Chapter 1
INTRODUCTION

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (State Board) and nine Regional Water Quality Control Boards. The State Board sets statewide policy for the implementation of state and federal laws and regulations. The Regional Boards adopt and implement Water Quality Control Plans (Basin Plans), which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities.

The jurisdiction of the California Regional Water Quality Control Board, Lahontan Region (Regional Board) extends from the Oregon border to the northern Mojave Desert and includes all of California east of the Sierra Nevada crest (Plates 1A, 1B, 2A and 2B). The name of the Region is derived from prehistoric Lake Lahontan, which once covered much of the State of Nevada. Most of the waters of the North Lahontan Basin drain into closed basins which were previously part of Lake Lahontan. Waters of the South Lahontan Basin also drain into closed basin remnants of prehistoric lakes.

The Lahontan Regional Board is a nine-member decision making body appointed by the Governor. The Board holds regular meetings, typically monthly at different sites throughout the Region. Its day-to-day work is carried out by a technical and administrative support civil service staff under an Executive Officer appointed by the Board. There are two Regional Board offices, at South Lake Tahoe and Victorville.

Function of the Basin Plan

This Basin Plan for the Lahontan Region is more than an abstract set of goals and policies; it is the basis for the Regional Board's regulatory program. It sets forth water quality standards for the surface and ground waters of the Region, which include both designated beneficial uses of water and the narrative and numerical objectives which must be maintained or attained to protect those uses. It identifies general types of water quality problems, which can threaten beneficial uses in the Region. It then identifies required or recommended control measures for these problems. In some cases, it prohibits certain types of discharges in particular areas. This Plan summarizes applicable provisions of separate State Board and Regional Board planning and policy documents (e.g., the Regional Board waiver policy), and of water quality management plans adopted by other federal, state, and regional agencies. This Plan also summarizes past and present water quality monitoring programs, and identifies monitoring activities, which should be carried out to provide the basis for future Basin Plan updates and for waste discharge requirements or conditional waivers.

This Basin Plan will be used as a resource by the Regional Board's technical staff. It must also serve as an educational document for both staff and dischargers. Regional Board orders cite the Basin Plan's applicable water quality standards and prohibitions. This Basin Plan will also be used by other agencies in their permitting and resource management activities. Finally, this Plan will serve as a reference document for members of the public, particularly those who are interested in specific water bodies or water quality issues.
Because of the size and diversity of the Lahontan Region, the Basin Plan cannot be encyclopedic. Instead of attempting to cover all available information about water quality and related issues in the Lahontan Region, it directs the reader to more detailed sources of information.

Legal Basis and Authority

This Basin Plan implements a number of state and federal laws, the most important of which are the federal Clean Water Act (P.L. 92-500, as amended), and the State Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.). Other pertinent federal laws include the Safe Drinking Water Act, Toxic Substances Control Act, Resource Conservation and Recovery Act, and Endangered Species Act, and the Comprehensive Response, Compensation, and Liability Act (CERCLA or “Superfund”) and Superfund Amendment and Reauthorization Act (SARA). Other applicable California laws include the Health and Safety, Fish and Game, and Food and Agriculture Codes. These and other relevant laws are discussed in greater detail in the following chapters.

The federal Clean Water Act sets forth national goals that waters shall be “fishable and swimmable.” It directs the states to establish water quality standards and to review and update them on a triennial basis (§ 303[c]). Other provisions of the Clean Water Act related to basin planning include Section 208, which authorizes the preparation of areawide wastewater management plans, and Section 319 (added by 1987 amendments) which provides for more specific

planning related to control of nonpoint source problems. The 1987 amendments to the Act also mandated adoption by the states of numerical standards for 126 “priority pollutant” toxic chemicals.

The State Board and Regional Boards implement the Clean Water Act in California under the delegation and oversight of the U.S. Environmental Protection Agency (USEPA), Region IX. Direction for implementation of the Clean Water Act is provided by the Code of Federal Regulations (40 CFR) and by a variety of USEPA guidance documents on specific subjects.

The Porter-Cologne Act established the State Board and the nine Regional Boards in their current form. It authorizes the State Board to formulate, adopt, and revise state water policy, which may include water quality objectives, principles, and guidelines (CA Water Code § 13140-13143). The Porter-Cologne Act also authorizes the State Board to adopt water quality control plans on its own initiative (§ 13170). Such plans supersede regional Basin Plans to the extent of any conflict.

Article 3 of the Porter-Cologne Act directs Regional Boards to adopt, review, and revise Basin Plans, and provides specific guidance on factors which must be considered in adoption of water quality objectives and implementation measures.

In adopting objectives (CA Water Code § 13241), Regional Boards must consider:

“(a) Past, present, and probable future beneficial uses of water.

(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of the water available thereto.

(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.

(d) Economic considerations.

(e) The need for developing housing within the region.

(f) The need to develop and use recycled water.”

Programs of implementation for achieving water quality objectives (CA Water Code § 13242) are to include, but not be limited to:

“(a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.

(b) A time schedule for the actions to be taken.

(c) A description of surveillance to be undertaken to determine compliance with objectives.”

The Porter-Cologne Act allows Regional Boards, in Basin Plans or in waste discharge requirements, to “specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted” (CA Water Code § 13243). Where proposed prohibitions affect discharges from individual waste disposal systems, the Regional Board must meet conditions specified in Sections 13280-13284 before adopting them.

In addition to the direction provided by state and federal laws, guidance for basin planning is also contained in certain court decisions. For example, the 1983 Mono Lake Decision (National Audubon Society *v.* Superior Court 33 Cal. 3d 419, 441) reaffirmed the public trust doctrine, holding that the public trust is “an affirmation of the duty of the state to protect the people's common heritage in streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust.” Public trust uses include commerce, navigation, fisheries, and recreation. The Racanelli Decision (United States *v.* State Water Resources Control Board [1986] 182 Cal. App. 3d. 82, 227 Cal. Rptr. 1621-8) directed the State Board, and by implication, Regional Boards, to take a “global view” of water resources in developing water quality objectives.

This decision recognized that an implementing program may be a lengthy and complex process which requires significant time intervals and action by entities over which the State Board may have little or no control. Both of these cases concerned water quality and quantity issues. Additional discussion of such issues is contained in Chapter 4 of this Plan.

USEPA regulations (40 CFR § 131.10) require states to consider downstream water quality standards when setting their own. Many of the waters of the Lahontan Region are interstate waters. Therefore, standards

set by other states, or by Indian Tribes. which are considered as states under Section 519 of the Clean Water Act, must be considered during the basin planning process.

Regional Setting

The following is a brief overview of the environmental and socio-economic setting of the Lahontan Region.

The Lahontan Region is defined in terms of drainage basins by Section 13200(h) of the Porter-Cologne Act. For planning purposes, it has historically been divided into North and South Lahontan Basins at the boundary between the Mono Lake and East Walker River watersheds, as shown in Figures 1-1 and 1-2. It is about 570 miles long and has a total area of 39,210 square miles.

The Lahontan Region includes the highest (Mount Whitney) and lowest (Death Valley) points in the contiguous United States, and the topography of the remainder of the Region is diverse. The Region includes the eastern slopes of the Warner Mountains and the Sierra Nevada, the northern slopes of the San Bernardino and San Gabriel Mountains; the southern slopes of the Tehachapi Mountains, and all or part of other ranges including the White, Providence, and Granite Mountains and the western slopes of the New York and Ivanpah Mountains. Topographic depressions include the Madeline Plains, Surprise, Honey Lake, Bridgeport, Owens, Antelope, and Victor Valleys.

The geology and soils of the Lahontan Region have been shaped by a variety of processes, and are correspondingly diverse. Parent materials in the northern mountains are granitic or volcanic; evidence of glacial action is widespread. Soils in the desert valleys of the Region are derived from alluvium. Severe seismic activity has occurred in the past; the Owens Valley earthquake of 1872 formed a 20-foot fault scarp, and earthquakes in the Mammoth area have recently damaged sewer lines. Volcanic activity has occurred fairly recently in the Mono Lake area, and the presence of geothermal springs throughout the Lahontan Region indicates that it could occur in the future. Economically valuable minerals, including gold, silver, copper, sulfur, tungsten, borax, and rare earth metals, have been or are being mined at various locations within the Lahontan Region.

The Lahontan Region also has a variety of climates. The Region is generally in a rain shadow; however, precipitation amounts can be high (up to 70 inches) at higher elevations. Most precipitation in the mountainous areas falls as snow. Desert areas receive relatively little annual precipitation (less than 2 inches in some locations) but this can be concentrated and lead to flash flooding. Recorded temperature extremes in the Lahontan Region range from -45 degrees Fahrenheit at Boca in the Truckee River watershed to 134 degrees Fahrenheit in Death Valley.

The varied topography, soils, and microclimates of the Lahontan Region support a corresponding variety of plant and animal communities. Vegetation ranges from sagebrush and creosote bush scrub in the desert areas to pinyon-juniper and mixed conifer forest at higher elevations. Subalpine and alpine “cushion plant” communities occur on the highest peaks. Wetland and riparian plant communities, including marshes, meadows, “sphagnum” bogs, riparian deciduous forest, and desert washes, are particularly important for wildlife, given the general scarcity of water in the Region.

The existence of “ecological islands,” as a result of topography, glaciation, and climatic changes, has led to the evolution of species, subspecies, and genetic strains of plants and animals in the Lahontan Region which are found nowhere else. Particularly notable are fish such as the Eagle Lake trout, Lahontan and Paiute cutthroat trout, Mojave chub, and several kinds of desert pupfish. (Chapter 4 includes a more detailed discussion of the implications of the Basin Plan for rare, threatened, and endangered species.)

The Lahontan Region is rich in cultural resources (archaeological and historic sites). These range from remnants of Native American irrigation systems to Comstock mining era ghost towns such as Bodie and 1920s resort homes at Lake Tahoe and Scotty's Castle at Death Valley.

Much of the Lahontan Region is in public ownership, with land use controlled by agencies such as the U.S. Forest Service, National Park Service, and Bureau of Land Management, various branches of the military, the California State Department of Parks and Recreation, and the City of Los Angeles Department of Water and Power. While the permanent resident population of the Region (about 800,000 in 1995) is low in relation to that of more urbanized Regions, most of it is concentrated in high density communities in the South Lahontan Basin. In addition, millions of visitors use the Lahontan Region for recreation each year. Rapid population growth has occurred recently and is expected to continue in the Victor and Antelope Valleys and within commuting distance of Reno, Nevada. Principal communities of the North Lahontan Basin include Susanville, Truckee, Tahoe City, South Lake Tahoe, Markleeville, and Bridgeport. The South Lahontan Basin includes the communities of Mammoth Lakes, Bishop, Ridgecrest, Mojave,

Adelanto, Palmdale, Lancaster, Victorville, and Barstow.

Recreational and scenic attractions of the Lahontan Region include Eagle Lake, Lake Tahoe, Mono Lake, Mammoth Lakes, Death Valley, and portions of many wilderness areas. Segments of the East Fork Carson and West Walker Rivers are included in the State Wild and Scenic River system. Both developed (e.g.,camping, skiing, day use) and undeveloped (e.g., hiking, fishing) recreation are important components of the Region's economy.

In addition to tourism, other major sectors of the economy are resource extraction (mining, energy production, and silviculture), agriculture (mostly livestock grazing), and defense-related activities. There is relatively little manufacturing industry in the Region in comparison to major urban areas of the state.

Water Resources and Water Use

The Lahontan Region includes over 700 lakes, 3,170 miles of streams and 19,710 square miles of ground water basins. There are twelve major watersheds (called “hydrologic units” under the Department of Water Resources' mapping system) in the North Lahontan Basin. Among these are the Eagle Lake, Susan River/Honey Lake, Truckee, Carson, and Walker River watersheds. The South Lahontan Basin includes three major surface water systems (the Mono Lake, Owens River, and Mojave River watersheds) and a number of separate closed ground water basins. Very little quantitative information is available on most of the water bodies in the Region.

The natural quality of most high elevation waters, which are derived from snowmelt, is assumed to be very good or excellent, although localized problems related to heavy metals and radioactive elements occur. The soils and waters of the Sierra Nevada have low buffering capacity for acids, and its lakes and streams are considered sensitive to acidification as a result of wet and dry deposition of pollutants from urban areas. Although high quality water supplies are available near streams in desert areas of the Lahontan Region, many desert waters have naturally poor quality (e.g., high concentrations of salts, and minerals such as arsenic and selenium). Threats to beneficial uses from naturally high concentrations of salts, toxic minerals, or radioactive substances can be aggravated by geothermal and agricultural discharges, ground water overdraft which concentrates salts, and disposal of stormwater under conditions where it is unlikely to receive adequate treatment by soils and vegetation.

Water quality problems in the Lahontan Region are largely related to nonpoint sources (including erosion from construction, timber harvesting, and livestock grazing), stormwater, acid drainage from inactive mines, and individual wastewater disposal systems. (The concentration of most of the Region's population in a few high density communities has important implications for areas with no community wastewater treatment facilities.) There are relatively few point source discharges; these include several wastewater treatment plants, fish hatcheries operated by the Department of Fish and Game, and some geothermal discharges. Some types of discharges may be considered either point source or nonpoint source depending upon site-specific circumstances. For example, stormwater which enters one lake through a pipe may be regulated as a point source, while stormwater which enters another lake via sheet flow is considered a nonpoint source discharge. Chapter 4 of this Plan explains both point source and nonpoint source problems in greater detail and outlines recommended control measures for specific problem categories. Additional information on existing water quality and water quality problems associated with particular areas is provided in the regional Water Quality Assessment, discussed in Chapter 7.

Consumptive municipal and agricultural use of water is relatively low in most parts of the Lahontan Region compared to other parts of California, due to the low resident population and the agricultural emphasis on range livestock grazing rather than crops. Irrigation is mostly for pasture, rather than for row crops and orchards. Large volumes of water are exported for consumptive use outside the Lahontan Region. The waters of the Truckee, Carson and Walker Rivers, and of Lake Tahoe, are allocated by court decisions, federal law, and interstate agreements among water users in California and Nevada. The City of Los Angeles Department of Water and Power diverts water from the Mono and Owens River Basins via the Los Angeles Aqueduct for use in the Los Angeles area. Some water is imported to the South Lahontan Basin via the State Water Project's California Aqueduct.

Careful consideration of the relationships between water quality and water quantity will be needed in future Regional Board planning activities. Reasons for concern include projected increases in population and consequent demands for water, and possible future water shortages due to drought, global climate change, and contamination of some water supplies by toxic substances. There is also increasing scientific and public awareness of environmental values associated with natural water volumes in streams, lakes, wetlands and ground water aquifers.

History of Basin Planning in the Lahontan Region

The nine Regional Boards were established as "Regional Water Pollution Control Boards" by the Dickey Act of 1949. The Lahontan Regional Board adopted separate water quality control policies for a number of interstate waters of the North Lahontan Basin (e.g., the Truckee, Carson, and Walker River watersheds) in the late 1960s and early 1970s, pursuant to the 1965 Federal Water Pollution Control Act and to amendments to the Dickey Act. These policies included water quality objectives.

The names of the Regional Boards were changed, and their authority broadened, by the Porter-Cologne Water Quality Control Act in 1969. The development of comprehensive Basin Plans was initiated in response to both federal and state directives. "Interim" Basin Plans were adopted by the Regional Board for the North and South Lahontan Basins in 1971. These plans were amended in 1972 and 1973. Work on revisions of these plans continued and culminated in state adoption of the North and South Lahontan Basin Plans in 1975. The 1975 Basin Plans received final approval by the USEPA. In comparison to previous policies, these plans included water quality standards for more water bodies, and more detailed and stringent control measures.

The 1975 Basin Plans included summaries of earlier beneficial use designations and water quality objectives in chapters entitled "Historical Beneficial Uses" and "Historical Water Quality Objectives." Objectives rendered obsolete by Basin Plan amendments after 1975 were also incorporated into "historical" chapters. In order to simplify the current plan, these chapters have been deleted. Copies of "historical" data may be obtained by contacting either Regional Board office.

Amendments to the North and South Lahontan Basin Plans adopted between 1975 and 1991 have been incorporated into this Basin Plan, with editorial revisions where appropriate. Amendments have included significant changes in beneficial use designations, water quality objectives, and control measures.

Progress has been made toward the control of a number of water quality problems identified in the 1975 Basin Plans, including nonpoint source problems at Lake Tahoe and Mammoth Lakes, acid mine drainage from the Leviathan Mine, and problems associated with septic systems in a number of specific areas. At the same time, new issues and areas of concern have arisen. Better analytical technology makes it possible to detect contaminants at increasingly smaller concentrations, and modern medicine identifies increasingly lower concentrations of toxic substances as health risks. Statewide concern regarding toxic pollutants exists in relation to underground tanks, leaking landfills, and toxic pits. Other "new" areas of concern include acid deposition, biotechnology products such as bacteria being marketed to aid snowmaking at ski areas, and impacts of road salt runoff on vegetation. New treatment technology, such as the use of artificial wetlands for treatment of stormwater, and bioremediation for cleanup of toxic substances, must be evaluated. A continuing planning process based on the latest scientific information is needed to address both "old" and "new" issues.

Basin Plan Amendment Procedures

The federal Clean Water Act (§ 303[c]) directs the states to hold public hearings for the review of water quality standards at least once every three years. The Porter-Cologne Act (CA Water Code § 13240) directs that Basin Plans shall be periodically reviewed to evaluate necessary revisions. The Lahontan Regional Board conducts the "Triennial Review process" by requesting public comments on needs for changes in the Basin Plan, and by combining issues identified by the public with staff-identified needs for changes in the Basin Plan, to formulate and adopt priority lists for future Basin Plan amendments. The Regional Board may also initiate Basin Plan amendments apart from the Triennial Review process, in response to needs which arise on a short-term basis.

Basin Plan amendments generally involve consultation with affected agencies and other interested parties, update of existing mailing lists, preparation and distribution of an amendment "package" (including the proposed amendment language, an environmental document, and a staff report outlining the rationale for the amendments), and a public review period of at least 45 days. Public workshops may be held to inform the Regional Board and the public about planning issues before formal action is scheduled on the amendments. Regional Board action follows at least one duly noticed public hearing. Regional Board staff prepare responses to all public comments as part of the record. Legislation in 1997 added a requirement for scientific peer review of amendments involving scientific justification. Peer review occurs before draft amendments are released for public review.

Since 1980, the planning programs of the State Board and the Regional Boards have been considered "exempt regulatory programs" pursuant to Section

21080.5 of the California Environmental Quality Act (CEQA). This means that these agencies have been formally authorized by the Secretary for Resources to prepare short "functional equivalent" environmental documents in place of lengthy Environmental Impact Reports for plan amendments.

The 1975 Basin Plans included chapters entitled "Plan Assessment." "Functional equivalent documents" for Basin Plan amendments since 1980 were formally incorporated into these chapters upon adoption of the amendments. At the direction of the State Board, this revised Basin Plan does not include an environmental assessment chapter. Instead, the separate functional equivalent document for the entire plan revision will be included in the record of the planning process. Copies of earlier environmental documents may be obtained by contacting Regional Board staff.

Following their adoption by the Regional Board, Basin Plan amendments and supporting documents are submitted to the State Board for review and approval. The State Board may approve the amendments or remand them to the Regional Board with directions for change. All Basin Plan changes approved by the State Board after June 1, 1992 must be reviewed and approved by the Office of Administrative Law (OAL). For purposes of state law, all amendments take effect upon approval by the OAL. However, the USEPA reviews amendments involving changes in adopted state standards for conformance with federal requirements.

Figure 1-1
NORTH LAHONTAN BASIN

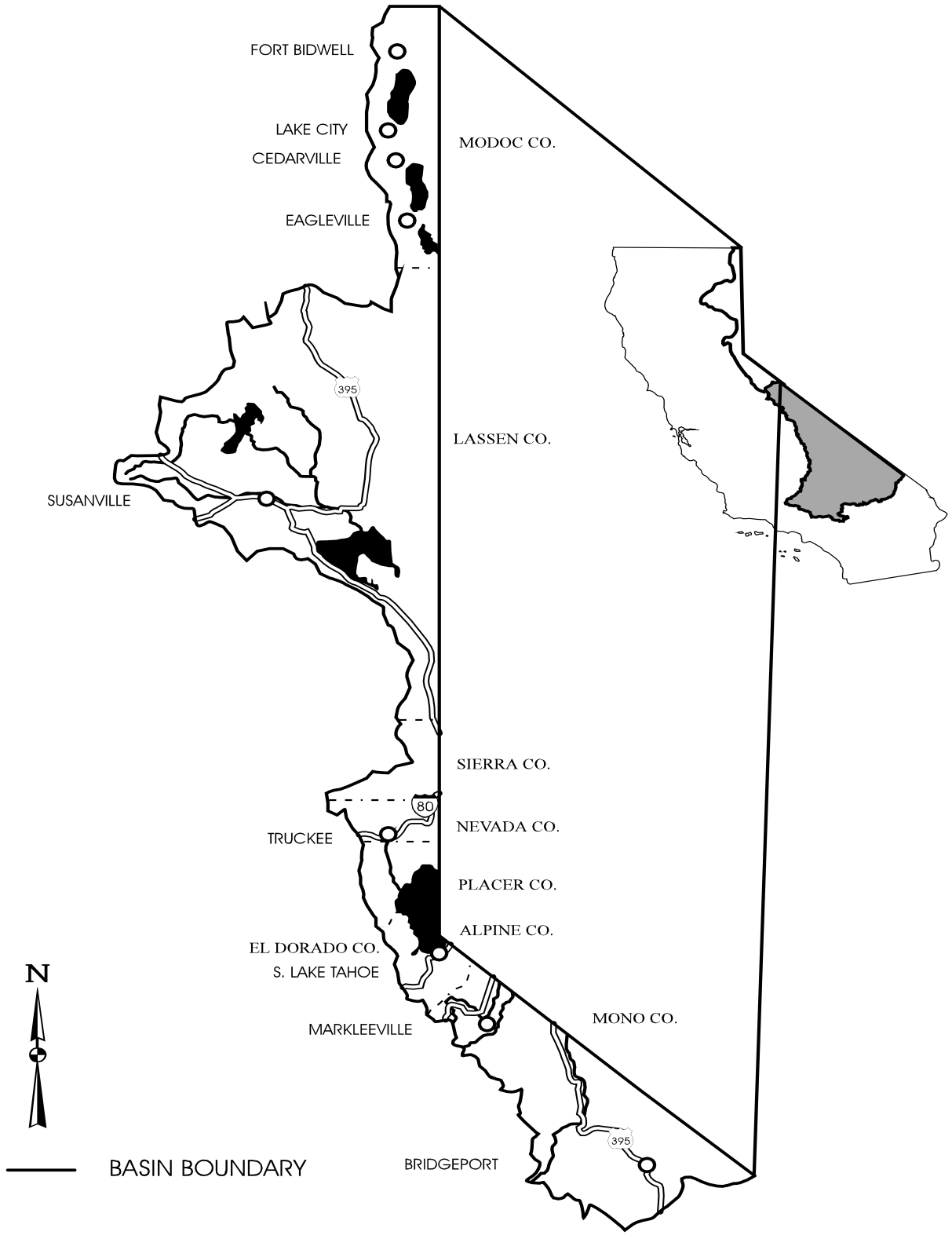

Figure 1-2
SOUTH LAHONTAN BASIN