



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

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Eric J. Holcomb  
Governor

Bruno L. Pigott  
Commissioner

March 1, 2018

VIA CERTIFIED MAIL 7016 2140 0000 8878 4206

Mr. Charles M. Simon  
U.S. Army Corps of Engineers  
Regulatory Office  
Engineering and Technical Services  
477 Michigan Avenue, Room 603  
Detroit, Michigan 48226

Dear Mr. Simon:

Re: Section 401 Water Quality Certification  
for 2017 Reissuance of Programmatic  
General Permit for Minor Activities in  
Indiana

Office of Water Quality staff has reviewed your application for Section 401 Water Quality Certification (WQC) published via public notice dated November 17, 2017 and received November 17, 2017. You propose to renew a programmatic general permit (PGP) authorizing the discharge of dredged or fill material into waters of the United States associated with shore protection, beach construction, boat ramp construction, and boat well filling regulated by the Indiana Department of Natural Resources under IC 14-26-2 and specific waterways regulated as floodways under the Flood Control Act, IC 14-28-1, and as Navigable Waterways under IC 14-29-1.

It is the judgment of this office that the above referenced programmatic general permit will comply with the applicable provisions of state law (including 327 IAC 2) and Sections 301, 302, 303, 306, and 307 of the Clean Water Act if the recipient of the certification complies with the conditions set forth below. Therefore, subject to the following conditions, the Indiana Department of Environmental Management (IDEM) hereby grants WQC for this federal permit.

## GENERAL CONDITIONS

The following conditions shall apply to any activity that qualifies under this programmatic general permit. All activities that do not meet these conditions require an individual WQC from the IDEM and are not authorized under this WQC.

- 1) The seawall shall be in place prior to the deposition of any fill material behind the wall.



A State that Works

- 2) The permittee shall deposit any dredged material in a contained upland disposal area to prevent sediment runoff to any waterbody.
- 3) The Indiana Department of Natural Resources (IDNR) or the U.S. Army Corps of Engineers, whichever applies, shall notify IDEM for any proposed river and stream shore protection activities.
- 4) The U.S. Army Corps of Engineers shall notify IDEM when requiring mitigation for a covered activity;

Within thirty (30) days of receiving the notification required in Conditions 3 and 4, IDEM will either allow the activity to proceed under this WQC or require an individual, site specific WQC. IDEM may require additional information from the permittee. If the permittee fails to provide any information requested by the department, then the activity is not authorized under this WQC.

- 5) This WQC does not authorize the discharge of pollutants, principally sediment, associated with storm water. These discharges are regulated by 327 IAC 15-5 when land disturbances are one or more acres in size or are part of a larger common plan. This Water Quality Certification incorporates the conditions at 327 IAC 15-5-7(b)(1), 7(b)(5), and 7(b)(8) through 7(b)(20) as general conditions of this Water Quality Certification for all construction sites regardless of size. Compliance with the general permits at 327 IAC 15-5 or 327 IAC 15-6 (commonly referred to as a Rule 5 and Rule 6 respectively) is sufficient to demonstrate compliance with this condition of the WQC.
- 6) Any project requesting the use of materials listed as unacceptable under 327 IAC 11-5-1 shall require an Individual 401 Water Quality Certification.
- 7) The permittee shall allow the commissioner or an authorized representative of the commissioner (including an authorized contractor), upon the presentation of credentials to conduct the following activities:
  - a) enter upon the permittee's property;
  - b) have access to and copy at reasonable times any records that must be kept under the conditions of these permits or this certification;
  - c) inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution management or discharge facility or device; practices required by this certification; and any mitigation site; and
  - d) sample or monitor any discharge of pollutants or any mitigation site.
- 8) This granting of WQC does not relieve the recipient of the certification from the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person.

- 9) This WQC does not:
  - a) authorize impacts or activities outside the scope of this certification;
  - b) authorize any injury to permittee or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
  - c) convey any property rights of any sort, or any exclusive privileges;
  - d) preempt any duty to obtain federal, state or local permits or authorizations required by law for the execution of the project or related activities; or
  - e) authorize changes in the plan design detailed in the application.
- 10) This WQC does not authorize point source discharges of pollutants other than clean fill<sup>1</sup> and uncontaminated dredged material.
- 11) This WQC does not authorize activities on or in any of the State's waters that have been designated as salmonid waters (cold water streams) or Outstanding State and/or National Resource Waters. (*see Attachment #1*).
- 12) This WQC does not authorize activities on or in any critical wetland or critical special aquatic sites (*see Attachment #2*).
- 13) This WQC does not authorize activities on or in any tributary of salmonid waters within a two river mile reach upstream from the confluence with the salmonid water between April 1 and June 30 or between August 1 and November 15. If work is proposed during these dates, a waiver for the activity must be granted by the Indiana Department of Natural Resources (IDNR) before the construction activity begins.
- 14) This WQC does not authorize activities on or in any non-salmonid stream between April 1 and June 30. If work is proposed during these dates, a waiver for the activity must be granted by IDNR before the construction activity begins.
- 15) In order to verify that a given project will qualify under the terms and conditions of this certification, IDEM may require additional information from the applicant. If the applicant fails to provide any information requested by IDEM, then the project is not authorized.
- 16) If rip-rap is used, ensure all riprap is keyed in and flush with the bank and scour protection is embedded into the stream channel and the top elevation of the riprap is no higher than the stream bed elevation.

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<sup>1</sup> Clean fill, for the purpose of this Water Quality Certification, means uncontaminated rocks, bricks, concrete without rebar road demolition waste materials other than asphalt, or earthen fill.

- 17) For activities involving stream shore protection<sup>2</sup>:
  - a) The activity will not permanently change the sinuosity, flow path, velocity, cross sectional area under the bank full elevation or the slope of a stream;
  - b) The permittee must demonstrate that the bank or shoreline in question is unstable.
- 18) The activity would not result in a permanent secondary effect to waters of the U.S. (e.g., dredging, excavation, damming, creation of in-channel ponds) that when combined with the primary effect exceeds the area and length thresholds specified above.
- 19) The department, for any project that qualifies under the terms and conditions of this certification, may choose to require an individual Water Quality Certification if it determines that the project would have more than minimal impacts to water quality, either viewed individually or collectively with other projects that may affect the same waterbody affected by the proposed project.

### **Other Applicable Permits**

If the land disturbance for the overall project will disturb one (1) acre or more a construction site run-off general permit (327 IAC 15-5) is required for the project. Permit coverage must be obtained prior to the initiation of land-disturbing activities. Information related to obtaining permit coverage is available at [www.in.gov/idem/stormwater](http://www.in.gov/idem/stormwater) or by contacting the IDEM, Stormwater Program at 317-233-1864 or via email at [Stormwat@idem.IN.gov](mailto:Stormwat@idem.IN.gov).

This certification does not relieve you of the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person. You may wish to contact the Indiana Department of Natural Resources at 317-232-4160 (toll free at 877-928-3755) concerning the possible requirement of natural freshwater lake or floodway permits.

This certification does not:

- (1) Authorize impacts or activities outside the scope of this certification;
- (2) Authorize any injury to persons or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;
- (3) Convey any property rights of any sort, or any exclusive privileges;
- (4) Preempt any duty to obtain federal, state or local permits or authorizations

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<sup>2</sup> Stream, for the purpose of this Water Quality Certification, means waters of the U.S. that have a defined bed and bank and convey water ephemerally, intermittently or perennially. This term includes natural streams, relocated streams, channelized streams, artificial channels, encapsulated channels and ditches.

- required by law for the execution of the project or related activities; or  
(5) Authorize changes in the plan design detailed in the application.

**Notice of Right to Administrative Review (Permits)**

If you wish to challenge this permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA), and serve a copy of the petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

Director  
Office of Environmental Adjudication  
Indiana Government Center North  
Room 501  
100 North Senate Avenue  
Indianapolis, Indiana 46204

Commissioner  
Indiana Dept. of Environmental Management  
Indiana Government Center North  
Room 1301  
100 North Senate Avenue  
Indianapolis, Indiana 46204

The petition must contain the following information:

- (a) The name, address and telephone number of each petitioner.
- (b) A description of each petitioner's interest in the permit.
- (c) A statement of facts demonstrating that each petitioner is:
  - (1) a person to whom the order is directed;
  - (2) aggrieved or adversely affected by the permit; or
  - (3) entitled to administrative review under any law.
- (d) The reasons for the request for administrative review.
- (e) The particular legal issues proposed for review.
- (f) The alleged environmental concerns or technical deficiencies of the permit.
- (g) The permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
- (h) The identity of any persons represented by the petitioner.
- (i) The identity of the person against whom administrative review is sought.
- (j) A copy of the permit that is the basis of the petition.
- (k) A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the permit. Examples are:

- (a) Failure to file a Petition by the applicable deadline;
- (b) Failure to serve a copy of the Petition upon IDEM when it is filed; or
- (c) Failure to include the information required by law.

If you seek to have a permit stayed during the administrative review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.

Pursuant to IC 4-21.5-3-17, OEA will provide all parties with notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above.

If you have procedural or scheduling questions regarding your Petition for Administrative Review, additional information on the review process is available at the website of the Office of Environmental Adjudication at <http://www.in.gov/oea>.

If you have any questions about this certification, please contact Heather Parsons, Project Manager, by phone at 317-233-2482, or by email at [hparsons@idem.in.gov](mailto:hparsons@idem.in.gov).

Sincerely,



Brian Wolff, Branch Chief  
Surface Water, Operations, and Enforcement  
Office of Water Quality

Enclosure

cc: Rebecca Hartmant, USACE-Detroit District, Michiana Branch  
Marissa Reed, USFWS  
Liz McCloskey, USFWS  
Matt Buffington, IDNR

## **Attachment 1: Indiana Waters Designated for Special Protection**

### **Designated Salmonid Waters:**

#### **[327 IAC 2-1.5-5(a)(3)]**

- Trail Creek and its tributaries downstream to Lake Michigan, LaPorte County
- East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch, Porter and LaPorte Counties
- Salt Creek above (upstream of) its confluence with the Little Calumet River, Porter County
- Kintzele Ditch (Black Ditch) from Beverly Drive downstream to Lake Michigan, Porter County
- The Galena River and its tributaries, LaPorte County
- The St. Joseph River and its tributaries in St. Joseph County from the Twin Branch Dam in Mishawaka downstream to the Indiana/Michigan state line, St. Joseph County
- The Indiana portion of the open waters of Lake Michigan
- Those waters designated by the Indiana Department of Natural Resources (IDNR) for put-and-take trout fishing<sup>3</sup>

### **Waterbodies which have been designated all or partially as Outstanding State Resource Waters: [327 IAC 2-1-2(3) and 327 IAC 2-1.5-19(b)]**

- The Blue River in Washington, Crawford, and Harrison Counties, from river mile 57.0 to river mile 11.5
- The North Fork of Wildcat Creek in Carroll and Tippecanoe Counties, from river mile 43.11 to river mile 4.82
- The South Fork of Wildcat Creek in Tippecanoe County, from river mile 10.21 to river mile 0.00
- Cedar Creek in Allen and DeKalb counties, from river mile 13.7 to its confluence with the St. Joseph River
- The Indiana portion of the open waters of Lake Michigan
- All waters incorporated in the Indiana Dunes National Lakeshore.

### **Waterbodies which have been designated all or partially as Exceptional Use Streams<sup>4</sup>: [listed in: 327 IAC 2-1-11(b) and IC 13-11-2-72.5 (before its repeal)]**

- Big Pine Creek in Warren County downstream of the State Road 55 bridge near the town of Pine Village to its confluence with the Wabash River
- Mud Pine Creek in Warren County from the bridge on the County Road between Brisco and Rainsville to its confluence with Big Pine Creek
- Fall Creek in Warren County from the old C.R. 119 bridge in the NW quarter of Section 21, Township 22N, Range 8W downstream to its confluence with Big Pine Creek
- Indian Creek in Montgomery County from the County Road 650 West bridge downstream to its confluence with Sugar Creek
- Clifty Creek in Montgomery County within the boundaries of Pine Hills Nature Preserve
- Bear Creek in Fountain County from the bridge on County Road 450 North to its confluence with the Wabash River

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<sup>3</sup> Available on the internet at: [http://www.in.gov/dnr/fishwild/files/fw-Trout\\_Stocking\\_Locations.pdf](http://www.in.gov/dnr/fishwild/files/fw-Trout_Stocking_Locations.pdf)

<sup>4</sup> As per IC 13-18-3-2(u): "Each exceptional use water (as defined in IC 13-11-2-72.5, before its repeal) designated by the board before June 1, 2009, becomes an outstanding state resource water on June 1, 2009, by operation of law."

- Rattlesnake Creek in Fountain County from the bridge on County Road 450 North to its confluence with Bear Creek
- The small tributary to Bear Creek in Fountain County within the Portland Arch Nature Preserve which enters Bear Creek at the sharpest bend and has formed the small natural bridge called Portland Arch
- Blue River from the confluence of the West and Middle Forks of the Blue River in Washington County downstream to its confluence with the Ohio River
- The South Fork of Blue River in Washington County from the Horner's Chapel Road bridge downstream to its confluence with Blue River.
- Lost River and all surface and underground tributaries upstream from the Orangeville Rise (T2N, R1W, Section 6) and the Rise of Lost River (T2N, R1W, Section 7) and the mainstem of the Lost River from the Orangeville Rise downstream to its confluence with the East Fork of White River.

## **Attachment 2: Critical Wetlands and Critical Special Aquatic Sites**

In the interest of maintaining consistency with the State Regulated (Isolated) Wetland program established at 327 IAC 17, IDEM defines Critical Wetlands and Critical Special Aquatic Sites to be synonymous with Rare and Ecologically Important Wetland Types under 327 IAC 17-1-3(3)(B):

- **Acid bog:** Acid bog is an acidic wetland of kettle holes in glacial terrain. Bogs can be graminoid (*Carex* spp. and *Sphagnum* spp.) or low shrub (*Chamaedaphne calyculata* and *Betula pumila*). The graminoid bog can be a floating, quaking mat. The soils in acid bogs are saturated and acidic peat. Bogs have non-flowing or very slow flowing water. The water level fluctuates seasonally. When a sphagnum mat floats, it rises and falls with the water table. Acid bogs can be found in northern Indiana.
- **Acid seep:** Acid seep is a bog-like wetland typically found in unglaciated hill regions. This community is a small groundwater-fed wetland located primarily in upland terrain. A thin layer of muck may lie over a mineral substrate. The soil reaction is acid. This seep community is characterized by flowing water during at least part of the year. Acid seeps are located primarily in southern Indiana.
- **Circumneutral bog:** Circumneutral bog is a bog-like wetland that receives groundwater. Circumneutral bogs can be a mosaic of tall shrub bog, graminoid bog, and other communities. The graminoid bog often occurs on a quaking or floating mat. Although a few bogs occur in unglaciated regions, most are found in glacial ice-block depressions. The soils in circumneutral bogs are usually peat, or other low nutrient organic substrates, which are saturated and circumneutral to slightly acid. Circumneutral bogs have non-flowing or very slow flowing water. The water level fluctuates seasonally. Circumneutral bogs are usually found in northern Indiana.
- **Circumneutral seep:** The circumneutral seep (or seep-spring) is a groundwater-fed wetland on organic soil. It is primarily herbaceous. Species typically include marsh marigold (*Caltha palustris*) and skunk cabbage (*Symplocarpus foetidus*) with a scattered tree canopy. Circumneutral seep is typically situated on or near the base of a slope. The soil is typically circumneutral muck. This seep community is characterized by slowly flowing water during at least part of the year. Circumneutral seeps can be found scattered throughout Indiana.
- **Cypress swamp:** Bald cypress swamps are seasonally to permanently inundated wetlands found in depressions and sloughs of large bottomlands associated with the Wabash/Ohio River system. Poorly to very poorly drained soils characterize this environment. Bald cypress (*Taxodium distichum*) is present, and green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), and overcup oak (*Quercus lyrata*) are also usually present. This community is restricted to extreme southwest Indiana.
- **Dune and swale:** Dune and swale is an ecological system consisting of a mixture of upland (black oak sand savanna, dry to mesic sand prairie) and wetland (pond, panne, sedge meadow, marsh, wet prairie) natural communities. These communities occur in long, narrow, linear complexes, with the dry communities occupying sand ridges, and the wet communities occurring in the intervening swales. Black oak (*Quercus velutina*), paper birch (*Betula papyrifera*), jack pine (*Pinus banksiana*), and prairie vegetation typically occur on the

ridges, and sedges, reeds, and marsh/aquatic vegetation line are found in the swales. Water levels are directly influenced by ground water, with the interdunal swales controlled largely by lateral flow through porous beach ridges. Dune and swale is restricted to extreme northwest Indiana, near Lake Michigan.

- **Fen:** Fen is a calcareous, groundwater-fed wetland. Fens are often a mosaic of grassy areas, sedgy areas, graminoid-shrubby cinquefoil, and tall shrub areas. The extent of the tall shrub component of fens may be determined by fire frequency and/or soil moisture. Drying of the soil increases the growth of shrubs. Fens typically occur in the vicinity of glacial moraines. Fens typically have a muck or peat substrate. The water level fluctuates seasonally and is fed by groundwater. Fens can be found in central and northern Indiana.
- **Forested fen:** Forested fen is a tree-dominated wetland on organic soil which receives groundwater. Forested fens are often a mosaic of treed areas, tall shrub areas, and herbaceous areas. A tall shrub layer is often well developed in forested fens. Indicative species typically include tamarack (*Larix laricina*), black ash (*Fraxinus nigra*), yellow birch (*Betula alleghaniensis*), poison sumac (*Toxicodendron vernix*), and red maple (*Acer rubrum*). Forested fens occur in wet lowlands, where moraines meet outwash features or depressions. Forested fens have saturated, poorly to very poorly drained soils that are often muck, but some seasonal flooding can occur in forested fens that are especially level. This community is a late successional stage of fen or circumneutral bog. Forested fens occur in northern Indiana.
- **Forested swamp:** Forested swamp is a seasonally inundated to intermittently exposed wetland of large river bottoms. Forested swamps do not receive direct flow from river flooding except under exceptional circumstances. Forested swamps occur in depressions, sloughs and large bottomlands, typically dominated by tree species such as swamp cottonwood (*Populus heterophylla*), green ash (*Fraxinus pennsylvanica*), and swamp white oak (*Quercus bicolor*). In northern Indiana important tree species include black ash (*Fraxinus nigra*), yellow birch (*Betula alleghaniensis*), and red maple (*Acer rubrum*). Poorly to very poorly drained and aerated soils characterize the swamp environment. Soils usually are mineral not muck or peat. This community type is found throughout Indiana.
- **Marl beach:** Marl beach is a fen-like community located on the marly muck shorelines of lakes. Marl precipitate is evident. A thin layer of water is present in spring, but dries down in summer. Draw-down of a lake creates additional area for this community to develop on. Marl beaches can be found in extreme northern Indiana, primarily in the northeast.
- **Muck flat:** Muck flat is a shoreline and lake community possessing a unique flora of sedges and annual plants, many of which are also found on the Atlantic and Gulf Coastal Plains. This community is found at the margins of lakes or covering shallow basins. This community has a peat substrate. The muck flats can float on the water surface, but during high water periods are usually inundated. The water level of a basin fluctuates during a season or from year to year in response to the amount of precipitation. This exposes bare substrate needed for germination by species of the community. Muck flats are found in northern Indiana.
- **Panne:** Panne is a groundwater fed herbaceous wetland occupying interdunal swales near Lake Michigan. Pannes are located on the lee side of the first or second line of dunes from the lakeshore. The soil is wet, calcareous sand. Pannes are located in counties bordering Lake Michigan.

- **Sand flat:** Sand flat is a shoreline and lake community possessing a unique flora of sedges and annual plants, many of which are also found on the Atlantic and Gulf Coastal Plains. This community is found at the margins of lakes or covering shallow basins. This community has a sand substrate. During high water periods sand flats at the margins of lakes or ponds are inundated. The water level of a basin fluctuates during a season or from year to year in response to the amount of precipitation. This exposes bare substrate needed for germination by species of the community. Sand flats occur in northern Indiana, and in the Plainville Sand Section of southwest Indiana.
- **Sedge meadow:** Sedge meadow is an herbaceous wetland typically dominated by graminoid species such as flat sedge (*Cyperus* spp.), spike rush (*Eleocharis* spp.), rushes (*Juncus* spp.) and sedges (*Carex* spp.). Sedge meadow is an herbaceous wetland of stream margins and river floodplains, and lake margins or upland depressions. Streamside sedge meadows are frequently flooded in the spring and early summer. Sedge meadows of lake margins and depressions often contain standing water during wet months and after heavy rains; during dry periods, the water level is at or just below the substrate. Sedge meadow usually occupies the ground between a marsh and the uplands, or a shrub swamp or wet forest. Periodic high water can kill trees and shrubs invading sedge meadows. Sedge meadows can be found in the northern half of the state.
- **Shrub swamp:** Shrub swamp is a shrub-dominated wetland that is seasonally inundated to intermittently exposed. This community occurs in depressions and the substrate in either mineral soils or muck, as opposed to peat which is characteristic of bogs. Shrub swamp is characterized by non-flowing or very slowly flowing water with levels that fluctuate seasonally. Shrub swamps are persistent, though considered successional. Two opportunistic native shrubs, sandbar willow (*Salix exigua*) and gray dogwood (*Cornus racemosa*), by themselves, are not indicative of shrub swamps. This community type is found throughout Indiana.
- **Sinkhole pond:** Sinkhole ponds are water-containing depressions in karst topography. Sinkhole ponds are found in the Mitchell Karst Plain in south-central Indiana.
- **Sinkhole swamp:** Sinkhole swamps are depressions in karst topography dominated by tree or shrub species. Sinkhole swamps are found in the Mitchell Karst Plain in south-central Indiana.
- **Wet floodplain forest:** Wet floodplain forest is a broadleaf deciduous forest of river floodplains. Wet floodplain forests occur in depressions and flats on narrow to wide floodplains and also on recently exposed substrates that are frequently flooded. Wet floodplain forests are frequently flooded and may have standing water seasonally to permanently present. Wet floodplain forests occur statewide.
- **Wet prairie:** Wet prairie is an herbaceous wetland typically dominated by graminoid species such as prairie cordgrass (*Spartina pectinata*), bluejoint (*Calamagrostis canadensis*), and sedges (*Carex* spp.). Vegetation height is often 2-3 m. The species diversity of wet prairies is lower than that of mesic prairies. Wet prairies occur in deep swales and the substrate ranges from very deep black mineral soils (which are high in organic matter) to muck. Ponding in spring lasts for several weeks prior to drainage. Wet prairies commonly occur in the Grand Prairie Natural Region, the Tipton Till Plain and the Bluffton Till Plain, with a few examples found in the Northern Lakes Natural Region.
- **Wet sand prairie:** Wet sand prairie is an herbaceous wetland typically dominated by graminoid species such as prairie cordgrass (*Spartina pectinata*), bluejoint (*Calamagrostis*

canadensis), and sedges (*Carex* spp.). Vegetation height is often 2-3 m. The species diversity of wet prairies is lower than that of mesic prairies. Wet lowland prairies occur in deep swales and the substrate is sand, sometimes mixed with muck. Flooding is a regular springtime occurrence in wet sand prairie and may last several weeks. This community occurs in a mosaic with marsh and other wetlands, and with upland prairies and sand savannas. Fire was frequent occurrence, but more common in the fall when waters had receded. This community occurs in northwest Indiana and in the Plainville Sands area.