Stormwater Management

Environmental Concerns

Heavy rains and snow melt can produce more water at one time than the ground can absorb. This excess water—called stormwater runoff—flows over the land and carries pollutants into nearby lakes and rivers. Common pollutants found in marina stormwater include sediment, nutrients, litter, oil, grease, fuel, sanding and paint chips, copper, and other heavy metals.

Pollutants carried by stormwater runoff impair water quality by increasing levels of nitrogen, phosphorus, suspended solids, and organic materials that increase oxygen demand as they decompose. Stormwater runoff also increases the levels of toxic metals and hydrocarbons from petroleum products in the water. At the same time, dissolved oxygen and water clarity decrease, and the acidity/alkalinity of the water typically changes. The result is nearshore areas that are less able to support wildlife like young fish and water quality that is less desirable for human recreation.

Hard surfaces like buildings, roofs, parking lots, driveways, and roads prevent water from being absorbed, so runoff in developed areas moves faster and with greater volume than in undeveloped areas. This heavier runoff can severely degrade receiving water bodies by accelerating erosion and pollution delivery, leading to flooding, harm to plant and animal life, and loss of habitat.

Laws and Permits

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) Storm Water Management Program, created in an amendment to the Clean Water Act (33 U.S.C. 1342), regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. The Illinois Environmental Protection Agency (IEPA) is in charge of implementing the program and issuing general permits in Illinois. For more information, visit www.epa.state.il.us/water/permits/storm-water/index.html.

Most marinas and boatyards are considered Tier II industries and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage (35 IAC 309). For more information and to access permit forms, visit www.epa.state.il.us/water/permits/storm-water/industrial.html. Some marinas, such as those managed by the Chicago Park District, may be covered by a Municipal Separate Storm Sewer System (MS4) permit. Consult with your municipality to deter-

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mine if your marina is part of an MS4 or visit www.epa.state.il.us/water/permits/storm-water/2000-urbanized-area-list.pdf for a list of cities with MS4 permits.

Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent to request coverage under these permits. Instructions and permit forms can be found at www.epa.state.il.us/water/permits/storm-water/construction.html.

As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality. Guidance for developing a SWPPP for construction sites can be found at www.epa.gov/npdes/pubs/sw_swppp_guide.pdf. Similar information for industrial operators can be found at www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf. A sample SWPPP is also included in Appendix III.

As part of the SWPPP, marinas are required to perform monitoring and keep records for five years. Monitoring must include a visual inspection of non-stormwater discharges, an annual facility site compliance inspection, and regular visual monitoring of stormwater quality.

Best Management Practices for Controling Stormwater Runoff

Practice Low-Impact Development

Low-impact development maximizes a site's natural features, such as vegetation, and minimizes the need for expensive stormwater control devices. Ideally, low-impact development allows for the development of a site without altering the predevelopment runoff quantity and quality.

- ✓ Cluster structures on the lot to avoid sensitive resources, steep slopes, riparian buffers, wetlands, and floodplains without sacrificing development.
- ✓ Protect sensitive areas, such as floodplains, riparian areas, wetlands, woodlands, prairies, natural flow pathways, and steep slopes.
- ✓ Protect areas particularly susceptible to erosion and sediment loss.
- ✓ Minimize damage to soil by reducing disturbances caused by design and construction practices, heavy equipment

use, and unnecessary clearing or stockpiling of topsoil.

- ✓ Protect natural drainage features and vegetation.
- ✓ Consider using ground cover and landscaped beds of native plants instead of turf. These require less water, fertilizer, pesticides, and maintenance.
- ✓ Minimize stormwater volume by disconnecting roof leaders, impervious roads, and driveways and rerouting runoff to areas that allow infiltration at the site.

Cultivate Vegetated Areas

- ✓ Preserve areas of natural vegetation wherever possible.
- ✓ Plant landscapes at the edge of parking lots or within islands in parking lots to absorb runoff.
- ✓ Plant vegetated buffers, trees, and shrubs between your upland property and the water's edge. Construct wetlands where appropriate.
- ✓ Choose the correct plants for your location. For more information on identifying the right plants, visit www.iiseagrant.org/catalog/downlds_09/rightplants_rightplace.pdf.
- ✓ Plant slower growing species that need less pruning and create less yard waste.
- ✓ Use a variety of native trees, shrubs, grasses, and wild flowers where possible to reduce disease and infestation.
- ✓ Group plants with similar water needs together.
- ✓ Position downspouts so that they drain into vegetated areas. Avoid draining to concrete or asphalt.
- ✓ Consider using rain barrels to capture downspout water that can be used to water vegetation during dry weather.

Minimize Impervious Surfaces

The fewer impervious areas there are on-site, the less runoff you will have to manage.

- ✓ Pave only where it is absolutely necessary.
- ✓ Minimize the length of new roadways required to serve new or expanding marinas.
- ✓ Plan roads so they do not cross sensitive areas, such as wetlands.
- ✓ Consider alternatives to asphalt for parking lots and vessel storage areas, such as gravel, pervious pavers, or engineered porous pavement. For more information on

pervious pavement, visit www.cmap.illinois.gov/strategy-papers/stormwater-best-management-practices/green-infrastructure.

- ✓ Contact local authorities about size requirements for road and parking lot surfaces. Your marina may have to receive permission to use porous surfaces because of aesthetic requirements that are consistent with traditional paving.

Use Structural Controls as Necessary

Grants to support the installation of stormwater management structures in developed areas are available through IEPA. For more information, visit www.epa.state.il.us/water/financial-assistance/igig.html.

- ✓ Select a stormwater management structure that is appropriate for your property. Visit www.lid-stormwater.net/lid_techniques.htm for more information on structures. Some to consider include:
  - Stormwater pond systems that capture and slowly release stormwater runoff. Ponds may hold water permanently (retention ponds) or only temporarily (detention ponds).
  - Man-made wetland systems that are designed to mimic the ability of natural wetlands to cleanse and absorb stormwater runoff.
  - Infiltration systems that take advantage of the soil's natural infiltration and removal capacities. Bioswales, rain gardens, and porous pavement are examples of infiltration systems.
  - Filter systems that "strain" runoff to remove pollutants. Conventional sand filters and oil/grit separators are examples of filter systems.
- ✓ Develop and follow maintenance schedules for stormwater management structures.

Minimize Pollution in Runoff

- ✓ Cover work and storage areas to avoid contact between rainfall and equipment, fuelling, and work areas. See the Vessel Maintenance and Repair chapter for more information.
- ✓ Keep heavy equipment well-tuned to prevent grease or oil from dripping onto staging areas or into the water.
- ✓ Control stormwater runoff from dry-stack and expanded parking areas.
- ✓ Scrape, sand, and paint land-side structures according to the same management principles for vessels. See the Vessel Maintenance and Repair chapter for more information.

- ✓ Conduct maintenance on floating structures in areas set aside for scraping, painting, and major repairs whenever possible.

Control Sediment from Construction Sites

- ✓ Become familiar with and adhere to soil erosion regulations for construction sites (35 IAC 309).
- ✓ Use devices such as straw bales, silt fences, storm drain filters, sediment traps, and earth dikes to prevent sediments from leaving construction areas. Additional erosion control strategies can be found at ftp-fc.sc.egov.usda.gov/IL/pdf/pubs/Urb_ErosSedim_Control08.pdf and www.dot.state.il.us/desenv/environmental/idot%20field%20guide.pdf.
- ✓ Use chipped wood for sediment control instead of floatable mulches in areas where runoff could wash the mulch into the water. Engineered wood products and dimensional lumber make up a large percentage of the wood waste from construction activities, and they can be chipped to provide an effective and inexpensive method of erosion and sediment control.

Stencil Storm Drains

- ✓ Stencil or label storm drains with the words "Don't Dump—Drains to Lake (River)" and "No Fish Waste" wherever appropriate. Stencils and instructions are available from local watershed groups and councils. For more information, visit www.lakecountyil.gov/Stormwater/Documents/Public%20Information%20and%20Mapping/Stenciling%20Guide_0306.pdf.
- ✓ Get permission from the county or city department that maintains storm drains in your community prior to applying any stencils or labels.

Links

Forms for stormwater management requirements are available at www.epa.state.il.us/water/forms.html.