# Recommended Best Management Practices for
# HABITAT

**Total Maximum Daily Load Fact Sheet**

## About Habitat Degradation and Loss

Natural habitats are the physical, chemical and biological systems that support living things (i.e. plants, animals, fungi and microbes). More simply put, habitats are the places where these organisms live. Healthy and diverse habitats result in sustainable and prosperous populations of animals and fish. A natural and abundant habitat is critical to the health of any ecosystem which, in turn, is inextricably linked to quality of life. Aquatic habitats can be described in many ways including:

- the natural materials that comprise the habitat (e.g. rocks, gravel, sand and mud),
- the type of vegetation present (e.g. woody and herbaceous vegetation),
- the shape and nature of the habitat (e.g. runs, pools and riffles), or
- the overall ecosystem (e.g. wetlands, floodplains, streams, estuaries, lakes, beaches).

The aquatic health of streams is directly related to the existence of streamside vegetation and stable stream banks. The preservation of undisturbed ground cover, trees, shrubs and other native vegetation within the riparian buffer areas bordering streams is essential for maintaining the integrity of aquatic habitats. Aquatic habitats can be degraded or lost when natural or human-caused activities affect and alter the integrity of stream banks.

Stream bank erosion is a dynamic and natural process as streams meander across the landscape, but the continued encroachment of stream riparian buffers has accelerated this process. The extensive clearing of deep-rooted, natural vegetation from stream riparian areas by agricultural and urban land uses leads to increased stream sedimentation, stream channel instability, land loss, habitat loss and poor water quality and in-stream habitat. Stream bank erosion and flashy flows are often symptoms of larger, more complex problems and the long-term solutions often involve more than just bank stabilization, e.g. addressing upstream land use impacts to reduce flashy flows.

## Best Management Practices that Address Habitat TMDLs

The following summarizes BMPs your community will be required to include in your revised Storm Water Management Program (SWMP) to meet the minimum performance standards of NPDES Permit #OHQ000003. Furthermore, it suggests means by which a community can tailor their SWMP to specifically address the Habitat TMDL.

### MCM 1: Public Education and Outreach BMPs

Your program must reach at least 50% of your population. To do so, your community is required to implement more than one mechanism and target at least five different storm water themes or messages over the permit term, at least one of which must be targeted to the development community.

| To address Habitat, choose at least one of the following themes: |
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| • Protection and maintenance of natural vegetative buffers along waterways<br>• Reduction and management of residential and agricultural fertilizers<br>• Reduction of soil erosion on residential, agricultural and construction sites<br>• Reduction of impervious surfaces and the increase of on-site infiltration<br>• Riparian and wetland setbacks<br>• Conservation development practices<br>• USDA-Natural Resources Conservation Service (NRCS) Programs supporting BMPs for agri-businesses, i.e. Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and the Environmental Quality Incentives Program (EQIP) |

**MCM 2: Public Participation and Involvement**
Your program shall include a minimum of five public involvement activities over the permit term.

| To address Habitat, implement at least one of the following activities: |
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| • Streamside plantings and cleanups<br>• Stream or wetland restoration projects<br>• Construct a rain garden with assistance from the public<br>• Allow residents to provide input on new proposed codes (i.e., downspout disconnection, conservation development, riparian and wetland setbacks, etc.)<br>• Tree plantings; achieve Tree City status<br>• Conduct a charity car wash that implements best management practices and promotes environmental responsibility<br>• Establish public reporting mechanism (complaint hotline, webpage, etc.) to identify non-compliance from construction sites |

**MCM 3: Illicit Discharge Detection and Elimination (IDDE)**
*All communities should have an applicable IDDE code in place and have developed an MS4 map, as required by previous generations of the MS4 permit.*

| Required BMPs that directly address Habitat:: |
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| • Maintain and continue updating the MS4 map on an annual basis (i.e., outfalls, names and locations of surface waters that receive discharges from those outfalls, catch basins, pipes, ditches, flood control facilities (retention/detention ponds), post-construction water quality BMPs and private post-construction water quality BMPs which have been installed to satisfy Ohio EPA's NPDES Construction Storm Water general permit and/or your local storm water management code requirements) |
| • Develop and maintain a list and map of Sewage Treatment Systems (STS)[1] that discharge to your MS4; work with the local health department to identify and prioritize solutions to failing STS |
| • Based upon data collected from previous screenings, establish a prioritization schedule for ongoing dry-weather screening of outfalls |
| • Develop an IDDE plan that clearly defines the department(s) and/or agency(s) responsible for investigating and resolving confirmed sources of illicit discharges |
| **BMPs that will enhance your community's ability to address Habitat:** |

[1] - STS also includes home sewage treatment systems (HSTS) as referenced by the MS4 NPDES OHQ000003.

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| • Establish an IDDE surveillance plan focused on sources of Habitat such as:<br>o Sewage treatment systems<br>o Construction sites<br>o Animal wastes (agricultural and pets)<br>o Grass clippings and yard wastes |
| • Develop an enforcement escalation plan that outlines how your community will address illicit discharges<br>o Clearly define escalation enforcement roles between affected agencies<br>o Work with local health department to identify and eliminate failing sewage treatment systems<br>o Establish timeframes for investigation and elimination |
| • Establish a schedule for regular meetings or other communications between third-party service providers (e.g., health department, SWCD, etc.) and the MS4 manager |
| • Document in the SWMP how community emergency spill response and cleanup plans are communicated and coordinated between applicable agencies and/or departments |
| • Train street, service, public works, building, and parks and recreation staff to identify sources of illicit discharge |

**MCM 4: Construction Site Runoff**

*All communities should have an applicable construction runoff control code in place as required by previous generations of the MS4 permit.*

| **Required BMPs that directly address Habitat:** |
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| • Update your existing construction runoff control code to meet or exceed the requirements of the NPDES Construction General Permit (OHC000004), including the federal effluent limitations in Part II |
| • Ensure most current erosion, sediment and non-sediment control BMP standards are required to be utilized (e.g., Rainwater & Land Development) |
| • Complete Storm Water Pollution Prevention Plan (SWP3) reviews and approvals prior to construction commencement |
| • Conduct site inspections to ensure SWP3 implementation |
| • Establish a protocol for enforcement escalation of your community's construction runoff control code |
| • Establish a standard operating procedure to respond to complaints |
| • Develop an enforcement escalation plan that outlines how and when your community will address noncompliance with approved erosion, sediment and non-sediment control plans |
| **BMPs that will enhance your community's ability to address Habitat:** |
| • Consider including the following in your code:<br>o Require on-site protected areas (i.e., wetlands, riparian areas, other valuable resources) to be physically marked in the field prior to commencement of earth disturbing activities<br>o Require 50-ft natural vegetative buffers to be maintained between the limits of disturbance and water resources |
| • Require MS4 compliance inspectors to provide a written report of findings to construction site operators for every site inspection; the report would summarize compliance and non-compliance matters and establish deadlines for corrective action |
| • Maintain a map of active construction sites to more easily identify watersheds being impacted by construction site runoff and prioritize sites in those watersheds for inspections more frequently than once per month |
| • Establish a Sediment and Erosion Control bond equivalent to the cost to stabilize (vegetate) disturbed areas of the sites in cases of nonperformance (i.e. developer foreclosure/bankruptcy) |

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| • Establish a schedule for regular meetings or other communications between third-party service providers (e.g., health department, SWCD, etc.) and the MS4 manager |

**MCM 5: Post-Construction Runoff Control**

*All communities should have an applicable storm water management code in place as required by previous generations of the MS4 permit.*

| **Required BMPs that directly address Habitat:** |
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| • Update your existing storm water management code to meet or exceed the requirements of NPDES OHC000004, including the federal effluent limitations in Part II |
| • Ensure most-current post-construction BMP standards are required to be utilized (e.g., Rainwater & Land Development) |
| • Complete Storm Water Pollution Prevention Plan (SWP3) reviews and approvals prior to construction commencement<br>o Ensure SWP3 includes an executed Maintenance Agreement and Long-Term Maintenance Plan for post-construction BMPs<br>o Review 100% of SWP3s where the larger common plan of development/sale disturbs one or more acres. |
| • Conduct monthly site inspections throughout construction and a final site inspection to ensure implementation of post-construction BMPs in the approved SWP3 |
| • Establish a program to ensure long-term maintenance of post-construction BMPs including a protocol for enforcement escalation of your storm water management code |
| **Additional recommended BMPs that will enhance your community's ability to address Habitat** |
| • Update the design specification for bioretention to require internal water storage whenever feasible (as recommended by ODNR's Rainwater Manual) |
| • Include at least one of the following in your storm water management code:<br>o Require on-site protected areas (i.e., wetlands, riparian areas, other valuable resources) to be physically marked in the field prior to commencement of earth disturbing activities<br>o Prioritize and incentivize the following types of post-construction BMPs:<br>▪ Wet extended detention basins<br>▪ Dry extended detention basins with forebays and micro pools<br>▪ Infiltration basins and trenches with appropriate pretreatment, e.g. vegetated swales, filter strips, etc.<br>▪ Bioretention areas<br>▪ Constructed wetlands that provide extended detention of the water quality volume (WQv)<br>▪ Permeable pavement<br>▪ Tree box filters |
| • Require MS4 compliance inspectors to provide a written report of findings to construction site operators for every site inspection; the report would summarize compliance and non-compliance matters and establish a deadline for corrective action |
| • Establish a performance bond for post-construction BMPs and require community Engineer (or Engineering Department) to generate documentation of acceptance before releasing bond |
| • Establish a Sediment and Erosion Control bond equivalent to the cost to stabilize (vegetate) disturbed areas of the sites in cases of nonperformance (i.e. developer foreclosure/bankruptcy) |
| • Require submittal of as-built drawings for post-construction BMPs to ensure installation and/or conduct a physical inspection of BMPs at least once during the NPDES permit term |
| • Adopt at least one of the following planning and development codes:<br>o Conservation development<br>o Riparian and wetland setbacks<br>o Downspout disconnections (redirect flow to rain gardens, rain barrel systems, open vegetated |

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| channels and/or filter strips)<br>o Revised parking codes (e.g., decrease overall number of spaces, allow alternative pervious materials, shared parking, etc.) |
| • Incentivize the following within existing developed areas:<br>o Retrofitting of storm water management control systems to treat the WQv and/or increase infiltration<br>o Encourage commercial, industrial and institutional land owners to reduce impervious surfaces and replace them with storm water practices that infiltrate, capture and reuse, or otherwise reduce storm water runoff such as permeable pavement, cisterns, infiltration basins and trenches, bioretention with internal water storage, open channel swales, etc. |
| • Require an applicable community department (e.g., service, engineering) to annually inspect public and private post-construction BMPs, or require private property owners to submit an annual maintenance report. Ensure corrective actions are performed as needed by the applicable party. |

**MCM 6: Pollution Prevention/Good Housekeeping**

*As required by previous generations of the MS4 permit, all applicable community-operated facilities should have an SWPPP developed in accordance with the requirements of Ohio EPA's Industrial Storm Water General Permit.*

| **Required BMPs that directly address Habitat:** |
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| • Implement pollution prevention and good housekeeping practices at community operations<br>• Update and implement facility SWPPPs to reflect minimum requirements of the Ohio EPA General NPDES Permit for Storm Water Associated with Industrial Activities (OHR000005)<br>o Perform inspection requirements<br>▪ Quarterly routine facility inspections, quarterly visual assessment of storm water discharges, and an annual comprehensive site inspection with annual report |
| • Complete an annual training for applicable employees on any combination of the topics listed below |
| o Streets, roads and highways<br>o Municipal parking lots<br>o Maintenance and storage yards, including, but not limited to municipal composting facilities and leaf collection yards<br>o Golf courses, parks, and related maintenance facilities<br>o Waste transfer stations, compost facilities, solid waste facilities (e.g. municipal solid waste (MSW) landfills, and construction and demolition (C&D) landfills)<br>o Marinas<br>o Fleet and/or maintenance shops<br>o Salt/Sand storage locations<br>o Snow disposal areas |
| **BMPs that will enhance your community's ability to address Habitat:** |
| • Reduce turf grass on municipal parks and open spaces |
| • Establish a protection program to obtain riparian development rights, e.g. conservation easements, |
| • Utilize Integrated Pest Management (IPM) on community-owned and operated properties |
| • Locate snow disposal areas where there are wide vegetative buffers or within berms |
| • At community-owned and operated facilities (maintenance garages, golf courses, parks, community gardens, cemeteries, etc.) maintain, protect and restore permanent natural vegetative buffers between developed areas and water resources |
| • Relocate stockpiles of waste materials and erodible materials away from stream banks and steep slopes and/or install appropriate sediment controls around such materials |
| • Install green infrastructure such as bioretention, permeable pavement, cisterns, green roofs, and |

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| infiltration trenches or basins can be installed at municipal facilities |
| • Minimize number and width of stream crossings when planning transportation routes<br>• Adopt a “Complete Streets” code<br>• Retrofit existing community-owned parking lots to incorporate natural habitat, vegetation and pervious surfaces<br>• When contract services are utilized for community services, require contract language that ensures BMPs for pollution prevention and good housekeeping<br>• Incorporate leachate management for maintenance and storage yards, including municipal composting facilities and leaf collection yards<br>• Integrated Pest Management (IPM) and reduction of fertilizer use<br>• Implement low-mow or no-mow practices that preserve buffer areas around streams, wetlands and storm water basins |