Stormwater - General

I. **Pollutant of concern/issue (what and why) –** Sediment, road salt, nutrients (fertilizers, pet waste, lawn debris), bacteria, chemicals, oils. Excess runoff which contributes to erosion and flooding. Stormwater carries pollutants to our streams, rivers, and lakes.

II. **Audience:** homeowners, neighborhood associations, garden clubs, lawn care companies

III. **Resources –** lists available media, articles, and programs posts that specifically address the concern and are tied to stormwater (water quantity or quality). References and resources are included with the articles and posts. These are also compiled in Section IV with other relevant reference materials.

SOCIAL MEDIA and ARTICLES			
Season	Artl	Title/Description	Social Media Content
Sp, Su	**X**	**Algal Bloom Blues** TM: Excess nutrients promote algal blooms in our waterways	Algal bloom are an overgrowth of algae due to the presence of excess nutrients in water. They degrade water quality because they decrease oxygen levels in water and limit light to plants that provide food and shelter for aquatic organisms. Some produce toxins that are harmful to people and pets. By reducing runoff of nutrients from your home landscape, you help reduce surplus nutrients in our waterways. References and Resources: HENV-402, Water Quality and Nutrient Management at Home. http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV402/HENV402.pdf
Sp, F	**X**	*The Problem with* **Bare Banks** TM: Unvegetated stream banks erode causing sediment pollution (suggest to use in combination with Better Buffers)	Lack of a stream buffer zone can accelerate erosion. Erosion equals loss – of property, aquatic habitat, water quality, and stream function. Help restore stream health by creating a no mow zone and establishing native vegetation. Refer to the links below and contact your County Extension Agent for more information. References and Resources: Streambank Erosion AEN-124 http://www2.ca.uky.edu/agcomm/pubs/AEN/AEN124/AEN124.pdf Planting Along Your Stream, Pond, or Lake HENV-202 http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV202/HENV202.pdf

Sp, F	**X**	**Better Buffers** TM: Healthy riparian buffers improve water quality (suggest to use in combination with Bare Banks)	Riparian buffer zones are an important component of a healthy stream. They help stabilize stream banks and improve water quality by decreasing nutrient and sediment levels in our streams. They also provide wildlife habitat and help maintain stream temperatures that promote diverse aquatic life. References and Resources: Restoring Streams AEN-122 http://www2.ca.uky.edu/agcomm/pubs/AEN/AEN122/AEN122.pdf Planting a Riparian Buffer ID-185 http://www2.ca.uky.edu/agcomm/pubs/id/id185/id185.pdf
Sp, Su, F, W	**X**	**Clean Cars and Streams** TM: Runoff created when washing personal vehicles can carry pollutants into the stormwater system	Vehicle fluids, heavy metals from brake dust and exhaust, and nutrients from soaps can all be carried into stormwater systems and streams by runoff created when washing vehicles. Selecting the proper detergents, washing away from streams and storm drains, directing water into your yard, and dumping bucket wash water into tubs and sinks can all help prevent pollutants associated with car washing from entering local streams. References and Resources: AEN-106: Reducing Stormwater Pollution http://www2.ca.uky.edu/agcomm/pubs/aen/aen106/aen106.pdf
Sp, Su F, W	**X**	**Clean Streets, Clean Streams** TM: Proper vehicle maintenance, and care while performing maintenance, reduces impacts on local waterways	Vehicle fluids that have leaked or spilled onto driveways and roads can be picked up by stormwater. Keeping your vehicle well maintained reduces leaks. When performing maintenance, clean up spills with dry sweep or rags, and avoid washing spills or used parts in areas that drain to storm sewers. References and Resources: IP-43: Household Waste Management http://www2.ca.uky.edu/agcomm/pubs/ip/ip43/ip43.pdf

Sp, Su, F, W	**X**	**Safe Storage means Clean Streams** TM: Storing household chemicals according to label instructions and in secondary containers prevents leaks	Proper storage of household chemicals keeps family members safe and reduces the risk of leaks making their way into local water ways. Store off the ground, in secondary containers, and according to label instructions. Buying only what is necessary and fully using chemicals before buying reduces what needs to be stored. Excess chemicals can be disposed of properly by locating proper disposal facilities. References and Resources: HENV-104: Hazardous Waste http://www2.ca.uky.edu/agcomm/pubs/henv/henv104/henv104.pdf IP-70: Managing Household Waste http://www2.ca.uky.edu/agcomm/pubs/ip/ip70/ip70.pdf Household Hazardous Waste https://www.epa.gov/hw/household-hazardous-waste-hhw
Sp, Su, F	**X**	**Service the Septic System** TM: Maintain the septic system to avoid release of untreated wastewater (nutrients, bacteria)	Failed septic systems release untreated wastewater to the environment which has negative human health and the environmental impacts. Regular service of your septic system is key to maintain its performance for the long-term. Educating your family and implementing some simple in-home best practices will also minimize problems and contribute to healthy function of your system. References and Resources: HENV 502: Septic System Failure and Environmental Impacts http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV502/HENV502.pdf HENV 503: Septic Tanks: The Primary Treatment Device of Septic Systems http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV503/HENV503.pdf HENV 505: Impacts of Additives on Septic System Performance http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV505/HENV505.pdf
W	**X**	**Spare the Salt** TM: Incorrectly applied deicing chemicals can contribute excess chemical pollution to our streams.	Avoid over-applying deicers. If it's in a pile, you have applied too much. Spread properly, there should be about 3 inches between crystals. Remember, no matter what type of deicer you use, it is a chemical. Many of these chemicals can damage concrete, may be harmful to landscape plants, and have negative impacts on water quality. Read manufacturer's directions before applying!

			References and Resources: Minnesota Stormwater Manual: Road salt, smart salting and winter maintenance (link to website: https://stormwater.pca.state.mn.us/index.php/Road_salt,_smart_salting_and_winter_maintenance) Minnesota CES webpage link: https://extension.umn.edu/lawns-and-landscapes/effects-deicing-salts-landscapes
Sp, Su, F	**X**	**Stormwater Savvy** TM: Stormwater runoff transports pollutants	In most communities, stormwater is transported through ditches or underground piping. It carries pollutants such as oils, chemicals, and debris from our streets and yards to local waterways. These pollutants degrade water quality which has negative ecological, environmental, and economic consequences. References and Resources: HENV 203: Stormwater ENRI website: https://water.ca.uky.edu/urban-stormwater
Sp, Su	**X**	**Runoff Reduction** TM: Paved areas warm in the spring and summer sun. Stormwater flowing across pavement is heated and alter local stream temperatures	Paved, or impervious, surfaces are rapidly warmed in the spring and summer sun. When rain falls on these surfaces it is warmed and then carried rapidly through direct drainage or stormwater systems to local water ways and bodies. This is known as thermal pollution. As less oxygen can be dissolved in warmer water, this can stress local aquatic organisms and negatively impact stream health. Directing roof and driveway runoff into your yard, where appropriate, and advocating for green infrastructure and BMPs in your community can help reduce thermal pollution. References and Resources: AEN-106: Reducing Stormwater Pollution http://www2.ca.uky.edu/agcomm/pubs/aen/aen106/aen106.pdf HENV-707: Residential Stormwater Site Assessment http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV707/HENV707.pdf
Presentations			
Stormwater and Soil Tests Stormwater and Urban Landscapes			

Sp=spring, Su = summer, F=fall, W=winter, TM = target message

PROGRAMS
Certified Backyard Stream Steward program. Online certification that teaches homeowners how to manage and protect their backyard stream. (link to UK's BAE website: https://www.uky.edu/bae/backyardstreams)

IV. References and Other Resources

Publications:

AEN106: Reducing Stormwater Pollution
HENV 203: Stormwater
HENV 502: Septic System Failure and Environmental Impacts
HENV 503: Septic Tanks: The Primary Treatment Device of Septic Systems
HENV 505: Impacts of Additives on Septic System Performance
HENV-402: Water Quality and Nutrient Management at Home
HENV-202: Planting Along Your Stream, Pond, or Lake HENV-202
ENRI-109: Riparian Buffer
ID-185: Planting a Riparian Buffer
AEN-122: Restoring Streams
AEN-124: Streambank Erosion

Websites:

Link to ENRI webpage for additional septic system references: https://water.ca.uky.edu/wastewater
Link to BAE webpage on Backyard Stream Steward Certification: https://www.uky.edu/bae/backyardstreams
Link to KY Dept of Health page on Septic Systems: https://chfs.ky.gov/agencies/dph/dphps/emb/Pages/environmentmgmt.aspx
Link to Washington State Health Dept. Video on Septic System Basics While the specifics will not apply in KY, it is a very succinct review of the basic components, function and potential issues with septic systems.

V. Faculty Resources

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VI. For MS4 Communities. The following are examples of potential measures/evaluation methods to be used if working with the MS4 coordinator on a water conservation program.

MCM1: Public Outreach
Number of educational materials developed and distributed (emails, print, website, social media/reach or followers)

Number of events, attendance, and engagement
Number of PSAs, articles or press releases
Number of homeowners attending educational workshops
Number of requests for educational materials on septic systems, deicer application, reducing pollutants/residential runoff
Number of partnerships established with community organizations
Number of partnerships established with local businesses

MCM2: Public Participation (examples of potential measures)
Number of participants responding to surveys
Number of likes/shares or other responses to media
Number of participants in a storm drain marking program