



AEM Tier 2 Worksheet

Stream & Floodplain Management

Glossary

Bankfull Stage: The stage at which water starts to flow over the flood plain; the elevation of the water surface at bankfull discharge. (This discharge often occurs once every few years on average.)

Braided Stream: Stream with three or more smaller channels. These smaller channels are extremely unstable, rarely have woody vegetation along their banks, and provide poor habitat for stream biota (plant and animal life).

Baseflow: Average stream discharge during low flow conditions that is fed by subsurface discharges.

Downcutting: Process by which a stream bottom is lowered in elevation due to the net loss of substrate material through erosion.

Floodplain: The flat area of land adjacent to a stream that is formed by current flood processes.

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Background

A stream is a complex and dynamic system. Even healthy streams will gradually change course as some bank erosion and sedimentation is natural. Maintaining stream health requires recognizing and accommodating the stream's natural processes, and making complex decisions on the best ways for restoring past damage and minimizing the potential negative effects of current and future activities.

Healthy streams are a valuable environmental and economic resource to farms and their community. Healthy streams have stable, well vegetated banks, clear water with some natural debris and a diverse community of aquatic plants and animals. A functional and balanced stream system will also have undisturbed overflow areas (floodplains) that allow seasonally high water to rise above the typical water level and slowly infiltrate back into the stream. A healthy stream system will provide a variety of benefits to both humans and wildlife, including:

- Economic benefits by moderating the impacts of floods and droughts;
- Vital breeding, resting, and feeding areas for fish and wildlife;
- The scenic beauty and recreational benefits of flowing water increase the value of stream-side real estate.

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AEM Principle: Streams are complex systems that should be protected and managed to ensure that on-farm practices contribute to the maintenance and enhancement of healthy stream systems.

Glossary Continued...

Incised Channel: A channel with a streambed lower in elevation than its historic elevation in relation to the flood plain.

Natural Vegetation: For riparian buffers, natural vegetation refers to plant communities that contain the following structural components: aquatic plants, sedges or rushes, grasses, forbs, shrubs, under story and over story trees. Species should be appropriate for the area.

Reach: A section of stream (defined in a variety of ways, such as the section between tributaries or a section with consistent characteristics).

Riparian: The zone adjacent to a stream or any other water body (from the Latin word *ripa* -- pertaining to the bank of a river, pond, or lake).

Protected (Classified) Stream: Certain waters of the state are classified and protected on the basis of existing or expected best usage of these waters. If your project affects waters of the state that are referred to as “protected streams” or “protected waters,” you are subject to the stream protection restrictions under the Protection of Waters regulations.

Perennial Stream: A stream that flows continuously throughout the year.

Background Continued...

Bank full flows and periodic flooding are healthy stream functions. A stream at bank full flow is at its full carrying capacity, just before its waters flow onto the floodplain. Bank full conditions cause most changes to stream shape and overall condition. Floodplains are also an integral part of a natural stream system and a stream functions best when bank full flows are not isolated from the adjacent floodplain. Floodplains reduce the impacts of flooding by slowing the movement of water and improve water quality by allowing sediment and other pollutants to slowly filter out of flood waters before the water returns to the stream. Stream banks and floodplains that are stable and undisturbed provide important habitat for many plant and animal species.

There is a tendency to view flooding and erosion problems on streams as a local issue related to stream characteristics or adjacent land use. But, these issues occur within the context of the watershed that drains into the stream and the flow patterns downstream and therefore should be considered on a watershed basis. Many human activities alter the hydrology of a watershed and the hydraulics of a stream channel. When this occurs it should come as no surprise when the stream channel adapts and impacts local land uses.

The health of our streams depends on the stewardship of landowners and users throughout the watershed. An individual landowner can facilitate positive changes in conserving, protecting and using land to help maintain a healthy stream function.

This worksheet should be used to assess the condition of perennial stream reaches and floodplains. It can also be helpful in determining the need for restoring riparian buffers.

AEM Tier 2 Worksheet: Stream and Floodplain Management		Potential Concern			
Factors Needing Assessment:	Lower 1	2	3	Higher 4	
How often do your fields or pastures flood?	Never	Rarely	Occasionally	Frequently (more than once in 2 years)	
Do flood waters cause erosion on fields?					
Is fertilizer or manure applied in the floodplain?	No nutrients (fertilizer or manure) are applied in the floodplain. OR Nutrients are applied and incorporated only after the risk of flooding is low in accordance with a Nutrient Management Plan.	Nutrients are applied according to a Nutrient Management Plan. AND Nutrients are applied after the high risk of seasonal flooding has passed.		A Nutrient Management Plan is not being followed.	
Is your farmstead located within a floodplain?					
Is manure or fertilizer stored or stockpiled in the floodplain?					
Does livestock have access to the stream?	Livestock have no access to the stream.	Livestock have limited and controlled access to the stream.	Livestock have limited, uncontrolled access to the stream.	Livestock have full uncontrolled access to the stream.	
How close to the stream do you normally till?					
What is the predominant width of the naturally occurring stream side vegetation?	Stream sides are well-vegetated for 100 or more ft. on both sides of the stream.	Stream sides are well vegetated for at least 35 ft. on each side of the stream.	Stream sides are well vegetated (at least 35 ft.) on one side of the stream.	Both sides of the stream are sparsely vegetated (less than 35 ft).	

AEM Tier 2 Worksheet: Stream Management		Potential Concern			
Factors Needing Assessment:	Lower 1	2	3	4	Higher 4
What is the condition of the stream bank vegetation?	Banks are fully vegetated, AND Vegetation shades 50% of the stream width during most of the day, AND Vegetation over-hangs the stream.	Banks are fully vegetated with low-growing woody plants.	Banks are well vegetated with only herbaceous species.		Banks lack vegetation that provides shade.
Does field tile or other drains (e.g. outlets, ponds, WASCOBs, shop/barn drain) empty into a stream?					
What is the condition of the stream channel?	Stream appears healthy and has no structures or dikes. No evidence of excess deposition, down-cutting or stream widening.				Stream is actively down cutting or widening or causing bank slides. OR Stream has been excessively channelized OR Dikes or levees prevent access to the floodplain OR Excessive sediment deposition is causing flooding or braiding of the stream channel.

AEM Tier 2 Worksheet: Stream Management Continued		Potential Concern		
Factors Needing Assessment:	Lower 1	2	3	Higher 4
What indicators of good water quality are present?	Water appears clear AND A diverse aquatic plant community exists, AND There is no noticeable film on submerged objects or rocks.	Water appears slightly cloudy or greenish; AND Aquatic plants are present, AND Some algal growth is present on submerged objects/rocks.	Water appears cloudy AND A monoculture of excessive plant growth is present; AND Submerged objects/rocks are covered with algal growth.	Water appears pea green, gray or brown. OR Severe plant or algal blooms are apparent, OR Submerged objects/rocks are completely buried in a layer of sediment.
Have any fish kills occurred in the past 5 years?				
How often does the stream run dry?				
How often does out of bank flow occur?				
Are water withdrawals taken from the stream?				
Are invasive species a concern along the stream reach?				
How good is the fishing?				
Is public access to the stream permitted?				
Benefits to other resources can also be possible while working toward improved water quality. Taking stock of how existing and future management affect soil, water, air, plants, animals, energy, greenhouse gases, people, and economics can result in more effective plans and additional benefits to farms and communities both now and into the future.				
Additional Comments:				