MS4 permits will provide a good mechanism for verifying installation and operation of BMP's that will compliment the compliance portion of a trading program.

Stormwater monitoring

Each MS4 will be responsible for monitoring their stormwater discharge over the next 10 years. This monitoring data will be used to verify BMP effectiveness as mentioned above (and re-assess the stormwater loading estimates that were derived from the Simple Method calculations as part of the TMDL 10-year assessment.

Requirements from Eastern WA stormwater permit

The following are the major requirements, which are mostly plans that need to be in place by 2012 or earlier.

- Public education and outreach
- Public involvement and participation
- Illicit discharge detection and elimination
- Construction site stormwater runoff control
- Post-construction stormwater management for new development and redevelopment (where required "elements" and BMP selection comes in)
 - Element #1: Stormwater Site Plan
 - Element #2: Construction SW Pollution Prevention (temporary BMPs)
 - #3: Source Control of Pollution
 - #4: Preservation of Natural Drainage (ties in to #6 Flow Control BMPs)
 - #5: Runoff Treatment
 - Basic Treatment BMPs (solids) – for 5,000 sq. ft. of PGIS
 - Metals Treatment BMPs
 - Phosphorus treatment BMPs (required because of TMDL)
 - Oil treatment BMPs
 - #6: Flow Control (for 10,000 sq. ft. of PGIS)
 - See BMPs below
 - #7: Operations and Maintenance
- Pollution prevention and good housekeeping for municipal operations

BMPs from the Eastern WA Stormwater Manual

The list of BMPs may be shorter depending on the individual project design criteria.

BMP (Manual reference number)	BMP Name
To meet Runoff Treatment Requirements (Element #5)	
T5.10	Infiltration ponds
T5.20	Infiltration trenches
T5.21	Infiltration swales
T5.30	Bio-infiltration swales
T5.50	Vegetated filter strips
T5.71	Large Wetpond
T5.81	Large Sand Filter
Emerging technology	Amended Sand Filter
Emerging technology	Media filter targeted for phosphorus
To meet Flow Control Requirement (Element #6)	
F6.10	Detention pond
F6.11	Detention tanks
F6.12	Detention vaults
F6.20	Drywells
F6.21	Infiltration ponds
F6.22	Infiltration trenches

Idaho Stormwater BMP's

The Idaho Stormwater BMP catalog available on the DEQ website at http://www.deq.idaho.gov/water/data_reports/storm_water/catalog/bmps.cfm

The catalog contains a matrix of BMP's and their estimated effectiveness for various pollutants.