

RESTORING ENDANGERED ECOSYSTEMS:
THE TRUCKEE-CARSON WATER RIGHTS
SETTLEMENT

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RESTORING ENDANGERED ECOSYSTEMS:

The Truckee-Carson Water Rights Settlement

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On November 16, 1990, the Fallon Paiute-Shoshone and Truckee-Carson-Pyramid Lake Water Rights Settlement Act became law. (Public Law 101-618, 104 Stat. 3289; hereafter "the Truckee-Carson Settlement" or simply "the Act." See also Senate Report 101-555.) Responding to pressures common throughout the West, the Act seeks to accommodate long-neglected aquatic ecosystem needs, unresolved Native American claims, and burgeoning urban-sector demands, while at the same time assuring the continued viability of communities long-dependent on Reclamation-era preferences. Central to the Act are its myriad provisions for the restoration of desert aquatic ecosystems -- the start, perhaps, of a new "reclamation" era in which ecosystem needs become an integral part of basinwide water-resources management.

This article gives an overview of the Act's restoration mandates, with particular focus on provisions involving improved water management, efficiency, and allocation. Also discussed are several key implementation concerns and unresolved issues.

SETTING AND CONTEXT

The Truckee and Carson Rivers (Figure 1) flow east from California's Sierra Nevada mountains into historically-expansive lake and wetland complexes at the western edge of the Great Basin desert in Nevada. At the end of the Truckee River lies Pyramid Lake, home to the federally-listed endangered cui-ui, the threatened Lahontan cutthroat trout, and, at the Anaho Island National Wildlife Refuge, what was until recently the largest white pelican rookery in North America. The Carson River ends up in the Carson Sink, supporting at its delta the Stillwater marsh, Carson Lake, and other Lahontan Valley wetlands. The wetland ecosystem, an inland stepping stone on the Pacific Flyway, is among the most important of the western Great Basin. It also serves as a primary forage base for Anaho's white pelicans.

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The Pyramid Lake Paiute Tribe of Indians, whose Reservation includes Pyramid Lake and the lower Truckee River, has fought for decades to protect lower-river flows, water quality, and its cultural heritage in the Pyramid Lake ecosystem. The U.S. Supreme Court's 1983 decision in Nevada v. U.S. was a stunning setback in those efforts. (43 U.S. 110, rejecting the Tribe's claim to a reserved water right for Pyramid Lake.) Soon thereafter, however, the Court let stand a decision that would serve as a turning point towards settlement: uncommitted yield in Stampede Reservoir, a federal storage facility on the upper Truckee, could be used only to protect the endangered fish in Pyramid Lake rather than to meet the needs of a burgeoning Reno-Sparks metropolis. (Carson-Truckee Water Conservancy District v. Clark, 741 F.2d 257 (1984), cert. denied 105 S.Ct. 1842 (1985).)

Still unresolved were conflicts involving the Newlands Irrigation Project. Since 1905, the Project has diverted, on average, about half of the Truckee's flow from Derby Dam below Reno to Lahontan Reservoir on the lower Carson River near Fallon, Nevada. There the waters of both Rivers combine to support about 60,000 acres of Lahontan Valley farmland, including several thousand acres on the Fallon Paiute-Shoshone Indian Reservation. Since 1911, when Lahontan Dam was completed, the Lahontan Valley wetlands have relied on Project irrigation returns and spills as their sole source of supply. A significant portion of that supply has come, indirectly, at Pyramid Lake's expense.

In 1988, federal efforts to protect the cui-ui were finalized under "Operating Criteria and Procedures" (OCAP) for the Project. (Record of Decision, U.S. Department of the Interior, April 15, 1988.) The OCAP sought to reduce Truckee River diversions through mandated improvements in the Project's antiquated water-delivery system, though they did allow for growth in the Project's irrigated landbase. Nevertheless, the final regulations were viewed by irrigators as an attack on established water rights; while at the same time they did little to foster recovery of the cui-ui or to prevent the expected dewatering of more than 14,000 acres of Lahontan Valley wetlands as a consequence of the required efficiency improvements. Litigation ensued, along with a variety of efforts to avoid what the New York Times termed a "painful environmental choice." ("Save a Fish or Preserve a Wetland?" April 26, 1988.)

A RESTORATION TOOLCHEST

The Act's restoration provisions are an outgrowth of the above pressures and conflicts. They seek to avoid "painful choices" in a rapidly-urbanizing region by creating a contemporary framework for basin-wide water-resources management. Key elements include the following:

RESTORATION OBJECTIVES Restoration of the Pyramid Lake ecosystem will be key to conservation and recovery of the cui-ui and Lahontan cutthroat trout, a primary objective of both the federal Endangered Species Act and the Truckee-Carson Settlement. The latter requires expeditious revision and implementation of recovery plans for both species of fish, but leaves with the Secretary of the Interior the responsibility of determining appropriate recovery actions. (A draft cui-ui recovery plan has already been issued. Draft Cui-ui Recovery Plan, U.S. Fish and Wildlife Service, June 1991.)

The Secretary also is directed to sustain approximately 25,000 acres of primary wetlands in the Lahontan Valley -- a mandate that ensures full mitigation of impacts under the OCAP as well as habitat enhancements through other provisions of the Act. ("Primary wetlands" are defined to include about 14,000 acres of managed marsh at the Stillwater National Wildlife Refuge; 10,200 acres at Carson Lake; and 800 acres within the Fallon Indian Reservation.) Restoration priorities include the maintenance of biological diversity; conservation of fish and wildlife resources; fulfillment of international treaty obligations; and provision of research, education, and recreation opportunities. Carson Lake, a Western Hemispheric shorebird reserve, is also to be managed by the State of Nevada in a manner consistent with that purpose.

WATER MANAGEMENT AND REALLOCATION ALTERNATIVES Successful attainment of the Act's restoration objectives will require provision of adequate and dependable supplies of good-quality water at appropriate times and locations. In the overtaxed Truckee-Carson system, these restoration flows will be secured through improved management, increased efficiency, and voluntary reallocation of water rights as follows:

- **Changes in Reservoir Operation** The Act provides for execution of an agreement between the Pyramid Lake Paiute Tribe, the Sierra Pacific Power Company (Sierra), and others. (Sierra owns and operates run-of-river hydroelectric facilities on the Truckee. A Sierra subsidiary is Reno-Sparks' principal water utility.) This "Truckee River Operating Agreement" will make possible significant changes in the operation of Truckee River reservoirs, in part through changes in the exercise of Sierra's hydro-generation rights. These, in turn, will enable the accrual of storage credits in Stampede and other reservoirs. "M&I"

credits will be used to enhance drought-year water supplies for Reno-Sparks, while "fishery" credits (and certain unused M&I credits) will be used to enhance spawning flows for the cui-ui.

- **Acquisitions for Lahontan Valley Wetlands** Restoration goals for the wetlands will be attained primarily through voluntary acquisition of Newlands Project irrigation rights. The Act's authorities are modeled after an existing program under which The Nature Conservancy and the U.S. Fish and Wildlife Service have already acquired for the wetlands more than 8,500 acre-feet of Project water rights. Among the key provisions:

Water rights can only be purchased from willing sellers. This reflects an important feature of Newlands Project water rights: ownership rests by beneficial use with individual Project landowners. (See U.S. v. Alpine Land & Reservoir Co., 503 F. Supp. 877 (1980).) Participation in the program is voluntary, and the power to condemn water rights for wetlands is withheld.

Water rights, lands, and related interests may be acquired by purchase or other means. While direct purchase has been the method of acquisition to-date, other alternatives will be used if they are found to be both financially sound and ecologically appropriate. These include short- and long-term leases, lease-backs, drought-year options, and contracts. Lands may be acquired with appurtenant water rights, along with structures, improvements, and easements if necessary.

The Secretary may target purchases to areas deemed most beneficial to the overall purchase program. This allows the Secretary to pay premiums for water rights whose acquisition would help to increase Project conveyance efficiencies, reduce drainage loads, or otherwise contribute to broader program objectives.

Acquired rights must be used to the maximum extent practicable for direct application to Lahontan Valley wetlands. Water rights transferred to the wetlands cannot be sold or exchanged except as provided under the National Wildlife Refuge Act (which severely restricts such disposition).

Water-rights must be transferred consistent with state law and applicable decrees and regulations. As described more fully below, transfers will be governed by state water law, applicable federal court decrees, and the OCAP as limited by the Endangered Species Act.

Acquired rights are to be managed by the Secretary in consultation with affected interests. Affected interests include the State of Nevada, the Truckee-Carson Irrigation

District (TCID, the Newlands Project's manager), and the Fallon Tribes.

- **Acquisitions for Pyramid Lake** The Act includes similar authorities for acquisition of water rights to assist in restoration of the Pyramid Lake fishery. These do not, however, limit or otherwise affect the Secretary's authority to acquire water rights under the Endangered Species Act or other applicable laws, including the use of condemnation authorities if necessary.

- **Conservation and Efficiency** The Act contemplates at least three types of enhanced water-use efficiency:

Urban Conservation The Truckee River Operating Agreement requires, as an implementation contingency, programs of retrofit residential water metering, inverted block-rate pricing, and mandatory drought-year conservation in the Reno-Sparks area. Conservation planning and implementation also are required under the Act's interstate apportionment for the Lake Tahoe basin. (For a summary of the Act's interstate provisions, see Kramer, Interstate Apportionment of Water by Congress? The Pyramid Lake-Truckee River Controversy. American Bar Association, Ninth Annual Water Law Conference, February 7, 1991.)

On-Farm Conservation The Secretary of the Navy must implement a program for reduced water use consistent with flight-safety operations at the Fallon Naval Air Station. (NAS-Fallon uses border-area outleasements of farmlands and irrigation rights to control dust, weeds, and related flight-safety hazards. Water-intensive alfalfa and irrigated pasture are the principal outlease crops.) Water saved under this program is to be managed for fish and wildlife purposes, though priority is assigned to recovery of the Pyramid Lake fishery. The Act side-steps the issue of who may actually own these savings, since the Lake will normally benefit from reduced water use even without a formal transfer of rights to conserved water.

Conveyance Improvements The Fallon Tribes must use a portion of their Tribal Settlement Fund to increase the efficiency of on-Reservation irrigation deliveries. The Secretary also is required to undertake a study of Newlands Project conveyance-system improvements, with the goal of obtaining an efficiency of not less than 75 percent. (Under the 1988 OCAP, the Project is generally required to meet conveyance efficiencies of 66-68 percent.)

- **Water Banking** The Act makes several Newlands Project "improvements" contingent on the resolution of outstanding issues (discussed below). Among these is a Newlands Project Water Bank "for supplying carryover storage of irrigation and other water for drought protection and other purposes." By explicitly authorizing storage in addition to that permitted under the OCAP,

these provisions could help to reduce the Project's reliance on Truckee River imports, assist in wetland restoration efforts, and in both cases reduce the need for permanent land fallowing. At least some bankable water could come from efficiency improvements, though questions of ownership under Nevada law will have to be resolved first.

- **Effluent Re-Use** The Secretary, together with the U.S. Environmental Protection Agency, the State of Nevada, and local entities, must investigate the feasibility of reusing municipal wastewater for wetland improvement, creation, or other beneficial purposes. This study is to be coordinated with ongoing efforts to manage Reno-Sparks wastewater for improved water quality in the lower Truckee River.

COMPLEMENTARY RESTORATION ELEMENTS In the arid Great Basin environment, water is by far the most critical restoration element; it is not, however, the only matter of concern or opportunity. The following authorities are important complements to the foregoing water-management and reallocation options:

- **Newlands Project Purposes** The Act sets forth an expansion of Project purposes to include fish, wildlife, municipal and industrial water supply, recreation, water quality, and any other purpose recognized as beneficial by the State of Nevada. This expansion removes any questions as to the use of Project facilities for non-irrigation purposes. Guidance as to how these purposes can be accommodated is given by other provisions of the Act, including a requirement that all Project purposes have valid water rights.

- **Riparian Habitat** The Secretary of the Army, in consultation with other interests, must undertake a study of opportunities for channel stabilization, improved spawning habitat and passage, and restoration of riparian habitat in the lower Truckee River. The benefits of such a program could be enormous: according to the draft Cui-ui Recovery Plan, lower-River habitat improvements could provide up to half of the "equivalent benefits" needed for species recovery.

- **Fisheries Management** The Act establishes a "Pyramid Lake Paiute Fishery Fund" for Tribal operation and maintenance of fish hatcheries and related facilities. Interest earned would supplant, in part, monies that are now appropriated annually for these purposes. The Tribe is required to manage these facilities for conservation of the Pyramid Lake fishery in accordance with plans prepared by the Tribe and approved by the Secretary.

- **Restoration of Fallowed Land** The Act requires establishment of a demonstration project for efforts to restore fallowed farmland to a stable and ecologically-appropriate condition.

Investigations are to be based on the cultivation of native vegetation or other high-desert species, as well as development of appropriate land management techniques. This project is to serve as a foundation for farmland restoration activities under the above acquisition authorities.

- **Drainage Control** The Secretary is authorized to take such actions as may be necessary to prevent, correct, or mitigate for adverse water quality and habitat conditions attributable to the drainage of Newlands Project lands. Among actions to be taken are the closure or modification of certain drains, and the following of drainage-problem lands through purchase and transfer of appurtenant water rights.

- **Eligibility Criteria** The above reallocation authorities are meant to hold constant, or to reduce, Truckee River diversions at Derby Dam. Problems arise, however, with the potential acquisition and exercise of "inactive" Project rights, and with the uncertain effects of changes in historic delivery patterns and routes of conveyance. The Act thus includes a general bar against actions that would increase Truckee River diversions, and requires the Secretary to select from water rights acquired that portion (if not all) that can be so transferred. (Transfers under the existing purchase program have been facilitated by the use of GIS maps identifying water rights eligible for transfer in accordance with recent irrigation histories.)

- **Compensating Purchases** For many years, urban growth in the Reno-Sparks area has been accommodated through procedures requiring the acquisition by developers of decreed irrigation rights. These procedures will continue, with some modification, under the Truckee River Operating Agreement. In like fashion, replacement water rights will be acquired by California entities if existing returns to the Truckee River are diminished. The long-neglected promise of irrigation rights for the Fallon Tribes also will be fulfilled in-part through purchase and transfer of "active" Newlands Project rights.

- **Mitigation Agreements** The Secretary is required to assist in the development of one or more mitigation agreements to avoid significant adverse effects resulting from changes in reservoir operations under the Truckee River Operating Agreement. The Secretary also is barred from becoming a party to that Agreement if the effects of such action would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitats.

- **Federal Environmental Laws** None of the Act's provisions are to be construed as waiving or altering the requirements of any Federal environmental or wildlife conservation law. The substantive and procedural protections afforded by these laws

serve, in effect, as the Act's environmental insurance policy.

THIRD-PARTY INTERESTS Many of the above authorities give rise to concerns over adverse third-party effects. This section highlights these concerns and indicates how they are addressed under the Act.

- **Considerations under State Law** A general deference to state law includes de-facto consideration of certain third-party interests. For example, the Nevada State Engineer is required to reject a proposed water transfer if the ensuing change would conflict with existing rights or threaten to prove detrimental to the public interest. Also, proposed transfers within irrigation districts (such as TCID) cannot be approved if they will increase the costs borne by other water users, or lessen the district's efficiency in its delivery or use of water. None of the Act's provisions is intended to abrogate the jurisdiction of or required approvals by the Nevada State Engineer.

- **Water Rights** Several provisions protect against the involuntary diminution of established water rights. The Truckee River Operating Agreement must ensure that Truckee River reservoirs will be used as needed to satisfy the exercise of existing rights. A separate provision ensures that the owners of vested and perfected rights will continue to receive, and be able to use, the amount of water to which they are entitled. This includes, expressly, the rights of the Newlands Project to the delivery of Truckee River water to Derby Dam, and for diversions pursuant to applicable laws, decrees, and regulations.

- **O&M Reimbursements** The protections enunciated under state law are supported by authorities for federal reimbursement of the reasonable and customary operation and maintenance costs associated with the purchase, transfer, and delivery of Newlands Project water rights. These matters are complicated, however, by uncertainties associated with long-term reimbursements, including potential reductions in income from reduced hydrogeneration and grazing. Specific terms and conditions, including possible compensation arrangements, are left to be negotiated under reimbursement contracts not to exceed 40 years in length.

- **Groundwater Recharge** Improved efficiencies and fallowed land may reduce or alter the location of recharge to shallow groundwater, which supports a large number domestic wells in the Newlands Project area. The Secretary must consider these effects when investigating potentials for improved Project efficiencies, and must undertake appropriate measures to address them if they are found to be a direct result of water purchases under the Act. The Committee report clarifies that "appropriate measures" may include domestic water system feasibility studies, provision of

municipal wells, use of surface water storage and conveyance facilities, and construction of treatment facilities and appropriate works.

- **Socio-Economic Effects** The purchase and transfer of water rights and the fallowing of irrigated lands could adversely affect Project-area income and the county tax base. These and related concerns are to be addressed through comprehensive investigations into the social, economic, and environmental effects of the Act's water-purchase programs. The Secretary also must consult with the State of California before acquiring water rights in that state, which may deny or condition a transfer that would have substantial adverse impacts on the environment or economy of the area of existing use. Limitations must apply equally to inter- and intra-state transfers, however, and may not be inconsistent with any "clear congressional directive."

FUNDING AND IN-KIND CONTRIBUTIONS Adequate funding will be crucial to fulfillment of the Act's restoration objectives. Funds and related in-kind contributions are to be secured from the following sources:

- **General Appropriations** The Act authorizes appropriation of such funds as may be needed to implement its various provisions. Funds for the Pyramid Lake Paiute Fishery Fund, the Fallon Tribes' water-rights purchases, and closure or modification of certain Project drains are authorized separately. (Funds for the existing water-purchase program have been appropriated under separate authorities.) A variety of contingencies, including the release of tribal claims and the accrual of interest on unappropriated funds, are meant to ensure that appropriated funds are, in fact, forthcoming.

- **State Cost Sharing** State contributions are provided through in-kind services (e.g., Carson Lake management) and through specific cost-share arrangements. The latter include commitments by the State of Nevada to expend not less than \$9 million for water purchases and other protective measures to benefit Lahontan Valley wetlands; and provision of not less than \$4 million for use in implementing Newlands Project water conservation measures if "recoupment" issues can be settled (see below). Water-purchase commitments have already been authorized, but authority for water-conservation funds may be tied to a larger settlement of OCAP issues.

- **Private-Sector Contributions** Storage of "non-project" water under the Truckee River Operating Agreement will require payment by Sierra of appropriate amounts for the use of federal facilities. Payments will first be credited against annual operation and maintenance costs at Stampede Reservoir; the balance will be covered into a "Lahontan Valley and Pyramid Lake

Fish and Wildlife Fund," and distributed equally upon further appropriation to support restoration activities for both resources. Other private-sector contributions include forgone Truckee River hydro-generation revenues, water-meters in Reno-Sparks, and the commitment of risk capital by private conservation interests.

UNFINISHED BUSINESS The Pyramid Lake Paiute Tribe and the Truckee-Carson Irrigation District were unable to resolve their differences over the OCAP during the course of settlement negotiations. As an interim solution, the Act requires a seven-year "litigation freeze" along with full implementation of the 1988 OCAP unless the Secretary, in his sole discretion, decides that changes are necessary "to comply with his obligations, including those under the Endangered Species Act." The intent of the freeze is to encourage operational stability for a significant period of time, and to allow the various claimants to Truckee River water to reflect upon "heretofore unexplored opportunities for cooperation." (Committee Report) The following issues will be relevant to those deliberations:

- **Recoupment** The OCAP freeze extends to litigation concerning the recoupment of water diverted at Derby Dam in excess of amounts permitted under applicable OCAP since 1973. The Act vests in the Secretary interim but exclusive authority to pursue such recoupment, requires him to do so, and makes a variety of authorized benefits (including repayment cancellations for TCID and the Project water bank) contingent on resolution of the issue. The dispute casts a cloud over all Project water rights, including those acquired for restoration of Lahontan Valley wetlands.

- **Acreage Base** The disparity between active and inactive rights fosters a variety of implementation uncertainties. TCID's apparent obligation to service all Project rights has been a significant barrier to settlement, as has the fact that the District's assessment income is based on total water-righted acreage. As discussed above, eligibility criteria have worked as an interim-purchase solution; but with increasing pressure from the State of Nevada, the Fallon Tribes, the City of Fallon, prospective water-bank participants, and even off-Project entities, a more comprehensive approach is needed.

- **Diversion Criteria** Under the 1988 OCAP, Truckee River diversions are controlled in part by monthly storage objectives at Lahontan Reservoir. Project irrigators believe that these targets are too low; the Pyramid Lake Tribe believes they are not low enough. The water bank (which will require a less-than-full reservoir to function) should help to bridge the gap, but only if recoupment issues are settled. Changes in the seasonal pattern and magnitude of demands associated with prior irrigation rights could also require changes in the OCAP diversion criteria as

wetlands become an increasingly significant user of Project water.

- **Banking Opportunities** As previously indicated, changes in state water law will be needed to clarify ownership rights to conserved water. Newlands project water-bank contingencies must also be resolved if diversions at Derby Dam are to be reduced consistent with basinwide restoration objectives. In this regard, upper-Truckee banking should also be explored as an alternative (or complement) to Lahontan Reservoir banking. (The current water-bank authorization is limited to Newlands Project facilities in Nevada. Upper-Truckee credits would save water, through reduced evaporation losses; they could also reduce the Project's normal-year needs for diversions from the Truckee.)

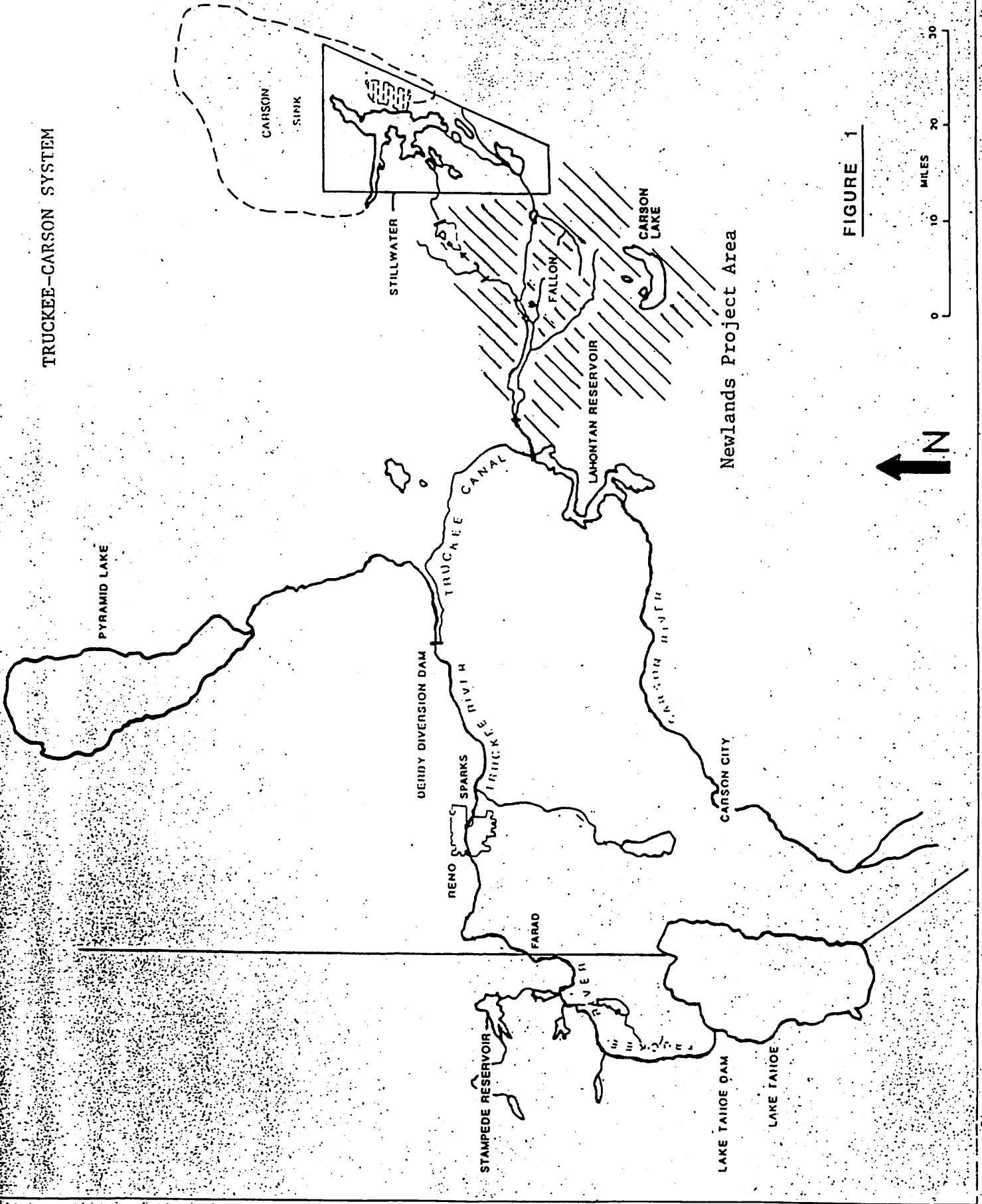
- **Acquisition Limits** TCID has agreed to support, under certain conditions, purchases for the wetlands involving up to 20,000 acre-feet of Project water rights -- about 10 percent of the active irrigation total. (The District has continued to oppose, however, all proposed purchases for Pyramid Lake.) Yet current estimates suggest that fulfillment of the Act's wetland restoration objectives could, under certain conditions, require purchase and transfer of up to five times this unit. (The same conditions would give rise to substantial increases in Pyramid Lake inflows -- enough, possibly, to meet (draft) cui-ui recovery objectives if lower-river restoration is successful.) While TCID's authority will be limited with respect to acquisitions involving willing sellers of individually-owned water rights, some form of accommodation will be needed.

- **Socio-Economic Effects** Studies are now underway concerning the impacts and benefits of increased efficiencies and water-rights purchases in the Newlands Project area. Whatever their outcome, it is already clear that tax-base impacts are a major source of concern, particularly when water-rights are acquired and severed from lands that remain in private ownership. (The Fish and Wildlife Revenue Sharing Act authorizes "in-lieu-of-tax" type payments to local governments, but only when lands are acquired.) It is equally clear that the area's reliance on poor-quality groundwater must be addressed and resolved, whatever the level of acquisitions or efficiencies achieved. Mandated investigations into groundwater effects and effluent reuse alternatives are an important start, but more specific authorities and assistance will be needed.

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This is but a sketch of the many issues at play under the Truckee-Carson Settlement. Much, of course, has already been accomplished; even more now depends on implementation, and the ability of those involved to structure a lasting resolution to the conflicts left unsettled. The Act's restoration toolchest offers the best assurance that those gaps will indeed be bridged,

TRUCKEE-CARSON SYSTEM



Newlands Project Area

FIGURE 1



and for that it may yet serve as a model for the resolution of water and endangered species conflicts elsewhere in the West. But whatever its meaning elsewhere, the Truckee-Carson Settlement remains extraordinarily important in the western Great Basin -- for Pyramid Lake, the Lahontan Valley wetlands, and the people whose lives are inextricably linked to the fates of the Truckee and Carson Rivers.