State of
Nebraska

Water
Management
Board

WATER AND WATER RIGHTS TRANSFER STUDY

EXECUTIVE REPORT

November 1988

STATE OF NEBRASKA
Kay A. Orr, Governor

WATER MANAGEMENT BOARD

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Photographs in this publication were provided by the Natural Resources Commission, Soil Conservation Service, and Game and Parks Commission.

Chapter 1.

INTRODUCTION

In 1987, the Legislature stated in a bill that it "...finds that Nebraska groundwater and surface water are currently being transferred from the land to which they are appurtenant to users both within and outside the state. Such transfers are likely to increase as other regions of the state and nation continue to experience shortages in local water supplies." The potential for an increase in transfers is partly due to a 1982 U.S. Supreme Court decision. It declared unconstitutional a portion of a Nebraska statute that restricted interstate transfers of groundwater, saying that water was an article of commerce, protected from unreasonable restrictions by the commerce clause of the U.S. Constitution.

The Legislature also recognized that transfers could promote economic efficiency in the use of the state's resources. However, future legislation allowing and controlling transfers of water and water rights must provide protection for the rights of individuals and the public to balance free market forces.

A 1982 U.S. Supreme Court decision increased the potential for more interstate transfers.

Legislative Bill 146 was passed during the first session of the 90th Legislature and signed by Governor Orr in June 1987. It directed the Water Management Board to study transfers and:

(1) identify impediments to transfers,

(2) identify potential users and markets,

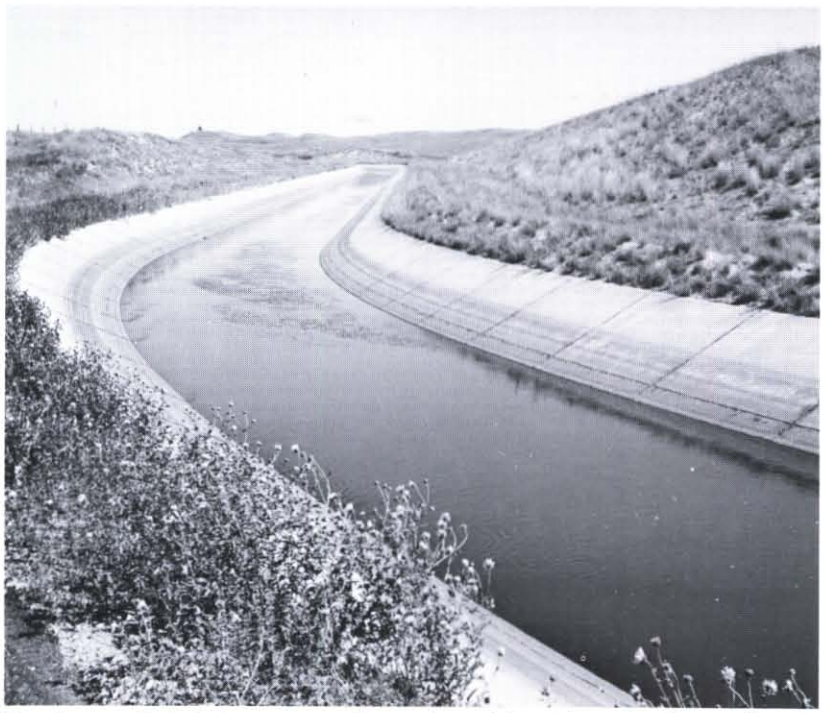
(3) identify potential sources of water and methods of transporting it that might be economically viable,

(4) identify the appropriate state role in regulating and facilitating transfers, and

(5) develop a statutory framework that would permit transfers, protect the environment and the rights of individuals, and provide compensation to those adversely affected and the state on behalf of the public.

Legislative Bill 817 was passed in the 1988 session to amend the study schedule. It changed the date for submittal of the final report to the Governor and Legislature to November 30, 1988 to allow time for more public input.

Many people, including legislators and state officials, assisted the Water Management Board in the study in different ways. The study was conducted in consultation with the Natural Resources Commission (NRC) as provided in LB 146. The research, technical work, and writing were done by the NRC staff with the assistance of consultants and work groups from state agencies and the University of Nebraska. Many



Transfers are likely to increase as other regions of the state and nation continue to experience shortages in local water supplies.

state agencies and departments of the University contributed time and expertise to this work.

The Board sought to involve the public throughout the course of this study. Two series of meetings were held in nine communities across the state to discuss the direction of the study, problems associated with transfer policies, and policy options. To reach as many people as possible, the Board organized a core group of representatives of organizations and individuals interested in water resources. This group was briefed on study activities and then asked to help inform the public of the informational meetings held by the Board. Natural resources districts were also asked to help, and press releases were mailed to many newspapers and radio and television stations to publicize meetings in their areas. Finally, a draft of the report was reviewed by the public as well as state and federal officials, and all comments were addressed in the final report.

The board sought to involve the public throughout the course of this study.

This was a statewide study, extended to other states for potential markets and prices that might be paid for water. It covered all aspects of water and water rights transfers in varying degrees of detail. The principal focus was on the policy of the state regarding transfers, and laws that would implement or permit transfers.

Chapter 2.

CURRENT LEGAL FRAMEWORK FOR TRANSFERS

Nebraska law contains many statutory provisions dealing with transfers of ground and surface water, both intrastate and interstate, and also transfers of existing surface water rights. These transfers may be affected by federal laws and the laws of other states as well as Nebraska statutes and case law. In Nebraska, surface water is the property of the public and is dedicated to the use of the people of this state. Rights to use surface water are obtained through the Department of Water Resources. A right granted by the Department and perfected by actual use of the water becomes a property right. Rights to transfer surface water out of a stream to lands within the basin of origin have been exercised since before the appropriation system was adopted in 1889. Transfers of surface water from one river basin to another have also been allowed by Nebraska statutes since 1981. The requirements for securing an interbasin transfer right are different from those for a right to use water within the river basin.

In Nebraska, surface water is the property of the public and is dedicated to the use of the people of the state.


Transfers of surface water from one river basin to another have been allowed by Nebraska statutes since 1981.

Transfers of existing surface water rights are also permitted. However, existing rights cannot be transferred for use in a different river basin and the purpose of the use cannot be changed. For example, an agricultural right could be transferred to another agricultural user but not to municipal use.

The Nebraska Supreme Court has ruled that groundwater, like surface water, belongs to the public. The landowner does not own it. Groundwater rights are

A landowner has the right to use the groundwater on overlying land, and water can be transferred for municipal, industrial, and any interstate use, but not for agricultural use in this state.

not like mineral rights, but landowners have a qualified right to make reasonable use of groundwater on their overlying land. Under current law, groundwater can only be transferred off the overlying land if the Legislature has explicitly authorized it. This authority has been granted for only four types of transfers: (1) municipal and rural domestic water supply systems, (2) large-scale industrial uses, (3) exchanges of intentionally stored groundwater for surface water, and (4) interstate transfers. Agricultural uses within Nebraska are not included in the types of authorized transfers.

Groundwater, like surface water, belongs to the public, but landowners have a right to use it.

The impact that Federal laws can have on Nebraska statutes was demonstrated by the U.S. Supreme Court decision in Sporhase vs. Nebraska. A portion of the Nebraska statutes restricting groundwater transfers across state lines was ruled unconstitutional, because it placed unreasonable burdens on interstate commerce. The effect of this decision is to limit the ability of states to control interstate transfers.

Past state legislation has not made any provision for charging fees, other than application fees, for the use of the state's surface water or groundwater. Existing statutes do not provide the authority or funding for the state to play a major role in developing or funding the development of water resources projects in the state either. Historically, local districts and the Federal government have constructed most of the projects and provided most of the funding. Now, water pollution problems are becoming greater and water development is becoming more expensive, but the budget deficit requires that the Federal government reduce its spending on water projects. Legislative action to provide additional authorities and funding will be required in the future to enable the state to take a more active role in development and protection of its resources.

A portion of the Nebraska statutes restricting groundwater transfers across state lines was ruled unconstitutional.

Chapter 3.

EXISTING AND POTENTIAL RESOURCES, USES, AND TRANSFERS

On the whole, Nebraska has a vast supply of high quality water. Unfortunately, it is not always available where or when it is needed. In order to provide a reliable supply of water for drinking or for irrigating crops, people have been transferring water varying distances for nearly 100 years.

SURFACE WATER RESOURCES

Precipitation is the main source of Nebraska's water supply. In an average year, about 86 million acre-feet of rain and snow fall on the state, as shown in Figure 1. In addition to precipitation, Nebraska receives about 1 million acre-feet of streamflow from upstream states. Another 3/4 million acre-feet are transferred into the state through irrigation canals. Only about eight percent of the precipitation and inflow received, slightly more than seven million acre-feet, flows out of the state. Most of the balance returns to the atmosphere through evaporation and transpiration.

Figure 1
NEBRASKA'S WATER SUPPLY

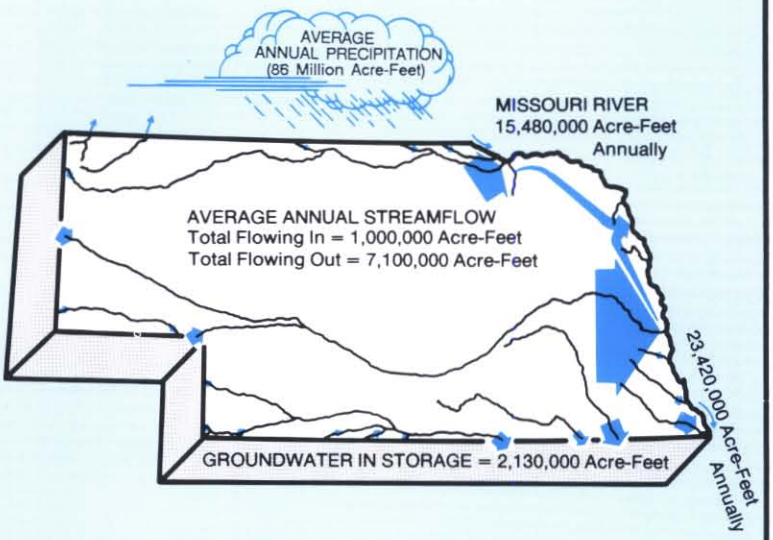
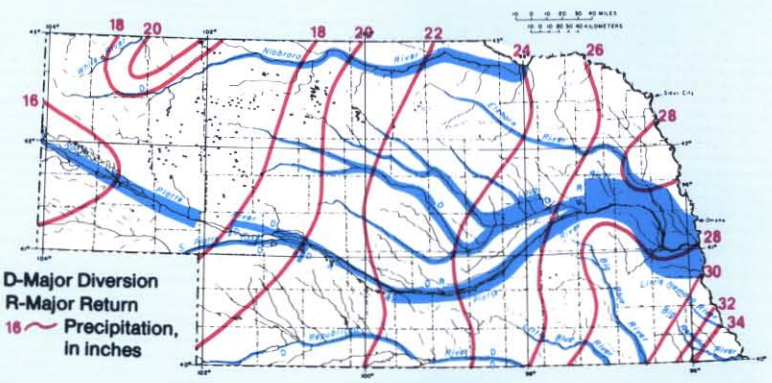


Figure 2
PRECIPITATION AND STREAMFLOW IN NEBRASKA



Sources: Bental, R. and Shaffer, F.B., Availability and Use of Water in Nebraska, 1975, Conservation and Survey Division, University of Nebraska-Lincoln.
Wilhite, Donald, An Analysis of Nebraska's Precipitation Climatology with Emphasis on Occurrence of Dry Conditions, Agricultural Experiment Station, University of Nebraska-Lincoln, 1981.

Average annual precipitation varies across the state from about 16 to 35 inches as shown in Figure 2. Streamflow is much greater in eastern Nebraska, where most of the rain falls. In Figure 2, the magnitude of the flows in 1975 is indicated by the width of the lines. Much of this water, especially in the east, is flood flow that is nearly impossible to conserve for use when needed because of economic and environmental

constraints. If these constraints could be overcome, these flows could be a source for future transfers.

Substantial amounts of streamflow are already being used beneficially. Irrigation consumes the largest amount, but

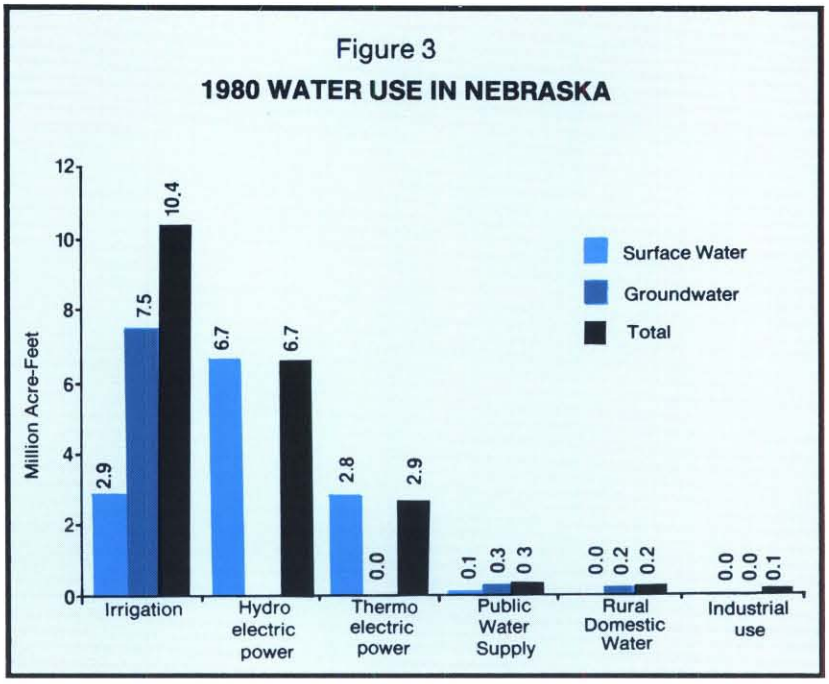
Flood flows could be a source of supply for transfers.

more is used non-consumptively for generation of electric power. Figure 3 shows the amount of surface water used in 1980 for different purposes in comparison to the amount of groundwater and the total amount of water used.

Much of the surface water used in Nebraska is diverted for off-stream use. The magnitude of the larger streamflow diversions for irrigation and power uses is shown in Figure 2. Smaller diversions on other streams, which cannot be shown on the map, add significantly to the total amount diverted. If transfers of water salvaged from canal and irrigation losses were permitted, as much as 25 percent of some of these diversions could be made available for other uses, including instream flow.

Figure 3

1980 WATER USE IN NEBRASKA



The amount of water used for instream flows is unknown and the amount needed is very difficult to determine.

GROUNDWATER RESOURCES

Nebraska has vast supplies of groundwater. There are over 2 billion acre-feet of good quality water stored underground. It is estimated this supply would cover the state to a depth of 40 feet if it were stored above ground. Unfortunately, groundwater is not uniformly distributed across the state. It varies from zero to over 100 feet, as

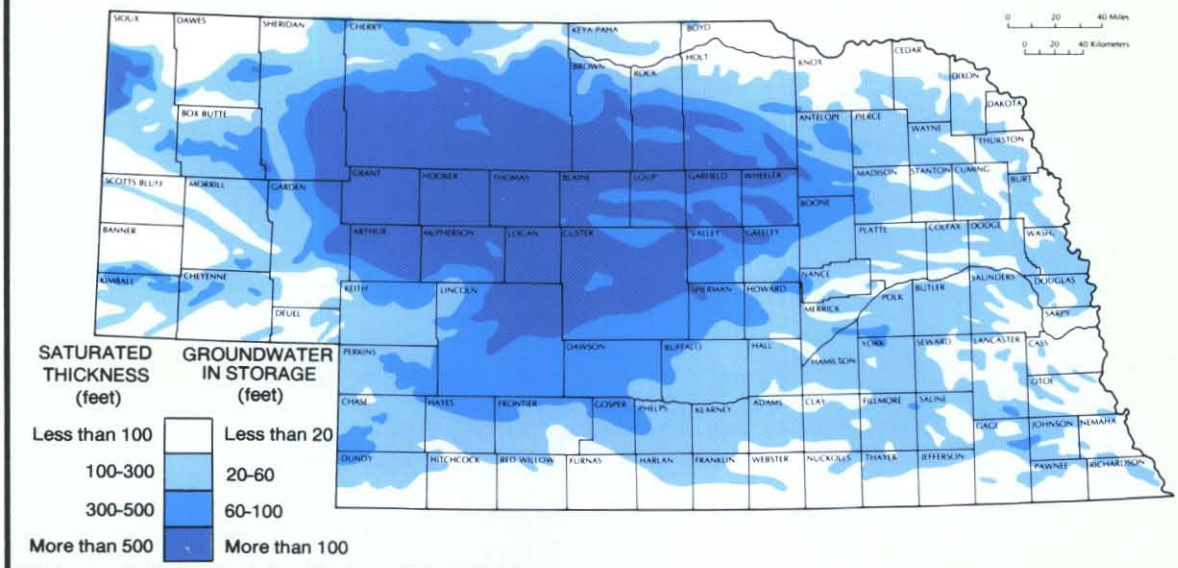
Nearly all groundwater is legally available for transfer to authorized uses.

shown in Figure 4. Under current law, nearly all of this water is legally available for transfer to municipal, rural domestic, or industrial use in Nebraska, and any type of use in other states.

The groundwater supply is not static. In some areas it is so heavily used it is being depleted and the water table is declining. In other areas where surface water is being impounded in reservoirs or used for irrigation, storage is increasing and the water table is rising. Areas where

Figure 4

GROUNDWATER IN STORAGE IN THE PRINCIPAL GROUNDWATER RESERVOIR

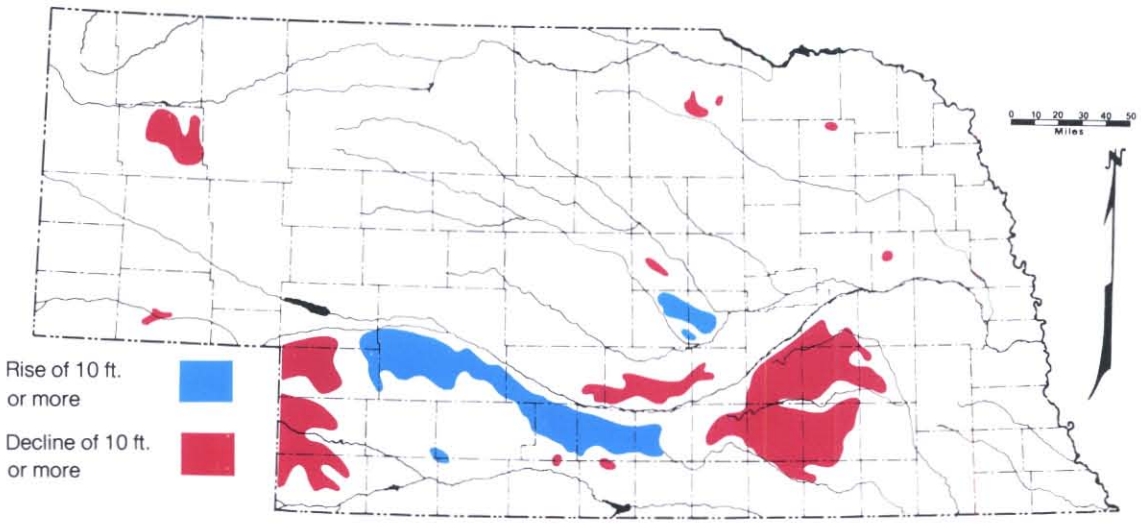


Source: Conservation and Survey Division, University of Nebraska-Lincoln, 1981.

Some areas with heavy groundwater use have experienced declines in water tables and increases in nitrate contamination.

Figure 5

AREAS WITH WATER TABLE RISES AND DECLINES SINCE PREDEVELOPMENT



the water table has risen or declined significantly in the past 50 years are mapped in Figure 5. The areas with rising water tables could be sources of supply for future transfers. In one area south of the Platte River, six to eight million acre-feet of water have been added to storage. That is three to four times the amount stored in Lake McConaughy, the state's largest surface water reservoir.

Most groundwater is used and consumed for irrigation. The second largest use is for public water supplies. Nearly 80 percent of the water used for that purpose comes from groundwater. Figure 3 provides a comparison of the amount of groundwater used for different purposes with the amount of surface water used for the same purposes.

Areas with rising water tables could be sources for transfers.

In one area where the water table has risen, three to four times as much water as Lake McConaughy has been stored underground.

FUTURE USES

Current uses of water are expected to grow in the future. Public water supply needs, led by Omaha and Lincoln, are expected to grow with population. Electric power needs, industrial requirements, and irrigation uses are also expected to increase at varying rates in the future.

Demands for those uses in new areas and new demands for other uses could arise as well. Some areas in Nebraska and adjacent states do not have adequate supplies to meet current or future demands. Transfers could be one way to meet those demands.

Flows in many streams are barely adequate to support existing instream uses, including fish and wildlife, recreation, and adjacent wet meadows and croplands. Transfers could meet some of those demands.

Groundwater in a large section of the central Platte River valley is being contaminated with nitrates. Communities in that area may have to transfer water long distances or build expensive facilities to remove the nitrates. The potential minimum cost for nitrate removal was estimated to be about $70 per acre-foot.

Several areas in the state, shown in Figure 5, are experiencing significant declines in the water table. Additional supplies will be needed in those areas in the future to sustain the irrigation that has developed and the economy it supports. Other areas in the state with irrigable soils never had water readily avilable. Providing water to change from dryland to irrigated crop production could increase net returns to a farmer by $17 to $96 per acre-foot, depending on the location in the state.

Some uses, led by the Omaha and Lincoln transfers, are expected to increase.

The potential demand is even greater in other states. Some cities are actively seeking additional supplies now, and studies have shown that other areas in Kansas, Colorado, and Wyoming also will need water for municipal supplies at some time in the foreseeable future.

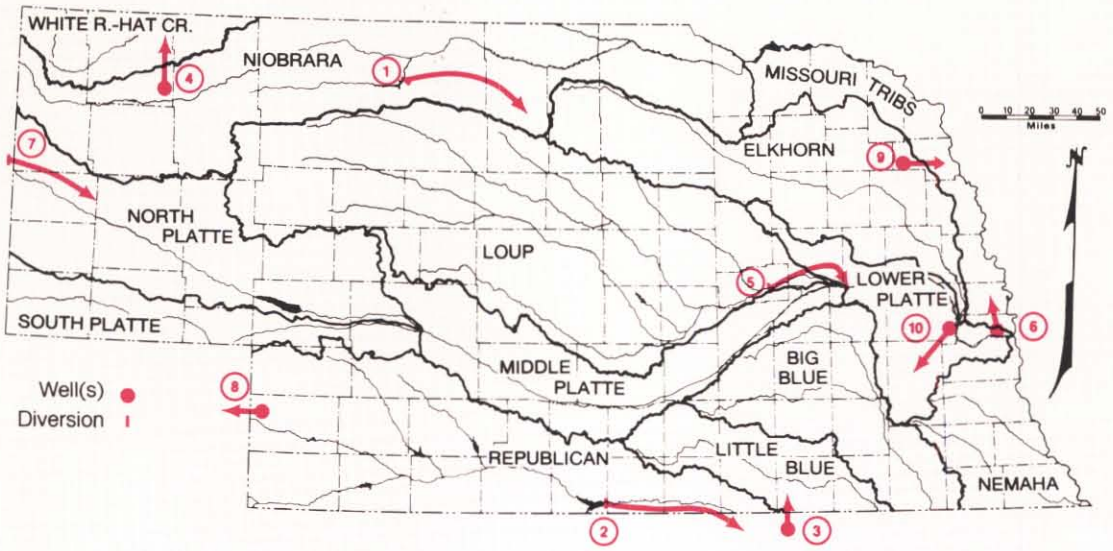
Cities in central Kansas are facing serious problems with the quantity and quality of their supplies. They are investigating a potential transfer from a reservoir in that state that would deliver water at an estimated cost of $365 per acre-foot.

Communities in Colorado, from cities along the front range to a small town in the northeastern corner of Colorado, are actively searching for additional water supplies. The Denver Water Board could spend up to one billion dollars to develop additional supplies on the South Platte River. One alternative, providing up to 98,000 acre-feet annually, could cost as much as $465 per acre-foot.

The city of Casper, Wyoming is also interested in developing additional water supplies. One source, salvaged water from an irrigation district, is estimated to cost about $50 per acre-foot. Another of their proposed sources, Deer Creek Dam, is the subject of potentially lengthy litigation that could increase the cost of water from that project.

Communities with nitrate problems may have to transfer water greater distances or build expensive threatment plants.

Figure 6
EXAMPLES OF EXISTING WATER TRANSFERS



KEY TO EXISTING WATER TRANSFERS

Transfer	Transfer Classification		
	Source	Use	Location
1. Ainsworth Unit	Stored Surface Water	Irrigation	In-basin
2. Bostwick Division[1]	Stored Surface Water	Irrigation	Interstate
3. Village of Byron	Groundwater	Municipal	Interstate
4. City of Chadron[2]	Groundwater	Municipal	Interbasin
5. Loup River Public Power District	Natural Streamflow	Power	Interbasin
6. Metropolitan Utilities District[1]	Groundwater	Municipal	Interbasin
7. North Platte Project[1]	Stored Surface Water	Irrigation	Interstate
8. Sporhase and Moss	Groundwater	Irrigation	Interstate
9. Thurston County Rural Water District No. 2	Groundwater	Rural Domestic & Livestock	Interbasin
10. City of Lincoln	Groundwater	Municipal	In-basin

[1]The transfer described is only part of a larger project which includes other facilities.
[2]Chadron also obtains part of its water supply from a surface water source.

EXISTING AND POTENTIAL TRANSFERS

In the past the need for water has produced transfers of many types for many uses. The map in Figure 6 shows the location of different types of transfer projects. The key in Figure 6 gives additional information on those projects. They transfer surface water into and out of the state, out of one basin into another, and within basins. They also transfer groundwater into and out of the state, as well as across basin boundaries. One of these is the transfer from Nebraska to Colorado that led to the U.S. Supreme Court decision in the Sporhase case.

Millions of acre-feet of surface and groundwater are currently being transferred annually by these projects and others. This water is used for irrigation, power generation, and public water supply. Table 1 shows the amounts transferred in 1985 and the river basins in which the water was used.

Similar projects have been proposed and studied for many locations in the state. A transfer of groundwater from the western Sandhills to a power plant near

Hemingford was investigated in the early 1980's. An application has been made for a transfer of surface water from the Platte River to the upper Big Blue River Basin, where groundwater levels have been declining. Other surface water and groundwater transfers from the Missouri River, and the Niobrara, Loup, and Platte river basins have also been proposed at different times.

A transfer of groundwater from the Sandhills to a proposed power plant in western Nebraska was investigated in the early 1980's.

ECONOMICALLY VIABLE TRANSFERS

Existing and potential demands produce project proposals, but few transfers become reality unless they are economically viable. In the private sector the criterion is fairly simple. The developer must be able to collect more for the water than it costs to deliver it. In planning public projects, other types of public benefits, such as flood control and recreation, may be credited to transfer projects and make them economically justifiable.

In order to show the range of projects that might be viable in the future, the estimated costs of transporting water by pumping through pipelines were compared

Table 1
ESTIMATED QUANTITIES OF WATER TRANSFERRED IN 1985

River Basin of Use	Public Water Supplies[1]	Irrigation[2]	Power Generation[2]
	(1,000 acre-feet)		
Big Blue	17.1	N.A.[3]	0.0
Elkhorn	13.8	N.A.[3]	0.0
Little Blue	2.4	N.A.[3]	0.6
Loup	6.1	195.0	270.3
Lower Platte	40.5	N.A.[3]	1,057.7
Middle Platte	19.3	209.9	1,338.3
Missouri Tributaries	100.3	N.A.[3]	1,287.1[4]
Nemaha	6.0	N.A.[3]	1,166.5[4]
Niobrara	6.3	91.7	0.0
North Platte	16.1	1,399.5	0.0
Republican	9.8	207.7	0.0
South Platte	5.8	43.3	991.5
White-Hat	1.8	N.A.[3]	0.0
State Total	245.3	2,147.1	6,112.0

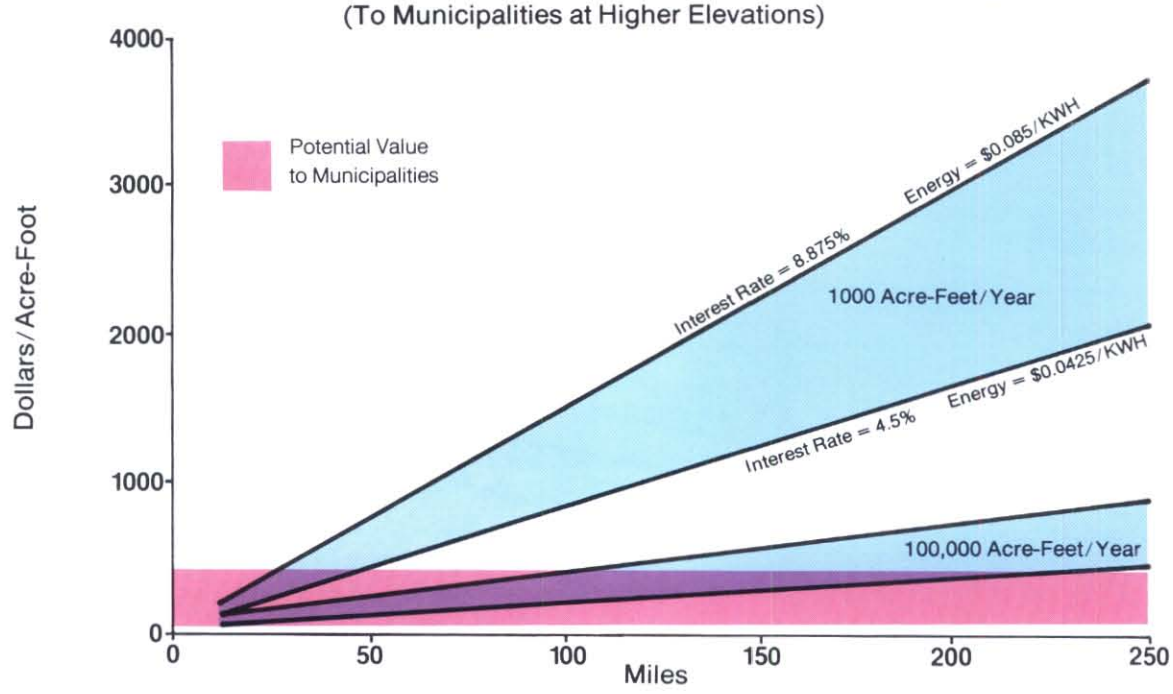
[1] Surface and groundwater withdrawn in 1985.
[2] 1985 surface water diversions reported in Hydrographic Report; no data available to estimate transfers of groundwater for these uses.
[3] Not available; although many water right holders withdraw small quantites from streams, these surface water diversions are not reported in the Hydrographic Report..
[4] 1980 Data

Sources:
Lawton, D., Veys, C., and Gordenkauf, O., 1983, An Inventory of Public, Industrial, and Power-generating Water Use in Nebraska, 1979 and 1980, Conservation and Survey Division, University of Nebraska-Lincoln, Nebraska Water Survey Paper 54.
Nebraska Department of Water Resources, Hydrographic Report 1985,
Conservation and Survey Division, University of Nebraska, Nebraska's Public Water Supply Data for 1985

Figure 7

POTENTIAL TRANSFER PROJECT WATER COSTS AND VALUES

(To Municipalities at Higher Elevations)



with the maximum prices that potential users of different types might pay, or be able to afford to pay, for that water. In one of the three classes of projects investigated, the costs per mile of delivering water to potential users at higher elevations were estimated for year-round deliveries needed by municipalities.

The ranges of delivery costs at varying distances for this type of project sized to deliver 1,000 acre-feet and 100,000 acre-feet of water are shown in Figure 7. A project delivering 1,000 acre-feet should serve a city of 4,000 to 5,000 people for a year, and 100,000 acre-feet should serve about 500,000 people. The ranges of costs for each size are based on different costs of electrical energy for pumping and interest rates on borrowed money. The current commercial power rates and federal discount rate were used as the upper limits; lower public power rates and historical long-term interest rates were used for the lower limits. The interest rates affected costs much more than energy prices.

Also shown in figure 7 is the range of maximum prices that municipalities in various locations might pay for water. The areas where the cost curves fall within the band of value to municipalities represents the range of conditions under which transfers could be economically viable. For instance, a transfer of 1,000 acre-feet to Julesburg, Colorado, which is only three to five miles from a suitable source in Nebraska, would probably fall within the area of viability. In contrast, Denver is more than 250 miles from an adequate source of 100,000 acre-feet per year, so a transfer to that city would not be viable at current interest rates and energy costs. Other municipal transfers of quantities and distances between these extremes, such as Lincoln and Omaha, would probably still be viable. However, changes in economic conditions such as interest rates, or breakthroughs in technology such as solar power that could lower energy costs would be necessary to make long-distance transfers viable, especially transfers of lesser quantities.

The costs of delivering irrigation water to lands at higher elevations were also estimated. Generally, the same pumping rates were used but the pumping time was reduced to three months per year. These costs were compared to the potential maximum value of that water to irrigators. This comparison showed that transfers for irrigation would be limited to distances of less than two miles under recent economic conditions.

Chapter 4.

IMPACTS, COMPENSATION, AND IMPEDIMENTS

Transfers of water and water rights could have both direct and indirect physical, environmental, social, economic, and legal/administrative impacts on people and resources. These impacts could be both beneficial and adverse. In some cases, a beneficial impact on one person or object could be an adverse impact on another. Adverse impacts can sometimes be avoided or reduced by mitigation or compensation. Those that cannot be alleviated could become impediments, or obstacles, to the timely completion of a project, especially if they caused added costs or led to a lawsuit against the developer. Compensation could become an impediment too, if it added enough to the project cost.

Adverse impacts can sometimes be avoided or reduced by mitigation or compensation.

IMPACTS

Any action, and some kinds of inaction, could have wide ranges of impacts. If the inaction were not turning on an irrigation pump, for example, the continued flow in the stream below the intake pipe could have significant beneficial impacts on fish, wildlife, riparian vegetation, and recharge of the alluvial aquifer. Other types of inaction could have adverse impacts.

Simple actions, such as obtaining a new water right or transferring an existing one, can have beneficial and adverse economic and social impacts. The act of transferring the water authorized by the permit could require the construction and operation of a huge, complex project. That would produce physical and environmental impacts and additional economic and social impacts as well.

Often, these impacts can produce other impacts in a chain reaction. For example, pumping water from a well field long distances through a pipeline could produce substantial physical impacts. It could lower the water table around the wells and affect the land by changing the vegetation dependent on the water close to the surface. This could produce environmental impacts by reducing the habitat of some animals. The change in vegetation could also have economic impacts if it were grass used in ranching operations. If the economic losses from the loss of the forage and hay were substantial enough, they could become legal impacts as well, should a lawsuit be initiated.

Impacts of simple actions can often produce other impacts in a chain reaction

Pumping from a well field could lower the water table around it and affect the plants dependent on that water, sometimes leading to environmental, economic and social impacts.

Figure 8

ESTIMATED DRAWDOWNS OF WELLS WITH VARYING RATES OF RECHARGE

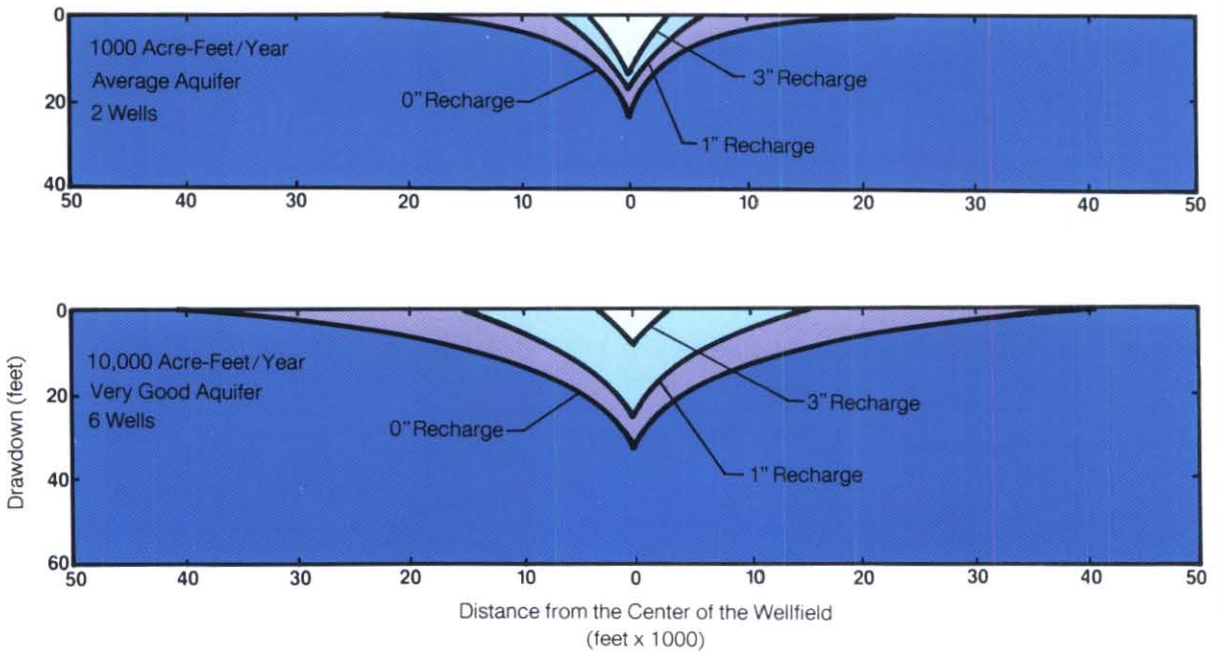
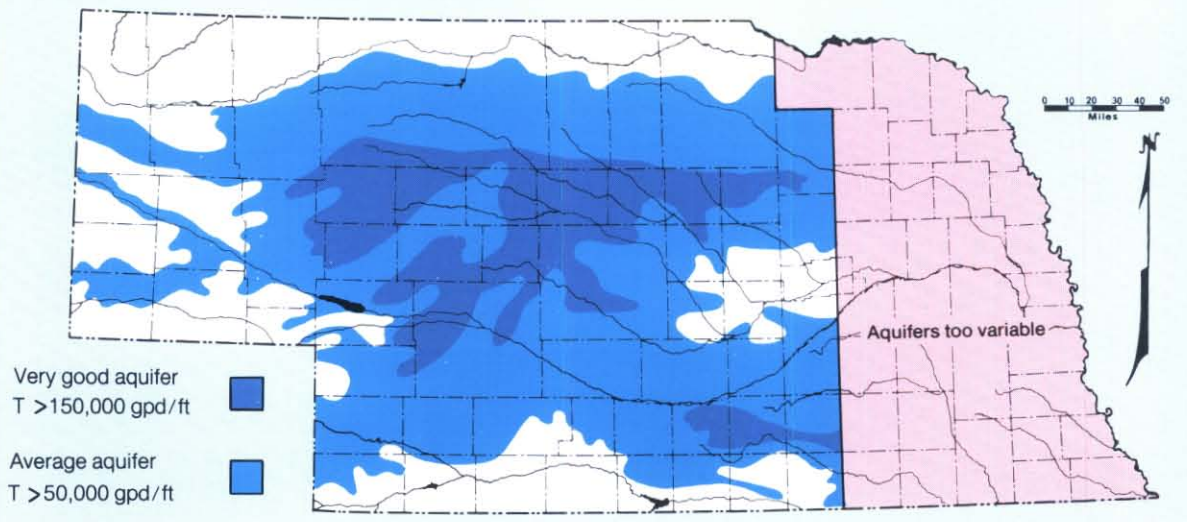


Figure 9

LOCATION OF EXAMPLE AQUIFERS



T = Transmissivity, the rate of flow through a one-foot wide, vertical strip of the entire aquifer under unit hydraulic gradient

The types of well and pipeline projects that were checked for economic viability could have such impacts. To estimate the magnitude of these potential impacts under some of the conditions found in Nebraska, the drawdowns caused by several hypothetical well fields were calculated. Figure 8 shows the depths of the drawdowns and the diameters of the areas that would be affected by a small well field in an average aquifer and a medium-sized well field in a very good aquifer. The small well field, with two wells pumping all year at the rate of a good irrigation well, would serve a city of 4,000 to 5,000 people. The 10,000 acre-foot well field would serve as many as 50,000 people.

To illustrate the worst possible case, the examples show the effects of continuous pumping for 25 years with no recharge from rainfall. They also show the reduction in drawdown with one inch and three inches of recharge.One inch of recharge is fairly common in Nebraska, and three inches occurs in some surface-water irrigated areas and the Sandhills.

The impact of a well field pumping 60,000 acre-feet per year from a very good aquifer was also estimated. After pumping for 25 years with no recharge from rainfall, the water level in the wells would be 168 feet lower. The cone of depression would extend about nine miles in every direction. Three inches of recharge would reduce the radius of the area impacted from nine miles to about five miles. In that situation, a well field capable of serving a city 50 percent larger than Lincoln would affect an area smaller than one township.

The drawdown of large projects could be limited to an area smaller than a township.

A state process of assessing environmental, social, legal, and economic impacts would provide the information needed to protect the environment and the rights of individuals as well as the public.

Figure 9 shows those areas that have extensive aquifers with the characteristics used in the preceding examples. The areas with average and very good aquifers cover much of the state.

Physical impacts could be produced by the construction and operation of storage dams and diversion dams; well fields; pipelines or canals; and facilities for the distribution and use of the water. Environmental impacts could result from the physical impacts. Nebraska has some very important environmental resources, including some that are of national and international importance. The central Platte valley, the Sandhills, the rainwater basin area, and other more localized ecological complexes are used by migrating birds and other species, including some threatened and endangered species.

The economic impacts of transfers cover a wide range of effects on most sectors of the state's economy. They range from the direct impacts of the cost of a transfer of a water right to the indirect impacts on third parties, such as the loss of tax base in a county when land is no longer irrigated. Some social impacts could also be derived from this economic activity, including the creation or loss of jobs. Other social impacts not associated with economic impacts could also be produced. The growth of supporting and opposing factions can split a community and cause serious disruption of normal relations.

COMPENSATION

Development of a statutory framework that would, among other things, provide compensation to persons adversely affected by transfers and the state on behalf of the public was required by

Legislative Bill 146. Compensation would be any measures, monetary and non-monetary, that satisfactorily replace losses or offset an adverse impact of a transfer. It could be payment of money, substitution of something entirely different but of equal value, or exact replacement.

Monetary compensation could be provided by purchasing the land that would be flooded permanently by a reservoir. If the owner wanted to retain the land on the edge of a reservoir that would only be flooded occasionally, compensation could be provided by purchasing a flood easement that would cover potential damages.

Compensation would be any measures that satisfactorily replace losses or offset adverse impacts.

Substitution could take many forms. For example, water could be provided to substitute directly for a lost water supply. In cases where it would be impossible to substitute exactly the same thing that would be impacted, replacement in kind or payment in money satisfactory to the parties responsible for those decisions could constitute compensation. For example, if construction of a pipeline required removal of young trees, it might be possible to replace them in an adjacent area with no change in effectiveness. Mature trees might be impossible to replace exactly, but replacement with young trees and payment for the difference in commercial and habitat value might provide satisfactory compensation.

Impediments are basically factors that make it more difficult or impossible to transfer water

Compensation for other, more general impacts on public values could be provided by payments to the state on behalf of the public. Interstate transfers, for instance, could cause the loss of opportunity for development in this state, or have an impact on the environmental or esthetic value of Nebraska resources. These impacts could be partially offset by charging for the water transferred and using the funds to provide substitute resources or economic opportunities.

The kinds of physical impacts that might require compensation include loss of land and reduction in water supplies. Environmental impacts that could require compensation are of three types: loss of natural habitat, loss of cultural or archeological resources, and degradation of water quality. Economic impacts requiring compensation stem from loss of income or property.

Compensation might be provided by replacing mature trees with young ones and paying for the difference in commercial and habitat value.

IMPEDIMENTS

Impediments are basically factors that make it more difficult, or even impossible, to transfer water or a water right. Existing conditions could be physical impediments to the design of a project, economic impediments to financing a project, or statutory impediments to the transfer of a water right. Changes in proposed transfers made necessary by existing conditions and potential impacts could also be impediments. For example, if a canal must be designed to cross a deep valley, it can be done by changing that section to a pipeline. This change would make the project more costly, so the physical impediment would become an economic impediment as well. Changing a design to reduce a potential impact, such as routing a pipeline around a group of homes to alleviate social impacts could become an economic impediment through cost increases also. Finally, impacts can be impediments, if they require compensation or they cause a delay in construction while lawsuits are settled.

An impact assessment process could identify and help overcome impediments.

Impacts can become impediments several ways. Some social and environmental impacts can become economic impediments, legal impediments, or even social impediments through the election process. In many cases an impact can be beneficial to some people and adverse to others.

The lack of a state system for identifying and resolving these conflicts expeditiously is an impediment. The failure of some parties to objectively follow the procedures and guidelines of the national environmental assessment system has produced more obstacles and delays than many of the impacts themselves.

Chapter 5.

POLICY RECOMMENDATIONS

In defining transfer policy, several basic public policy issues were addressed. First, the Water Management Board stressed acknowledgment in statutes of the physical realities of the relationship between surface water and groundwater. The Board also stressed the principle of equity among potential users of water, and gave greatest consideration to policy that would encourage efficient resource use and economic development commensurate with protection of private rights and public values. Finally, the need for proper management of water resources at the state level was given high priority.

EFFICIENT RESOURCE USE AND MANAGEMENT

Every year the need for state management and conservation of water resources within the state is becoming more urgent. As development of land and water resources continues, resource problems increase and become more complex. As more water is used, the remaining supply dwindles and becomes more difficult and expensive to use. Bigger and more expensive projects are required to capture and store surface water supplies and declining groundwater supplies are more expensive to pump. In addition, the steadily growing use of the water resource over the years is adding more and more pollutants to the remaining supply, and protecting the quality of it is becoming more difficult. Controlling future contamination and remedying past pollution will require more intensive management by private individuals and public agencies. Reducing nitrate contamination and cleaning up groundwater containing hazardous chemicals introduced over many years will be costly. Future reductions in federal water resources funding will make it necessary for the state to increase funding for development and management to maintain its economy and environmental quality.

FUNDING ALTERNATIVES FOR WATER MANAGEMENT

Sources of state funding are limited. Borrowing by issuing general obligation bonds is, in effect, prohibited by the constitution. Issuing revenue bonds would be an effective means of financing projects producing water or other services that could be sold. However, not all water projects produce water or services that can be sold, so revenue bonds would not work for all projects, including water quality protection projects.

Direct funding sources are limited to general taxes, such as sales and income taxes, and special taxes or fees. The gasoline tax is an example of a special tax that pays for the services (roads) used by those paying the tax. Charging water users for the water they take would provide a source of funds for water management.

A proposed system of fees on tranferred water, designed to provide compensation to the state from intrastate and interstate transfers equally, met with extensive and widespread opposition. The comments received from the public review of the draft report gave many reasons for this opposition. These included the financial impacts on the users, the inequities in the fee schedule, the lack of specificity in the uses and benefits of the funds, and the belief that the funds should come from all the people through appropriations from the general fund to provide legislative review and decisions. The Board realized that this issue could only be resolved by the Legislature and decided to recommend that funding be provided, either by fees or general fund appropriations.

A commitment to long-term funding of water resources management is urgently needed. The Legislature could establish a funding program with the required authority to use the funds for water supply or water quality protection activities, set up a budget item for it, authorize interest to accumulate in it, and appropriate funds to it biennially. Appropriations could be from the general fund or from some kind of fees. If it were determined that user fees should be the source, the major groups that would be affected should be convened by the Legislature or the Board, if the Legislature so directed, to attempt to reach agreement on an equitable fee schedule.

RECOMMENDED TRANSFER POLICY

The Water Management Board recommends adoption of the transfer policy embodied in the statutory framework presented to the Governor and the Legislature with its final report. That policy is summarized in the following nine points.

1. Definition of Groundwater Transfers and Exemptions

It is recommended that transportation of groundwater off the government survey section in which the well is located be subject to transfer policies. Transfers for individual domestic uses and transfers of water to irrigate less than 160 acres in an adjacent section should be exempted from requirements for permits. The process for permitting short distance transfers of small quantities of groundwater for other uses should be simpler than that for larger projects. The administrative agency should be allowed to decide what procedure must be followed in those cases.

2. Regulation of Surface Water Transfers

The current policy of regulating all surface water uses should be continued. All applications for permits should be subject to uniform procedures and criteria for approval regardless of type of use, location with respect to diversion, or category of water. Transfers of water rights should also be governed by the same procedures and criteria.

3. Administrative Procedures

The Department of Water Resources should administer the provisions of transfer statutes. Most applicants for permits should be required to prepare an impact assessment containing sufficient information to determine if a permit should be issued and what conditions should be attached. The Department should have sufficient flexibility to fit procedures and requirements to the complexity of the proposal, so small projects without significant impacts would not require a detailed assessment. Other state agencies should be required to participate in the process.

4. Assessment Procedures

The procedures and requirements of the impact assessment should be similar to those used in the national assessment process to take advantage of the knowledge and experience gained in that process. Full disclosure of all potential impacts should be required.

5. Permit Criteria and Conditions

In determining if a permit should be issued, the beneficial and adverse impacts of a proposal must be considered. Where possible, compensation or mitigation measures should be employed to offset adverse impacts and those measures should be made a condition of the permit. When there are adverse impacts that cannot be avoided or compensated for, the permit should be granted only if the beneficial impacts clearly outweigh the adverse impacts. All permits should be limited to a specific term, not to exceed 50 years, with preference for renewals.

6. Allowable Surface Water Right Transfers and Conditions

Both sales and leases of water rights should be permitted. The amount transferred should be limited to the amount consumed in the past. Permits for transfers of salvaged water should be limited to the amount of historic consumption that can be saved through conservation.

7. State Role

The state should take steps to improve the efficiency of water rights transfers, expedite conservation and wise use of water, and promote economic development. A state clearinghouse for water rights transfers should be set up under the Water Management Board. The Board and the NRC staff should take the initiative in identifying potential transfers; encouraging cities, districts and others to cooperate in developing transfers; and negotiating with federal agencies on participation in potential federal projects. The Board should take the lead in project design and construction only when necessary to maximize state benefits of transfers.

8. Funding of Management and Conservation

The state should provide funds for grants and loans for water development projects through the Water Management Fund. Funds should also be provided for protecting public water supplies under the Safe Drinking Water Act, best management practices in Special Protection Areas for groundwater pollution, and cleaning up hazardous materials in groundwater. The Legislature should establish a funding mechanism for assured funding of continuing programs through the Water Management Fund.

9. Action on Long-Term Funding Sources

The Legislature should take action to meet the increasing needs of the future and provide flexibility in funding water management programs on a long-term basis. This should be provided by establishing an appropriate funding program and either making biennial appropriations from the general fund or enacting some form of user fees. If the user fee system is adopted, the legislature should try to reach agreement on equitable fees among the major groups affected, or assign that task to the Water Managemant Board.