



Management Measures for Controlling Coastal Nonpoint Source Pollution

Water pollution, as evidenced by beach closures, prohibitions on harvesting shellfish, and the loss of biological productivity in coastal habitats, is a serious problem for coastal areas. Based on the states' assessments of 75% of estuarine waters, current best estimates are that 35% of these waters are impaired and 10% are threatened.

Although great strides in controlling point sources of pollution have been made, nonpoint source pollution remains a major problem in many coastal areas. According to state water quality assessments, the leading nonpoint contributors to estuarine waters are urban runoff (construction and development activities, and septic systems) and runoff from agricultural lands. Forestry operations, marinas, flood control, and dam building projects also contribute to the nonpoint source problems in coastal areas. The loss of wetlands and riparian areas have increased the problem of nonpoint source pollution in coastal areas because they act as natural filters removing and transforming nutrients, chemicals, and organic wastes carried in the runoff.

Coastal Zone Act Reauthorization Amendments of 1990

In response to growing concerns about the health and productivity of our coastal areas, Congress enacted the Coastal Zone Act Reauthorization Amendments of 1990. The law requires states with coastal zone management programs to adopt coastal nonpoint source programs. State programs can be tailored to particular needs and problems, but must assure that landowners implement management

measures to control nonpoint source pollutants by January, 1999. States programs may use a variety of approaches including technical assistance and cost-sharing, but must include sufficient "enforceable policies and mechanisms" to ensure implementation.

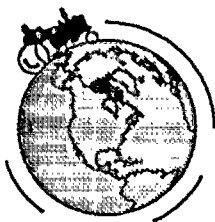
The law requires coastal nonpoint source programs to protect and restore coastal waters by ensuring that landowners or operators apply management measures to control pollutants and runoff. The Environmental Protection Agency has developed a document, *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, to assist state and local governments, as well as landowners and operators, in identifying and implementing the most effective management measures.

To ensure that the management measures contain the best and most recent information, EPA convened workgroups with representatives from the U.S. Department of Agriculture (Soil Conservation Service, Extension Service, and Forest Service), the U.S. Fish and Wildlife Service, and other federal agencies, as well as experts from state water quality and coastal zone management agencies.

The guidance identifies management measures for five major categories of nonpoint pollution: Agriculture, Forestry, Urban, Marinas and Recreational Boating, and Hydromodification. The measures reflect the greatest degree of pollution reduction that is economically achievable through the use of best available technology, siting criteria, operating methods, and other alternatives.



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Agriculture and the Environment

The measures focus first on pollution prevention activities such as carefully planning the application of nutrients and pesticides and minimizing soil erosion. These types of measures are often the most cost-effective.

The measures also consider nonpoint pollution of both ground and surface waters because of their interaction in the hydrologic cycle. In coastal areas, nonpoint sources, which may contribute to ground-water contamination, are of special concern because of the role ground water often plays in recharging coastal waters.

Agriculture-Related Nonpoint Source Pollution

The primary agricultural nonpoint source pollutants are nutrients (particularly nitrogen and phosphorus), sediment, animal wastes, pesticides, and salts. Agricultural nonpoint sources enter surface water through direct surface runoff or through seepage to ground water that discharges to a surface water outlet. Various farming activities result in the erosion of soil particles. The sediment produced by erosion can damage fish habitat and wetlands and, in addition, often transports excess agricultural chemicals resulting in contaminated runoff. This runoff in turn affects changes to aquatic habitat such as temperature increases and decreased oxygen. The most common sources of excess nutrients in surface water from nonpoint sources are chemical fertilizers and manure from animal facilities. These nutrients cause eutrophication in surface water.

Pesticides used for pest control in agricultural operations can also contaminate surface and ground-water resources. Return flows, runoff, and leachate from irrigated lands may transport sediment, nutrients, salts, and other materials. Finally, improper grazing practices in riparian, as well as upland areas, can cause water quality degradation.

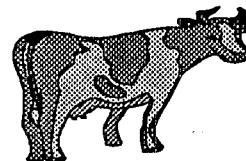
A Summary of the Management Measures

SEDIMENT/EROSION CONTROL

Soil erosion is one of the leading causes of water pollution in the United States. The goal of this measure is to minimize the delivery of sediment from agricultural lands to receiving waters. Landowners have a choice of one of two approaches: 1) apply the erosion component of the U.S. Department of Agriculture's Conservation Management System through such practices as conservation tillage, strip cropping, contour farming, and terracing, or 2) design and install a combination of practices to remove settleable solids and associated pollutants in runoff for all but the larger storms.

CONFINED ANIMAL FACILITY

Animal waste contaminates many of our waters with pathogens and nutrients. The management measure for all new facilities and existing facilities over a certain size is to limit discharges from confined animal facilities to waters of the United States by storing wastewater and runoff caused by all storms up to and including the 25-year, 24-hour frequency storm. For smaller existing facilities, the management measure is to design and implement systems that collect solids, reduce contaminant concentrations, and reduce runoff to minimize the discharge of contaminants caused by the same storms.



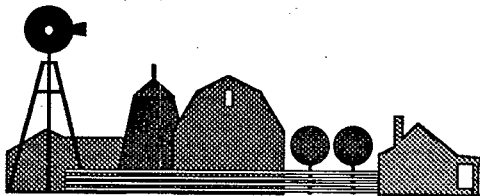
This measure also specifies management of stored runoff and solids through proper waste utilization and use of disposal methods which minimize impacts to surface and ground water. Confined animal facilities required to obtain a discharge permit under the National Pollutant Discharge Elimination System (NPDES) permit program are not subject to these management measures.

NUTRIENT MANAGEMENT

This measure calls for comprehensive nutrient management plans. Plans should include a nutrient budget for the crop, identification of the types and amounts of nutrients necessary to produce a crop based on realistic crop yield expectations, and an identification of the environmental hazards of the site. Other items called for in the measure include soil tests and other tests to determine crop nutrient needs and proper calibration of nutrient equipment.

PESTICIDE MANAGEMENT

This measure is designed to minimize water quality problems by reducing pesticide use, improving the timing and efficiency of application, preventing backflow of pesticides into water supplies, and improved calibration of pesticide spray equipment. A key component of this measure is use of integrated pest management (IPM). IPM includes evaluating current pest problems in relation to the cropping history, previous pest control measures, and applying pesticides only when an economic benefit to the producer will be achieved, i.e., application based on economic thresholds. If pesticide applications are necessary, pesticides should be selected based on consideration of their environmental impacts such as persistence, toxicity, and leaching potential.



LIVESTOCK GRAZING

The goal of this measure is to protect sensitive areas, which include streambanks, wetlands, estuaries, ponds, lake shores, and riparian zones. Protection is to be achieved through improved grazing management to reduce the physical distance and direct loading of animal waste and sediment caused by livestock by restricting livestock access to sensitive areas. In addition, upland erosion is to be reduced by either: 1) applying the range and pasture components of a Conservation Management System or 2) maintaining the land in accordance with the activity plans established by either the Bureau of Land Management or the Forest Service. These techniques include the restriction of livestock from sensitive areas by locating salt, shade, and alternative drinking sources away from sensitive areas, and providing livestock stream crossings.

IRRIGATION

This measure promotes an effective irrigation system that delivers necessary quantities of water yet reduces nonpoint pollution to surface waters and ground water. To achieve this, the measure calls for uniform application of water based upon an accurate measurement of crop water needs and the volume of irrigation water applied. When applying chemicals through irrigation (a process known as chemigation), special additional precautions apply. The measure also recognizes that states' water laws conflicting with this measure will take precedence over the measure.

To obtain a copy of the management measures guidance, please write:

Environmental Protection Agency
Nonpoint Source Control Branch (WH-553)
401 M Street, SW
Washington, D.C. 20460

