



LAKE MANAGEMENT

The model procedures described below focus on minimizing the discharge of pesticides and fertilizers, landscape waste, trash, debris, sediments and other pollutants while maintaining ponds and lakes. Lake management practices may involve the following activities:

- 1. Fertilizer and Pesticide Management**
- 2. Mowing, Trimming/Weeding, and Planting**
- 3. Managing Landscape Waste**
- 4. Controlling Litter**
- 5. Erosion Control**
- 6. Controlling Illegal Dumping**
- 7. Bacteria Control**
- 8. Monitoring**

POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for lake management include:

- Implementation of an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools. Refer to Appendix D, Fertilizer and Pesticide Management Guidance for further details.
- Once per year, educate municipal staff on pollution prevention measures.

MODEL PROCEDURES:

1. Fertilizer and Pesticide Management

Usage

- ✓ Utilize a comprehensive management system that incorporates integrated pest management techniques.

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- ✓ Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- ✓ Educate and train employees on use of pesticides and pesticide application techniques to prevent pollution.
- ✓ Pesticide application must be under the supervision of a qualified and properly licensed or certified pesticide applicator.
- ✓ When applicable use the least toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible.
- ✓ Do not mix or prepare pesticides for application near storm drains.
- ✓ Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- ✓ Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- ✓ Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- ✓ Periodically test soils for determining proper fertilizer use.
- ✓ Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- ✓ Inspect pesticide/fertilizer equipment and transportation vehicles daily.
- ✓ Refer to Appendix D for further guidance on Fertilizer and Pesticide management
- ✓ Refer to permit "Monitoring and Reporting Program No.2001-160 for Discharges of Aquatic Pesticides to Waters of the United States" if lake discharges to Waters of the United States.

OPTIONAL:

- Use beneficial insects where possible to control pests (green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders prey on detrimental pest species).
- Use slow release fertilizers whenever possible to minimize leaching.

Scheduling

- ✓ Do not use pesticides if rain is expected within 24 hours.
- ✓ Apply pesticides only when wind speeds are low (less than 5 mph).

Disposal

- ✓ Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).

- ✓ Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- ✓ Dispose of empty pesticide containers according to the instructions on the container label.

2. Mowing, Trimming/Weeding, and Planting

Mowing, Trimming/Weeding

- ✓ Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.
- ✓ When conducting mechanical or manual weed control, avoid loosening the soil, which could erode into the lake.
- ✓ Use coarse textured mulches or geotextiles to suppress weed growth and reduce the use of herbicides.
- ✓ Do not blow or rake leaves, etc. into a lake or place yard waste in lake.
- ✓ Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this procedure sheet).
- ✓ Place temporarily stockpiled material away from lakes, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- ✓ Where feasible, retain and/or plant selected native vegetation whose features are determined to be beneficial. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- ✓ When planting or replanting consider using low water use groundcovers.
- ✓ Create a grassy berm to reduce run-on and run-off when possible

OPTIONAL:

- Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.

3. Managing Landscape Waste

Also see Waste Handling and Disposal procedure sheet

- ✓ Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into lakes.
- ✓ Place temporarily stockpiled material away from lakes. Berm or cover stockpiles to prevent material releases to a lake.
- ✓ Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming, and may contribute to excessive algae growth.
- ✓ Inspection should be conducted to detect illegal dumping of clippings/cuttings in or near a lake. Materials found should be picked up and properly disposed of.
- ✓ Landscape wastes in and around lakes should be avoided by either using bagging equipment or by manually picking up the material.

Training/Education/Outreach

- ✓ Train municipal to recognize and report illegal dumping into lakes.
- ✓ Encourage public reporting of illegal dumping by advertising the 24-hour water pollution problem reporting hotline (714) 567-6363.

OPTIONAL:

- Educate the public with public education materials such as a hotline and/or door hanger (door hangers are placed on the front doors in neighborhoods where illegal dumping has occurred to inform the reader why illegal dumping is a problem, and that illegal dumping carries a significant financial penalty).
- Educate the public through volunteer water quality monitoring programs. Volunteers can be trained to notice and report the presence and suspected source of an observed pollutant to the appropriate public agency.

4. Controlling Litter

Enforce anti-litter laws.

Also see Solid Waste Handling procedure sheet

- ✓ Provide litter receptacles near lakes.
- ✓ Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.

OPTIONAL:

- Post "No Littering" signs.

5. Controlling Erosion

- ✓ Maintain vegetative cover on banks to prevent soil erosion. Apply mulch or leave clippings to serve as additional cover for soil stabilization and to reduce the velocity of storm water runoff.

- ✓ Areas should be designed (sloped) to prevent runoff and erosion and to promote better irrigation practices.
- ✓ Provide energy dissipaters (e.g. riprap) along banks to minimize potential for erosion.
- ✓ Confine excavated materials to pervious surfaces away from lakes. Material must be covered if rain is expected.

6. Controlling Illegal Dumping

Illegally dumped wastes can cause storm water and lake water quality problems. Non-hazardous solid wastes may include garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded solid or semi-solid waste provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentration which exceed applicable water quality objectives or could cause degradation of waters of the state.

Field Investigation

- ✓ Report prohibited discharges such as dumping observed during the course of normal daily activities so they can be investigated, contained and cleaned up.
- ✓ Conduct field investigations to detect and eliminate improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)).
- ✓ Report all observed illicit connections and discharges to the 24-hour water pollution problem reporting hotline (714) 567-6363.
- ✓ Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.

OPTIONAL:

- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal.

7. Bacteria Control

- ✓ Eliminate or reduce the feeding of waterfowl (i.e. ducks and geese).
- ✓ When feeding waterfowl, use food designated for waterfowl (no bread or crackers).

OPTIONAL:

- Place signage by lake with the above recommendations (see attached example)

8. Monitoring

OPTIONAL:

- Monitor fecal coliform.
- Monitor nutrient levels of both the water body and the soil.
- Monitor all trace metals found present in the soil and the water.

LIMITATIONS:

Alternative pest/weed controls may not be available, suitable, or effective in every case. Clean-up activities may create a slight disturbance for local aquatic species. If the lake is recognized as a wetland, many activities, including maintenance, may be subject to regulation and permitting.

REFERENCES:

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