# Recommendations

## Stream Water Rights and Administration

The Oklahoma Water Resources Board should, within current statutory guidelines, seek to emphasize conservation and efficient use of stream water resources through improvement of the current system of water rights forfeiture/reduction and schedule of use. The OWRB should consider:

- allowances for a permit suspension period, rather than actual cancellation of water rights, if a concerted effort is demonstrated to market the rights;
- forfeiture exemptions for conserved water, perhaps through allowing water users to use, sell or lease the water they conserve;
- establishment of more stringent limitations on the state's schedule of use provision, unless a significant investment is made, to prevent delays in putting water to beneficial use; and
- implementation of administrative fines for failure to report water use or falsification of water report forms.

The OWRB should, within current statutory guidelines and accounting for the inherent inefficiencies associated with the various types of water systems, provide for the proper enforcement of conservation measures where excessive waste takes place through leaks, evaporation or other problems occurring during the use and distribution of permitted water.

The OWRB should study the implementation of a permitting system to account for seasonal changes in water availability, including development of guidelines for seasonal or monthly allocations and withdrawals that could free-up additional sources of water.

The Oklahoma Water Law Advisory Committee should explore potential OWRB rule revisions and/or statutory amendments that would provide for:

- more realistic and fair determinations of "beneficial use" and "present or future need" in cases of water rights adjudications; and
- assessment of administrative fines for flagrant or repeated violations of permit limits.

The OWRB should implement a system to periodically check the accuracy of reported water use and consider the implementation of requirements to emphasize accountability for water, perhaps through threat of perjury (including potential development of affidavit report forms) or initiation of water use metering for right holders who knowingly falsify or consistently fail to file reports of water use.

The OWRB should complete and provide for continuous update of hydrologic surveys to accurately determine the amount of water available in Oklahoma's rivers and streams.

The OWRB should improve education of permit holders regarding water use and conservation through agency-sponsored public workshops and related efforts involving direct interaction with the public.

## Instream Flow Protection

The Oklahoma Water Resources Board should work with other appropriate state and federal environmental and natural resource agencies to develop an implementation strategy that provides instream flow protection for the state's designated scenic rivers.

The OWRB and Oklahoma Department of Wildlife Conservation should work with the U.S. Army Corps of Engineers, Bureau of Reclamation and Grand River Dam Authority to ensure that existing and modified reservoir releases are managed to provide dissolved oxygen concentrations that maintain or improve downstream conditions for aquatic life and recreation.

## Indian Water Rights

The Oklahoma Water Resources Board should request the Oklahoma Water Law Advisory Committee and selected tribal representatives to explore Indian water rights and quality issues in Oklahoma. Specifically, the group should:

- study formation of a permanent committee consisting of local, state, federal and Indian representatives to address appropriate water rights issues;
- develop a mutually acceptable negotiation system or process to fairly resolve current and future water rights issues; and
- identify water resource projects warranting cooperative action.

The State Legislature should consider appointing qualified Indian representatives to appropriate boards, commissions and other governing bodies of the State of Oklahoma.

## Groundwater/Stream Water Relationships

The Oklahoma Water Resources Board should:

- identify and quantify impacts that can result from the interaction between groundwaters and stream waters, especially the quality and quantity effects of groundwater withdrawal on stream water base flow;
- identify the potential benefits of the joint management and conjunctive use of state stream and groundwater supplies and develop potential management schemes which consider opportunities for watershed planning; and
- identify specific areas or watersheds/basins that could potentially benefit from conjunctive management and promote the formation of local advisory committees to guide management programs.

## Groundwater Protection

The Oklahoma Water Resources Board should initiate studies to establish individual aquifer classifications based upon each aquifer's vulnerability to contamination.

Appropriate state environmental and natural resource agencies should adopt and implement a flexible, comprehensive state groundwater utilization plan that:

- prioritizes groundwater protection/utilization programs and activities; and
- avoids regulations which unduly infringe upon individual property rights while protecting legitimate public interests.

Appropriate state environmental and natural resource agencies should evaluate the use of risk assessment methodology as a groundwater protection and cleanup tool.

The OWRB should coordinate efforts of appropriate state and federal environmental and natural resource agencies, universities and organizations to establish a comprehensive state water quantity and quality data collection program to monitor the condition of Oklahoma's stream and groundwater resources.

Appropriate state environmental and natural resource agencies should encourage state communities utilizing groundwater as a major water supply source to participate in voluntary state programs to protect local groundwater supplies.

## Groundwater Quality Standards

The Oklahoma Water Resources Board, through the Water Quality Standards process, should further develop and upgrade Oklahoma's groundwater quality standards as both a protection and cleanup tool. Consideration should be given to:

- development and implementation of numeric groundwater quality standards;
- development of a narrative standards statement prohibiting discharges of pollutants which result in contamination that could impair human health;
- use of risk assessment methodology;
- development and implementation of realistic, site-specific cleanup criteria to guide remediation of polluted groundwaters;
- further development of the groundwater classification system through adoption of a vulnerability mapping program utilizing DRASTIC or other appropriate methodology;
- creation of an organizational framework allowing the OWRB to separately administer stream and groundwater quality standards;
- the quality/quantity relationship and interaction between stream and groundwater resources; and
- adoption of a specific groundwater protection policy statement that indicates what type of protection (i.e., non-degradation, limited degradation and differential protection policy statements) the state will implement or achieve.

The OWRB should coordinate efforts of appropriate state and federal environmental and natural resource agencies, universities and organizations to establish a comprehensive state water quantity and quality data collection program to monitor the condition of Oklahoma's stream and groundwater resources.

## Nonpoint Source Pollution

The State Secretary of Environment should:

- encourage implementation of innovative nonpoint source reduction and management practices while also stressing use of proven measures;
- assure that state programs incorporate an adequate level of watershed planning, best management practice design, water quality monitoring and assessment of progress;
- assure that state projects are focused on identified nonpoint source priority areas;
- study implementation of a comprehensive state program that accentuates voluntary nonpoint source control measures through development and implementation of appropriate management plans for operations which manage nonpoint pollution sources; and
- encourage development of technical assistance programs that promote establishment of pollution prevention plans by landowners.

## Stream Water Quality Standards

The Oklahoma Water Resources Board should:

- increase efforts to implement water quality standards, especially biological criteria and total maximum daily loads, on a watershed basis, including additional protection for Outstanding Resource Waters;
- utilize the input of appropriate environmental and natural resource agencies to evaluate the use of risk assessment methodology as a water resource protection and cleanup tool; and
- bring together appropriate state and federal environmental and natural resource agencies, state universities and other involved organizations to assess current state efforts related to the collection and dissemination of water resource data and determine the need for a centralized ambient stream and groundwater quantity and quality monitoring network in Oklahoma. The OWRB should then submit study findings and recommendations to the Governor and State Legislature.

Oklahoma's Congressional Delegation should encourage the federal government to:

- limit federally mandated actions and promote promulgation of water quality standards by individual states to allow states greater flexibility in addressing state-identified priorities and regional and/or local standards issues;
- continue refinement of the Total Maximum Daily Loads concept; and
- require water quality standards implementation procedures that consider not only criteria and permit development, but also field validation of discharge permits which protect human health and aquatic life.

## Municipal & Rural Water/Wastewater Systems

The State Legislature should capitalize the Statewide Water Development Revolving Fund to a level that will help ensure a continuing source of funding for water/wastewater system projects which will result in a higher quality infrastructure system for economic development and environmental protection activities.

The Oklahoma Water Resources Board and State Department of Commerce should identify and implement incentives through which state financial assistance programs can encourage local interest and cooperation in regional planning projects.

The OWRB and State Department of Environmental Quality -- in cooperation with the Oklahoma Municipal League, Oklahoma Rural Water Association and other appropriate agencies and organizations -- should develop a coordinated technical assistance strategy to promote interest in regionalization among local water/wastewater systems and encourage cooperation among potential regional entities. The strategy should define appropriate state, local and federal roles in regional water system planning -- establishing the state as a facilitator of regional planning activities and as the primary source of information (especially through the updated Oklahoma Rural Water Survey and local needs assessments) on municipal and rural water/wastewater systems -- and emphasize improved education of local water system decision-makers.

The OWRB, Department of Environment Quality, State Department of Commerce and other appropriate state and federal environmental/financing agencies should initiate a cooperative effort to promote privatization opportunities and assist in establishment of private/public partnerships, where appropriate, that will minimize regulation and result in decreased costs for governmental services.

## Financing

The State Legislature should capitalize the Statewide Water Development Revolving Fund to a level that enables the Fund to meet Oklahoma's annual recurring water development needs.

The Oklahoma Department of Commerce should ensure that the Community Development Block Grant program continues to provide priority funding to water and wastewater projects that pose a serious or immediate threat to the health or welfare of citizens.

Oklahoma's Congressional Delegation should encourage the federal government to establish funding levels sufficient to satisfy upcoming Clean Water Act mandates and provide states with the maximum flexibility possible to administer state Revolving Fund programs.

## Allocation & Control

The Oklahoma Water Resources Board, Corps of Engineers, Bureau of Reclamation, Natural Resources Conservation Service and other appropriate federal, state and local entities, should initiate a cooperative effort to improve and enhance the various benefits of state reservoirs through:

- evaluation of individual project operations in basins throughout the state to identify where system operating plans could be implemented or existing plans improved; and
- pursuit of cost-effective opportunities for storage reallocation in existing projects.

Oklahoma communities should participate in floodplain management and flood prevention opportunities offered under the Hazard Mitigation Grant Program, including channel improvements, construction of dikes and other diversion structures, acquisition/relocation projects, and the return of land to the floodplain and/or its natural state.

The Oklahoma Congressional Delegation should amend the Water Resources Development Act of 1986 so that reallocation of storage is based on original construction costs, as provided in the Water Supply Act of 1958.

The OWRB, Corps of Engineers and other appropriate state and federal agencies should study the potential for establishing a system to manage and administer important non-consumptive water uses, such as navigation, fish and wildlife and recreation. Consideration should be given to obtaining water rights or storage and entering into memoranda of agreement for these uses.

The OWRB, Corps of Engineers, Bureau of Reclamation, Natural Resources Conservation Service and other appropriate federal, state and local entities should develop a mechanism -- such as creation of advisory committees, consisting of representatives of appropriate water uses, or development of agency memorandums of understanding -- - to facilitate the implementation of modified system operating plans, where needed, and address disputes related to reservoir operations.

## Maintenance & Renovation

The Oklahoma Water Resources Board, Corps of Engineers, Bureau of Reclamation, Natural Resources Conservation Service and other appropriate federal, state and local entities should undertake appropriate studies -- including preliminary cost/benefit estimates -- to identify potential reservoir candidates for physical modification.

The OWRB, Oklahoma Department of Transportation, State Legislature and Oklahoma's Congressional Delegation should continue to support construction of Montgomery Point Lock and Dam by the U.S. Army Corps of Engineers with a scheduled completion date of September 2001.

## Water Transfer

The State Legislature and Oklahoma Water Resources Board should review existing water statutes and identify barriers to water marketing and measures that could be instituted to better facilitate voluntary water marketing and transfers and protect affected parties, including negotiations with the federal government to avoid purchasing reservoir storage at updated costs.

The OWRB should develop a state water marketing and transfer policy, including guidelines to accomplish individual marketing projects. The policy should strongly consider problems and issues identified by the OWRB in its effort to lease surplus Kiamichi River Basin water, including:

- satisfying, to the greatest extent possible, public concerns on mitigating potential impacts on local economic development;
- protecting the most locally important uses of the transferred water; and
- providing compensation, such as payments in lieu of ad valorem taxes (existing statutes provide for this form of restitution), to the area of origin.

The OWRB should study the feasibility of creating a state water bank to:

- locate and purchase sources of available or surplus water rights and storage;
- evaluate all opportunities for water importation and transfer;

- coordinate the sale and/or loan of available supplies and water rights to prospective customers, including transfers through the establishment of regional systems; and
- coordinate efforts to educate the public on water transactions.

The OWRB should identify and investigate methods to utilize untapped sources of usable water in Oklahoma through:

- development of system operating plans;
- reallocation of reservoir storage;
- utilization of sediment storage;
- administrative actions, such as the cancellation and reduction of unused water rights;
- greater consideration of reservoir storage yield that will vary according to proposed use in the receiving area; and
- consideration of additional reservoir project construction.

## Weather Modification

The Governor and State Legislature should identify the state's need for (and subsequent role in) a carefully focused, multi-year cloud seeding demonstration program to determine the ultimate utility of weather modification as a water resource management tool.

## Groundwater Recharge

The Oklahoma Water Resources Board should initiate a comprehensive study to identify additional potential artificial recharge areas in the state, including a detailed assessment of the Blaine Recharge Demonstration Project.

The OWRB, through the Water Law Advisory Committee, should review state water rights and water quality laws to determine what, if any, additional legislation is needed to address the various water rights and quality considerations of artificial recharge.

## Reclamation & Reuse

The State Department of Health and/or Department of Environmental Quality should take an active role in establishing guidelines for the safe and authorized use of recycled wastewater, identifying programs where reuse should be automatically considered as an alternative, investigating technological opportunities for efficient water reuse and examining the effects of an expanded reuse program which considers the effects of water withdrawals on downstream users.

The Oklahoma Water Resources Board should develop measures to encourage water suppliers and individual permit holders to implement conservation/management plans -- including consideration and use of return flows and treated effluent -- to reduce consumptive use of stream and groundwaters.

## Chloride Control

Until potential environmental impacts are resolved, Congress should not support full implementation of the Red River Chloride Control Project, as presently designed.

## Water Conservation

The State Legislature should promote statewide water conservation by:

- encouraging cities, water supply districts and other entities to develop and implement water conservation programs that include the addition of water-saving plumbing fixtures and household appliances in new construction and as replacements for existing fixtures;
- incorporating water conservation policy goals into all appropriate activities and programs of state government; all agencies responsible for constructing, leasing, or maintaining state facilities and property should be directed to use water-conserving plumbing fixtures and devices, water efficient landscape practices and other programs to maximize water use efficiency; and
- providing appropriate funding to affected state agencies to retrofit existing state facilities with water-conserving devices.

- The Governor and State Legislature should create a permanent funding source to allow continuation of the Oklahoma Leak Detection Program.

The Oklahoma Water Resources Board and Oklahoma Rural Water Association should facilitate public education efforts to encourage participation in the Oklahoma Leak Detection Program by rural communities and water districts.

The State Secretary of Environment should appoint a task force of appropriate state agencies to develop a state water conservation plan that incorporates all aspects of public, agricultural and industrial water use. The plan should identify educational opportunities as well as potential incentives to encourage conservation.

The OWRB, Rural Development, Oklahoma Department of Commerce, Indian Health Service and other appropriate funding entities should consider incorporating incentives for development of individual water system conservation plans into their requirements for water/wastewater project financial assistance.

The OWRB and other appropriate state agencies should study establishment of a technical assistance program to assist industries in implementing water conservation measures.

The OWRB should continue to promote information among water suppliers regarding price structuring options, including the increasing block rate structure, that promote conservation while recognizing the socioeconomic requirements of Oklahoma communities. This effort should be expanded to include improved public education regarding the factors that determine the "true" cost of water (i.e., costs associated with delivery, treatment, etc.).

## Basin/Watershed Management

All appropriate state and federal water resource agencies should develop and implement watershed planning and management strategies by:

- delineating uniform, manageable watershed planning boundaries, such as those currently recognized by the U.S. Geological Survey, that incorporate distinct hydrologic units of both stream and groundwater resources;
- identifying and incorporating methodologies that facilitate the evolution of local, state and federal water resource programs to a watershed management approach;
- studying creation of local watershed management organizations for problem-solving and issue resolution; and
- coordinating implementation of Geographical Information System technology at the local, state and federal level.

## Drought Preparedness

The Secretary of Environment should appoint a State Water Resource Drought Coordinator to coordinate federal, state and local drought response efforts in Oklahoma. The State Drought Coordinator should be charged with developing a comprehensive drought preparedness plan for mitigating the effects of drought episodes in Oklahoma. Such an effort should include the investigation of:

- a monitoring/early warning system -- including the development and implementation of drought indices that signal the onset and/or varying stages of drought -- to provide information about the timing and severity of drought episodes;
- techniques to assess the probable impacts of prospective drought episodes;
- approaches to coordinating governmental activities including information exchange and drought declaration/revocation criteria and procedures;
- assistance programs with pre-determined eligibility and implementation criteria;
- financial/research resources needed to implement drought assessment and response activities; and
- educational programs designed to promote drought mitigation/ preparedness among the economic sectors most impacted by drought.

## Wetlands Protection & Management

State and federal environmental and natural resource agencies should continue efforts to develop a state comprehensive wetlands protection and management strategy that includes:

- defining wetlands;
- designating beneficial uses of wetlands;
- identifying and inventorying wetlands within Oklahoma;
- identifying measures to mitigate losses of wetlands, protect wetlands and manage them on a watershed or hydrologic unit basis;
- developing standards for critical wetlands;
- recommending measures to ensure the protection of landowner property rights while protecting legitimate public interests; and
- defining the roles of appropriate state agencies in wetlands protection and management.

## Endangered Species

Appropriate state and federal environmental and natural resource agencies should facilitate increased public involvement in the Endangered Species Act administration and decision-making process.

The Oklahoma Water Resources Board should ensure that future state water quality standards revisions consider the comments and policies of other state and federal environmental and natural resource agencies to achieve a reasonable and environmentally-sensitive balance between protection of endangered and threatened species, economic concerns, consumptive water uses and related considerations.

The Oklahoma Department of Wildlife Conservation and other appropriate state and federal environmental and natural resource agencies should improve coordination, during the planning stages, in assessing the effect of existing and potential water resource development on the state's endangered and threatened species. This effort should include identification of the status of rare, threatened and endangered species in proposed project areas and development of measures to avoid potential adverse impacts.

## Floodplain Protection & Preservation

The Oklahoma Water Resources Board and State Office of Civil Emergency Management should establish a committee -- including representatives of the Oklahoma Conservation Commission, Oklahoma Department of Environmental Quality, Office of the State Secretary of Environment and other appropriate agencies -- to consider the need for a unified statewide flood control plan that addresses such issues as National Flood Insurance Program community participation, Community Rating System participation, flood hazard mitigation, dam safety, floodplain mapping, wetlands protection, and related floodplain protection/preservation measures.

The State Legislature should consider enactment of:

- a state Emergency Disaster Response and Recovery Act to facilitate state response to major flooding and other natural disasters; and
- legislation to mitigate the effects of stormwater diversion projects on the regulatory floodplain, including damages to adjacent property resulting from diverted runoff.

The OWRB and Office of Civil Emergency Management should encourage Oklahoma communities to:

- develop and maintain a priority list of eligible hazard mitigation projects;
- participate in pre-disaster planning efforts;
- create a training program, with state assistance, for community officials to educate their residents on flood disaster preparedness;
- develop local stormwater management plans;
- strengthen enforcement of local ordinances;
- develop and implement responsible flood alert systems; and
- consider, where possible, enactment of ordinances requiring an appropriate increase in local base-flood elevations.

## Water Resource Dispute Resolution

The Oklahoma Office of Personnel Management should develop and offer training in dispute resolution to all Environment Cabinet agencies.

The Office of the Secretary of Environment should:

- evaluate the Administrative Procedures Act and other applicable Oklahoma laws to identify any impediments to the use of dispute resolution techniques in resolving water resource disputes; and
- direct all agencies under the Environment Cabinet to promulgate rules of procedure for alternative dispute resolution methods in their respective areas of jurisdiction.

## Local Empowerment

The Oklahoma Water Resources Board should facilitate creation of a task force of citizens and appropriate agencies to reassess state, federal and local roles in water resource management to identify areas which could facilitate greater control of water resources by local entities and increased local input into state administration of Oklahoma's stream and groundwaters.

The State Secretary of Environment should form a citizens-based task force to assess the relative value and effectiveness of state and federal water quality and quantity management programs.

## Interstate Water Disputes

The State of Oklahoma should continue to utilize interstate stream compacts as a major vehicle to address and resolve interstate stream water problems with neighboring states. Specifically, the Oklahoma Water Resources Board should:

- review the provisions of each of the four interstate stream compacts to ensure that they sufficiently respond to Oklahoma's water resource needs;
- explore the potential for addressing interstate environmental and water quality issues, including project construction, under the compacts; and
- propose necessary changes in the compacts to the appropriate state and federal legislative bodies.

The State of Oklahoma should cooperate with neighboring states to investigate establishment of interstate groundwater compacts to resolve potential future disputes involving shared groundwater resources.

## Stream Gaging Network

The Oklahoma Water Resources Board, U.S. Geological Survey and other appropriate state and federal agencies, communities and individuals should seek to improve the efficiency and effectiveness of the state stream gaging program. This effort should include:

- identification and encouragement of partnerships and other measures to help defray costs associated with the state stream gaging network;
- identification of opportunities to improve education on the value of stream gage data and the benefits it provides to water resource managers and the general public; and
- a determination of the benefits of program expansion or potential integration into a state stream and groundwater quantity and quality monitoring network.

The State Legislature should continue financial support of current stream gaging programs so that agencies can better manage water resources, especially during periods of drought.

## Water Well Measurement

The Oklahoma Water Resources Board and U.S. Geological Survey should:

- update and restrict the state water well measurement network to those with known, reliable information on construction history, depth of completion and location;
- re-evaluate the distribution of wells included in the network and refine the network accordingly;

- refine measurement procedures to improve accuracy of the well measurement program, such as testing selected wells periodically to determine their response to water level changes; and
- ensure that all water well measurement information is readily available and published on a regular basis.

## Water Quality Sampling & Monitoring

The Oklahoma Water Resources Board should identify and recommend to the State Legislature a mechanism -- which operates in concert with the federal Clean Lakes Program -- to fund water quality assessment of Oklahoma lakes.

The OWRB should bring together appropriate state and federal environmental and natural resource agencies, state universities and other involved organizations to assess current state efforts related to the collection and dissemination of water resource data and determine the need for a centralized ambient stream and groundwater quantity and quality monitoring network in Oklahoma. The OWRB should then submit study findings and recommendations to the Governor and State Legislature.

## Oklahoma Mesonetwork/Next Generation Weather Radar

All appropriate state and federal water resource agencies and entities should work closely with MESONET project leaders to explore opportunities for additional data collection activities and value-added products applicable to water resource management activities. These agencies and entities should also identify measures to improve delivery and dissemination of MESONET data.

MESONET supporters should coordinate efforts to provide public education on the availability, use and access of the system.

## Water Resource Data Management

The Oklahoma Water Resources Board should form a committee consisting of representatives of the State Department of Environmental Quality, Oklahoma Conservation Commission, U.S. Geological Survey, Bureau of Reclamation, U.S. Army Corps of Engineers and other appropriate state and federal environmental and natural resource agencies to investigate options -- including possible use of the Internet system -- to create, fund and manage a coordinated water resource computer network and data bank that is compatible with the state Geographic Information System. This committee should also coordinate public education efforts related to availability and accessibility of water resource data.