The Situation in the United States of America:
Deference to States; Federal Supremacy

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Abstract and Keywords

More than two centuries ago, the federal system in the United States was constitutionally founded on the principle that states have all powers not delegated by the states to the national government. However, the Constitution vests in the Congress powers such as enacting laws to regulate commerce and authority for the President to negotiate treaties. The Supreme Court has interpreted these powers broadly, and generally upholds federal regulatory laws affecting water. If state laws conflict with the ability of the federal government to carry out laws and policies promulgated in the exercise of these powers, state laws are preempted. Consequently, state water allocation laws are regularly subordinated to wide-ranging federal laws concerning navigation, fish and wildlife, and environmental protection as well as national defense.

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I. Introduction

1. Federalism in the United States

The federal system in the United States began 230 years ago with a confederation of 13 former colonies along the east coast of North America. The colonies, settled by immigrants from several European countries, had long been ruled by England. During the Revolutionary War they declared independence and adopted Articles of Confederation. It was not long before the loose association of the Confederation proved inadequate and the states held a constitutional convention and adopted the present Constitution of the United States which was ratified by the last of the 13 states in 1790. The states yielded limited powers to the national government, retaining for themselves all other governmental powers.

After the founding of the United States, its territory rapidly expanded to the west as the result of land purchases and cessions mostly from France and Mexico. The entire North American continent south of Canada and north of Mexico was included in states of the United States by 1912. Alaska and Hawaii were non-contiguous territories later admitted to statehood.

Because of the highly variable geographic and climatic conditions of the continent, states had different needs for water and developed different types of water laws. The federal government's role in water was negligible for many years. At first Congress dealt with rivers as avenues for commerce. Later, the federal government exerted control over water on public lands. Statutes then were passed that seemed to yield to state authority the allocation of water according to their individual laws, even water on public land. But the Supreme Court later decided that the federal government implicitly reserved enough water to fulfill the purposes of Indian reservations and other federal reservations of land and that this water was not subject to state laws. Federally funded or authorized dam building also was done largely without the need to respect state law. And in the 1970s, environmental laws were passed that had, in some cases, significant impacts on the ability to develop and use water rights recognized under state law. All of these federal-state conflicts have led to litigation testing the legitimacy of federal control of water that does not respect state law. Nevertheless, the courts have rarely found that federal action was unlawful under the federalism principles embodied in the Constitution.

2. Water in the United States

A. Principal Watersheds

The United States occupies a vast land area between the Atlantic and Pacific Oceans. The 50 states include 48 contiguous states in central North America plus Hawaii in the mid-Pacific and Alaska in the far north between Canada and Russia. The seventeen states of the western half of the nation are largely semi-arid, with most receiving average annual precipitation of less than 20 inches per year. Two states of the Northwest (Washington and Oregon) are exceptions and receive heavy rainfall. The eastern states receive, on average, more than 40 inches of precipitation annually. See map showing precipitation patterns, Figure 1 (U.S. National Atlas).

The United States has an estimated 3.5 million miles of rivers, with 25 rivers more than 600 miles in length. The primary river basins of the continental United States that drain to an ocean are the Columbia, Sacramento-San Joaquin, Rio Grande, Pecos, Colorado, Mississippi, Brazos, Susquehanna, Chatahoochee, and Connecticut.

B. Groundwater

Aquifers provide nearly a quarter of the total water supply in the United States – over 90 million acre-feet (MAF) per year. The 17 western states pumped 58 MAF of this amount and used 79% of it for irrigated agriculture. In the rest of the country about 67% is used for agriculture. The dependence on groundwater varies considerably among states; all areas use some groundwater but two-thirds of all groundwater pumping occurs in only eight states. A single aquifer, the Ogallala, in the central plains of the United States. underlies portions of six states and provides the water for 20% of all irrigated agriculture and 30% of all water pumped in the nation. The Ogallala aquifer has sustained major depletion in recent years. See map showing the Ogallala Aquifer, Figure 2 (Guru and Horn, 2000).

C. Water Supplies

Taken as a whole, the United States has abundant water supplies. There is, on average, 4,800 MAF of renewable water annually available. Another 68,000 MAF is estimated to be stored in lakes and aquifers. About 380 MAF is withdrawn annually, with only 100 MAF being effectively consumed (i.e., unavailable for reuse). The fundamental problem with water supply in the United States. as in much of the rest of the world is that the natural geographic and temporal distribution does not match demand patterns. That is, consumption is a much greater proportion of supply in the driest parts of the country. The United States Bureau of Reclamation has identified 25 “hot spots” in the western United States where existing water supplies are not adequate for people, agriculture, or the environment and where water supply crisis conditions are predicted to occur by 2025.

In the past, the United States government funded the construction of dams and other facilities to address water supply problems. Large water projects were built, often at the request of states, to transport water from distant sources to the areas of demand, and dams were built to store water to soften the impact of seasonal fluctuations in the naturally available water supplies. Today, some 860 MAF of water is stored behind 800 major dams. Large dam construction is no longer feasible in many areas because the best sites for reservoirs are already in use, environmental values conflict with ecologically destructive construction projects, and public finance is more difficult in an era of fiscal limitations.

Historically, federal investments in water supply facilities have effectively subsidized primarily agricultural and secondarily municipal uses. Later, they were "multi-purpose" projects, designed to serve recreational and fish and wildlife needs, provide flood control, and other purposes. Today, as the greatest growth in demand is for municipal and industrial uses, federal investment has largely ceased and existing federal facilities are being examined to determine how they might be operated to optimize these uses. Increasingly, water supply problems are addressed by local government and special districts. They are necessarily doing so with methods such as reallocation of existing supplies, greater efficiency of use, and better operation of existing infrastructure.

D. Water Usage

Overall water use in the United States peaked in 1980, declined slightly over the next decades, and has rebounded to 1980 levels since then. The decline and then modest growth relative to population growth are attributable to improved irrigation technology, rising energy costs implicated in pumping groundwater, and more efficient use of water resulting from public education and improved industrial techniques. Water usage requiring pumping is likely to decline in response to sharply increased energy costs in 2008.

The one sector where demand has been steadily increasing is in public water supply. Per capita demand has not grown as fast as population, however. Acres irrigated in the arid West have decreased slightly and the amount of water applied per acre also decreased. In the more humid East, irrigated acreage has increased. See map showing water demand, Figure 3 (U.S. National Atlas).

As the western United States urbanizes, the demand for municipal water supplies will continue to expand. This portends greater tension with established agricultural uses and, through transfers of water to cities from farms, a further reduction in use of irrigation water.

One area of unquantified demand is for instream uses. Historically, hydroelectric facilities have demanded flowing water. Today, the largest growth in demand for instream flows is for ecosystem services, aesthetics, and recreational uses. State laws have been expanded to protect these uses and federal laws also favor environmental protection.

E. Population

Populations of the states differ greatly, ranging from California with 36.5 million to Wyoming with 523,000. The most significant fact pertaining to water demand is that the fastest growing region of the United States is the semi-arid West. Population is increasing fastest in several cities of the Southwest and Mountain West where water is the scarcest. Population growth patterns of the past thirty years are likely to continue for at least another thirty years. However, water demand will not increase at the same rate. It is predicted that by 2040 water withdrawals will increase by 7-9% with a predicted 41% increase in population.

2. Trends and Uncertainties

Several uncertainties affect the future demand and supply situation in the United States. Many are the result of continuing trends. Each has the potential for provoking and exacerbating existing tensions between state and federal governments in their respective attempts to allocate, provide, and manage water.

A. Growth

The most inexorable trend is for continued population and economic growth. The greatest impact on water use is from urban water use, and in most parts of the United States population growth is concentrated in urban areas. In recent years more efficient water use has allowed population and economic activity to grow without commensurate increases in water demand. Yet, the higher economic value of water for domestic and industrial uses in urban areas means that water is being taken out of agricultural uses and moved to the cities. See map showing population growth, Figure 4 (U.S. National Atlas).

B. In-stream Demands

It is reasonable to expect that the political and public support for environmental protection will hold firm or increase the demand for water to be maintained in streams to benefit fish and wildlife and to provide other “services” such as water quality and recreational uses that depend on flowing water.

C. Climate Change

Dramatic changes in water supply and also changes in demand accompany global warming. The effects of cyclical droughts are exacerbated as dry spells occur more

frequently and are more severe. Precipitation patterns are changing, challenging the effectiveness of present infrastructure. For instance, existing water storage facilities designed to capture runoff from snowmelt are not suited to store rapid, late season rainfall.

D. Energy Production

Energy production is increasing and this creates new demands for water. Traditional demands associated with energy include water needed for production of coal, oil and gas, and for cooling electrical generating plants. Now, with the burgeoning demand for biofuels, predictions of steady or declining demands for irrigation water are thrown into some doubt with increased production of corn and other crops for conversion to ethanol.

E. Indian Water Rights

Indian tribes have legal claims to large quantities of water in the western United States. Most of these claims have not been resolved, leaving the security of non-Indian water rights claimed under state law in considerable doubt. If the tribes successfully claim rights in the future it will impact existing water uses as well as future uses by non-Indians.

F. Declining Public Investment

Political opposition to taxing and spending public money has resulted in major declines in expenditures for water projects over the past thirty years. As discussed above, federal funding of water projects has virtually disappeared. Funding is also lacking for maintenance and repair of existing facilities. Municipal water treatment and delivery systems are in poor repair. Thousands of dams are unsafe and many reservoirs are not well-suited to storage of water under changing climate regimes. All these conditions make it more difficult to meet the water demands of the future and increase the uncertainties.

II. Structure of the Federal System Regarding Control of Water in the United States

In the United States, the federal government generally defers to the states in the allocation of water and the regulation of its use. However, if state allocations or uses of water permitted under state water rights conflict with federal laws, they will be preempted because federal law is paramount. There is a constant tension between state

water laws and federal laws that threaten to interfere with state autonomy. States sometimes resist the superiority of federal law but more typically, these disputes involve water suppliers who are resisting regulation that would prevent or limit water development. In practice, challenges to the existence of a federal power or Congress's intent to preempt state law rarely prevail in court.

1. Federal Supremacy

The United States Constitution states that "the Laws of the United States . . . shall be the supreme Law of the Land . . ." This "Supremacy Clause" is read to allow any federal law whose purpose would be thwarted by application of a state law to preempt, or prevent, the operation of state law.

2. Variations in State Laws

Water laws vary considerably among the 50 states. Generally they fall into two categories, however. In the eastern states, where streams are more plentiful and the climate more humid, "riparian" principles have guided the development of state laws. These principles recognized that, by virtue of their location, landowners along a waterway held rights to use water or the land contiguous to the waterway, and others, not having land bordering a stream or lake, had no water rights. In the more arid West, rights were allocated based on the doctrine of "prior appropriation". This system awarded rights to use water based on the time and amount of a person's actual use of water regardless of where the water was used or whether the water user owned the land.

Today, states typically have adopted permit systems that allow state agencies to allocate water rights and control its use. The relevance of the traditions of riparianism or prior appropriation pertains to the initial allocations that were made before permit systems were established and to some rules that guide the permitting processes.

III. State Water Law Regimes

1. Overview of the Riparian System

A) History

Scholars differ on the origin of the riparian doctrine. Some believe it is a product of the civil law; others maintain it has its roots in the English common law. Elements of the doctrine can be traced to precedents from both France and England but it is essentially an American doctrine.

Until the early eighteenth century, most water cases involved rights of navigation and fishing. The dawn of the Industrial Revolution and the consequent increase in water-driven mills created a need for uniform principles of law that could be applied in the growing number of water disputes concerned with access to the flow of the stream. The law's response was the development of the riparian doctrine.

The fundamental principle of the riparian doctrine is that the owner of land bordering a river or lake acquires certain rights to use the water. Others – "nonriparians" – have no water rights. At first, the right extended to the full, natural flow of the stream. But this potentially gave landowners the right to monopolize the entire stream. From the earliest cases courts said that each landowner bordering on the waterway may make only "reasonable use" of the water on the land and that the use must not interfere with reasonable uses of other riparians.

Twenty-nine states have systems rooted in the riparian doctrine. Ten others have a system based on some combination of riparian and prior appropriation doctrines. Today statutory systems have largely replaced pure riparianism in virtually all jurisdictions, though courts and agencies apply elements of the doctrine in allocating and enforcing rights.

B) Modern Water Rights in Riparian States

Although some courts continue to use "natural flow" language, all riparian states have adopted some form of the reasonable use doctrine. Nearly all of them have statutory permitting schemes.

a) Operation of Permit Systems

Increased population and development of the United States caused most eastern riparian states to adopt statutory permit systems for some or all water uses. Many of the remaining states that do not have permitting systems are currently reviewing their laws and are likely eventually to adopt some form of regulation. Early statutory and case law defining reasonable use was reflected in the permit systems. In addition, common law disputes between individuals may be resolved by reference to riparian principles, so these principles still have relevance.

Permit statutes usually require anyone wanting to divert or impound water to obtain a permit from a state administrative agency. The agency may be responsible for

both water allocation and water quality. Only a few riparian states require permits of small domestic users. A number of states exempt springs, farm ponds, and other uses having minor effect on streamflows and supplies needed by others. Other states exempt large-scale users such as steam electric power plants. Even agricultural irrigation is exempt from the permit requirement in two states.

Administrative officials charged with issuing permits must choose among competing users. They decide the quantity one may divert and set the terms and conditions. They may also determine how much water should remain in a stream at a particular point in order to sustain minimum stream flows needed for maintenance of fish and wildlife and other public purposes. Under statutory permitting systems administrative agencies, not the courts, often resolve the conflicts that may arise.

Permit legislation generally establishes criteria to be considered by the permitting agency. Criteria may relate to the type of watercourse, the probable impacts of the diversion and use (both negative and beneficial), and the effects on the public. Some states set forth detailed factors to be considered. Arkansas, Iowa, Maryland, and Minnesota have statutes setting priorities for allocation of water resources when there is not enough water for all applicants; domestic uses rank highest. No state awards priority to an applicant based solely on seniority of the applicant's use but most consider established use as a factor.

About half the permit states grant perpetual permits. In the others, a permit is for a fixed term ranging from three to 50 years. Renewal of fixed term permits is not automatic.

A permit is specific as to the location, volume and rate of diversion and the location and nature of the permitted use. Some permit statutes allow use of water on non-riparian land and out of the watershed that ordinarily would be restricted by pure riparian doctrine. Some states charge water users a fixed fee to obtain a permit or charge a fee for the amount of water used, to be paid to an agency.

b) Groundwater Regulation in Riparian States

A riparian landowner who believes that a neighbor's wells are affecting the use of the surface waterbody must prove that the waters are interconnected to establish liability. This may require the testimony of engineers. In most states there is a presumption that

underground water is groundwater and not subject to surface water (riparian) principles. Courts sometimes do not apply the presumption, if wells are very close to surface watercourses.

2. Overview of the Prior Appropriation System

A) History

Prior appropriation began as a simple system that allowed private water users to obtain a water right recognized by the state simply by diverting it out of the stream and putting it to a "beneficial use". At first, it was not necessary to ask permission but only to "appropriate" the water. The water right obtained in this way entitled water users to continue taking the full amount of water that they originally diverted. They would lose the right if they did not continue using it ("use it or lose it"). When there was insufficient water in the stream water users were not required to share. The users with the oldest rights were entitled to take their full rights until the there was no more water and then the junior water rights holders would be cut off entirely ("first in time, first in right"). Once a person held a water right, it generally could be transferred to others so long as the transfer did not harm the exercise of water rights of any other person. Water rights are considered a form of property and can be transferred separately from the land originally served.

B) Modern Water Rights in the West

Some of the earliest cases in which the courts recognized the prior appropriation doctrine involved distant transfers, even to other drainage basins (see *Coffin v Left Hand Ditch Co*. (Colorado, 1882). The riparian doctrine that was applied in many eastern states that were settled before the West was populated would not allow transbasin diversions if it were strictly applied. The courts in the West decided that they would not follow the riparian tradition but instead they emulated the customs of the early miners which was "first in time, first in right" for water as well as minerals, and did not restrict movement of water from a stream to wherever it was needed. In the arid West streams were few and flows fluctuated greatly so the law was designed to accommodate the needs of those who first arrived and had economic uses for the water. The judges in the leading cases therefore rejected riparian principles and embraced the prior appropriation doctrine

based on the assumption that it was better suited to the geography and climate of the region.

Today, water rights in most western states are still guided by the basic principles of the prior appropriation doctrine but the rules have been codified and expanded in statutes. Moreover, rights are allocated and administered by state agencies and officials who maintain records, enforce rights by opening and shutting headgates and dams, and make decisions that apply statutory criteria. Most states require a finding by a state official or agency that a new water right or any change or transfer in the use of a water right be consistent with "the public interest" or with "public welfare". The requirement that water not be wasted was a logical extension of the beneficial use doctrine. Because water is considered a public resource, the public interest requirement is also a means of ensuring that a particular use is "beneficial" to society.

a) Operation of Permit Systems

Water allocation in the West, as in the East, is governed by statutes that authorize state officials to grant permits allowing private and public entities to use water if they satisfy certain conditions. Each state has its distinct system for establishing water rights, approving changes in the use of water rights and administering permitted water uses to be sure that uses are consistent with permit conditions. However, prior judge-made law in both regions continues to guide the interpretation of these statutes.

A water user or a lawyer whose client seeks a water right for a particular use first approaches an administrative agency that requires an application to be completed and filed. The agency then reviews the application, gives notice to existing water rights holders, and provides an opportunity for the others to object. In deciding whether to grant the application, the agency applies rules and standards set in the statutes or promulgated administratively under the statutes to decide how much water an applicant will be able to use. The standards typically require determinations that sufficient water is available, that existing rights will not be harmed, and that the proposed use will be beneficial and is not contrary to the public interest.

Critics have begun to challenge the principles of prior appropriation as conditions and social values change. For instance, under prior appropriation law there is no sharing of shortages in dry years. Holders of the oldest rights are entitled to take the full amount

of their rights regardless of the relatively greater social importance, productivity, or efficiency of newer uses. Thus, old rights can endure as long as uses continue; they are extinguished only if they are not used. A few states have begun to impose modern criteria of more efficient use on old rights.

b) Public Interest Considerations

The most important consideration under modern state permitting regimes is that a new or changed water use be consistent with the public interest. Most states legally recognize a strong public interest in water. Water is generally considered to be a resource held in common for all citizens until private rights are established in it. Therefore, state laws often stipulate that water allocation must be consistent with the "public interest" or "public welfare". In practice, states rarely deny new uses or transfers of existing rights in order to protect the public interest, but they do impose additional conditions on the appropriation or transfer.

Few state laws clearly indicate what factors are to be considered as within the "public interest". For example, in Idaho state law requires Idaho's Department of Water Resources Director to determine whether a proposed water use is in conflict with "the local public interest", but the statute does not define this standard (Idaho Statutes, section 42-203A). Therefore, the Idaho Supreme Court has read the statute with reference to other Idaho laws and other states' laws that refer to or define the public interest (*Shokal v Dunn* (Idaho, 1985)). Since that decision, the Director of Water Resources has convened hearings to formulate decisions that ensure "the greatest benefit possible to the public [from public waters] for the public". Affected citizens can present evidence about matters such as aesthetics, recreation, fish, and ecosystem functions that will be impacted by the proposed water decision. The agency considers not only benefits to the applicant but also economic effects, alternative uses, minimum stream flows, wastewater, and conservation.

States sometimes apply different public interest requirements in reviewing changes of use or transfers of water rights than they impose on new appropriations. The Supreme Court of Utah upheld the application of the same criteria to changes in use that were applied to new appropriations (*Bonham v Morgan* (Utah, 1989)). In Nevada, a statute requires the state to reject an application for a water transfer that would result in

damaging the public interest (Nevada Revised Statutes § 533.370(3)). Wyoming, one of the few states with a special process to evaluate transfers, considers potential economic losses to the community relative to the benefits of the transfer and the availability of other sources of water (Wyoming Statutes Annotated § 41-4-503). California, through the State Water Resources Control Board, reviews proposed transfers to determine if they would cause an unreasonable effect on the economy in the area of origin or on fish, wildlife, or other water uses (California Water Code § 109).

Although every state in the West except Colorado uses some type of process to review the public interest in water decisions, all of them could improve the way in which they apply these laws. The majority of the states lack clear standards to define the public interest that they are trying to protect and many of the social, economic, and ecological interests affected by water allocation, transfer, and use are simply not included in the considerations of state agencies. If the elements constituting the public interest were comprehensively articulated, government employees could use them as a guide for state policy in resolving conflicts among competing interests and to understand better the tradeoffs inherent in any water decision. Comprehensive water planning is another way to articulate the elements of the public interest as well as the related state policies.

The procedures states use to issue permits are sometimes lacking as well. They often involve only the applicant and other water rights holders and exclude members of the public who experience economic, environmental, and social impacts from water use and development. In some instances, courts have held that a state's decision to permit private use of public resources can be voided when water rights are allocated or transferred without a sufficient public review of the public interest (*National Audubon Society v Superior Court* (California, 1983); *In re Water Use Permit Applications* (Hawaii, 2000)). The "public trust doctrine" recognizes that water is fundamentally a public resource and that the state should not allow private water rights to impair the public's interest in water. As applied by these courts, the doctrine allows a court to reexamine established water rights in order to ensure that environmental values are not destroyed without prior consideration of the impacts. The doctrine has its origins in civil and common law principles that recognize the public's continuing rights to use navigable waters and the state's property rights in the beds of navigable waters.

Public interest concerns are also addressed indirectly through laws creating state programs to protect instream flows. Most of these laws allow state agencies to acquire rights to keep water flowing in streams. States either appropriate water rights to themselves which are used to maintain streamflow levels, or they reserve from appropriation an amount of water that is necessary to maintain desired flows. At present, only Arizona and Alaska permit individuals and private organizations to appropriate waters for instream flows. In all other states only a state agency can hold the right. In some states, private groups in have formed "water trusts" to finance purchases of senior water rights; these rights must be transferred to the state agency authorized to hold instream flow rights unless the state allows private entities to hold them.

c) Groundwater Regulation in Western States

State systems for allocation and regulation of groundwater use are similar in the eastern riparian states and in the western prior appropriation states. Except where a groundwater source is hydrologically connected to a stream system, the practical effect of applying prior appropriation principles does not generally produce socially desirable results. Recognition of the special nature of groundwater has led many states to the conclusion that it should be managed as a common resource and administered under rules that respect a variety of public and private concerns. Rights can be defined by a state agency to optimize the use of available resources over time. Moreover, water managers have begun to incorporate principles of "conjunctive management" by integrating plans for surface water development with groundwater management plans.

In situations where the source of groundwater is actually a subsurface flow of a stream, some states administer pumping along with diversion of surface water. In Colorado there has been a complete integration of administration of rights to groundwater and surface water that are connected. The state has consistently held that all groundwater is presumed to be tributary to a natural stream. Without such integration, the rights of water users from surface streams cannot be protected.

The doctrine of prior appropriation, however, is not as well-suited to groundwater allocation when an aquifer is confined or has only a remote connection with the water in a stream. In such a "non-tributary" aquifer applying the prior appropriation rule to protect the rights of the senior user from any interference by a later groundwater pumper

could limit use to a single pumper – the first one. This is because almost every extraction of groundwater potentially affects the level of water in the aquifer and arguably could affect every other pumper. Consequently, most states allow some interference with existing pumpers by new users. The standard applied to determine how much interference is allowed is the familiar "reasonableness" limitation.

Elaborate permitting systems exist in most states to allow optimum utilization of aquifers. Typical considerations for the agency granting a permit include: the use to be made of the water; effects on present users of groundwater in the area; the effect of the withdrawal of additional groundwater on future supplies in the area; the likely future natural replenishment; future demands for groundwater; and effects on the health and best interests of the public.

III. The Federal Role in Water Allocation and Use

1. The Power of Preemption

As indicated in Part II, waters within state boundaries, even on the public lands, are managed and allocated according to state and local laws absent some preemptive exercise of congressional power. Congress can and does pass laws that preempt state laws. To do so, Congress must have some express power to legislate in a particular subject area and there must be a manifestation of congressional intent to preempt the operation of state law. If federal authority to preempt state law is challenged, the first question that a court must ask is whether the United States Constitution contains a grant of power to legislate concerning the subject. This is because the Constitution was intended to be a delegation of limited powers from the states to the federal government. Moreover, the Tenth Amendment to the Constitution, passed shortly after the Constitution itself, said that the powers not delegated to the national government are reserved to the states.

In practice, finding federal legislative power has not been difficult for the courts. They have recognized federal authority to deal with water resources under a variety of powers: the power to regulate commerce (and its subsidiary, the navigation power), congressional power to dispose of the public lands, the federal government’s power to make treaties, and even Congress’s power to tax and spend to promote the general welfare. In one case, the defense power was invoked to uphold the federal government's

construction of a hydroelectric dam that provided power to munitions plants (*Ashwander v Tennessee Valley Authority* (Supreme Court,1936)). Thus, in cases asking whether state water law has been preempted the question is rarely whether power exists, but rather whether Congress intended to exercise its power to displace state law. To determine congressional intent requires an examination of the statutory language and sometimes, where the legislation is unclear, the courts will look at legislative history.

2. Types of Conflicts with State Laws

The United States may regulate water use to carry out federal legislative purposes. In *United States v Rio Grande Dam & Irrigation Co.* (Supreme Court, 1899), the Supreme Court sustained the government's right to prevent the exercise of state-created water rights in order to implement federal legislation protecting the navigable capacity of streams, and said that it was an exercise of regulatory authority and not a taking (or expropriation) requiring the government to pay compensation. Congress may also authorize federal officials to distribute water from a federal project without regard to water rights priorities established under state law (see *Arizona v California* (Supreme Court,1963)). The only question for a court is whether Congress intended to override, or preempt, state law.

A) Construction of Federal Water Projects

The federal government sought to encourage settlement of the West by enacting legislation such as the *Homestead Act* to provide free or low cost land to settlers. Congress's purpose in allowing settlement on the public lands by self-sufficient family farmers was frustrated by fraud and abuse. Wealthy speculators (e.g., railroads and timber interests) were able to aggregate vast tracts of public lands under their ownership and control, making extravagant profits. Much western public land was too arid to be used without irrigation and so individual settlers seldom had the capital required to construct dams and diversion works. This led to political support for an increased federal role in financing and constructing irrigation projects.

In 1902, Congress passed the *Reclamation Act*, which established the Bureau of Reclamation in the Department of the Interior to administer a program of building dams and irrigation works. The stated purpose of the Act was to provide water for irrigation but it was intended to be part of a national policy of distributing public land without

fueling the land speculation touched off by earlier public land programs and without enabling land monopolies. The clear intent of Congress was to promote the growth and well-being of small family farms in the West. Later legislation supplemented the purposes of reclamation projects to include hydropower, industrial, and municipal uses. Recreation, fish and wildlife protection, flood control, and navigation benefits are also provided pursuant to provisions establishing particular reclamation projects. Some laws authorized specific projects. For example, the *Boulder Canyon Project Act* (43 U.S.C.A. § 617), passed in 1929, provided for construction of dams (including Hoover Dam) on the Colorado River as part of a comprehensive development plan.

A federal water project can result in destruction of a state-created water right by obstructing the flow of a stream and otherwise disrupting state water allocation. The government must pay compensation to the water rights holder unless the purpose of the project is for navigation, in which case the courts have said there is no right to compensation. In *United States v Gerlach Live Stock Co.* (Supreme Court, 1950), farmers in California's Central Valley irrigated their grasslands with the seasonal overflow of the Sacramento River. As part of the massive Central Valley Project, the government constructed Friant Dam, which eliminated the river's seasonal flooding, thus depriving downstream landowners of the overflow. The government contended that the loss was noncompensable since Congress had authorized the Central Valley Project for the control of navigation. The Court said the project was a reclamation project created under legislation enacted pursuant to Congress's power to spend money for the general welfare and was not a navigation project, despite a general congressional declaration that the entire project was to improve navigation. Because the 1902 *Reclamation Act* expressed an intention that the federal government conform with state law in acquiring property for such projects, the water rights taken were held to be compensable.

Federal reclamation projects may come into conflict with a variety of state water laws. The 1902 *Reclamation Act* contains provisions that appear to require federal compliance with state law. Section 8 provides that the Act is not to be construed as interfering with state laws "relating to the control, appropriation, use, or distribution of water used in irrigation ..., and the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with such laws..." Despite its broad language, the

provision does not allow state law to override specific conflicting provisions of the reclamation law or legislation authorizing a particular project.

In *California v United States* (Supreme Court, 1978) the Court announced that water from the federal project must be distributed by the United States according to state law except to the extent state law is directly in conflict with a provision of the federal reclamation law. The Court disapproved statements in its earlier decisions saying states could not impose any conditions on water delivery but it did not overrule a decision that section 8 did not require the Secretary to observe state law when it conflicted with section 9(c) of the *Reclamation Act* giving preference to irrigation uses.

B) Federal Licensing of Water Power Projects

Hydroelectric power generating facilities can disrupt fish habitat and migration patterns. For instance, Columbia River salmon harvests are now only about 8% of their size 100 years ago. The primary cause of the destruction of anadromous fisheries has been the construction of hydropower facilities on major rivers. Such facilities obstruct upstream spawning migration, alter water temperatures, and change the chemical composition of the water, thereby endangering the migrating fish.

Under the *Federal Power Act* of 1920, the Federal Energy Regulatory Commission (FERC) must issue licenses for private hydropower facilities affecting navigable waters, public lands, or federal reservations. The *Federal Power Act* of 1920 established a comprehensive national policy for hydroelectric power (hydropower) development and FERC must find that the proposed project is "best adapted to a comprehensive plan" for water development, navigation, water power, "and for other beneficial public uses, including recreational purposes" (16 U.S.C.A. § 803(a)). The 1986 amendments to the Act expressly directed FERC to consider a project's effects on fish and wildlife.

If there a conflict with a state water right is caused by a licensed project, the federal project can nevertheless proceed as planned. Although conflicts usually involve water use laws, sometimes other state laws for the protection of fish habitats and the environment may also be preempted by federal licensing of a project. For instance, large federal dams obstruct often anadromous fish (e.g., salmon) spawning and migration in major rivers of states in the Northwest (e.g., Oregon and Washington).

The *Federal Power Act* has two provisions that appear to protect state law from federal encroachment. Section 9(b) requires license applicants to submit satisfactory evidence of compliance with state laws concerning hydropower development. Section 27 of the Act provides:

> Nothing contained in this chapter shall be construed as affecting or intending to affect or in any way to interfere with the laws of the respective states relating to the control, appropriation, use, or distribution of water used in irrigation or for municipal or other uses, or any vested right acquired therein.

Both sections seem to preserve state law, but judicial interpretation has limited their effectiveness. In *First Iowa Hydro-Electric Coop. v Federal Power Commission* (Supreme Court, 1946). The United States Supreme Court held that where compliance with both state and federal permit requirements appeared impossible, subjecting the project to state law would frustrate the Act's purpose of comprehensive nationwide planning. The Court stated that section 9(b) is merely informational; if the Commission is itself satisfied with the degree of state law compliance, its decision is binding and a state permit need not be obtained.

The *First Iowa* rule was extended in *California v FERC* (Supreme Court, 1990). California attempted to impose higher minimum flow requirements on a hydroelectric project than the rates set in the FERC license. Unlike *First Iowa*, where the issue was whether a state could effectively stop the project, the question was whether a state could determine the conditions on which water could be used by the project. The Supreme Court found that section 27 added nothing to the section 9(b) requirement of state law compliance as interpreted in *First Iowa*. The Court also distinguished its contrary interpretation of a provision nearly identical to section 27 in *California v United States* (Supreme Court, 1978), cited above, which allowed state-imposed conditions on a water use permit for a federal Bureau of Reclamation project. The Court said that the *Federal Power Act* "envisioned a considerably broader and more active federal oversight role in [*private*] hydropower development than did the Reclamation Act" in financing and building major *federal* water projects. Thus, section 27 is a general provision that cannot override the preemptive effect of specific provisions or the overall purpose of the *Federal Power Act*.

Where a congressional statute delegates responsibility for environmental protection to a state, however, FERC's exclusive authority may be qualified. The *Clean Water Act* (CWA) (§ 401, 33 U.S.C.A. § 1341) requires that before any kind of federal permit or license is granted, the agency must obtain a certification that state water quality standards will not be violated by the permitted activity. The Supreme Court has upheld a state's imposition of minimum streamflow requirements deemed necessary to satisfy state water quality standards as a condition of certification for a FERC license (*Public Utility District No. 1 of Jefferson County v Washington Department of Ecology* (Supreme Court, 1994).

C) Federal Environmental Laws.

A new era of environmental concern began in the last quarter of the twentieth century. States were slow to respond but the United States Congress acted in response to popular values. Federal environmental laws now protect water quality, wetlands, and endangered species directly or indirectly. These laws can affect the allocation, development, use, and transfer of water rights. For instance, if federal permits are required to build facilities needed to put state water rights to use, the permitting authority can insist that the project be modified to reduce the environmental impacts or that mitigation measures be used.

The most rigorous environmental protections are federal and therefore federalism concerns arise when they conflict with or curtail the uses of water under state water rights. Yet the Constitution makes federal law supreme and the legal precedents allowing preemption of state laws by federal water development projects that require overriding state laws can be applied to environmental protection programs that clash with state water laws. A primary reason Congress passed these sweeping national laws was that the states lacked the will to take action, sometimes competing for businesses to locate within their boundaries by offering lax regulation. Thus, Congress was exercising its power over interstate commerce when it passed such laws.

a) Laws that Rarely Affect State Water Rights

The *National Environmental Policy Act* of 1969 (NEPA) (42 U.S.C.A. §§ 4321-4370, 4321(2)(a)(1)) requires the assessment of potential environmental impacts of proposed “major federal actions”. NEPA, therefore, applies to proposals that require a

federal approval or license or that will use water from a federal water project if there will be a significant environmental impact. Federal agencies must hold hearings to allow public participation process and then prepare a document known as an "environmental impact statement" before such projects are approved or licensed (42 U.S.C.A. § 4332(2)(c)). A few western states, including California and Washington, have adopted their own laws with similar environmental assessment requirements for projects permitted or sponsored by the state. The state or federal laws that require an assessment of environmental impacts are important mechanisms for evaluating the effects of water development and transfer. NEPA is essentially a procedural requirement and does not mandate that a final decision be environmentally benign. It only requires that the agency adequately present complete information before making its decision. Consequently, NEPA will not directly interfere with the exercise of state water rights.

Water quality is protected by the CWA (33 U.S.C.A. §§ 1271-1387). Although the CWA is a federal law, it is actually administered by most states. Under the CWA, anyone who makes a "point source" discharge of pollutants (i.e., a discharge from a pipe or ditch) into the waters of the United States must have a permit that limits the quantity of particular pollutants according to standards established by the federal government (33 U.S.C.A. §1362(14)). The permit also must require sufficient limitations on discharges to protect the overall quality of the watercourse receiving the wastewater. Standards for water quality are set by the states and are specific to particular waterways. The permitting program under the CWA has effectively regulated industries and municipal sewage treatment plants that discharge wastes into rivers and lakes.

The CWA does not deal with declines in water quality caused by other than point source discharges. Yet, when a stream is depleted, especially by an interbasin transfer that has no return flow to the basin of origin, water quality declines because any waste added naturally or by humans to the stream becomes more concentrated. There are, however, no formal controls of water depletions under the present application of the CWA and therefore no direct conflicts with the exercise of water rights.

The *Wild and Scenic Rivers Act* was passed to preserve in free-flowing condition certain rivers possessing outstanding "scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values … " Congress may designate rivers and states

may recommend rivers for inclusion in the Wild and Scenic Rivers system subject to approval by the Secretary of the Interior. The Act provides for study of rivers by the Secretary of the Interior (or the Secretary of Agriculture if national forest lands are involved), who submits state and federal recommendations to Congress.

Hundreds of rivers are included in the system or are under study but the provisions of the law do not directly limit the use of water under state water laws. The Act does prohibit the FERC from licensing water projects "on or directly affecting" rivers included in the system and provides interim protection for rivers under study for inclusion by temporarily prohibiting project licensing on such rivers. To this extent, the use of water under state water rights could be inhibited.

b) Laws that can substantially affect state water rights

A special program under section 404 of the CWA regulates “dredging and filling” of “navigable waters” and is administered by the United States Army Corps of Engineers. The program has an antecedent in an early law that was passed to ensure that the use of rivers for commerce would not be inhibited by obstructions. Passed in the 1970s, the CWA broadened the definition of navigable waters to include all “waters of the United States”. The Corps of Engineers then promulgated regulations that required “dredge and fill” permits even in wetlands – that were waters of the United States and therefore were navigable waters within the reach of Congress’s power under this statute. The Supreme Court upheld Congress’s authority to extend the reach of federal law in this way. [REFERENCE?]

The Supreme Court has limited the application of this law, however, to include only “relatively permanent, standing or continuously flowing bodies of water” and only those wetlands with a continuous surface connection to such waters (*Rapanos v United States* (Supreme Court, 2006)). Yet, the activities covered are more than traditional dredge and fill operations undertaken to deepen channels for navigation and include projects necessary to develop and use water held under state water rights. Depositing “fill material” can include any construction in a waterway or wetland. Thus, the statute covers water projects, dams, and diversion structures and can substantially affect – and limit – the use of water under state created water rights.

Once an activity falls under section 404, the Corps must consider "all relevant factors" before permitting the project. There does not appear to be another environmental statute that has such extensive coverage and vests such far-reaching discretionary powers in federal officials. Agency regulations list as factors to be considered by the Corps in denying or conditioning a permit economics, cultural concerns, energy needs, water supply, the needs and welfare of the people, and a variety of environmental factors – the kinds of considerations one would expect to be in the province of a state water agency. Once the Corps issues a permit, the permit can be reviewed and vetoed by the EPA. Indeed, the EPA can veto a permit for the development of a new dam or reservoir based solely on potential adverse environmental affects, without concern for the community's need for additional water (*James City County v EPA* (4th Circuit, 1993)).

Section 404 also incorporates the full panoply of federal environmental laws by requiring imposition of permit conditions to assure compliance with these laws. Private projects thus may become "federalized" because they depend on a section 404 permit. Since the Corps must comply with the *Fish and Wildlife Coordination Act, Endangered Species Act, Wild and Scenic Rivers Act, Coastal Zone Management Act, National Environmental Policy Act*, and other laws that govern federal activities, the reach of these laws is extended over all projects that require section 404 permits.

The *Endangered Species Act* (ESA) (16 U.S.C.A. §§ 1531-1543) is another federal statute that can affect proposals to divert, develop, or transfer water. The ESA absolutely prohibits any action by the federal government that would jeopardize the continued existence of an endangered species. Federal agencies considering activities that could have this effect are required by section 7 of the ESA to consult with the United States Fish and Wildlife Service. If, in the opinion of that agency the action would jeopardize the endangered species, the action cannot go forward if there is a reasonable and prudent alternative that will not cause the jeopardy.

The ESA is extremely powerful because nearly every major water project – not just those undertaken directly by the federal government – requires some kind of federal approval (such as under section 404 of the CWA), or receives federal financing. Thus, the ESA has proved to be a formidable barrier to water development that could be destructive of fish or wildlife habitat where endangered species are found. The Act,

indeed, may be the most significant law affecting new water development in the United States. It protects any affected species in the area of origin, the importing area, and in the area of any pipelines or other facilities.

The ESA is, of course, one of the farthest-reaching environmental laws implicated by section 404. Section 7 of the ESA, which generally prohibits federal actions that would jeopardize the continued existence of any endangered species, was invoked to deny a section 404 permit for Tellico Dam because the dam would affect the critical habitat of a tiny fish, the snail darter (*Tennessee Valley Authority v Hill* (Supreme Court, 1978)). The snail darter case raised such controversy that the Act was amended by Congress to create a process for exempting certain agency actions from ESA requirements when a high level committee determines that: (1) no reasonable and prudent alternatives to the agency action exist; (2) benefits of the action clearly outweigh benefits of actions consistent with preserving the endangered species; and (3) the action is of regional or national significance.

Unless it uses the elaborate exemption process, however, the Corps of Engineers must ensure endangered species protection when issuing section 404 permits. For instance, a court has upheld a permit condition requiring releases of water stored in a proposed dam under Colorado water rights. This would deprive the water rights holders of the use of their water rights in order to protect critical whooping crane habitat downstream in Nebraska. The cranes were endangered species under federal law. The court held that state water rights holders can be enjoined from exercising their rights if their use interferes with the ESA (*Riverside Irrigation District v Andrews* (10th Circuit, 1985)). In *United States v Glenn-Colusa Irrigation District* (E.D. California, 1992) the court enjoined an irrigation district from using a fish screen at a diversion channel because the screen was harming endangered salmon during their peak migration season.

As stated above, section 404 is just one part of a large water quality law that in other respects is rarely invoked in a way that interferes with the use of state-created water rights. Concern with the potential effect of the CWA upon water uses led to the inclusion of language assuring that established water rights were not to be defeated. The Wallop Amendment, section 101(g), is a statement of congressional policy that the CWA should not be construed to abrogate, supersede, or impair state authority over water allocation or

rights of states to water (e.g., under interstate compacts). The amendment's main purpose, however, was not to prohibit "legitimate water quality measures" that affect individual water rights only "incidentally" (see *National Wildlife Federation v Gorsuch* (D.C.Circuit, 1982)). The court in *Riverside Irrigation District v Andrews* (10th Circuit, 1985)), however, said that where necessary, application of section 404 can result in totally curtailing depletions and consumptive use of water permitted under state water rights. The Washington Supreme Court has stated that the Wallop Amendment is only a "policy statement" that does not prohibit water quality regulations from impeding existing water rights (*Public Utility District No. 1 of Pend Oreille County v Washington Department of Ecology* (Washington, 2002)).

Another section of the ESA, section 9, prohibits actions that "take" or "harass" an endangered species. These terms are broadly interpreted to include even harm to the habitats of endangered species. Unlike section 7, which is specific to federal agency actions, section 9 extends to private actions. The section has rarely been applied to private water development or uses. In one exceptional case, however, an irrigation district killed several endangered salmon while operating its pump diversion facility. A court enjoined the irrigation district's activities, prohibiting it from "taking" the endangered species (*Department of Fish and Game v Anderson-Cottonwood Irrigation District* (California Appeals, 1992)).

The *Fish and Wildlife Coordination Act* (16 U.S.C.A. §§ 661–666c), demands "equal consideration" for wildlife conservation in water resource development programs. It is extremely difficult in practice to give meaning to a requirement of parity between the values of the multiple purposes of water projects on the one hand and fish and wildlife values on the other. To help assure protection of state interests in fish and wildlife, the Act also requires coordination among the agency undertaking or permitting a project, the United States Fish and Wildlife Service, and relevant state fish and wildlife agencies before construction of a project.

Although it is not specifically an environmental statute, the *Pacific Northwest Electric Power Planning and Conservation Act* (16 U.S.C.A. § 839), is a comprehensive Act for allocating supplies and mitigating impacts of federally produced hydropower. The Act contains significant requirements for preserving and restoring anadromous fish

resources in the Pacific Northwest, the region whose fishery has been most affected by the impacts of hydropower facilities. Under the Act, a regional council develops a plan for protection, mitigation, and enhancement of fish and wildlife. Furthermore, managers of federal power facilities are required to afford "equitable treatment" to fish and wildlife, ensuring that their operations do not subordinate fish and wildlife protection to other project objectives. The Council's plans must be "tak[en] into account at each relevant stage" of FERC proceedings (see *National Wildlife Federation v Federal Energy Regulatory Commission* (9th Circuit, 1986)).

When Indian tribes have treaty fishing rights on a river under a treaty with the federal government, those rights can be invoked to prevent water development projects that adversely affect fish and wildlife. Interference with river flows by diversion, impounding, or pollution of waters that damage fish habitat may reduce the ability of tribes to take a meaningful share of fish as guaranteed in their treaties. If the federal government is responsible for such actions (directly or by licensing), it could be liable in damages for violating federal treaty obligations. Similarly, states are obligated to consider the effects of state controlled or authorized projects on Indian treaty rights.

IV. Reserved Water Rights of Indian Tribes and the Federal Government

A. History

The U.S Supreme Court developed special principles of Indian water rights that reflected not only an attempt to achieve justice for Native peoples or to ensure the survival of their cultures but also to further broad national policies. In the nineteenth century, federal policy sought to confine Indians to reservations so that settlers could move into the lands ceded by the tribes. To open the West to safe settlement by non-Indians and to give them land titles that were not clouded by Indian claims required confining the Indians to reservations and extinguishing their titles to other lands they had formerly used. This was generally accomplished by treaties, later by agreements approved by Congress, and in some cases by unilateral congressional legislation. To keep Indians from leaving their reservations the Army had to protect the reservations from invasions by the non-Indians and the Indians had to have a way to subsist on the reservations. The scheme would work only if the tribal people who had relied on hunting and fishing in vast geographic areas had an alternative means of subsistence available

within the reservations. The "civilizing" plan in most places was to convert the Indians, whose occupations were formerly hunting and fishing, into farmers, and irrigation was a necessity for successful farming in the semi-arid West.

By the time the government began assisting the Indians with irrigation, much of the needed water had been claimed by the nearby settlers. The settlers obtained lands from the federal government that the Indians had occupied before being put on reservations. Their claims to water for these lands were based on the doctrine of prior appropriation which was legally entrenched in state law. As discussed earlier, the United States government encouraged the appropriation of water from public lands under state water law. But this brought Indian irrigators into conflict with non-Indian irrigators for the use of scarce water.

A United States Supreme Court decision gave Indian tribes rights to water that are superior to non-Indians. The century-old decision has caused resentment and resistance by the states and by non-Indians. The "reserved rights doctrine" was announced in the case of *Winters v United States* (Supreme Court, 1908) guaranteeing tribes a right to use all the water they needed to fulfill the purposes for which their reservations were established. The court looks at the reservation purposes found in the treaty or documents creating the reservation to determine the quantity of water to which tribe is entitled.

In *Winters*, the Supreme Court recognized the government's intention of "civilizing" the Indians by making individual farmers of them and breaking up the communally held tribal lands. The government plan involved dividing up the reservation lands into individual land holdings, allotting the land to heads of Indian families to be cultivated, and then opening the rest of the land on and off the reservation for non-Indian homesteaders. Without sufficient irrigation water for Indians to use on the reservation, this scheme would fail. If the individual allotment policy fell, lands desired by settlers – the so-called "surplus lands" on former reservation lands – would not be available for white settlement.

B. Nature and Extent of Indian Reserved Rights

The reserved water right recognized in *Winters* could be exercised anytime in the future by the Indians, even if non-Indians had used the water first and had been granted rights under state law. This was shocking to some because the prevailing law in the

western United States was that the first person to use water always had the best right to use it in the future, a right better than everyone who started using water later, and that water rights could be established only by actual use.

Theoretically, Indian tribes have "better" water rights than their non-Indian neighbors. Although they actually may not have used the water – a key concept under western state water law – the teaching of *Winters* is that they have rights superior to the non-Indians and can use the water whenever they need to in the future. Because most reservations were established more than one hundred years ago, the accompanying water rights are usually quite senior and valuable. If the Indians need water, all non-Indian users who started using water after the date the reservation was established must ensure that the tribe gets all the water to which it is entitled – enough to fulfill the purposes of the reservation – before those non-Indian junior users can take any water.

In practice, since 1908 non-Indians have still been able to develop most of the water on the streams shared with Indians because they had access to the financial capital needed to build irrigation works. The tribes, however, lacked capital to put their water rights to use and were left to compete with non-Indians who built their economies using the water to which the Indians were rightfully entitled under the *Winters* decision. Tribes on most reservations continue to be in a state of poverty and their lands remain largely undeveloped.

Modern national policy favors use of water by the tribes. For the last 50 years federal policy toward Indian tribes has favored self-determination and economic self-sufficiency. Increasingly, tribes have pressed for a vindication of their theoretically great but actually underutilized water rights. Of course, full utilization of these rights could displace non-Indian uses established under state water law. Nevertheless, the non-Indians know that the uncertainty caused by inchoate rights of the tribes threatens their economic security and they, too, often favor legal determination of the quantity of Indian water rights on particular rivers. Without such a determination, investments and property values can be undermined by uncertainty. Therefore, several western states support efforts to quantify Indian water rights.

C. Reserved Water Rights for Federal Lands

The reserved rights doctrine of *Winters* became the cardinal rule of Indian water rights and it was later applied to protect the federal government's own rights to water on federal lands reserved for parks, forests, military bases, and other public uses (*Arizona v California* (Supreme Court, 1963)). As with Indian lands the quantity of water reserved depended on the purposes for which the federal "reservation" was established.

D. Quantification of Indian and Federal Reserved Water Rights

Judicial processes are now underway in most states to decide the quantities of water held by the tribes under the reserved rights doctrine as well as federal rights to lands held by the government. A federal law gives state courts jurisdiction over these cases. These proceedings are lengthy and expensive and so in recent years several tribes' water rights have been resolved in negotiated settlements that are implemented through federal legislation. This latter method remains the preferred method of quantifying tribal water rights primarily because it infuses federal funding into solutions that enable tribes to use their water rights and it protects established non-Indian uses.

When a court quantifies Indian reserved rights it looks to the purposes of establishing the reservation. Where the purpose of setting up the reservation was to allow the Indians to pursue agriculture, the courts follow the Supreme Court's formulation in *Arizona v California* where it said that the amount of water necessary for agricultural purposes can be calculated based on the reservation's practicably irrigable acreage (PIA). In arid areas the amount of water needed to produce crops is enormous; in adopting the PIA formula, the Supreme Court opened the way for tribes to claim huge quantities of water. The quantity of water needed to satisfy the rights of the United States for federal public lands depends on the purpose of creating certain types of federal lands such as parks, military bases, etc.

The huge quantities of water rights held by Indian tribes and by the federal government under the reserved rights doctrine are potentially in conflict with uses of water by the holders of water rights based in state law. The existence of federal and Indian reserved water rights creates a major exception to the federal government's purported deference to state water law.

V. Interstate Water Rights

State boundaries generally do not correspond to the boundaries of river basins or aquifers. See map showing state boundaries and river basins, Figure 5 (U.S. National Atlas). Consequently, disputes arise between water users in different states and among states themselves over how much water each state on a particular river is entitled to allocate to users within its boundaries. These disputes have been resolved by interstate litigation, compacts (interstate agreements), and legislative allocation. Independent state attempts to restrict exports of water to other states have been found unconstitutional.

1. Interstate Litigation

A state may sue another state to prevent harm to its citizens from actions of private parties in another state. These cases can be brought directly in the United States Supreme Court but also can be heard in lower federal courts.

Although under the Constitution the Supreme Court has original jurisdiction in cases in which a state is a party the Court has discretion not to exercise its jurisdiction. Typically, it refuses to hear cases where there is not a present "harm" to a downstream state claiming excessive use upstream. This means as a practical matter that the Court will not adjudicate the allocation of water rights for future development.

The Supreme Court has developed the common law to resolve disputes over allocation and pollution of interstate rivers by "equitable apportionment". The doctrine was announced in 1907 in *Kansas v Colorado* (Supreme Court, 1907). In applying the doctrine, the Court is not bound by the laws of the individual states. Factors that inform equitable apportionment (and that might justify deviation from strict priority) include physical and climatic conditions, consumptive use of water in the several sections of the river, character and rate of return flows, extent of established uses and economies that depend on those uses, availability of storage water, practical effect of wasteful uses on downstream areas, and damage to upstream areas compared to the benefits to downstream areas if upstream uses are curtailed.

2. Compacts

Interstate compacts are agreements of two or more states. Typically, compact formation involves three steps. First, Congress authorizes negotiation of the compact, usually providing for a federal representative at the negotiations. Second, the compact is negotiated by the states. Third, Congress consents to the compact.

Compacts have been used to allocate interstate waters 25 times to reach an agreed "equitable apportionment" that otherwise might have required Supreme Court adjudication. A great virtue of compacts over adjudication is that compacts can address future issues on rivers that are not fully utilized; the Court has been reluctant to accept such cases. The ability to make these determinations in advance is crucial to long range water planning. Compacts relating to interstate waters are formed for a variety of purposes besides allocation of water, including storage, flood control, pollution control, and comprehensive basin planning (principally by joint federal-state compacts).

Some compacts, like the Colorado River Compact, do little more than allocate specific quantities or percentages of a river flow to the state parties.

Recent compacts generally call for creation of an administrative agency, often called a "compact commission", to make rules to carry out the compact and to collect information on physical circumstances (e.g., rate of river flow) and later to apply those rules. The compact commissions are usually comprised of members appointed by the governors of the party states and a federal member with no vote or only a tie-breaking vote. States hesitate to vest substantial powers or prerogatives in a compact agency, but without such a commission there is no simple mechanism to resolve conflicts and ambiguities.

Apportionments of water by compact are binding upon the citizens of the compacting states whether or not individual citizens were parties to the negotiations. In *Hinderlider v La Plata River & Cherry Creek Ditch Co.* (Supreme Court, 1938), New Mexico and Colorado had agreed to divide the flow of the La Plata River equally so each state would get the full flow of the river every other day. The plaintiff, a senior appropriator, sought to enjoin the rotation scheme as a violation of rights established under state law, but relief was denied because all water users are subject to the state's decisions on how to meet the compact requirements.

3. Legislative Allocation

The single example of legislative allocation of interstate waters concerns the Colorado River. The Supreme Court in *Arizona v California* (Supreme Court, 1963) held that Congress, in passing the *Boulder Canyon Project Act* of 1928, intended to divide the waters of the river among seven lower Colorado River basin states. In so holding the

Court recognized that Congress may act when the other apportionment mechanisms of compacts and judicial allocation have failed, are unavailable, or are not used.

A compact commission in 1922 agreed to allocate the Colorado's annual flow (assumed to be well over 15 MAF) approximately equally between the upper basin states (Colorado, New Mexico, Utah, and Wyoming) and the lower basin states (Arizona, California, and Nevada). Ratification of the compact was stalled by a long-standing dispute between Arizona and California over their respective shares in the 7.5 MAF allocated to the lower basin. Arizona feared the compact would solidify California's claim to most of the water and refused to ratify it. The lower basin states also failed to agree on how to divide the lower basin share of the river amongst themselves.

Congress enacted the *Boulder Canyon Project Act* in 1928, authorizing construction of Hoover Dam, the first of a series of storage reservoirs on the Colorado River. The Act was conditioned on acceptance of the compact arrangement by at least six of the seven states. It also said that California also had to agree to limit its allocation to 4.4 MAF plus half of any lower-basin surplus. The legislation further authorized a separate lower basin compact that would give Arizona 2.8 MAF and Nevada 300,000 AF. No such compact was negotiated.

Arizona sued the other states for an equitable apportionment of the waters of the lower Colorado. After a three-year trial before a special master, the Supreme Court held that by enacting the *Boulder Canyon Project Act*, Congress intended to exercise its power over interstate waters by "apportioning" 4.4 MAF to California in the limitation provision and specifying Arizona's and Nevada's shares through the authorization of a lower basin compact. Furthermore, it said that Congress delegated to the Secretary of the Interior the power to contract with water users for storage and delivery of project waters. The Court also said that federal law controls both the interstate and intrastate distribution of project waters, preempting state water law. The Court had to strain to find that federal power to allocate water between states existed and had been exercised. This probably reflects the Court’s preference for congressional allocations of interstate waters over judicial allocations that require complex litigation.

4. State Restrictions on Water Export

The Commerce Clause of the United States Constitution, article I, section 8, clause 3, empowers Congress to regulate commerce among the states. The Supreme Court has said that by granting commerce power to Congress the Constitution implicitly prohibited states from passing laws that would discriminate against or unreasonably burden interstate commerce. This doctrine attempts to fulfill a constitutional purpose of promoting free trade and preventing protectionism.

The prohibition against state inference with interstate commerce has been held to limit a state's authority to prevent exports of water to another state. In *Sporhase v Nebraska ex rel. Douglas* (Supreme Court, 1982), the Supreme Court held that Nebraska groundwater is an article of commerce and that a Nebraska statute restricting lawful water exports to states that allowed the reciprocal privilege of export to Nebraska was unconstitutional on its face. Whether state statutes violate the Commerce Clause depends partly on the nature of the interests the state is seeking to protect. Arid western states, in which water is scarce, have a strong conservation interest. But the Court will uphold only even-handed state restrictions on interstate commerce that are equivalent to the state's efforts to conserve water resources within the state. In order for the court to find that there is no alternative restriction less burdensome upon commerce than an embargo, a state would have to prove water scarcity and demonstrate maximum efforts to deal with the problem by in-state conservation measures.

VI. International Treaties

The United States has sought to control waters of rivers shared with Canada on the north and Mexico on the south. Assertion of the old, now discredited international law doctrine of "absolute territorial sovereignty" in such disputes has given way to the practical necessity of dealing amicably with neighboring nations. Today, more flexible doctrines of limited territorial sovereignty and equitable apportionment generally govern the resolution of international water disputes, most often by means of treaties.

The United States is party to several water treaties with Canada, including the 1909 Boundary Waters Treaty, the Lake of the Woods Treaty, the Saint Lawrence Treaty, and the Columbia River Treaty. Treaties with Mexico include the 1906 Irrigation Convention and the 1944 Colorado River Treaty. Once the federal government enters into a treaty with another nation, it is the "Supreme Law of the Land"; under the

Constitution, any inconsistent state laws are preempted. Thus, treaties affect the manner and extent to which state-defined rights may be exercised.

1. Mexico

The Mexican Treaty of 1944 (the Colorado River Treaty) was an effort to end years of disagreement between the United States and Mexico over the waters of the Colorado River. The United States as the upstream nation initially relied on the "Harmon Doctrine", which is based on a theory of absolute territorial sovereignty. Pressures from Mexico to receive a share of water from the river grew as uses in Mexico increased, bringing international pressure to negotiate the treaty. The 1922 Colorado River Compact among the seven states touching the river seemed to anticipate a future allocation to Mexico in that it required the upper and lower basin states to contribute equally to supplying any future obligation to deliver water to Mexico.

The Mexican Treaty, signed in 1944, allocated to Mexico a guaranteed annual flow of 1.5 million acre feet of Colorado River water, to be reduced in the event of a serious drought in the United States. The International Boundary and Waters Commission was created to administer the treaty. The parties concluded negotiations in haste, glossing over several troublesome ambiguities. Most notably, the Treaty mentioned nothing about water quality. Later, upstream development in the United States caused the river's salinity to increase as more water was consumed and large dams and storage reservoirs were created; less water in the river also meant greater evaporation from storage reservoirs and greater concentrations of salinity. Irrigators added to the problem by returning waters with high concentrations of dissolved solids.

The salinity problem lay dormant until 1961. In that year, the Wellton-Mohawk Irrigation District in Arizona began pumping drainage waters from beneath its lands, releasing the saline waters into the Colorado River just north of Mexico. Mexico protested to the United States in response. The United States and Mexico reached a series of interim agreements under which the United States consented to undertake salinity abatement measures. The final agreement, Minute 242 of the International Boundary Waters Commission, placed a ceiling on the increase in the River's salinity below Imperial Dam which is the last point from which the United States diverts water.

The federal government assumed responsibility for meeting the salinity obligations of Minute 242. Congress provided funds to construct federal salinity abatement projects such as a canal bypassing the Wellton-Mohawk return flows, a huge desalination plant, and structures to intercept various natural and human-made sources of salt. These federal projects are, in effect, an "insurance policy" against development constraints being imposed on the Colorado River basin states by the salinity control obligation.

However, many water problems with Mexico remain unsettled. For instance, there is currently no system for dividing transboundary groundwater. As unregulated pumping continues, border cities such as El Paso and Juarez find themselves competing for dwindling supplies. Thus, Minute 261 was negotiated to give the International Boundary Waters Commission increased authority over water quality in the border region. The two countries have developed cooperative plans to share scientific information and study the joint aquifers.

2. Canada

Canada is both an upstream and a downstream nation from the United States because the Columbia River system meanders in and out of the two countries. Several issues have been negotiated.

One issue concerned storage responsibilities of the two nations and Canada's right to share the benefits obtained by the United States from storage in Canada. Large-scale storage was most feasible in Canada, but Canada had no incentive to build it. Initially, the United States offered to pay Canada compensation for any damages caused by the flooding of Canadian lands behind the United States dams. Canada instead sought a share of the far more valuable downstream economic benefits to the U.S. from storage, including increased hydroelectric power and protection from flood losses. After much debate over downstream benefit sharing, the two nations provided for an equal sharing of economic benefits in the Columbia River Treaty. The treaty specifies that Canada will provide 15.5 MAF of storage, the United States will operate dams to obtain maximum benefits from the Canadian storage, the United States may (for a price of $1.875 million per call plus hydropower losses) demand storage releases in emergencies despite Canadian hydropower needs, and Canada will not divert the Columbia River away from

the United States and into the Fraser River under the 1909 Boundary Waters Treaty with Canada.

3. Supremacy of Treaties Over State Water Law

Article I, Sections 8 and 9 of the United States Constitution give the President power to enter into treaties with the advice and consent of the Senate. As discussed above, the Constitution also makes federal law, including treaties entered into by the United States, supreme. State water law is thus subservient to international treaties.

VIII. Conclusion

Historically, states crafted their own water law regimes consistent with the autonomy of each member of the federal union to manage the resources within its boundaries. The prior appropriation systems adopted in the western states closely resembled one another and the eastern, so-called riparian states developed legal systems that are quite similar to one another. Ultimately, most states in both regions adopted permit systems that are comparable with occasional distinctions that are related to the common law origins of the particular state or region.

The general principle that the federal government will defer to state water law has meaning only in the absence of federal legislation or legislatively based policy. The principle was honored in the early days as new states were created and laws were developed to deal with climatic and geographic conditions, particularly in the West where federal policy favored expansion of settlement. But as national policy began to respond to broader policy issues state laws were superseded whenever conflicts arose.

The first conflicts involved national projects to support navigation. It was easy for the courts to find that this was within the ambit of congressional authority under the Commerce Clause of the Constitution. Later, states sought and welcomed federal investment in water projects to provide irrigation water. Development of these projects sometimes was in conflict with state water laws. Even though local beneficiaries of the projects and the states themselves were pleased to have the federal investment, there were challenges to federal authority to disregard or contradict state law. Almost invariably, the United States Supreme Court found that the federal water projects were within Congress's powers over defense, commerce, or taxing and spending. Similarly, the Court upheld federal licensing of private or municipal construction and operation of

hydroelectric facilities. As federal investment in water projects declined in the latter part of the twentieth century, federal environmental legislation increased, posing conflicts with uses of water otherwise allowed under state water law, some of which had been validated with state permits. Unlike big federal water projects that brought local subsidies along with their collision with state water laws, the apparent conflicts with state sovereignty caused by federal environmental laws were not assuaged by any perceived local benefits.

The law was clear: once the national Congress entered the field, state water laws are preempted so long as Congress clearly intended this result and its action was based on an enumerated power in the Constitution. Policies requiring a level of national uniformity, such as navigation, dealing with Indian tribes, public lands, fish and wildlife, and environmental protection all have operated to preempt the operation of state laws. Similarly, state laws have had to give way to compliance with interstate allocations of water and international treaties.

Would the founders of the United States be surprised that that today the national government exerts such profound control over using water that has been allocated to private persons and entities by complex state legal regimes? The specific issue was not anticipated more than 200 years ago but in retrospect, the infusion of federal power was necessary to carry out programs of national importance. Initially, federal power over navigation was invoked to unify the nation for purposes of commerce. Then investment in water projects was solicited by states even as they resented the federal controls that accompanied the investments. More recently, states have been unable or unwilling as a practical or political matter to develop environmental controls that were appropriate for a nationwide market. This led to the promulgation of federal laws capable of preempting state water laws. This latter intrusion of federal power has created the most acute conflicts with state water laws and rights held under them. In practice, however, water providers – cities, special water districts, and private entities – have made reasonable accommodations with state and federal regulators.

Bibliographic Sources

CASE, Pamela and ALWARD, Gregory (1997) *Patterns of Demographics, Economic and Value Change in the Western United States, Report to the Western Water Policy Review Advisory Commission.*

GETCHES, David H. (2008) *Water Law in a Nutshell, 4th edition*, New York, West.

GURU, Manjula and HORN, James (2000). "The Ogallala Aquifer." The Kerr Center for Sustainable Agriculture, Inc.

TARLOCK, Dan A; CORBRIDGE, James N, Jr.; and GETCHES, David H (2002), *Water Resource Management, 4th edition*, New York, Foundation Press.

TARLOCK, Dan A (2001) *The Law of Water Rights and Resources*.

U.S. GEOLOGICAL SURVEY (1998, 2000) *Estimated Use of Water in the United States.*

U.S. NATIONAL ATLAS <http://www-atlas.usgs.gov/natlas>

WESTERN WATER POLICY REVIEW ADVISORY COMMISSION (1998) *Water in the West: Change for the New Century.*