

THE USE OF INTERSTATE COMPACTS  
TO RESOLVE TRANSBOUNDARY  
WATER ALLOCATION ISSUES

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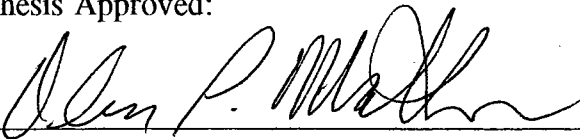
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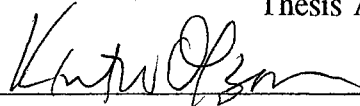
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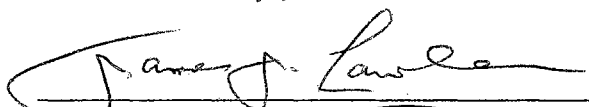
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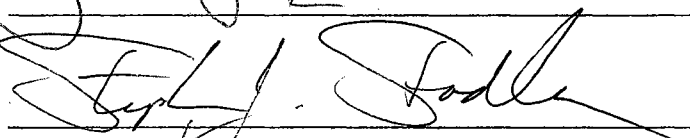
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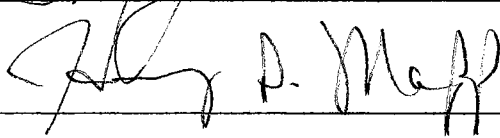
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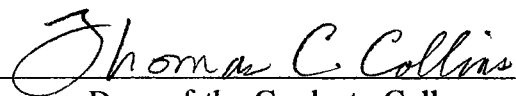
  
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## MEASUREMENTS USED

Water laws in the western United States, including the interstate compacts which are the subject of this dissertation, are invariably drafted in terms of English measurements (feet, pounds, etc.). Rather than convert these measures to the metric system, which could lead to confusion when these laws and other documents are paraphrased or quoted directly, this paper will use those traditional measures. This table may be used to convert the measures used in this paper to International System (SI) measurements, or into other English measurements.

### Conversion Factors

<i>Multiply</i>	<i>By</i>	<i>To obtain</i>
acres	0.4047	hectares
acre feet	43,560	cubic feet
	1233	cubic meters
	326,000	gallons
cubic feet	0.02831	cubic meters
cubic feet/second	1.983471	acre feet per day
	724.4628	acre feet per year
	448.8	gallons/minute
	0.646	million gallons/day
miles	1.609	kilometers
square miles	2.59	square kilometers
	259	hectares

## CHAPTER 1

### INTRODUCTION

#### Scope and Purpose

As George Coggins noted ten years ago, grizzly bears don't stop at customs<sup>1</sup>. A natural resource, be it a bear or river, exists within natural boundaries, but governments exist within political limits. Any commonality between those two types of borders is most likely coincidental, and therein lies one of the major areas of difficulty in resource management: transboundary conflicts. Where more than one government asserts the right to manage a resource, none may be able effectively to manage the resource, and none may be happy with the overall results.

Transboundary conflicts may arise in a number of ways. The resource in question may move from one political entity into another. In the case of a river, this sequential movement leaves the downstream state at the mercy of the upstream group, which has the first opportunity to exploit or otherwise use the resource. A river is a classic example of natural movement of a resource resulting in multiple political entities exercising sequential power over that resource.

A second type of transboundary issue may arise where the resource is simultaneously subject to two jurisdictions, either because it straddles a border (as is



the case with Lake Tahoe, for example) or because there is overlapping political jurisdiction. This latter case is common in federal systems, such as that of the United States, where both the national government and the state government may each possess the authority to act with respect to the same subject matter. At more local levels, it might occur where both a state and a county or a county and a city have power to act.

Transboundary problems may also arise where there are unstable or uncertain boundaries, so that two or more sovereigns may claim rights to the same resource. Boundaries may be uncertain because of political dispute, as between Kuwait and Iraq, or because of uncertainty of the basis for claims, as in the law governing ocean resources where some nations claim 12 miles and some claim 200 as the territorial limit.

A fourth class of dispute may arise through the power of a state to limit access or use of a resource, that is, because of the power to exclude. In the United States, a single economic system based on the Commerce Clause of the Constitution limits such exclusionary practices, but on an international scale such limitations may be urged as protecting "sovereignty."

In all of these situations, decisions about resource use or protection made in one jurisdiction will affect people in other jurisdictions, making a comprehensive plan of resource management difficult or impossible to implement. As Coggins noted, "Transboundary problems arise whenever a resource decision in one jurisdiction physically or practically affects someone or something in another jurisdiction."<sup>2</sup> The universe of such problems appears infinite because every boundary, from the most

local to those between independent international states, carries with it the potential for dispute in one or more of the four categories noted above, multiplied by the number of resources which may be of interest to residents on both sides of those borders.

This paper will focus on one resource, water, and conflicts arising out of the sequential changes in power resulting from movement of that water between individual states within the United States. The paper also will also discuss conflicts arising from the simultaneous power over that water by state and federal governments. The latter class of problems, namely, those arising from simultaneous power, will be considered in light of its effect on methods of resolving the issues of sequential control.

Water is a transboundary resource. It generally crosses political boundaries and is therefore subject to control by more than one political jurisdiction. This transboundary movement can result in conflict between the different jurisdictions as each seeks to exploit the resource for its own purposes. The conflicts can center on issues of quantity, quality, or both, and can be resolved in various ways: by war; by litigation if there is a tribunal with authority recognized by both political units; by imposition by higher authority, if there is some body whose authority is recognized by both; or by negotiation.

This paper will focus on the last of these mechanisms by examining the use of negotiated agreements, or compacts, allocating the flow of rivers in the United States west of the Mississippi River. There are twenty-two such compacts<sup>3</sup>, and because the rivers involved vary in location, flow, and historical use, each compact is different from the others. Nevertheless, by reviewing the history and operation of these

agreements, some general principles can be gleaned as to when negotiated agreements function well, and when they may break down and require intervention by some third party. In the United States, that third party is the federal government, in the form of either the legislative or judicial branch.

There are limitations, both legal and political, to the utility of interstate compacts, but they have nonetheless been seen as the best way to resolve a number of problems. Felix Frankfurter and John Landis (one a future Justice of the Supreme Court, the other a future dean of the Harvard Law School) wrote in a landmark article in 1925 that "[T]he pressure of modern interstate problems has revealed the rich potentiality of this device."<sup>4</sup> This paper will begin to explore whether this "device" has in fact achieved that rich potential by examining the actual operation and effect of one discrete group of these agreements, namely those allocating the waters of interstate streams in the western United States.

This allocation type of interstate compact has enjoyed considerable popularity and use in the twentieth century. Each of the twenty-two compacts allocating water of rivers in the western United States differs from the others — not only in geographical scope but in breadth of purpose, means of governance, and method of allocation of the water. Some have led a quiet life; others have sparked lawsuits between states and between individuals. The basic goal of this paper is to review those twenty-two agreements to see what has worked, what has not, and where future problems might arise in the context of a changing physical, economic, and political environment. For purposes of this paper, a compact will be judged to be successful if the system of

allocation created by the compact has been maintained and operated without intervention by the federal government or successful resort to federal power by one of the compacting parties. To a limited extent, these allocation compacts will be compared with other available river control institutions, such as court decrees or federal/state compacts (involving the "paramount sovereign" as first among equals).

Humans cannot always accurately predict the future, especially where that future may bring changes in the amounts of water available or patterns of use not envisioned at the time of the original negotiation. Tension in allocation efforts exists between the desire for certainty of water rights on the one hand, and flexibility to respond to future needs on the other. How that tension is addressed as conditions change is one element in determining whether these compacts will be able to withstand the pressures of change, or whether resort eventually will be had to some third party, such as the federal government, to modify the original agreement to take those changes into account.

The analysis will be limited to water allocation compacts for two main reasons. First, on a practical level, the universe of twenty-two agreements provides a population which is small enough to study in some detail while at the same time being large enough to illustrate different approaches to compacting and different problems which may arise. Second, these compacts represent agreements between governments with equal sovereignty. They are therefore distinct from those agreements to which a "higher" sovereign, such as the national government, is a party, or compacts which are created pursuant to federal directives, rather than being based on a mutual

recognition of existing areas of common concern.

Although the focus of this study is the United States, rather than international situations, the results of this study could provide a model, albeit imperfect, of transboundary institutions which might be employed by truly sovereign states. The analogy is imperfect in that within the United States there is a higher authority which is not present in the international arena. However, to the extent problems or solutions appear which do not reflect the existence of the federal government, those problems or solutions may be useful in dealing with international problems. Indeed, writers on international water law have from time to time suggested that the practice of federal states can provide guidance in international matters, particularly where there is a dearth of international precedent<sup>5</sup>.

## Review of Publications

### Transboundary Conflicts

The literature on transboundary resource conflicts is simultaneously both incredibly broad and extremely limited. It is limited when viewed in the context of publications about transboundary conflicts *per se*. In this category there are Matthews' 1988 classification<sup>6</sup> and a 1983 Symposium in the *Kansas Law Review*<sup>7</sup> on transboundary problems in natural resource law. Both of these focussed on the geographic issues of borders in combination with the legal problems of resource management.

While few publications focus on the transboundary nature of resource problems

as such, a great many publications deal with different problems which are part of or arise from those transboundary issues. In the United States, for example, questions of federalism are intimately connected to those transboundary issues insofar as they stem from simultaneous jurisdiction over the same subjects. A thorough examination of federalism issues is beyond the scope of this paper, but a sampling of papers and publications dealing with federalism (both within and outside of the natural resources context) are cited in the Notes to this chapter<sup>8</sup>.

Particular types of transboundary conflicts have evolved their own series of publications. International ground and surface water allocations are the subjects of many articles. Again, these are beyond the direct scope of this paper, but the principles set out in those writings may find applicability in disputes between individual states in this country. In the international context, as in the United States, water conflicts often fall into the category of "sequential authority", although there may also be simultaneous jurisdiction over some international waters and aquifers. A list of some of those writings is contained in the Notes<sup>9</sup>.

Other international or interstate problems are discussed in writings specific to those issues. Transboundary conflicts concerning the oceans illustrate the dispute categories of uncertain boundaries and simultaneous power. These problems are discussed in a number of papers dealing with the law of the sea and rights of nations to exploit the waters and basins of the oceans<sup>10</sup>.

The fourth class of transboundary disputes, those dealing with exclusion, arise and are written about in a number of contexts, ranging from access to rivers for

recreation<sup>11</sup> to excluding imports of hazardous wastes<sup>12</sup>.

### Water Allocation Compacts

This paper will consider one type of solution to transboundary disputes, interstate compacts, in the context of one type of transboundary situation, that of sequential power among states within the United States. Like the other areas discussed above, this one too has generated a body of publications.

The general starting point for any discussion of interstate compacts is the Frankfurter and Landis article of 1925<sup>13</sup>. The article reflected a general attitude in the 1920s that interstate compacts were a way of resolving problems which were interstate in scope, but less than national in character. In 1925, after all, the Supreme Court's expansive interpretation of the meaning of "commerce" was still a decade away, so some mechanism other than Congressional action was needed for these regional problems. Many compacts were negotiated during the 1920s and 1930s. Dodd listed 35 compacts upon which some form of action was taken by either the states or Congress, or both, between 1920 and 1936<sup>14</sup>.

In 1942, the Water Resources Commission of the National Resources Planning Board<sup>15</sup> published a compilation of the then-existing compacts. This volume contained copies of the text of all of the agreements, as well as copies of several proposed compacts which, for one reason or another, had never been finalized. The compacts were "compared" by using a spreadsheet setting out data such as ratification dates, names of negotiators, and an outline of the subjects of the compact articles. No

detailed comparison of similarities or differences was available in the spreadsheet, but the text of the agreements was available for reference. There was no discussion of the factual context in which the compacts were negotiated. This work was primarily an effort to assemble all of the existing water compacts in one place for easier reference.

In 1946, the Colorado Water Conservation Board published its own compilation of materials relating to interstate compacts<sup>16</sup>. In addition to copies of some compacts, the work also contained reprints of law review articles, including the Frankfurter and Landis and Dodd articles cited above, and papers presented by Colorado lawyers and water officials to the Colorado State Bar and other groups. Since Colorado, as a headwaters state, is party to more water allocation compacts than any other state, this collection provides valuable insight into the intentions and goals of the men who negotiated those early agreements. It is particularly illustrative of the concern of state officials with federal encroachment on the administration of western waters.

The year 1951 saw the publication of a monograph on the law of interstate compacts by Zimmermann and Wendell for the Council of State Governments<sup>17</sup>. (An updated version was published in 1961<sup>18</sup>.) Like the 1920s, the 1950s saw a flurry of compacting<sup>19</sup>, and works like Zimmermann and Wendell's appeared in response. These books were generally enthusiastic in their support of compacts, sometimes too enthusiastic. Leach and Sugg, who (like Zimmermann and Wendell) were closely tied to the Council of state governments<sup>20</sup>, in a 1959 book waxed eloquent about how the Pecos River Compact was a highly successful model of combining scientific



knowledge and compacting to resolve interstate problems<sup>21</sup>. The Pecos Compact subsequently was the subject of lengthy litigation in the Supreme Court because its underlying technical assumptions proved to be inaccurate and the states could not agree on a new solution<sup>22</sup>.

In 1956<sup>23</sup> and again in 1968<sup>24</sup>, the Department of the Interior published a compilation of compacts, court decisions, and international treaties affecting interstate and international waters. As with the National Resources Planning Board's effort in 1942, these works served the important purpose of gathering together the actual text of compacts and court adjudications in one place. Some additional material included in the form of notes describing the legislative history of the various compacts gave insight into the federal point of view, much as the 1946 Colorado compilation provided a record of the states' point of view.

In 1971<sup>25</sup>, Ridgeway published her book which, rather than covering the entire scope of interstate compacts, looked in depth at four interstate agreements affecting her state of Illinois. That same year, the National Water Commission published a large volume on interstate water compacts as part of a series of legal studies relating to water resources<sup>26</sup>. This work focussed on four types of compacts — water allocation, pollution control, "miscellaneous", and state-federal — to consider whether compacts could provide an effective institutional framework for river planning and other purposes. The book contains an in-depth study of the setting and genesis of the Upper Colorado Compact as a case study, but does not treat the remaining water allocation compacts in such detail.

In addition to the book-length works, numerous articles have appeared over the years focussing on particular compacts or particular issues related to compacts. For example, Meyers' "The Colorado River" in the *Stanford Law Review* (1966)<sup>27</sup> is a classic article on the negotiation and operation of the Colorado River Compact. Articles have also been written about the Rio Grande<sup>28</sup>, Canadian<sup>29</sup>, Yellowstone<sup>30</sup>, Arkansas<sup>31</sup>, and Red River<sup>32</sup> compacts, among others. Many of the articles appear in law reviews, often prompted by litigation affecting particular compacts.

The focus of a number of articles since at least the 1960s has been on issues of federalism, or, as it is sometimes phrased, "cooperative federalism"<sup>33</sup>. This rubric embodies the idea that the federal government should become a more active "partner" in interstate compacts, often using the Delaware River Basin Compact as a model. Some, such as Grad (1963)<sup>34</sup>, believe that this sort of compact is the wave of the future, while others, such as Heron (1985)<sup>35</sup>, view this trend as a shift from state cooperation to federally coerced agreements. The issue of state versus national power has been present since the earliest interstate water compacts<sup>36</sup>, and the issue of balancing state interests against national needs or desires in the context of compacts continues to appear in law review articles<sup>37</sup>.

#### Need for this Study

Even with these past publications, much was left unstudied with respect to compacts. As Ridgeway noted, a "probing, analytical" examination of compacts was needed, to see how they arose, how they were applied, what they had accomplished,

and what was their potential<sup>38</sup>. She went on to state that "Interstate compacts, in domestic United States political literature, have been inadequately examined."

Ridgeway herself confined her book to an in-depth analysis of four compacts affecting the state of Illinois. Others, such as Chapman<sup>39</sup> and Meyers<sup>40</sup>, have also focussed on individual compacts.

Since 1971, it does not appear that anyone has examined the overall role of compacts in detail by looking at an entire category of agreements. This paper fills that void by looking at the relatively simple, limited-purpose water allocation compacts, and provides a starting point for analysis of the more complex, ongoing "operational" types of compacts. An operational compact would be one in which the compact's governing authority has affirmative, ongoing operations to perform, such as maintaining water works or landfills, or running a harbor. The water allocation compacts generally require little in the way of operations beyond monitoring of facilities and streamflow. As a compact becomes more "operational", its scope of authority can be expected to increase, and with that can come an increase in complexity of operations and controls. These additional complexities can raise interesting issues of their own, but are outside the planned scope of this paper.

It should also be noted that the older literature needs updating. Leach and Sugg<sup>41</sup>, for example, cited the Pecos River Compact as an agreement which functioned smoothly and harmoniously, but the United States Supreme Court has subsequently appointed a river master to oversee the operations of the compact commission because of apparently insurmountable obstacles to agreement between

Texas and New Mexico on the administration of the compact<sup>42</sup>. The last decades have also seen a number of lawsuits pertaining to these compacts, including disputes over the Pecos<sup>43</sup>, Colorado<sup>44</sup>, Canadian<sup>45</sup>, and Arkansas<sup>46</sup> rivers.

Besides updating some of the earlier works, this paper will help fill the gap noted by Ridgeway by looking at how the compacts arose, how they were adapted to a particular factual context, and what is their potential. Since river basins have unique physical and cultural characteristics which give rise to different conflicts and concerns, it is logical to assume that one form of compact will not fit all rivers. Therefore, the twenty-two compacts allocating the waters of western rivers will be examined in the context of their physical settings and in the historic context of the reasons for negotiation. This provides the necessary predicate for understanding the types of allocations embodied in the final agreements and the types of administrative provisions employed to resolve whatever issues gave rise to the need or desire for a compact in that particular setting.

Another reason for reviewing the entire field of interstate water allocation compacts is that federalism, at least as it existed in the time of Frankfurter and Landis, is changing, with more federal control of waters previously thought to be under state jurisdiction and more federal activity at what were previously thought to be levels left to state government. One goal of this paper is to determine what sort of provisions should be included in compacts to take these changing relationships into account while permitting the compacts to remain effective in light of those changes.

Although many western rivers are already subject to compacts, others, such as

the Missouri and Columbia<sup>47</sup>, are not. In the eastern United States, there have been few allocation compacts because water supplies have been sufficient, but as population grows and demands increase, allocation compacts may become more common in the humid regions of the country. As long as water crosses boundaries, disputes over use and control of that water can be expected. The American Society of Civil Engineers, apparently recognizing the problems posed by the transboundary character of water resources, has chosen to examine intergovernmental relations with respect to water in the coming year. Compacts provide one type of solution which might be employed in addressing these transboundary problems, and this paper will provide an understanding of the strengths and weaknesses of that device, as well as providing recommendations for use in drafting of future agreements.

### Method

The first step in the research has been to collect and review copies of all twenty-two western water allocation compacts. These are attached as appendices at the end of this paper. Since the Department of the Interior's compilation in 1968<sup>48</sup>, it does not appear that the compacts have been collected together for ease of reference, and there have been a number of compacts put into effect since that time.

As part of understanding why the compacts have been drafted the way they have, it is useful to explore how compacts fit into the range of alternatives available for allocating the waters of interstate rivers. One alternative is to do nothing; this may be appropriate in areas where abundant water supplies exceed actual or potential

demand. In drier areas, though, some form of allocation will probably be called for. The next chapter will include a general overview of the law of interstate compacts, beginning with a discussion of the three basic methods for allocating interstate water. These are litigation, legislation by Congress, and interstate compacts. The advantages and disadvantages of each of these will be briefly considered to provide a foundation for understanding why, in twenty-two cases, the compact option was chosen. That chapter will also include a general discussion of the law of interstate compacts.

The general law of compacts has been reviewed to a greater or lesser degree in a number of books and articles, but recent Supreme Court decisions, such as Texas v. New Mexico<sup>49</sup>, cast some doubt on prior holdings as to the nature of compacts. The Supreme Court has held, for example, that compacts are like statutes, and cannot be changed by the court any more than a statute can be<sup>50</sup>. But the Court has also at times decided to treat compacts as contracts, and found itself to have the same equitable flexibility to reform or invalidate those compacts that it has exercised in respect to agreements between individuals, without regard for issues of state sovereignty or Congressional authority<sup>51</sup>. At any rate, an updated exposition of the law of compacts, particularly as the law relates to changes or modifications in Compacts, will help future readers understand the reasons why some aspects of compacts have been successful and some have been failures.

This analysis of compact law will focus particularly on the principles applicable to modification of compacts. Modification is a subject which presents two types of issues. The first set of issues relates to the social or physical conditions that might

lead to a call for modification, such as differences in economic growth among the contracting parties or changes in physical conditions. The other set of issues involve the "mechanical" process of changing the compact if modification is agreed upon (or, if agreement cannot be reached, how litigation or legislation might be employed by one party or the other.)

Requests or demands to modify compacts may be expected to arise with increasing frequency as conditions in the river basins change with time. These changes may be economic, as one part of the basin develops more rapidly than another, or hydrologic, as climate change results in variations in river flow. A change in precipitation in the mountains of southern Colorado and northern New Mexico, for example, could have an impact on the flow of the Colorado, Arkansas, Rio Grande, Pecos, and Canadian Rivers, all of which have already been the subjects of protracted litigation. If changes are needed or required, questions of contract law, federalism, constitutional law, general equity, and statutory construction all come into play. The possibility of changing compacts, or the static nature of allocations, may well be the most significant problem or advantage inherent in compacts as an institution. The law concerning the possibility of such changes will therefore be considered.

The next ten chapters provide a summary of the twenty-two compacts, grouped to the extent practical by river basin or similarities in geographic setting. The physical environment of the particular rivers is first examined to provide the background necessary to understand the particular problems at which the individual compacts were aimed. After the physical context is established, an analysis is made

of the negotiations leading to the execution of each compact. These negotiations reflect the particular issues of concern to those who hammered out the actual agreements. Knowing what those issues were is a necessary predicate to understanding whether the goals of the compact in addressing those issues has been accomplished.

Following descriptions of the physical environment and the negotiating background, the texts of the compacts themselves are examined with respect to two main elements: how the water is allocated, and how the compact obligations are administered. Some writers, such as Dworsky and Allee (1980)<sup>52</sup> have proposed extensive matrices for analyzing compacts, focussing particular on administrative details. Such an analysis might be appropriate for operational type compacts, such as a harbor authority, but in dealing with water allocations, the two key questions are how is the water divided, and is that division still working as between the states? Therefore, the focus on the compacts themselves will be on these two areas.

The modes of allocation used in compacts vary. Some focus on streamflow, some allocate storage rights, and some regulate aspects of both. Some compacts use fixed quantities of water, while others use a formula based on flow at one or more index stations. Understanding the physical setting and negotiating background for the compact aids in understanding why one method or another was chosen, and may also provide significant insight into whether or not that method will stand up to changing demands over time. In analyzing the allocation methods, an attempt will be made to explain how and why a particular method was chosen. Factors such as existing



"beneficial" uses (the hallmark of appropriative water law), precedents from other agreements, or legal principles established by courts or statutes may all have played roles in selecting allocation formulae.

The administrative side of the compacts is viewed not so much with an eye toward detailed institutional factors, such as budgets or bylaws, as it is toward dispute resolution. (Not all compacts create administrative agencies; the Colorado River Compact is the most notable example.) For example, if one state feels that it is not being treated properly in accordance with the compact, is there any sort of procedure for resolving that dispute within the framework of the compact? In a similar vein, does the compact contain any provisions for amendment or modification to adapt to changing social or physical conditions?

The analysis of compact administration will include a review of any litigation or other problems which have arisen out of compact administration. It is this section of each chapter which most directly addresses the issue of whether a compact has been successful or not. The fact that a suit has been brought challenging or seeking to enforce a compact is some indication that the compact at issue did not resolve all problems concerning a particular river, at least not to the satisfaction of all the states involved. A review of litigation highlights problem areas, both with respect to the particular compact at issue and as the same problem may relate to other compacts. This discussion of litigation will also address the matter of the remedies that courts have used in those lawsuits.

Once the compacts have been analyzed and the problem areas identified, it is

possible to say which ones have worked or been successful and which have not. What "works" is a subjective matter, but essentially is a question of whether the allocations provided by the compact have been made, and whether the parties have been able to administer the compact and resolve disputes without resort to federal institutions, such as the courts. That is, have the compacts functioned so as to allow river allocation to be managed on a horizontal level (between equal sovereigns) or has it been necessary to invoke higher authority? If the former, the compact works; if the latter, it does not. There is one caveat to this test, however, and that is that in some cases the compact may not be functioning in a manner satisfactory to those directly concerned, but the problems are not worth the effort of a Supreme Court case to resolve, or there may not be enough water to justify the cost and expense of going to court.

After analyzing the individual compacts, a chapter is devoted to examining the federal dimension of the transboundary issues. In the United States, transboundary issues involve both sequential and concurrent jurisdiction, and the effects of that concurrent jurisdiction cannot be ignored.

Federal claims to water and Indian water rights are examples of the types of problems arising from the federal system and overlapping jurisdiction of different governments. To the extent Indian tribes or the federal government are able to assert a superior right to stream flows, the effect on the compacting states would be similar to a physical decrease in the waters to be allocated because those waters would not be available to the non-Indian or federal parties. Similar problems may arise in the face of increasing demand for greater instream flows to support recreation or preserve

endangered species.

Foremost among the issues threatening compact allocations are questions of federal claims to water, whether in the form of rights for Indian reservations as prescribed by the Supreme Court in Winters v. United States<sup>53</sup>, federal reserved rights for other reservations, or claims for water for instream uses such as recreation or protection of endangered species. The tension between federal and state demands and desires has been present in the compact field since the Colorado Compact, and the issue will not just go away on its own. Several suggestions are made for reducing this tension and making the compacts more secure.

The Commerce Clause of the Constitution poses an additional transboundary question. Barriers to movement of goods in commerce, including water, appear to run afoul of the commerce clause, but compacts are at heart a non-market form of allocation. The relationship between commerce and compacts is therefore also considered.

While not creating a complete model for future compacts, the final chapter of the paper will provide some recommendations for drafting future agreements in a way which may avoid problems like those faced by compacts of the past, while taking into account the changing nature of federal-state relations.

## Chapter Notes

1. George C. Coggins, "Grizzly Bears Don't Stop at Customs," *University of Kansas Law Review* 32 (1983): 1-16.
2. *Ibid.*
3. The compacts are the Animas-La Plata Compact, 82 Stat. 898 (1968); Arkansas River Compact, 63 Stat. 145 (1949); Arkansas River Basin Compact (Arkansas-Oklahoma), 87 Stat. 569 (1973); Arkansas River Basin Compact (Kansas-Oklahoma), 80 Stat. 1409 (1966); Bear River Compact, 72 Stat. 38 (1955), *amended* 94 Stat. 4 (1980); Belle Fourche River Compact, 58 Stat. 94 (1944); Canadian River Compact, 66 Stat. 74 (1952); Colorado River Compact, *approved* 45 Stat. 1057 (1928), text found in *Congressional Record* 10 December 1928, 324-325; Costilla Creek Compact, 60 Stat. 246 (1946), *amended* 77 Stat. 350 (1963); Kansas-Nebraska Big Blue River Compact, 86 Stat. 193 (1972); Klamath River Basin Compact, 71 Stat. 497 (1957); La Plata River Compact, 43 Stat. 796 (1925); Pecos River Compact, 63 Stat. 159 (1948); Red River Compact, 94 Stat. 3305 (1978); Republican River Compact, 57 Stat. 86 (1943); Rio Grande River Compact, 53 Stat. 785 (1938); Sabine River Compact, 68 Stat. 690 (1953), *amended* 76 Stat. 34 (1962), 91 Stat. 281 (1977), and 106 Stat. 4661 (1992); Snake River Compact, 64 Stat. 29 (1949); South Platte River Compact, 44 Stat. 195 (1923); Upper Colorado River Basin Compact, 63 Stat. 31 (1948); Upper Niobrara River Compact, 83 Stat. 86 (1969); Yellowstone River Compact, 65 Stat. 663 (1950).
4. Felix Frankfurter and James M. Landis, "The Compact Clause of the Constitution: A Study in Interstate Adjustments," *Yale Law Journal* 34 (1925): 685-758, at 691.
5. Julio O. Barberis, *International Groundwater Resources Law*, FAO Legislative Study 40 (Rome: Food and Agricultural Organization of the United Nations, 1986); Albert E. Utton, "The Development of International Groundwater Law," *Natural Resources Journal* 22 (1982): 95-118.
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8. See, e.g.: Advisory Committee on Intergovernmental Relations, *Readings in Federalism: Perspectives on a Decade of Change* (Washington, D.C.: Government Printing Office, 1989); Michael D. Reagan and John G. Sanzone, *The New Federalism* (New York: Oxford University Press, 1981); Zachary A.

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15. Water Resources Committee, *Interstate Water Compacts 1785-1941. Analytical Table and Copies of Compacts* (Washington, D.C.: National Resources Planning Board, 1942).
16. Colorado Water Conservation Board, *Interstate Compacts: A Compilation of Articles from Various Sources* (Denver: Colorado Water Conservation Board, 1946).
17. Frederick L. Zimmermann and Mitchell Wendell, *The Interstate Compact Since 1925* (Chicago: The Council of State Governments, 1951).
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20. Marian E. Ridgeway, *Interstate Compacts: A Question of Federalism* (Carbondale: Southern Illinois University Press, 1971).
21. R. Leach and R. Sugg, Jr., *The Administration of Interstate Compacts* (Baton Rouge: Louisiana State University Press, 1959).
22. See Chapter 4 for more complete discussion of the Pecos problem.
23. T. Richard Witmer, editor and compiler, *Documents on the Use and Control of the Waters of Interstate and International Streams* (Washington, D.C.: Department of the Interior, 1956).
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34. Frank P. Grad, "Federal-State Compact: A New Experiment in Cooperative Federalism," *Columbia Law Review* 6 (1963): 825-55.
35. Kevin J. Heron, "The Interstate Compact in Transition: From Cooperative State Action to Congressionally Coerced Agreements," *St. John's Law Review* 60 (1985), 1-24.
36. Delph E. Carpenter, "Application of the Reserve Treaty Powers of the States to Interstate Water Controversies," in *Interstate Compacts*, vol. 1 (Denver: Colorado Water Conservation Board, 1946), 111-40.
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- Review* 32 (1983): 111-45.
38. Marian E. Ridgeway, *supra*, n. 20.
  39. Marguerite Ann Chapman, *supra*, n. 32.
  40. Charles Meyers, *supra*, n. 27.
  41. R. Leach and R. Sugg, Jr., *supra*, n.21.
  42. Texas v. New Mexico, 482 U.S. 124 (1987).
  43. Texas v. New Mexico, 462 U.S. 554 (1983).
  44. Arizona v. California, 373 U.S. 546 (1963).
  45. Oklahoma and Texas v. New Mexico, 111 S.Ct. 2281 (1991)
  46. Kansas v. Colorado, No. 105 (Original), pending, U.S. Supreme Court.
  47. The Columbia, while not subject to an allocation compact, is central to the multistate agency created pursuant to the Pacific Northwest Electric Power Planning and Conservation Act; the courts have said that the planning agency was created by compact. For further discussion, see Chapter 13.
  48. T. Richard Witmer, *supra*, n. 24.
  49. 482 U.S. 124 (1987)
  50. Texas v. New Mexico, 462 U.S. 554, 564 (1983).
  51. Texas v. New Mexico, 482 U.S. 124 (1987).
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  53. See Winters v. United States, 207 U.S. 564 (1908).

## CHAPTER 2

### THE INSTITUTIONAL FRAMEWORK

Agreements between states, or interstate compacts as they are more formally called, provide one means of resolving issues relating to transboundary resources. As Justice Frankfurter put it, such agreements can be used to solve those "problems of government defined by natural rather than political boundaries."<sup>1</sup> Compacts have been used for, among other things, pollution control<sup>2</sup>; forest fire protection<sup>3</sup>; fisheries management<sup>4</sup>; and water allocation<sup>5</sup>. This last group is the focus of this paper.

To understand why compacts have been used to allocate water, an understanding of the significance of political boundaries is necessary. Water may not observe these boundaries, but the legal system does. In the United States, the Constitution has established a federal government possessing supreme power within its constitutionally allocated scope of activity, while leaving other powers to the states<sup>6</sup>. Overlapping jurisdiction is also a possibility, because the power of the federal government may be exercised within the boundaries of a state, or both the state and federal governments may have concurrent jurisdiction over the same matter. If there is conflict between state law and federal law, the federal law prevails (so long as it is within the scope of powers delegated in the constitution) by virtue of the Supremacy Clause of the Constitution, which states: "This Constitution, and the Laws of the

United States made in pursuance thereof; and all Treaties made, or which shall be made under the authority of the United States, shall be the Supreme Law of the Land . . . .<sup>7</sup>"

As between two states, on the other hand, neither has authority to act within the boundaries of the other<sup>8</sup>. One state, for example, cannot tell farmers in another state to quit drawing water from a river, absent either an agreement with the second state or some sort of action by the federal government exercising its superior power under the Supremacy Clause.

The issue is one of jurisdiction, meaning the power to act or to compel action. "Jurisdiction" refers to both the substantive scope of authority as well as the geographic area within which that power may be exercised. Depending on the context, jurisdiction may refer to the power of the government to do something (which power is normally granted by a constitution, or by a grant from a higher governmental authority), or it may refer to the geographic boundaries within which that power may legitimately be exercised.

The division of jurisdiction between the states and the federal government is not fixed, despite the fact that there is a written constitution which aims in part to define those relationships. The states are subordinate in those areas in which the federal government is given authority to act, and the power of the federal government has continued to expand, increasing the scope of federal jurisdiction and decreasing the authority of the states. This increasing federal power, especially since the late 1930s, has generally been based on Supreme Court interpretations of the Commerce

Clause, which states: "The Congress shall have Power . . . [3] to regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes."<sup>9</sup>

### Legislation

In 1937, it was suggested by Dimock and Benson<sup>10</sup> that compacts would be a way of dealing with problems which were beyond the jurisdiction of Congress. Since then, the accepted scope of Congressional action has grown considerably; by 1942, the Supreme Court was even willing to say that Congress had the authority to prevent a farmer growing his own grain to feed his own chickens<sup>11</sup>. If Congress can control chicken feed, it can certainly try to control water resources. If a watercourse is tributary to an interstate stream, for example, Congress has jurisdiction over that watercourse because of its powers to regulate both navigation and commerce<sup>12</sup>. In 1963, the Court held that Congress had the power to allocate the water of an interstate stream, in particular the Colorado River<sup>13</sup>. However, one noted historian of the Colorado River and Colorado Compact has referred to this ruling as a "major departure", being the first time that anyone had held that Congress could apportion an interstate stream<sup>14</sup>. Another western water authority has also written that he did not believe that Congress ever intended to allocate the water in the Lower Basin of the Colorado<sup>15</sup>. Be that as it may, the Congressional "power" to do so has been confirmed by the Supreme Court.

Congressional power over navigation and commerce is important even when it is not exercised. The so-called "dormant commerce clause" bars states from raising

barriers to interstate commerce or discriminating against out-of-state residents in favor of state residents. Not all state legislation affecting commerce is banned, but any law that appears to discriminate on the basis of state borders is looked at very closely by the Supreme Court<sup>16</sup>. This includes laws affecting the right to use or transport water across state lines<sup>17</sup>. Where it was once thought that only compacts between states could provide resolution to multistate problems, it now appears that Congress has the power to resolve those questions if it so chooses.

### Litigation

If Congress does not act, and negotiation does not yield results, the courts may be asked to resolve interstate issues, and litigation over interstate waters is not uncommon. In fact, litigation before the Supreme Court has been referred to as a substitute for war<sup>18</sup>. If the states were independent and could not agree on a treaty, they might go to war. That course of action being blocked, they litigate instead. The Supreme Court has original jurisdiction of cases between states, but it normally appoints a special master for fact finding and "trial" of the case, and contents itself with legal review of the special master's findings. The outcome of such litigation can be difficult to predict because there are no hard and fast rules of decision. Rather, the cases are decided under principles of equity, not law, so that the guiding principle controlling the ultimate decision is the conscience of the chancellor or court in equity. Equity developed as a separate branch of the English "legal" system to provide relief from cases where the common law courts could not act or where common law rules

were not suitable for rules of decision<sup>19</sup>. Law and equity are generally merged in modern legal systems so the same court may decide cases under either set of rules, but the rules for relief may still be different because of this historic division.

While equity as an abstract concept (non-legal dictionaries define it as "fairness") may sound superior to mechanical application of rigid rules of law, equity in the jurisprudential sense has its own set of rules, sometimes at variance with those which would be applied in an action at law. These differences can make a suit in equity a more uncertain proposition than an action based on strict legal rules. John Selden, 400 years ago, wrote:

Equity, in law, is the same that the spirit is in religion:  
what everyone pleases to make it. . . . Equity is a  
roguish thing. For Law we have a measure, know what  
to trust to; Equity is according to the conscience of him  
that is chancellor, and as that is larger or narrower, so is  
Equity<sup>20</sup>.

In other words, the outcome of a suit in equity may turn on who can make the most persuasive case to that particular court. That in turn often involves a balancing of the perceived benefit to one party against the perceived harm to the other.

Concern over the ability of a court to properly decide a water allocation case extends back to the beginnings of this century, to about the same time as the Supreme Court began issuing decisions in those cases. As one Colorado water lawyer wrote in 1923:

It is in the forefront of the mind of every lawyer who considers irrigation cases before the Supreme Court that the court has no real conception of the irrigation conditions. It scarcely realizes the fact that our streams are fragile threads of water in a waste of sand bottoms, scarcely continuous streams at all, and that our administration of priorities is merely a crude approximation over long stretches of sand-blown river bottom and over distances which include sometimes several climatic zones.<sup>21</sup>"

A similar sentiment was expressed by Delph Carpenter, Colorado's negotiator on a number of early compacts including those for the Colorado, South Platte, La Plata, and Rio Grande rivers. Carpenter was a strong proponent of negotiation instead of war (or litigation), arguing that any court

must necessarily have meagre opportunity of that study and ascertainment of the facts essential to a correct ultimate decision, compared with consideration of the same complicated conditions by those familiar with the facts and therefore better able to interpret present conditions and to reasonably forecast the future necessities of growing commonwealths. . . .

Judges, unfamiliar with natural conditions and the future

necessities of our western areas and familiar only with natural conditions which are the reverse of ours, are unable to obtain from mere printed pages and maps, that clear understanding essential to a proper judicial consideration of controversies involving not only the present status of the litigant States, but as well the necessities of future development, prosperity, and general welfare of the immense areas included within the territory of each state.<sup>22</sup>

The fear of eastern judges which is reflected in the above two quotations might have been eased in recent decades, with the appointment to the Supreme Court of Justices from Arizona and Colorado, but litigation still remains, as a former Colorado State Engineer characterized it in 1990, a substitute for war with results which are just as unpredictable<sup>23</sup>.

If the Supreme Court is called upon to divide the waters of an interstate stream, it seeks to equitably apportion the water. What is or is not "equitable" can, as noted above (page 31) be difficult to determine. The basic standard for water allocation has been stated in several ways. Among the more commonly cited versions is Justice Douglas' formulation in Nebraska v. Wyoming (1945)<sup>24</sup> (involving the North Platte River):

Apportionment calls for an exercise of informed judgement on a consideration of many factors. Priority



of appropriation is the guiding principle. But physical and climatic conditions, the consumptive use of water in the several sections of the river, the character and rate of return flows, the extent of established uses, the availability of storage water, the practical effect of wasteful uses on downstream areas, the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former — these are all relevant factors.

The Supreme Court generally tries to apply the water law of the litigating states, if that law is the same, on the theory that both must think it is fair<sup>25</sup>.

Litigation clearly has its downside. The Court, or a special master appointed by the Court to hear the evidence in the case and make recommendations to the Court, must make a decision in a litigious environment, and neither party may be satisfied by the final result. Moreover, an equitable decree may be reopened and relitigated if conditions change; this is shown by the fact that Kansas and Colorado are still before the Supreme Court litigating rights to the Arkansas River<sup>26</sup>. The Supreme Court first ruled on dividing the Arkansas between those two states in 1902<sup>27</sup>, and again in 1907<sup>28</sup>, and yet again in 1943<sup>29</sup>. In the case of the Colorado River, there are major Supreme Court opinions in 1931<sup>30</sup>, 1934<sup>31</sup>, 1936<sup>32</sup>, 1963<sup>33</sup>, 1979<sup>34</sup>, and 1983<sup>35</sup>. Wyoming and Nebraska have been before the court with respect to the North Platte River in 1935<sup>36</sup>, 1945<sup>37</sup>, and 1993<sup>38</sup>. The experience in these and other cases bears

out the observation of Judge Stone, head of the Colorado Water Conservation Board:

Interstate litigation involves enormous expenditures of money, unconscionable delay, and uncertainties as to outcome. Experience in Colorado has been that a court decree on interstate water has always been the source of further litigation.<sup>39</sup>

One other way in which litigation might be used would be in a case where the states wished to have the benefits of a compact without seeking Congressional approval. A settlement agreement made in the course of litigation could be converted into a court decree, with essentially the same effect as a compact. New Mexico and Arizona resolved their dispute over the Gila River, for example, as a part of the proceedings in Arizona v. California<sup>40</sup>. The downside of such an agreement would be that it could be subject to modification by the court at a later date if one of the parties could convince the Court that change was required; amending a compact would require the consent of both states.

### The Compact Process

Agreements between states are a third option for settling interstate claims. Since the states are political equals, in a dispute between two states the courts of neither would be able to decide a case involving the other, and the legislature of neither has jurisdiction within the territory of the other. Therefore, unless the states can reach an agreement, any resolution of conflicts must lie with the federal

government<sup>41</sup>, which probably means the courts, although the Supreme Court has made it clear that it prefers that such matters be resolved by negotiation<sup>42</sup>. Court decisions are not always predictable, and states therefore may prefer to negotiate a solution rather than risk the uncertainty of litigation<sup>43</sup> or wait for Congress to act. The Constitution recognizes the validity of interstate agreements in the Compact Clause, which states in pertinent part: "No State shall, without the consent of Congress . . . enter into any agreement or compact with another State or with a foreign power . . . ."<sup>44</sup> The language seems fairly clear and absolute, but a judicial gloss has been added to clarify the meaning and intent of that clause. An initial issue is the meaning of the term "compact". The word was apparently a term of art to the drafters of the Constitution, since it was used in addition to the word "agreement." If it is assumed that the framers did not intend to be redundant, compact must have meant something besides agreement, but what? The Supreme Court has not always been sure. Early cases wrestled with the point, trying to find some distinction<sup>45</sup>, but the Court finally gave up and held that there is no difference between agreement and compact. A compact might now be defined as any agreement or contract (that is, an agreement which is enforceable at law) between states, particularly if that agreement would increase the political authority of the states at the expense of the federal government<sup>46</sup>. The current state of the law seems to be that "A compact is, after all, a contract. . . . It remains a legal document that must be construed and applied in accordance with its terms<sup>47</sup>." There is, though, one major difference between a compact and an ordinary contract: a compact involves two quasi-sovereign states,

along with the federal government.

The consent requirement has also troubled the Court. Read literally, it would require Congressional consent for any agreement involving two states. Even an agreement as seemingly innocuous as, for example, one between two states to drain a malarial swamp which spread across their common border<sup>48</sup>, or to divide responsibilities for clearing snow off the road on a mountain pass, or even to share a signpost at the border would require Congressional consent. The Court, recognizing these practical difficulties, has limited the types of agreements for which Congressional approval is required. The test still used was set out by Justice Field in Virginia v. Tennessee (1893):

The terms "agreement" or "compact" taken by themselves are sufficiently comprehensive to embrace all forms of stipulation, written or verbal, and relating to all kinds of subjects; to those to which the United States can have no possible objection or have any interest in interfering with, as well as to those which may tend to increase and build up the political influence of the contracting States, so as to encroach upon or impair the Supremacy of the United States or interfere with their rightful management of particular subjects placed under their entire control. . . . Looking at the clause in which the terms "compact" or "agreement" appear, it is evident that the prohibition is

directed to the formation of any combination tending to increase the political power in the states, which may encroach upon or interfere with the just supremacy of the United States<sup>49</sup>.

Stating the test, though, is not the same as applying it, and the application has not always been easy, as the Court itself demonstrated in United States Steel Corp. v. Multistate Tax Commission<sup>50</sup>. A number of taxpayers with operations in multiple states brought suit to enjoin the operations of a commission set up by a number of states to facilitate the determination of state and local tax liability of multistate taxpayers, among other things. The taxpayers argued that the agreement was a compact, which required Congressional approval. Since approval had not been obtained, they argued that the commission's activities should be enjoined as being part of an invalid compact. The Court disagreed, finding that the compact did not fall within the range of agreements needing approval. Two Justices dissented, noting that the Court appeared to be applying a test of *actual*, rather than *potential*, encroachment on national authority, particularly since the avowed purpose of the commission was to ward off threatened Congressional legislation over the same issues.

The bottom line seems to be that if the compact touches on some area in which Congress could legislate, then the compact probably requires Congressional approval. In terms of transboundary resources, given the scope of modern Commerce Clause jurisdiction, that probably includes just about everything, although the United States Steel case may leave a loophole, in the sense of actual versus potential impact on

federal power. In the case of interstate water resources, Congressional authority to act seems well established. Under the Navigation and Commerce clauses, and the holding in Arizona v. California<sup>51</sup> that the federal government has the power to allocate water in interstate rivers, any agreement allocating interstate surface streams would fall within the ambit of Congressional jurisdiction, while groundwater matters are brought within the scope of the Commerce Clause by Sporhase v. Nebraska ex rel. Douglas<sup>52</sup>.

A second issue relating to consent is the form of consent that is required. The Court has held that Congressional consent may be *implied*, rather than explicit, if Congress acts as if it recognizes the compact as being in effect<sup>53</sup>. The Constitution itself is silent on the required form of consent, or on its timing. In some cases, Congress has authorized the states to negotiate before any compact was negotiated, as with the final Republican River Compact or the Colorado River Compact. The Constitution does not appear to require that Congress give its consent to negotiation in advance<sup>54</sup>, but it may be politically expedient, to allow Congress to feel that it is involved from the outset<sup>55</sup>.

One other consent which is required, although not mentioned in the Compact Clause, is that of the president. The Constitution requires that any "Order, Resolution, or Vote" to which the concurrence of the Senate and House is necessary must be approved by the president before it takes effect, unless Congress overrides a veto<sup>56</sup>. There is some ambiguity as to whether this should apply to compact approval because of the specific reference to Congressional, as opposed to executive, approval in the Compact Clause. The question became more than academic in the case of the

first attempt to establish a compact for the Republican River in 1942. Congress approved the agreement, but President Roosevelt vetoed the compact, finding that it encroached too far on federal authority and was seen as an attempt "to withdraw the jurisdiction of the United States over the waters of the Republican for purposes of navigation<sup>57</sup>." The veto was not challenged as unconstitutional; instead, a new compact was negotiated.

The federal concern over states' attempting to negate federal power over rivers did not end with the 1942 veto. In the 1950s, when a number of compacts were being negotiated, the Bureau of the Budget expressed its concerns to the President in several memos. In one case, the Yellowstone Compact, the objection was that the head of the United States Geological Service (USGS) was designated to appoint a federal representative to the compact commission, but in more general terms, the Bureau was also concerned that states were attempting to use compacts to impose restrictions on the future actions of the national government. The memorandum to the President about the Yellowstone, which was transmitted by President Truman to the federal representative on the Sabine River Compact negotiating committee for guidance<sup>58</sup>, went on to state that

It is important that [interstate compacts] be drawn in specific and unequivocal language, devoid of ambiguity, which does not attempt to define or limit the powers of the United States<sup>59</sup>.

Of course, the states *were* trying to impose such limitations on the federal

government. As Delph Carpenter (Colorado's principal negotiator in the 1920s) wrote in 1921, the movement to make compacts in the west was awakened in large part by fears of attempts by the national government to assert increased control over western waters<sup>60</sup>. This tension between state desires to control water and federal claims to commerce clause jurisdiction is a recurring theme throughout the history of water compacts in the west.

There are no fixed rules on how negotiations are to be conducted. Normally, each state has one or more representatives, and there is generally a federal representative. The latter is not required but may be politically expedient because federal approval will eventually be required. The management of the river during the period of negotiation raises the possibility that the states will be dividing the flow on some interim basis while trying to reach a final agreement. That interim arrangement seems no different from a final compact to the extent it allocates water, and it easily could be argued that Congressional approval is needed for such an interim agreement. In at least one case, however, the interim agreement has been in effect for 35 years, without a compact being completed. This is reflected in the April 1, 1958, "Memorandum of Understanding" between Colorado and Utah that established an interim arrangement for administration of Pot Creek<sup>61</sup>, a largely intermittent stream flowing from Utah into the Canyon of Lodore in Dinosaur National Monument, Colorado.

Once negotiations are completed, each state must give its approval. It is a matter of state law as to how that is done, although one case implies that this might



also be treated as a question of federal law<sup>62</sup>. The Constitution does not say when compacts become effective, so the terms of the compact should specify an effective date. If there is no provision for effective date, the agreement probably would be considered in effect when Congress approves and the President or last governor signs — whatever is the last act necessary to indicate formal approval by all the states which are parties and by Congress.

Since a compact is in effect a contract<sup>63</sup>, each state which is a party to the agreement must agree to everything in the compact. A contract requires an offer and acceptance of the offer, and if the states do not agree on all points, there is no "meeting of the minds" and therefore no contract<sup>64</sup>.

A compact is a contract involving a unique set of players. It is an agreement between states and, in addition, requires the approval of Congress. Approval by Congress would seem to imply that a compact is some sort of federal law, but the Supreme Court has not always seemed sure of that. In Hinderlider v. La Plata River and Cherry Creek Ditch Co. (1938)<sup>65</sup>, the Court held that the mere fact that Congress consented to a compact did not make it a "treaty or statute of the United States" within the meaning of the judicial code, whereas in the 1981 case of Cuyler v. Adams<sup>66</sup>, the court was definite on the point that a compact *is* a law of the United States. In separate opinions in Texas v. New Mexico<sup>67</sup>, the Court took both positions. In 1983, the Court held that "once given, Congressional consent transforms an interstate compact into a law of the United States." In 1987, the Court effectively reversed its prior position, holding that "A compact is, after all, a contract."

The difference is more than semantic. If a compact is a statute, the Court is limited in what sort of changes it can make in that law in the course of litigation; if the compact is merely a contract, however, a much greater array of legal principles and remedies can be drawn upon in resolving a dispute. For example, the Court cannot void a statute just because it might seem unwise; as the Court is fond of holding, courts are supposed to interpret laws, not make them<sup>68</sup>. Contracts, on the other hand, are easier to void or reform; the court is not offending the concurrent powers of a co-equal branch of government, but is merely interpreting an agreement between "private" parties.

### Modification of Compacts

Modification of compacts could be desirable as conditions change, either because of natural events, such as diminishing rainfall over a long period of time, or because of social factors, such as increased development in one part of a basin with demand greater than what was originally anticipated. How modification can be accomplished, however, turns in part on whether a compact is viewed as a contract or as a federal law.

#### Modification by Agreement

The simplest method of modification is for the states/parties to agree to the change. That modification is in itself a compact, however, and would probably require the consent of Congress the same as any other compact. Similarly, rescinding

or otherwise cancelling a compact would require Congressional assent, although it could be argued that a rescission to the pre-compact *status quo* would have no effect on Congressional power because there would be no change from the original Constitutional balance.

Several compacts have been amended by agreement, including the Costilla Creek, Bear River, and Sabine compacts. It is doubtful, however, that consensual amendment will be practical in times of water shortage or where one state would be asked to give up any significant right to water, because this could be seen as a giveaway of state resources.

An agreement by a state to modify a compact could give rise to Fifth Amendment taking claims if vested water rights are affected. The Fifth Amendment plus the Fourteenth require that neither the state nor federal governments deprive a person of property without paying just compensation, and water rights are a form of property. If a compact modification resulted in water rights being taken by the state to satisfy an obligation newly undertaken by virtue of a modification, the holder of that right could legitimately claim that his property has been taken for a public purpose, and that he is therefore entitled to compensation. A state cannot require a person to give up property for common use without paying for it<sup>69</sup>. Whether the water right is sufficiently vested may be a question of state law, but the potential for litigation and liability is present if a state gives up its right to some water in which one of its citizens previously had a vested right.

### Modification by Congress

A second way of modifying a compact would be by Congressional action. Unless the states were in agreement on a proposed change, in which case they would probably simply amend the compact, this would require a political battle in Congress, with Congress being forced to explicitly favor one state over another. This could be politically difficult to achieve, but it is a possibility. Since a compact requiring Congressional approval is by definition an agreement involving a subject within the scope of Congressional jurisdiction, Congress would have the power to pass such a law.

It might seem more than passingly unfair for Congress, having once approved a division of water, to change its mind and "take" water from one state to give to another, but it is constitutional and legal for Congress to change its mind. Congress, as sovereign, can do what it wants within the limits of the Constitution, and this includes breaking a contract<sup>70</sup>. This issue is the focus of much litigation at the present in the context of savings and loans institutions which claim that Congress has passed laws that abrogate agreements made between investors and the Federal Savings and Loan Insurance Corporation. Some courts have held that the government has the power to abrogate these agreements; the issue then becomes one of whether there is a compensable taking or liability for damages as a result<sup>71</sup>. In the context of interstate stream compacts, the issue in such a case would be whether Congress has made a contract with the respective states, giving the states a property right in the water by approving a compact's allocation. The issue has not been taken to court yet, but it

may reach the federal courts in connection with disputes over new instream flow requirements to protect endangered species.

The Court in United States v. Arizona (1935)<sup>72</sup> made a ruling that could affect claims that an act of Congress altering a compact represents a compensable taking of private rights. Arizona was attempting to block construction of the Parker Dam on the Colorado River. In the course of its opinion, the Court held that

Arizona owns the part of the river bed that is east of the thread of the stream. Her jurisdiction in respect of the appropriation, use and distribution of an equitable share of the water flowing therein is unaffected by the [Colorado] Compact or Federal reclamation law. But the title of the State is held subject to the power granted to Congress by the Commerce Clause<sup>73</sup>.

If in fact Arizona's "title" to water was subject to Congressional commerce power, then all water rights granted by Arizona would be similarly subordinate, and Congress might be able to "take" water without compensation because the right was always held subject to the possibility that Congress could do so. That specific question was not addressed in 1935.

Only one case has dealt with the question of Congressional modification of an existing compact. In Pennsylvania v. The Wheeling and Belmont Bridge Co. (1856)<sup>74</sup>, a bridge across the Ohio River was too low to allow steamships to pass; Pennsylvania sought to have this nuisance abated, obtaining an injunction which was

eventually affirmed by the Supreme Court. The bridge owners then went to Congress and obtained passage of a law saying that the bridge was not a barrier to commerce. The bridge therefore was not torn down, despite the injunction. The case then went back to the Supreme Court to determine if the original injunction should be vacated or if the bridge owners should be held in contempt. Pennsylvania argued that the Act of Congress allowing the bridge to remain in place violated the compact between Virginia and Kentucky relating to navigation on the river, and that Congress could not pass a law which would result in violation of that compact. The Court disagreed, holding that

The question here is whether or not the compact can operate as a restriction on the power of Congress under the Constitution to regulate commerce among the several states. Clearly not. Otherwise Congress and two states would have the power to modify and alter the Constitution itself<sup>75</sup>.

In sum, Congress has the power to modify compacts, but there could be serious political problems if it has to overtly side with one state against another. The more uncertain issue is what, if any, compensation would be due to those losing water rights as a result, and by whom that compensation would be paid.

### Litigation

If negotiations fail and Congressional action seems unlikely, compacting states

can take their disagreement to court. One thing courts regularly do is resolve contractual disputes. The primary difference when two states are involved is that the Supreme Court has original jurisdiction to hear the case, but the litigation still turns on the legal question of interpretation of an agreement<sup>76</sup>. An added complication, though, is the issue of whether a compact is a law or just a contract. The Court theoretically has more latitude in dealing with a contract than with a statute. A statute is not easily modified or cancelled by court action, as the Supreme Court itself has noted:

Judicial perception that a particular result may be unreasonable may enter into the construction of unambiguous provisions, but cannot justify disregard of what Congress has plainly and intentionally provided<sup>77</sup>.

Similarly, the Court has recognized that "Courts are not authorized to rewrite a statute because they might deem its result susceptible of improvement<sup>78</sup>". Congress makes the laws, and the Court is to interpret them, not change them.

If a compact is simply a contract, however, the Court can apply traditional principles of contract law, which provides several avenues for avoidance of contractual obligations. This is particularly true in cases in which one contracting party or the other says that circumstances have changed or are different from what was contemplated at the time the agreement was made.

The beginning point in contract litigation is the contract itself: does it contain any provisions dealing with modification or changed circumstances? If so, then the

court should enforce what the contract says, because the parties obviously considered the possibility of changing circumstances and allocated the risk of change by including those provisions in the agreement<sup>79</sup>.

If a contract is silent concerning the new situation, the courts then turn to general contract law. This is generally state law; although the Supreme Court in suits between states claims to apply federal common law, which is derived from the same general principles of common law as is state law. In contract law, claims for relief fall under several main headings: mistake; failure of a condition; frustration of purpose; destruction of the subject matter/impossibility; or impracticability. Any of these might be proposed as a basis of relief in a suit over a river-allocation compact, but the chances of success would generally not be great. Moreover, the remedy which might be available, if one of these defenses were proved to apply, might be cancellation of the compact, rather than modification.

### Mistake

While a finding of "mistake" can be a basis for avoiding contractual liability, it is only certain types of mistakes which count. Specifically, the mistake must be a mistake of fact, not a mistake of opinion or a mistake of law, and the mistake must be mutual; that is, both parties to the agreement must have been mistaken as to some material aspect of the facts concerning their deal<sup>80</sup>.

The difficulty in drawing the line between a mistake of fact and a mistake of opinion is illustrated by the Colorado River Compact (see Chapter 3), which allocated



water based on what was thought to be an average annual flow of more than 16 million acre feet. The compact happened to be made at a time when the historic flows did average 16 million acre feet, but the historical period for which records were available now appears to have coincided with a period of relatively wet years. Shortly after the compact was negotiated in 1922, the average flow of the river began to decline. Arguments could be made that this was or was not a mistake in the contract law sense. On the one hand, it could be argued that the parties were all mistaken in thinking that the data for 25 years of flow represented the average flow of the river, which provided the basis for the division. On the other hand, it could be argued that this was only a mistaken opinion that the future flow would remain the same. If the former, it might be possible to challenge the agreement on the basis of mistake; if the latter, there would be no mistake, at least in the legal sense.

A second example of mistake in the context of water compacts is provided by the Pecos River Compact (see Chapter 4). The allocation provisions of this compact were based on an "Inflow-Outflow Manual" which was believed to model the flow of the river, but was found later not to do so. Both states were mistaken as to the basic hydrology of the river; this mistake resulted in protracted litigation. Although not casting its decision in the case in terms of mistake, the Supreme Court might have done so in resolving the dispute<sup>81</sup>.

Even if a mistake is shown, it must still be shown that the risk of that mistake was not allocated to either party; if it was, then the court should let the allocation stand. In addition, if there was a mistake, the matter should be raised promptly. The

greater the passage of time since the "mistake" allegedly occurred, the less likely the Court is to find that there was actually a mistake. This was demonstrated by the Supreme Court in the only compact case reaching the Court with a claim of mistake<sup>82</sup>. Rhode Island sought to set aside a compact establishing its boundary with Massachusetts, claiming that the states were mistaken with respect to locations shown by an old survey. The Court compared compacts to treaties, and found that no treaty had ever been set aside on the basis of mistake, and also that Rhode Island had waited too long to make the claim. It is significant, though, that the Court did not say that mistake could never be an excuse from a contract; rather, it found that the burden of proof and persuasion would be great, and Rhode Island had not been able to prove its case.

#### Failure of a Condition

A condition in a contract may take the form of either a prerequisite to some other obligation, or an excuse from performing an obligation. The defense of "failure of a condition" refers to the failure of one of those pre-requisites to occur; because the contract was made subject to that occurrence, there is no contract if the event does not happen. The difficult part of this defense is to show that there was in fact a condition, and that the party seeking to be excused did not assume the risk of the alleged condition not occurring<sup>83</sup>.

One reason contracts are made is to allocate risk among the parties to the agreement, and a party who assumes the risk of an event occurring cannot seek escape

because it actually happens. The Colorado Compact again provides an example. Under that compact, the flow of the river is divided between the upper and lower basins, but the upper basin states have agreed to deliver a minimum of 75 million acre feet during every ten-year period. The upper basin has assumed the risk that the flow of the river will not be enough to provide it with a full supply after that 75 million acre feet is sent downstream. The river does not have as great a flow as had been thought, but the upper basin states should not be able to prevail on a claim that the compact should be voided because a minimum flow of 150 million acre feet every ten years (75 million for each basin) was a condition to their performance; they specifically assumed that risk.

#### Frustration of Purpose

If both sides to a contract know that a specific purpose underlies the agreement, and something happens to make it impossible to achieve that purpose or deprives one side of all benefit of the contract, then relief may be available. The rule arose from the so-called Coronation Cases<sup>84</sup> in England. A parade had been scheduled for the coronation of a new king, and people had rented rooms along the parade route to view the procession. The parade was cancelled, and those who had rented the rooms sought to be released from their obligation to pay. The English courts said that no further payments needed to be made, but also held that there was no requirement that payments already made be refunded. All future obligations of both parties were ended.

In the context of a water allocation compact, the first issue to be resolved in a case of this kind would be to define the purpose of the compact. If the purpose is to allocate water, then there would be no frustration as long as the water was, in fact being allocated. The fact that one state or another might not be able to fulfill all of its plans would not amount to frustration of purpose, unless some special additional purpose was also at the core of the negotiations.

### Impossibility

A party to a contract that is impossible to perform may be excused from further obligation. For this defense to be applicable, performance must be impossible, not merely more burdensome than originally had been hoped. A case of impossibility does not provide a basis for modifying the contract; it simply makes it unenforceable<sup>85</sup>. In the case of a river allocation, impossibility could arise if the river ceased to flow at a level which would permit the minimum obligations to be met by the "delivering" state even if every drop were passed along. This could be the case on the Colorado River, for example, if the total flow in a ten year period were less than 75 million acre feet (see Chapter 3).

### Impracticability

Impracticability is a relatively new defense in contract law. It is invoked in cases where performance is not literally impossible, but where unforeseen contingencies make performance much more expensive or difficult than had originally

been contemplated. The rule comes from the Uniform Commercial Code and specifically applies to the sale of goods, but its application has been extended to other contexts<sup>86</sup>. A key element of this defense is that the contingency is unforeseeable; if it could have been anticipated, then the parties to the contract will be deemed to have assumed the risk of that contingency occurring<sup>87</sup>.

In the water allocation field, a claim of impracticability might be made if a state decided that its agreed share of a river were not enough because of increased development or population. A court would probably conclude that the growth of population and an expanding economy are not unforeseeable, and would reject such a claim.

There is only one case involving a claim that changes in conditions should allow a state to abrogate a compact (decided before the law of impracticability was articulated.) In Green v. Biddle<sup>88</sup>, Kentucky was trying to avoid a provision contained in a compact made when Kentucky was made a state. The particular provision was designed to insure that land titles held by Virginians would be legally recognized and protected; Kentucky argued that changing conditions justified eliminating that protection. The Court disagreed, in language which should give pause to any state seeking to avoid compact liabilities, holding that

Can the government of Kentucky fly from the Agreement, acceded to by the people in their sovereign capacity, because it involves a principle which might be inconvenient, or even pernicious, to the state in some

other respect? The Court cannot conceive how this proposition can be maintained<sup>89</sup>.

The Court went on to hold that

A state has no more power to impair an obligation into which she herself has entered than she can the contracts of individuals<sup>90</sup>.

This last phrase holds out some possibility for contract-law-based litigation on compacts; it implies that a state would have the same rights as an individual, so that the defenses available to individuals might also be available to states.

### Remedies

Just because a state has a contractual claim to relief from a compact obligation does not mean that a compact can always be modified by litigation. The general remedy under any of these claims is to cancel the contract, either retroactively or prospectively. Rather than a modification of the compact, the end result of litigation might be no compact at all, in which case some other method of allocation would have to be employed. In a litigation context, this other method would probably be a subsequent suit for equitable apportionment, which may provide a less desired result than did the compact. The court is supposed to modify a contract only where the contract does not accurately reflect the actual agreement of the parties; it is not supposed to write a new contract.

Nevertheless, the Supreme Court has, on one occasion and possibly two,

depending on whose opinion is accepted, re-written a compact. The specific compact on which there is little doubt is the Pecos. This case is discussed more fully in Chapter 4, but in essence, the Court found that the compact did not function as it was written, but rather than voiding the compact, it appointed a river master to supervise allocation of the river water, after earlier stating that it could not do so<sup>91</sup>. (It might be argued that, since the Supreme Court would eventually have to decide on an equitable apportionment, there was little harm in taking this step without requiring that litigation begin anew.)

The other case involves the Canadian River Compact<sup>92</sup>, where New Mexico officials believe that the Court rewrote the compact<sup>93</sup>, while Oklahoma's water managers believe that the Court simply held the states to the intent of the drafters of the agreement<sup>94</sup>.

Litigation also offers the possibility of modification of compacts in the context of a settlement agreement in the course of litigation. If the two sides can agree, the Court can approve the settlement and incorporate that settlement in a decree. It might be argued that this is no more than an attempt to circumvent the requirement of Congressional approval, but seems to violate that concept to no greater extent than a solution formulated by the Court itself.

### Summary

Disputes between states can be resolved in a number of ways, ranging from solutions imposed by Congress or the Supreme Court to negotiated arrangements

worked out through the compacting process. Even if a compact is achieved, however, Congress or the Court may still intervene and modify the terms of that compact, and, since the Court has original jurisdiction of suits between states, many disagreements might be expected to find their way there. The Court may then treat it as it would any other contract, applying the law of rights and remedies with respect to contracts in an effort to resolve the dispute, much as courts resolve disputes between private litigants.



## Chapter Notes

1. West Virginia ex rel. Dyer v. Sims, 341 U.S. 22 (1951).
2. Ohio River Valley Water Sanitation Compact, 54 Stat. 752 (1942).
3. Northeast Interstate Forest Fire Protection Compact, 63 Stat. 271 (1949).
4. Atlantic States Marine Fisheries Compact, 56 Stat. 267 (1942); Pacific Marine Fisheries Compact, 61 Stat. 419 (1947).
5. See list in Chapter 1, note 3.
6. The Tenth Amendment to the Constitution states: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively or to the people."
7. U.S. Constitution, Article VI, section 2.
8. Kansas v. Colorado, 206 U.S. 46 (1907).
9. U.S. Constitution, Article I, section 8, cl. 3.
10. M. E. Dimock and C. G. S. Benson, *Can Interstate Compacts Succeed?* (Chicago: University of Chicago Press, 1937).
11. Wickard v. Filburn, 317 U.S. 111 (1942).
12. Gibbons v. Ogden, 22 U.S. 1 (1924).
13. Arizona v. California, 373 U.S. 546 (1963).
14. Norris Hundley, Jr., "The West Against Itself: The Colorado River-- an Institutional History," in *New Courses for the Colorado River*, ed. Gary D. Weatherford and F. Lee Brown (Albuquerque: University of New Mexico Press, 1986), 9-49.
15. Edward W. Clyde, "Institutional Response to Prolonged Drought," in *New Courses for the Colorado River*, ed. Gary D. Weatherford and F. Lee Brown (Albuquerque: University of New Mexico Press, 1986), 109-38.
16. Florida Lime and Avocado Growers v. Paul, 373 U.S. 132 (1963).
17. Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941 (1982).

18. Delph E. Carpenter, "Application of the Reserve Treaty Powers of the States to Interstate Water Controversies," in *Interstate Compacts*, vol. 1 (Denver: Colorado Water Conservation Board, 1946), 111-40.
19. See generally J. Story, Commentaries, 1834.
20. John Selden, The Table Talk of John Selden, Esq., London, 1847 (Legal Classics Library reproduction 1989), at 64.
21. James G. Rogers, "Some Problems of the Interstate Water War," in *Interstate Compacts*, vol. 1 (Denver: Colorado Water Conservation Board, 1946), 88-99, at 95.
22. Delph E. Carpenter, *supra*, n. 18.
23. Jeris Danielson, *A Summary of Compacts and Litigation Governing Colorado's Use of Interstate Streams* (Denver: State Engineer of Colorado, 1990).
24. 325 U.S. 589, 618.
25. A. Dan Tarlock, *Law of Water Rights and Resources* (New York: Clark Boardman Company, Ltd., 1990), §10.04[1].
26. Kansas v. Colorado, No. 105 (Original), pending.
27. Kansas v. Colorado, 185 U.S. 125 (1902).
28. Kansas v. Colorado, 206 U.S. 46 (1907).
29. Colorado v. Kansas, 320 U.S. 383 (1943).
30. Arizona v. California, 283 U.S. 423 (1931).
31. Arizona v. California, 292 U.S. 341 (1934).
32. Arizona v. California, 298 U.S. 558 (1936).
33. Arizona v. California, 373 U.S. 546 (1963).
34. Arizona v. California, 439 U.S. 419 (1979).
35. Arizona v. California, 460 U.S. 605 (1983).
36. Nebraska v. Wyoming, 295 U.S. 40 (1935).
37. Nebraska v. Wyoming, 325 U.S. 589 (1945).

38. Nebraska v. Wyoming, 113 S.Ct. 1689 (1993).
39. Clifford H. Stone, "Adjusting Water Rights Between States," in *Interstate Compacts*, vol. 2 (Denver: Colorado Water Conservation Board, 1946), 49-59.
40. 373 U.S. 546.
41. Felix Frankfurter and James M. Landis, "The Compact Clause of the Constitution: A Study in Interstate Adjustments," *Yale Law Journal* 34 (1925): 685-758.
42. Texas v. New Mexico, 462 U.S. 554 (1983).
43. Jeris Danielson, *supra*, n. 23.
44. Article I, section 3.
45. Virginia v. Tennessee, 148 U.S. 503 (1893); and see discussion in United States Steel Corp. v. Multistate Tax Commission, 430 U.S. 452 (1978).
46. *Ibid.*
47. Texas v. New Mexico, 482 U.S. 124, 128 (1987).
48. This example was given in Virginia v. Tennessee, 148 U.S. 503 (1893). Today, draining a swamp would implicate federal regulations on wetlands, and while the compact might not require Congressional approval, the draining itself would require a permit from the Corps of Engineers.
49. 148 U.S. 503, 517-519 (1893).
50. 434 U.S. 452 (1978).
51. 373 U.S. 546 (1963).
52. 458 U.S. 941 (1982).
53. Virginia v. Tennessee, 148 U.S. 503 (1893).
54. See Virginia v. Tennessee, 148 U.S. 504, 521 (1893).
55. Frederick L. Zimmermann and Mitchell Wendell, *The Law and Use of Interstate Compacts* (Chicago: The Council of State Governments, 1961).
56. Article I, section 7 [3].

57. Glenn L. Parker, *Proposed Republican River Compact. Report and Recommendation by the Representative of the United States. Republican River Compact Negotiations* (29 March, 1943).
58. T. Richard Witmer, editor and compiler, *Documents on the Use and Control of the Waters of Interstate and International Streams. Compacts, Treaties, and Adjudications*, 2d ed., H. Doc. 319; 90th Cong. 2d Sess. (Washington, D. C.: Government Printing Office, 1968), 300.
59. F. J. Lawton, Letter to President Truman, in T. Richard Witmer, *supra*, n. 58, 370-71.
60. Delph E. Carpenter, *supra*, n. 18, 129-30.
61. Jeris Danielson, *supra*, n. 23.
62. West Virginia ex rel. Dyer v. Sims, 341 U.S. 22 (1951).
63. Texas v. New Mexico, 482 U.S. 124 (1987).
64. 17 Am. Jur. 2d, Contracts, §§ 14 *et seq.*
65. 304 U.S. 92 (1938).
66. 449 U.S. 433, 438 (1981).
67. 462 U.S. 554 (1983); 482 U.S. 128 (1987).
68. Marbury v. Madison, 5 U.S. (1 Cranch) 137 (1803); Commissioner of Internal Revenue v. Asphalt Products Co., Inc., 482 U.S. 117 (1987).
69. Pennsylvania Coal Co. v. Mahon, 260 U.S. 393 (1922).
70. Bowen v. Public Agencies Opposed to Social Security Entrapment, 447 U.S. 41 (1986).
71. Security Savings and Loan Association v. Director, Office of Thrift Supervision, 761 F. Supp. 1277 (S.D. Miss., 1991); Far West Federal Savings Bank, S. B. v. Director, Office of Thrift Supervision, 746 F. Supp. 1042 (D. Or., 1990).
72. 295 U.S. 174 (1935).
73. 295 U.S. at 183.

74. Pennsylvania v. The Wheeling and Belmont Bridge Co., 59 U.S. (18 How.) 421, 15 L. Ed. 421 (1856).
75. Ibid.
76. West Virginia ex rel. Dyer v. Sims, 341 U.S. 22 (1951).
77. Commissioner of Internal Revenue v. Asphalt Products Co., Inc., 482 U.S. 117 (1987).
78. Badaracco v. C.I.R., 482 U.S. 117 (1984).
79. Eastern Air Lines v. McDonnell-Douglas Corp., 552 F.2d 957 (5th Cir., 1976).
80. 17A Am. Jur. 2d, Contracts, §213.
81. Texas v. New Mexico, 462 U.S. 554 (1983); 482 U.S. 124 (1987).
82. Rhode Island v. Massachusetts, 45 U.S. (4 How.) 591, (1846).
83. Bunge Corp. v. Miller, 381 F. Supp. 176 (W.D. Tenn., 1974).
84. Krell v. Henry, [1903] 2 K.B. 740 (C.A.).
85. Mineral Park Land Co. v. Howard, 172 Cal. 289, 156 P. 458 (1916).
86. Transatlantic Financing Corp. v. United States, 367 F.2d 312 (D.C. Cir., 1966).
87. Foster v. Atlantic Refining Co., 329 F.2d 485 (5th Cir., 1964).
88. Green v. Biddle, 21 U.S. 1 (1823).
89. 21 U.S. (8 Wheat.) at 89.
90. 21 U.S. (8 Wheat.) at 92.
91. Texas v. New Mexico, 462 U.S. 554 (1983); 482 U.S. 124 (1987).
92. Oklahoma and Texas v. New Mexico, 111 S.Ct. 2281 (1991).
93. John Whipple, Staff Engineer, Office of the New Mexico State Engineer, verbal communication (1 June, 1993).
94. Harold Springer, Chief Engineer, Oklahoma Water Resources Board, verbal communication (17 August, 1993).

## CHAPTER 3

### THE COLORADO BASIN COMPACTS

The Colorado River system provides an excellent example of a transboundary resource, flowing through seven states in the United States and then through Mexico. Two countries, seven states, various districts, numerous federal agencies, and a number of cities all have interests in and jurisdiction over the water to one degree or another. The Colorado can be classified as an exotic river; it flows for hundreds of miles through arid regions, bringing its water from sources far upstream. In part because much of the region through which the Colorado and its tributaries flow is semi-desert or desert, demands on the river have become greater than supply, resulting in intense competition for the resource and a complex system of allocation and regulation. The flow of the Colorado is only one thirty-third that of the Mississippi and one-twelfth that of the Columbia, but in the twentieth century it has become the most disputed body of water in the country, or perhaps the world<sup>1</sup>.

It is appropriate for a number of reasons to consider the rivers and compacts of the Colorado River Basin first in this study. The Colorado Compact was the first of the river allocation compacts to be negotiated. More states (seven) are involved than with any other compact. There are three additional compacts within the basin, indicating the significance attached to water resources in this region. And finally, the

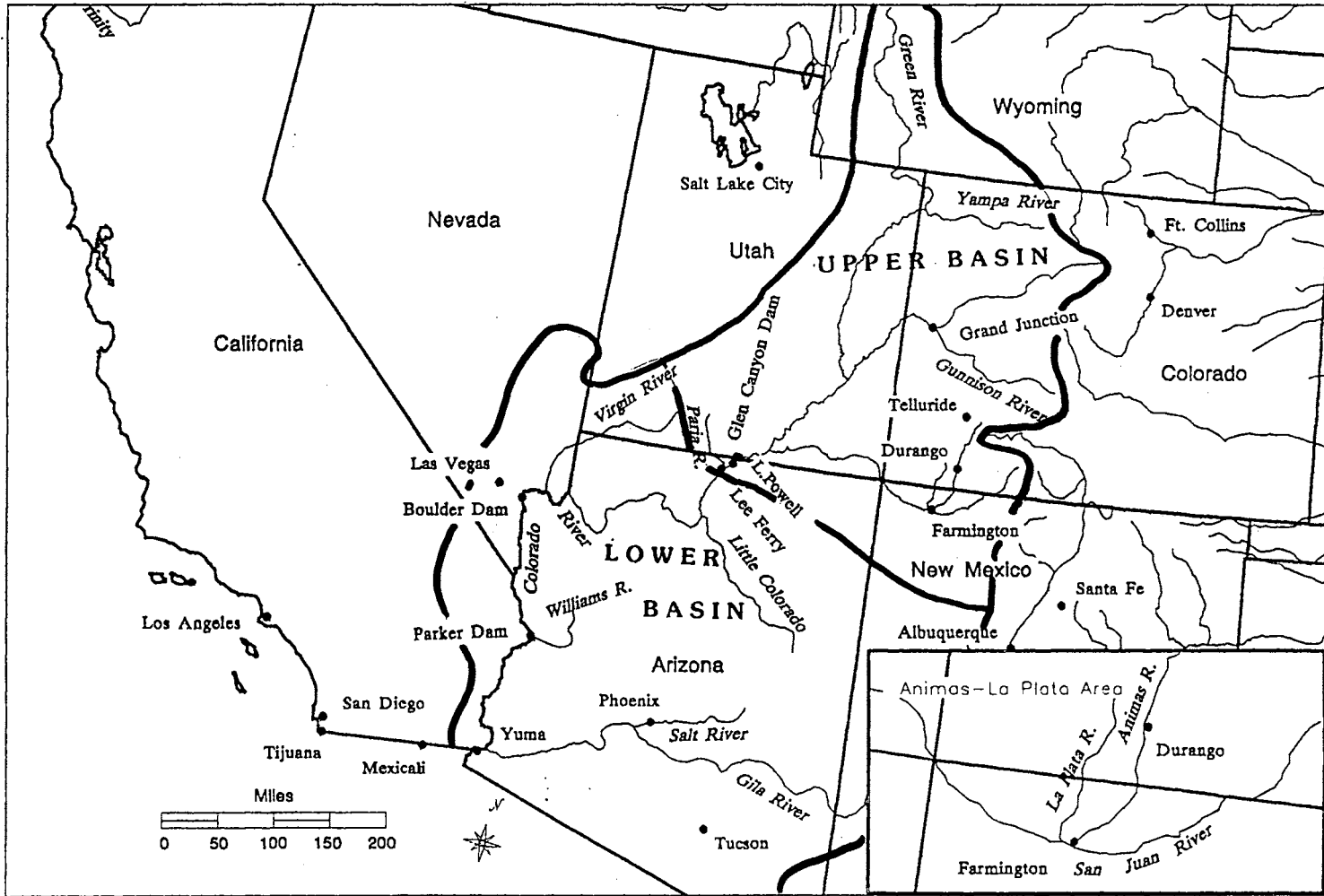
Colorado system illustrates many of the pressures and stresses being placed on existing water allocation compacts.

### The Geographic Setting

The Colorado River is one of the longest rivers in the United States<sup>2</sup>. From its origins in the snow-capped Rocky Mountains, the river flows over 250 miles through Colorado, and then another 200 or so miles through the Canyonlands of Utah. Crossing the state line into Arizona, it flows through the Grand Canyon to the Nevada border, where it forms a 145-mile boundary between Arizona and Nevada. It then becomes the 235-mile boundary between Arizona and California. For its last 100 miles, the river flows through Mexico to the Gulf of California, with the first 30 miles forming a border with the United States (see Figure 1). There are years, however, when the river does not reach the sea; its entire flow is consumed before that point<sup>3</sup>.

The Colorado River system drains a vast area of 244,000 square miles, 242,000 square miles of that being in the United States — one-twelfth of the area of the lower 48 states — and 2,000 square miles in northern Mexico. The basin from Wyoming to below the Mexican border is some 900 miles long and varies in width from about 300 miles in the upper section to 500 miles in the lower section. It is bounded on the north and east by the Continental Divide in the Rocky Mountains, on the west by the Wasatch Range, and on the southwest by the San Jacinto Mountains, a range of the Sierra Nevada<sup>4</sup>.

Figure 1: The Colorado River Basin





The river basin presents a range of climate, from perennial snow cover and heavy precipitation on the high peaks of the Rockies to true desert conditions around Yuma, Arizona. The range of climate is due primarily to differences in altitude and latitude, but local topographic factors also come into play. Extremes of temperature in the basin range from  $-50^{\circ}\text{F}$  to  $130^{\circ}\text{F}$ . The northern portion of the basin is characterized by short, warm summers and long cold winters. The southern regions have long, hot summers, with high amounts of sunshine resulting in high temperatures but generally low humidity<sup>5</sup>. The growing season ranges from about eighty days in the higher elevations of the north to year round in the far south<sup>6</sup>.

The basin is arid to semi-arid except the higher altitudes of the headwater areas. The average annual rainfall for the basin as a whole is under 15 inches and rainfall is in most places insufficient for agriculture without irrigation. At the Mexican border, average annual precipitation is only about 2.5 inches; in the higher mountains of the north, the average is closer to 40 inches. Most of the precipitation in the north falls as winter snowfall or spring rains; summer storms are less frequent but can be of high intensity. About 90 percent of the precipitation is lost as evaporation<sup>7</sup>.

Like other rivers, the Colorado has tributaries, but they are few in number and their flow is not always dependable. They are, nonetheless, taken into account in the allocation of river water. Most of the contribution from tributaries occurs in the upper reaches of the river. At Grand Junction, Colorado, the Colorado River is joined by the Gunnison. The Green River meets the Colorado in the Canyonlands of Utah

after flowing 730 miles south from Wyoming. Above Glen Canyon Dam, the San Juan River flows into Lake Powell after rising in the mountains of southern Colorado and flowing through northwestern New Mexico.

The main stream and its principal tributaries in Colorado flow, for the most part, through deep canyons. The Green River flows through similar canyons in Utah. The San Juan drains mountains and plateaus in northwestern New Mexico and southwestern Colorado, joining the main stream at Glen Canyon<sup>8</sup>. The upper or northern portion of the Basin in which the mainstem and these major tributaries rise is a mountainous plateau, 5,000 to 8,000 in altitude, marked by broad rolling valleys, deep canyons, and intersecting mountain ranges. Peaks rise above 14,000 feet. The southern portion is studded with rugged mountains interspersed with broad, level alluvial valleys and rolling plateaus.

Lee Ferry, 16 miles downstream from Glen Canyon Dam and just downstream from the mouth of the Paria River in Arizona, is designated as the dividing point between the Upper and Lower Basins in the Colorado Compact. (Some authorities refer to Lee Ferry and Lee's Ferry interchangeably. Lee Ferry is the division point under the compact; Lee's Ferry is the USGS gaging point 15.3 miles below Glen Canyon Dam and one mile upstream of Lee Ferry<sup>9</sup>.) The division is not as arbitrary as it may seem, since the Grand Canyon starts below Lee Ferry, resulting in an extended reach of the river with no significant diversions. In addition, the Upper Basin is economically oriented to ranching and mining, while the Lower Basin is predominantly agricultural. The division thus has both an economic and a

physiographic basis. In addition, the river has essentially reached full size by the time it reaches Lee Ferry; any contribution of tributaries below that point is offset by evaporation<sup>10</sup>.

Before regulating structures were built, the flow of the river varied greatly, ranging from over 250,000 cubic feet per second (cfs) in the spring to less than 2,500 in the summer. At Lee Ferry under virgin conditions, discharge probably ranged from 5,500,000 acre feet per year to as much as 25,000,000<sup>11</sup>, reflecting the variability of precipitation in the Upper Basin watersheds. (Virgin flow is defined as the measured flow of the river less an estimate of man-induced depletions in that flow<sup>12</sup>.)

Below Lee Ferry is the Grand Canyon, where the main stream is joined by the Little Colorado and Virgin rivers, neither of which is a major source of water. Between Glen Canyon and Boulder Dam, downstream from the Grand Canyon, there are about 55,000 square miles of drainage area, most of which is desert plateau. It has been estimated that the average inflow into the main stem in this Grand Canyon reach, including the contribution of both the Virgin and Little Colorado rivers, would have been about 1,060,000 acre feet per year under virgin conditions, compared to an estimated average virgin flow of 16,270,000 acre feet at Lee Ferry<sup>13</sup>.

Continuing downstream, between Boulder Dam and the mouth of the Gila there is only one permanent stream, the Williams River. The Williams contributed only an estimated 110,000 acre feet per year under virgin conditions, with the remainder of that part of the basin contributing perhaps 40,000 acre feet more. However, annual

channel losses and evaporation in this reach of the Colorado are estimated to have been 1,030,000 acre feet under virgin conditions, so there is a net loss of water in this reach of the river as the river flows toward Mexico<sup>14</sup>.

The farthest downstream tributary, the Gila, was estimated to have contributed about 1,270,000 acre feet per year under virgin conditions<sup>15</sup>. That virgin flow is estimated to have averaged 2,280,000 acre feet at what is now Phoenix, although evaporation losses resulted in only about 1,270,000 acre feet reaching the Colorado<sup>16</sup>. The Gila may appear on some maps to be a major tributary, but is in fact an intermittent stream in western Arizona<sup>17</sup>. With its tributary the Salt River, the Gila is a major source of municipal and irrigation water for Phoenix and surrounding areas of Arizona. This Gila/Salt River water belongs to the Colorado system, but its allocation has sparked continuing controversy between Arizona and other states, particularly California.

The river finally makes its way into Mexico. Under virgin conditions, it is estimated that the average flow discharged at the Mexican border was 17,720,000 acre feet per year<sup>18</sup>. Now, there are years when no water at all reaches the sea, and the amount flowing to Mexico was set by treaty in 1944 at 1.5 million acre feet, which may be modified under certain conditions.

The water of the main river becomes progressively more saline as it moves downstream and receives return flows from irrigation. In addition, tributaries entering the middle and lower sections of the river, especially the San Juan, Little Colorado, and Virgin, have highly erosive watersheds and contribute large quantities of silt<sup>19</sup>.

Much of the water of the Colorado and its tributaries is used outside the physical boundaries of the Colorado River drainage basin. The first major diversion was completed in 1900, when water from the uppermost reaches of the Colorado mainstem was diverted through the Rockies to the vicinity of Fort Collins. This water brought nearly 30,000 acres into production. Twenty such diversions across the Continental Divide have been completed in Colorado alone<sup>20</sup>. Although provision of water for irrigation was the initial purpose of these diversions and remains important, many of the present users of water diverted out of the basin are municipal and industrial users, who can pay substantial amounts for the water<sup>21</sup>.

The main stem of the Colorado is not the only source for transbasin diversions. Each of these out-of-basin transfers depletes the flow available downstream, but allows the upstream states to make use of their allocated shares of the river's flow. For example, out-of-basin transfers now supply about one half of Denver's drinking water, as Denver buys agricultural land and then transfers the water rights to municipal use. Western slope (that is, Colorado River) water also contributes to the irrigation of nearly 700,000 acres of eastern slope (Colorado) agriculture<sup>22</sup>. On the other side of the basin, Utah uses much of its share of the Colorado outside of the Colorado basin, primarily in Utah's central valley<sup>23</sup>. In New Mexico, Colorado River water is moved into the Rio Grande Basin by diversion from the San Juan into the Chama, which flows into the Rio Grande. The city of Albuquerque has contracted for nearly 50,000 acre feet per year of New Mexico's share of Colorado River water to provide for future growth<sup>24</sup>.

In fact, from the Upper Basin alone, an average of 687,485 acre feet per year was exported in the ten years prior to 1991. Colorado sent 363,553 acre feet to the Platte Basin, 131,698 to the Arkansas Basin, and 4,122 to the Rio Grande Basin. New Mexico diverted an average of 94,122 acre feet to the Rio Grande, while Utah sent 108,223 acre feet to the Great Basin (but also imported 5,204 *from* the Great Basin into the Colorado Basin), and Wyoming diverted 9,727 acre feet to the Platte<sup>25</sup>.

The greatest out-of-basin diversions, however, occur in the Lower Basin, on the Arizona-California border, where water is pumped westward to supply municipal and agricultural needs in Southern California. The Colorado River Aqueduct at Parker Dam is capable of diverting 1 billion gallons per day to the 15 million people served by the Metropolitan Water District of Southern California, including such metropolitan areas as Los Angeles and San Diego. Even greater, however, are the diversions into the All American Canal and its branches which supply irrigation water to the Imperial and Coachella valleys<sup>26</sup>. Mexico, too, has diverted water outside the basin, both to Tijuana for municipal use and to the area of Mexicali for irrigation.

Some water never reaches any end user. The construction of large reservoirs has increased the potential for evaporation over what would occur under natural conditions, and it has been estimated that 1 to 2 million acre feet (maf) per year may be lost to evaporation<sup>27</sup>. Other estimates are that 800,000 acre feet are lost to evaporation annually below Glen Canyon, with 700,000 lost in the Upper Basin<sup>28</sup>.

Of course, Colorado River water is also used within the Colorado Basin. In addition to agricultural demands, major users include Phoenix and Tucson in Arizona

and Las Vegas in Nevada. All are fast growing sunbelt centers which have undergone remarkable expansion in the decades since World War II, and each obtains its water from the Colorado or its tributaries<sup>29</sup>.

In short, the Colorado River waters not only its own drainage basin, but also lands and cities further afield. Out-of-basin diversions may amount to 5.2 maf per year, out of an annual flow of less than 15 maf. The demands made on the river are great; much greater, in fact, than its capacity to meet. The result has been a complex system for allocation and distribution of the flow.

### Negotiating the Colorado River Compact

The Colorado has long served as a water supply in the Southwest. The earliest European irrigators in the basin were Spanish missionaries in Arizona, who established themselves at San Xavier. The first use of Colorado water for irrigation in California was in 1856. At about the same time, Mormon settlers began to construct irrigation works on Colorado tributaries in Utah, and Colorado miners and farmers were beginning to divert water as well. Use of the river to irrigate the Imperial Valley began in 1902, and 75,000 acres were cropped there by 1904<sup>30</sup>. (The Imperial Valley is not within the Colorado Basin, but the water was obtained from the Colorado by canals.)

After passage of the Reclamation Act in 1902, various federal projects were begun in the basin, including the Uncompahgre and Grand projects in Colorado, the Strawberry Valley Project in Utah, and the Yuma and Salt River projects in Arizona.

By 1922, there were 2,600,000 acres under irrigation in the Colorado basin<sup>31</sup>.

Irrigation in the Upper Basin at that time was mainly in scattered small developments, while in the Lower Basin, with its longer growing season and broad valleys, agriculture was booming, but was severely hampered by low-stream flows in the summer<sup>32</sup>. By the early 1920's, three bills had already been introduced in Congress to build an "All-American" canal in the Imperial Valley, and one plan even contemplated building a storage reservoir on the Green River to provide the water for the new canals. It was becoming apparent that there was not sufficient water in the river to supply all of the uses envisioned by the basin states. At the same time, the law concerning rights as between states to interstate streams was not well settled.

The primary impetus for the compact was concern in the Upper Basin that more rapid development on the more easily irrigated lands of the Lower Basin, with their longer growing seasons, would lead to the water being appropriated before the Upper Basin states had the opportunity to develop reclamation projects. Because the principle rule of water law in the West is prior appropriation, the upper states were concerned that by the time they got around to needing the water, it would all have already been appropriated by Arizona and California. This fear was increased by the Supreme Court's 1922 decision in Wyoming v. Colorado<sup>33</sup> in which the Court approved the application of the prior appropriation doctrine in a dispute between Colorado and Wyoming (two Colorado River system states) over rights to water from the Laramie River. Upper Basin states became concerned that the same principle, if applied to the Colorado, would result in the Lower Basin having the right to use most



of the water. Until that problem was resolved, the Upper Basin states wanted to block developments such as the proposed Boulder Canyon project, which would supply a steady source of irrigation water to the Lower Basin.

In short, the Upper Basin states wanted to find some method, such as a compact, to secure their rights to future use of water, fearing they would lose the rights by prior appropriation otherwise. The states in the Lower Basin wanted a compact because they wanted cooperation of the upper states in promoting large federal projects<sup>34</sup>.

This tension between the interests of the upper and lower states (as well as between states within each of those regions) has resulted in the allocation of Colorado River water being the focus of legal battles and political maneuvering since the 1920s. The resulting amalgam of statutes, court decrees, and compacts has become known as "The Law of the River<sup>35</sup>." The first major step in creating this law was the Colorado River Compact of 1922<sup>36</sup>.

Negotiations for a comprehensive compact began in 1921, and one of the major groups of problems requiring resolution during the negotiations was allocation of the Arizona tributaries. Arizona wanted all of the water of those tributaries to be allocated to herself. Arizona finally retreated from that position, in exchange for a provision that the compact, which made an initial allocation of 7.5 million acre feet each to the Upper and Lower Basins, would give the Lower Basin the right to the next million acre feet. The negotiations, by a commission headed by then-Secretary of Commerce Herbert Hoover, dragged along for a year. Finally the representatives met

for two weeks at Bishop's Lodge in Santa Fe, and a proposed compact was agreed upon, subject to ratification by the individual state legislatures and Congress. The compact was signed in Santa Fe's Palace of the Governors on November 24, 1922. The desire to reach an agreement led to no one challenging the accuracy of the flow figures assumed for Lee Ferry, which was chosen as the dividing point between the Upper and Lower Basins. These flow figures were derived in part from measurements made at Yuma, Arizona, and extrapolated to determine upstream flow, rather than from actual measurement at Lee Ferry. Using those figures, it was felt that there was sufficient water to provide each basin with 7.5 million acre feet, with 1.4 million acre feet remaining unallocated<sup>37</sup>.

If negotiation was difficult, ratification was even more so. Arizona refused to ratify, primarily because of concern over the allocation of the Gila system. The compact encompassed the Colorado River "system", which included tributaries, and Arizona did not want to be charged with the use of water it was taking from the Gila system when the waters of the mainstem were divided. Arizona's position was that since the Gila did not normally discharge much, if any, water into the Colorado, Arizona should be charged only with the depletion of that virgin flow. Arizona's argument was that any water which could be salvaged upstream (before it was lost in the desert) should not be charged to Arizona (meaning, in effect, that Arizona's use of Gila water would never be offset against withdrawals from the Colorado itself). California disagreed, arguing that the measure of use should be withdrawals less returns, regardless of the effect on virgin flow.

The compact was at a stalemate. Six states ratified, but then Utah withdrew its ratification. Congress finally intervened with the Boulder Canyon Act of 1928<sup>38</sup>, which provided (among other things) that the Compact could go into effect if ratified by six states, including California. To trigger implementation of the Act, California also had to "irrevocably" agree to limit its right to use of the river to 4.4 million acre feet per year, plus one-half of any "surplus" over the amounts set out in the compact and any subsequent treaty with Mexico. The six states agreed (Utah's concerns apparently having been met by the terms of the Act), and the compact was proclaimed in effect by now-President Herbert Hoover in 1929. Arizona finally ratified in 1944.

One point left unresolved in the compact negotiations was the amount of water to be delivered to Mexico. The compact merely provided that the two basins would have equal responsibility to meet any Mexican obligation, but the amount was not quantified until 1944. Before the construction of Hoover Dam, Mexico had never used more than 750,000 acre feet per year of Colorado water, but in treaty negotiations, the Mexicans sought four times that amount. The final allocation of 1.5 million was estimated to be slightly less than Mexico was actually using in 1944<sup>39</sup>.

#### The Colorado Compact of 1922

The compact which resulted from the negotiations reflects the basic concerns of the two basins. It does not concern itself with rights between individual states; instead, it divides the water between the two basins.

## Allocation

Compacts generally allocate water by dividing either rights to flow or rights to storage of river water; the Colorado River Compact is one of those which focuses on flow. The basic formula for allocation of the river is simple<sup>40</sup>. The first 15 million acre feet of water at Lee Ferry is divided equally between the Upper and Lower Basins. Each is entitled to "beneficial consumptive use" of 7.5 million acre feet per year<sup>41</sup>. If there is any surplus above that first 15 million acre feet, the Lower Basin has the right to consume the next 1 million acre feet<sup>42</sup>. Any quantities to which Mexico is entitled (set by Treaty in 1944 at 1.5 million acre feet) are to come first from any surplus over the 16 million acre feet allocated as set out above; if there is no such surplus, then the Upper and Lower Basins are each responsible for one half of the shortfall, with the Upper Basin's share to be delivered at Lee Ferry<sup>43</sup>.

In recognition of the fact that flows may be variable, the Upper Basin is not absolutely required to deliver 7.5 million acre feet per year; rather, compliance is calculated on the basis of a ten-year moving average, with at least 75 million acre feet required in each ten-year period<sup>44</sup>. Moreover, the Upper Basin cannot withhold delivery, and the Lower Basin cannot demand delivery, of water which cannot reasonably be applied to domestic and agricultural use<sup>45</sup>.

The compact also calls for further apportionment to be made after 1963 of any surplus amounts not already apportioned. This is a moot point; the river does not have enough water to generate such a surplus. At the time the compact was signed, it was believed that the average flow at Lee Ferry was in excess of 16 million acre feet,

but the long term average, from 1896 to 1992, is only 14.9 million<sup>46</sup> (see pages 85 *et seq.*, below).

It is important to note that the allocation makes no division between states, but rather is between basins. The allocation between states of the Upper Basin was made in the Upper Colorado Compact; the division between the lower states was made by Congress and the Supreme Court. Also, while it may appear straightforward, the basic allocation contains certain ambiguities and gaps, discussed below, which have caused or have the potential to cause additional problems in the future.

### Administration

Considering the number of states involved and the importance of the Colorado as a water source, it is surprising that no administrative body was created by the compact. The states are directed to cooperate in gathering data with respect to delivery requirements of the compact, but there is no central office or administration designated to monitor or administer compact deliveries. Instead, the Secretary of the Interior is charged with operating the various federal projects. The Colorado River Basin Project Act of 1968<sup>47</sup> requires that the secretary adopt operating criteria after submitting proposals to the governors of the seven states and other interested parties. As a part of that duty, the secretary has published Operating Criteria which are subject to periodic review<sup>48</sup>. There is a Colorado River Management Work Group, representing the states, which develops an annual draft operating plan for the Colorado Reservoir system<sup>49</sup>, but the river itself is managed by the Secretary of the Interior

through his control of the dams and reservoirs<sup>50</sup>. In addition, the representatives of the seven states meet periodically to discuss matters of common concern regarding the river, and in recent years have met frequently to discuss California's need for excess water and the problems facing Nevada<sup>51</sup>.

### Dispute Resolution

If any dispute arises, the governors of the states affected are to appoint commissioners with the power to consider and adjust those claims, subject to ratification by their respective legislatures. This *ad hoc* commission is not the exclusive means of dispute resolution, however; the compact also provides that "any existing method" of dispute resolution may also be employed<sup>52</sup>.

Since 1990, and perhaps before, there has been an ongoing series of discussions involving the state representatives, the Working Group, and ten Indian tribes to discuss provision of additional water to California and Nevada. This group is not something mandated by the compact, but rather has developed as a means of addressing issues not resolved in 1922.

### Litigation and Other Problems

The Colorado River and the compact have been the subject of extensive litigation in the Supreme Court, but the compact has survived, at least in its basic function of dividing the water between the two basins. As then-governor of Arizona and now-Secretary of the Interior Babbitt has written:

Undeniably, [Colorado] river development has been an acrimonious process marked by decades of interstate controversy, prolonged lawsuits, and generations of complex congressional politics. In retrospect, the adversary nature of basin development was probably inevitable, given the federalist nature of the Colorado River Compact, which divided the waters among states rather than by considerations of geography or hydrology<sup>53</sup>.

Litigation has added significantly to the Law of the River, but not all questions about rights to the water have yet been answered.

### Litigation

The Lower States, specifically Arizona and California, could not come to an agreement on division of the water of the Lower Basin. As between them, the water was allocated by Congressional legislation and Supreme Court decree. The Boulder Canyon Act<sup>54</sup> of 1928 was the key. That statute authorized the construction of a major dam at Black Canyon (known first as Boulder, and now as Hoover, Dam), to be operated by the Department of the Interior. The act was specifically made subject to the terms of the Colorado Compact, and stated that its purpose was to control floods, improve navigation, regulate flow, provide for storage and delivery of water, and generate electricity to pay for the improvements. The act also placed control over

the water in the hands of the Secretary of the Interior. Only persons or organizations with contracts with the Secretary would be entitled to Colorado River water. In effect, rights against the river were converted to rights against the reservoirs, pursuant to contracts, not pursuant to state laws.

Arizona sued the compacting states in the Supreme Court in 1930, claiming that the Boulder Canyon Act was unconstitutional and an attempt to force Arizona to adopt the compact. One of Arizona's claims was that the river was not navigable, a point which had some support in the compact, which acknowledged that the river was not navigable<sup>55</sup>. The Supreme Court, however, chose not to question the motives of Congress, and the Act was upheld in the 1931 opinion in Arizona v. California<sup>56</sup>.

Construction of Boulder Dam was begun, but in 1934, Arizona was again at the Supreme Court. This time, Arizona was sued by the United States, which sought an injunction against Arizona's threat to use armed force to block construction of the Parker Dam.<sup>57</sup> Arizona won this battle, with the court finding that Congress had not authorized construction of the dam, but construction was subsequently authorized by Congress in 1935<sup>58</sup> and the dam was then built.

Two decades later, the Boulder Canyon Act was to provide the basis for actual division of the water. Arizona again filed suit, naming as defendants the Secretary of the Interior as well as all of the Lower Basin states<sup>59</sup> and various California agencies<sup>60</sup>. The suit resulted in an adjudication of the rights to the water of the Lower Basin river. The actual "trial" was held before a special master (Judge Simon Rifkind) who proposed findings both as to priority dates and amounts, and his report



was approved with some modification by the Court.

Justice Black's 1963 opinion proceeded from the premise that the Boulder Canyon Act set out "[A] complete statutory apportionment intended to put an end to the long-standing dispute over Colorado River waters." The river was to be divided not on the basis of common law or state law, but by Act of Congress. Justice Harlan, in dissent, pointed out that the Act did not make an allocation, but simply set a ceiling for California claims, and that it certainly did not give the Secretary of the Interior the power to decide who got water. However, four Justices concurred with Justice Black, and approved the numbers. Pragmatism and a desire to resolve the problems of this river may have prevailed over law; Justice Harlan's opinion seems far more sound as a legal matter.

The Court found that California, in ratifying the compact pursuant to the Boulder Canyon Act, had limited itself to 4.4 maf per year, plus one-half of any surplus remaining for the Lower Basin after obligations to Mexico were satisfied. Arizona was to receive 2.8 maf, plus have full use of the Gila River without charge against that Colorado allocation. The Secretary of the Interior was to have the authority, through his contracting power, to decide who specifically would get water within those limits, although his discretion was not unbridled. The priorities set out by the Boulder Canyon Act were:

1. River regulation, improvement of navigation, and flood control.
2. Irrigation and domestic uses and satisfaction of present perfected rights (as required by the Colorado River Compact).

### 3. Power generation<sup>61</sup>.

The Secretary was not required to follow state law in awarding contracts, but the Court's Supplemental Decree in 1979<sup>62</sup> established priorities among users, both by date and by quantity. In the event of shortage, however, the Secretary has discretion to decide which users are cut off. It is important to note, though, that the Supreme Court in the 1963 and 1979 decrees was not construing the compact; it was interpreting the Boulder Canyon Act. The compact itself survives; the Court was simply dividing up part of what was allocated to the Lower Basin.

Although the Court was not focussing on the Colorado River Compact, it did leave behind some difficulties for future application of the compact, particularly insofar as tributaries to the mainstem are concerned. The Court focussed on the mainstem of the river, not the tributaries, except insofar as to note that New Mexico and Arizona had reached a settlement over the use of the Gila, but the decision could be read to imply that only the mainstem was governed by the compact, although the language of the compact clearly refers to the system as a whole. It is also unclear whether the Court was confusing the Article III (d) division of water (which requires the Upper Basin to deliver 75 million acre feet every ten years) with the III (a) and III (b) allocations to the Lower Basin, which independently allocate rights to consumptive use of water from the system<sup>63</sup>. The distinction between rights to beneficial consumptive use under III (a) and (b) and delivery obligations under III (d) could become more significant in dry years, particularly as regards the provision of water for Mexico<sup>64</sup>.

The issue of federal reserved rights on the Colorado was also considered. In 1908, the Supreme Court had held in Winters v. United States<sup>65</sup> that when the federal government reserved land, as for an Indian reservation, it also implicitly reserved sufficient water rights to make that land productive. In the case of federal reservations on the Colorado, the Court found that the reserved right was to be measured by the "practicably irrigable acreage" of the reservations, as determined by the special master. These federal reserved rights are charged against the allocation of the state in which the reservation is located, and amounted to about 900,000 acre feet in 1979, according to yet another Supreme Court decision in the ongoing litigation<sup>66</sup>.

These reserved rights were again the subject of the Supreme Court proceedings. In 1983<sup>67</sup>, the issue was whether the amount of water for reservations should be recalculated, based on new determinations of practicably irrigated acreage. The court (through Justice White, a Coloradan) declined to modify the 1963 and 1979 decrees, holding that the importance of certainty and finality in water adjudications deserved great deference and should be accorded finality. Justice Brennan, from New Jersey, dissented, saying that he saw no reason the case should not be reopened. The difference in viewpoint may well reflect the geographic origins of the justices. The issue may not yet be resolved, however, as Indian tribes seek Congressional action to increase their allocations. How successful they will be is unknown, as is the issue of whether or not just compensation would have to be paid to those who lose water rights.

### Other Problems

Not all unresolved issues concerning this compact have gone to litigation, at least not yet. These issues remain as potential sources of conflict in the coming years.

Mistaken Assumptions of Amount of Flow: Perhaps the biggest problem facing the parties to compact is that the negotiations proceeded on the assumption that the average flow at Lee Ferry was in excess of 16 million acre feet per year. Subsequent events have shown that in 1921 and 1922, the average flow of the river was high, based on both 10 year and longer averages (i.e., since 1896, when measurements began). In 1921, the estimated virgin flow at Lee Ferry was 23 million acre feet, the average over the previous ten years was 18.6, and the average since 1896 was 16.8. In 1922, the corresponding numbers were 18.3, 18.4, and 16.8 million acre feet<sup>68</sup>. It looked as if there would be surplus water to be allocated in future years, particularly if the 2 million acre feet from the Gila were added to the equation.

The average was misleading, as subsequent years have shown. From 1896 to 1992, the average flow has been only 14.9 million acre feet, and the ten-year moving average has been as low as 11.8 in 1931-1940 and 1954-1963<sup>69</sup>. The fact that flow is less than anticipated poses a potential problem, because the Upper Basin bears the responsibility for delivering 75 million acre feet in every ten-year period. The risk of drought therefore affects the Upper Basin first. The Upper Basin can probably count on only six million acre feet per year of sustained yield, rather than the 7.5 million

assumed in the compact<sup>70</sup>, and there could be periods much drier than that. A dendrohydrograph of flow at Lee Ferry has been interpreted to indicate an average long-term flow of only 13.5 million acre feet at Lee Ferry, with extended dry periods<sup>71</sup>.

At present, storage in Glen Canyon and other reservoirs can provide a means of meeting Upper Basin obligations even in drought years; in 1992, inflow into Lake Powell was only 4,160,000 acre feet, or 51 percent of average, but Compact obligations were still met<sup>72</sup>. Nevertheless, as demand increases in the Upper and Lower Basins, the point may not be far off when water use is curtailed. It has been calculated that in ten to twenty years, a ten-year drought (assuming a flow of only 100 million acre feet in ten years) would require curtailment of use in the Upper Basin<sup>73</sup>. Even prior to passage of the 1968 Colorado River Basin Project Act, a probability analysis done by the basin states for Congressional consideration showed that there was only a fifty-fifty chance that the supply available in the main stream would be equal or greater than the amount needed to supply California's 4.4 million acre feet, plus water in decreed rights in Nevada and Arizona and the southern Nevada water-supply project, the demands of the Upper Basin, and a full supply of 1.2 million acre feet for the Central Arizona Project. Thus, there are likely to be periods of more stress on the water management institutions in the basin<sup>74</sup>.

Federal Reserved Rights: The 1963 Supreme Court decision left a number of questions unanswered, particularly with respect to federal reserved rights and Indian tribes. The standard set by the Court, "practicably irrigable acreage", does not

provide an actual quantification; it simply leaves additional questions to be resolved.

At present, many of the Indian tribes with lands in the Basin have not used the water, but the potential is present for substantial dislocations of existing users if the tribes should successfully demand a larger share of the water. There have been agreements with some tribes to defer use of water or to abandon certain claims, but the wisdom and legality of such agreements has been called into question. There is also a question as to whether this reserved right, intended for irrigation development, is alienable for off-reservation uses or whether it is tied to actual use on the reservation<sup>75</sup>.

If Indian claims are quantified and the quantities are large, serious disruption of existing uses could occur. If only four percent of the Navajo reservation were practicably irrigable, for example, the reserved right could amount to 2 million acre feet; some observers think that the Navajos might seek 5 million acre feet<sup>76</sup>, which would use up Arizona's and New Mexico's shares of the river, and then some.

Other Federal Regulation: Federal laws and regulations not aimed specifically at the Colorado system may also place stress on the existing allocations. These issues might be thought of in terms of federalism and the proper division of authority between the states and the federal government.

Water quality laws pose a number of federalism questions for the river. The basic problem at the present is salinity. Much of the current salt load in the river is natural, but it is aggravated by irrigation return flows. In addition, increased withdrawals reduce total flow and thus increase salt levels. The question has been

raised as to whether the Environmental Protection Agency could step in to alter state allocations to adjust that flow in an effort to reduce salinity problems<sup>77</sup>.

Endangered Species: Endangered species may also pose a problem. The Fish and Wildlife Service has declared several species in jeopardy because of reduced flow, and has proposed to limit withdrawals in the Upper Basin to protect those species<sup>78</sup>. Federal agencies cannot allow water use in such cases, even though the states have the right to the water or to allocate its use. The restrictions do not appear to be a problem with respect to meeting the Upper Basin's obligation to deliver water to the Lower Basin; the water can still be released from Glen Canyon Dam, but the timing might be different than otherwise would be the case<sup>79</sup>.

Ambiguities and Omissions in the Language of the Compact: Despite the amount of litigation at the Supreme Court and the number of scholars who have studied the Colorado River Compact, there is still uncertainty on some points. As discussed above, the Supreme Court contributed to some confusion with its 1963 opinion<sup>80</sup>, which appears to confuse the right to consumptive use of system water by the Lower Basin with the delivery obligations of the Upper Basin. As matters presently stand, the Upper Basin sends 8.25 maf downstream each year — 7.5 million to satisfy the compact obligations, and .75 to satisfy the Mexican Treaty obligation<sup>81</sup>. However, the compact could also be construed in such a way as to require that all beneficial consumptive use in the Lower Basin, that is, adding in the Arizona tributaries, be taken into account before the Upper Basin can be required to contribute

to that Mexican obligation<sup>82</sup>.

The compact is based on allocation of the right to "beneficial consumptive use" of water, but that term is not defined in the compact. One way to define such use is by the "net depletion" method, which charges users only for use of water which would not otherwise have been lost to the environment, as by evaporation. In such a case, salvaged water could be used without being charged against a state's allocation, because it would otherwise have been lost. Arizona prefers this interpretation. Because most of the water of the Gila River would generally not reach the Colorado mainstem under natural conditions, Arizona would not be charged with use of Gila water; the water would be naturally depleted even in the absence of use by Arizona, so there is no net depletion. The other method to use is the "diversions less return flows to the river" method, which charges for actual use, regardless of natural depletion. The special master in Arizona v. California adopted the latter definition, but the question may arise again<sup>83</sup>.

Another area of ambiguity arises in Articles III (d) and (e), concerning the obligation of the Upper Basin to deliver water, and the limitation on the right of the Lower Basin to demand water that cannot be put to beneficial domestic or agricultural use. One of the major uses of the water in the river is to generate electric power, and the Compact can be construed both ways with respect to the right of the Upper Basin to withhold water which the Lower Basin would like to use to generate power<sup>84</sup>. Since the storage reservoirs are actually operated by the Secretary of the Interior, he can make those determinations as a practical matter, but a Court could some day



decide differently.

A major gap in the compact is its lack of reference to groundwater. If groundwater is excluded, then greater withdrawals could be made without counting against the allocation to one basin or another. In Arizona v. California (1963), the Supreme Court stated that groundwater withdrawals were to be charged as a use just as withdrawal from surface water is<sup>85</sup>.

Increasing Lower Basin Demands: The Colorado River Compact was initially made because the Upper Basin states feared that more rapid development in the Lower Basin would lead to the Lower Basin appropriating all the water before the Upper Basin developed any uses for it. That concern has re-surfaced in recent years, as the Lower Basin has experienced water shortages. California, for example, after six of the wettest years on record in the late 1970s and early 1980s, experienced seven years of drought in the late 1980s and early 1990s, and sought additional supplies<sup>86</sup>. Las Vegas, which has also grown rapidly, has essentially used or earmarked for use all of the water presently available to it from the Colorado, and will have a water shortfall by 2050<sup>87</sup>.

One area where Lower Basin demand has not grown as fast as anticipated is Arizona. When the Central Arizona Project (CAP) came on line, there was concern that water from Arizona's share of the Lower Basin might no longer be available to California, but because of high price and lack of demand, the CAP is not using as much water as had been anticipated<sup>88</sup>.

Negotiations are continuing between the Upper Basin and Lower Basin states to

resolve the need for additional water in the Lower Basin while protecting the rights of the Upper Basin. There is concern that even interim use of Upper Basin water by the Lower Basin might ripen into a vested use by the Lower Basin and the right to use the water might then be forever lost to the Upper Basin<sup>89</sup>. The Upper Basin states are nonetheless working with California, Arizona, and Nevada to supply enough water to meet interim needs in the lower basin<sup>90</sup>. At this time, the Upper Basin is not consuming its entire share so the effect would primarily be to lower reservoir levels; however, the Upper Basin states want to make it clearly understood that they are supplying water on an interim basis; the Lower Basin must work out ways to more effectively use its own allocation<sup>91</sup>. The Upper Basin states would also like, in exchange for this interim help, the assistance of the Lower Basin in dealing with endangered species problems facing the upper states<sup>92</sup>.

One of the basic allocation problems is that the Colorado Basin and the West have changed since the compact was signed. As one commentator has written, "The basin is physically different than it was in 1922; its national setting has changed; its population is different; and perceptions of it have altered."<sup>93</sup> These changes have led to demands for reallocation among uses as well as among geographic areas.

Agriculture is traditionally the largest user of water in the basin, but municipalities and industries can easily outbid those agricultural users. Legal and political inertia continue to lend support to agricultural use, but new uses can pay hundreds of times more for the water<sup>94</sup>. Moreover, if water is indeed an article of commerce<sup>95</sup> and interstate markets in water become well-developed, the higher prices which those

municipalities and industries can pay could place serious strain on the compact allocations<sup>96</sup>. The compacts themselves may be a barrier to such commerce in water. In the context of the Yellowstone Compact (see Chapter 10), the courts have held that Congress could, in approving a compact, authorize what might otherwise be an unconstitutional burden on interstate commerce<sup>97</sup>. Market forces may be held at bay by compact allocations.

On several occasions, different groups have proposed selling Upper Basin water to Lower Basin users. Most recently, Las Vegas was negotiating with the Roan Creek Project, a venture involving Getty Oil and Chevron. The oil companies had acquired large amounts of contingent water rights to develop oil shale in Colorado. The oil shale development did not materialize, so there was some thought of selling those water rights to Las Vegas<sup>98</sup>. The Governor of Colorado has made it clear that Colorado opposes such a plan, as it had opposed previous plans, in part because of compact restrictions on such transbasin sales<sup>99</sup>.

Earlier proposals, including that of the Galloway Group and the Resource Conservation Group, had met with similar objections<sup>100</sup>. In fact, in 1984 the Upper Colorado River Commission passed a resolution urging that no Upper Basin state enter into or permit the lease or sale of water allocated to the Upper Basin for use outside the Upper Basin states<sup>101</sup>.

### The Upper Colorado Compact

Unlike the states of the Lower Basin, the Upper Basin states were able to reach

an agreement dividing the Upper Basin's share of Colorado water between themselves through the Upper Colorado Basin Compact of 1948<sup>102</sup>. This compact is much more detailed and comprehensive than the Colorado Compact; it focuses on tributary basins as well as the overall Upper Basin, and divides those tributaries between the states. It also specifies the obligations of the states with respect to deliveries at Lee Ferry necessary for the Upper Basin to meet its compact requirements.

#### Allocation of the Upper Colorado

The Upper Colorado Compact divides the water of the Upper Basin on the basis of flow, using a formula based on percentages of total available flow. It begins by allocating 50,000 acre feet per year to Arizona, in full satisfaction of all Arizona claims to Upper Basin water. The remainder is allocated on the basis of remaining available flow. Colorado receives 51.75 percent; Utah 23 percent; New Mexico 11.25 percent; and Wyoming 14 percent<sup>103</sup>.

The apportionment applies to any and all man-made depletions of virgin flow. This was the method advocated by Arizona, and resulted in some opposition to the compact by California's Congressional delegation, which felt it would set a bad precedent for the Lower Basin because California wanted the "diversions less net return" method used for calculating consumption. California's Congressmen voted in favor of the Upper Colorado Compact only after receiving assurances that non-signatory states would not be bound by any of the definitions used in the Upper Basin compact<sup>104</sup>. Reflecting the appropriative rights tradition in these states, beneficial

use is specified as the basis, measure, and limit of the right to use water.

The Upper Colorado Compact also recognizes the primary obligation of the Colorado Compact, namely to deliver 7.5 million acre feet per year. In the event curtailment of consumption in the Upper Basin becomes necessary to meet that obligation, the compact requires that any state which used more than its entitlement during the prior ten years must deliver an amount equal to that overdraft to Lee Ferry before demand is made on any other state. If that is insufficient to make up the deficit, any additional water comes from the allocation of all the states in proportion to their consumption during the preceding water year<sup>105</sup>.

The effect of evaporation from reservoirs is not ignored. For reservoirs constructed prior to 1922, losses are charged to the state in which the reservoir is located; water in such reservoirs is declared to be held for the exclusive use of and is charged to the allocation of that state. For reservoirs constructed after the 1922 signing of the Colorado Compact, losses attributable to reservoir capacity being used to assure deliveries at Lee Ferry are charged proportionally to the states based on their consumption in the prior year, and the water is available to all the states. Any loss attributable to capacity built for storage for consumptive use by a particular state is charged to that state.

Finally, in recognition of the fact that the Federal government and Indian tribes might make use of the water in the Upper Basin, the Upper Colorado Compact provides that the consumptive use by federal or Indian entities is charged against the allocation of the state in which consumption (not diversion) occurs.

### Allocation of Tributaries

Within the Upper Basin, the Compact apportions the Little Snake River between Colorado and Wyoming<sup>106</sup>; various tributaries of the Green River between Wyoming and Utah<sup>107</sup>; the Yampa River between Wyoming and Colorado<sup>108</sup>; and the San Juan River between Colorado and New Mexico<sup>109</sup>. The Compact also recognizes the earlier division of the La Plata between New Mexico and Colorado, and provides that consumptive use of that river be charged against the allocation of those two states<sup>110</sup>.

The Little Snake River: The Little Snake River flows between Colorado and Wyoming. The allocation of this stream was done in two ways, based on whether the water rights in question antedated the Compact. For those rights in existence prior to the Compact, part of the river, upstream from Savery Creek, is administered without regard to downstream rights; below Savery Creek, there is an interstate priority of administration, based on the dates of priority in the two states. Water uses which came into being after the date of the compact were to be designed so that, so far as practicable, the two states would share equally in the water, and would also suffer equally from any curtailment<sup>111</sup>.

The Green River: The compact makes provision for allocation of a number of tributaries of the Green River between Wyoming and Utah. For those water rights in existence before the signing of the compact, water would be supplied on the basis of interstate priority, that is, as if the state boundaries did not exist. Subsequent

diversions would be divided equally between the states, with the exception of one creek in which Utah had exclusive use. The two states agreed to allow storage facilities to be built by the other, and also provided that the state engineers would appoint a special commissioner to administer the allocations<sup>112</sup>.

The Yampa River: The Yampa River is a tributary of the Green River which joins the Green in Colorado. Yampa water is important to the flow of the Green river in Utah, just downstream of the confluence. Colorado agreed not to deplete the flow of the Yampa (measured at the Maybell Gaging Station near the state border) below 5,000,000 acre feet over any ten-year period<sup>113</sup>.

The San Juan River: The San Juan posed a special problem for New Mexico and Colorado. The only way in which New Mexico could obtain her allocation of Colorado River water was by tapping the San Juan and its tributaries, and New Mexico was concerned that Colorado might seek to use San Juan water outside the San Juan Basin, in which case the flows would not be available to New Mexico. New Mexico would not sign the compact without assurance that it would be able to obtain its share of San Juan water<sup>114</sup>. Colorado therefore agreed to deliver an amount of water in the San Juan which, together with water originating in the New Mexico tributaries of the San Juan, would be sufficient to supply New Mexico's Upper Colorado allocation<sup>115</sup>.

## Administration

In contrast to the Colorado Compact, the Upper Colorado Compact creates an administrative agency, the Upper Colorado River Commission, which plays an active role in monitoring and coordinating activities relating to the Upper Colorado Compact. Headquartered in Salt Lake City, the commission has an executive director as well as a legal and engineering staff. Although part of the Upper Basin as defined in the Colorado Compact is within the boundaries of Arizona, the Upper Colorado River Compact basically involves only New Mexico, Colorado, Utah, and Wyoming. Arizona was a party to the compact, but does not participate in its administration. In essence, Arizona gets 50,000 acre feet of water a year, and that is the extent of its involvement in the Upper Colorado Compact.

The Upper Colorado Commission has five commissioners, one each from New Mexico, Colorado, Utah, and Wyoming, and one federal commissioner appointed by the President. The federal commissioner has the same rights and voting authority as any of the state commissioners<sup>116</sup>. This could be a significant role, because unlike many compacts, the Upper Colorado Commission is not required to agree unanimously on any action it may take; only four votes of the five are needed. Thus, if three states could convince the federal commissioner to side with them on some issue, the result could be a decision in which one of the four Upper Basin states did not concur. The actual significance of this voting requirement is difficult to evaluate because a unanimous vote is required for some things, including any change in method of determining consumptive use of water. Also, nowhere is the commission given the



power to change the allocation to any state.

The commission's duties, spelled out in Article VIII, have an emphasis on fact finding and communication with respect to river flows and development in the Upper Basin, but it also has the duty to determine the amount of curtailment within individual states should that ever become necessary to meet the Lee Ferry obligation, and to determine the consumptive use by each state each year.

The commission publishes an annual report which details not only the flow at Lee Ferry and the Upper Basin's meeting of its obligations, but also contains an update of legal matters with potential effect on the compact or the member states, and an update of the various Upper Colorado River storage projects and planned developments which may have an effect on water supplies within the basin.

#### Dispute Resolution

The Upper Colorado Compact contains no specific provision relating to dispute resolution, other than the voting provisions which allow most actions to be taken on vote of four members of the commission. This prevents any single state from having a veto, providing that the federal representative is willing to vote against a particular state. The existence of an active commission, while not directly charged with the resolution of disputes, provides a channel for communication and may aid in averting disputes, in contrast to the *ad hoc* approach of the Colorado Compact.

## Litigation and Other Problems

Unlike the Colorado River Compact, the Upper Colorado Compact has not been challenged in court. One reason for this may be that the compact divided water between the individual states, resolving the interstate allocation issue by negotiation instead of litigation. In addition, Arizona is not a member of the commission; in effect, Arizona was bought off for a guaranteed 50,000 acre feet per year.

The problems discussed earlier on pages 85 *et seq.* relating to the Colorado system intimately affect the Upper Colorado. The water in the Lower Basin is supplied by the Upper Basin; contributions below Lee Ferry serve to offset evaporation in the Lower Basin, but not much more<sup>117</sup>. To the extent, therefore, that increased demands are to be satisfied from the Colorado, the water to meet those demands would have to come from the Upper Basin.

Within the Upper Basin itself, the states have managed to interact relatively smoothly. This may be due to the fact that the Upper Division states have not yet used all of the water allocated to them. The situation could change if increasing pressure is placed on use of that water as between the states of the Upper Basin, but for the present, the compact seems to be functioning smoothly.

### La Plata and Animas-La Plata Compacts

The remaining two compacts in the Colorado Basin involve much smaller areas and rivers. Both the Animas and La Plata Rivers rise in the mountains of southwestern Colorado and flow south to join the San Juan at Farmington, New

Mexico. (See Inset, Figure 1).

The Animas is the longer and larger of the two, rising near Telluride and flowing south past Durango, Colorado. Draining an area of about 1,360 square miles, the average discharge at the mouth of the river near Farmington is 918 cfs, or about 665,100 acre feet per year. This discharge is in addition to water diverted from the Animas to irrigate about 30,000 acres<sup>118</sup>. The La Plata River, further to the west, drains the area between Mesa Verde National Monument and the San Juan Mountains. It is a smaller stream than the Animas, with a total drainage basin of about 583 square miles. The average discharge at Farmington is only 28.7 cfs, or about 20,790 acre feet per year<sup>119</sup>. About 24,000 acres are irrigated from the river, but even adding that water back into the flow, it is apparent that this is not a large river.

Both rivers flow through similar terrain, although the Animas rises in higher mountains. The mountains receive heavy winter snowfall, but the lower elevations are semi-arid, marked by pinon-juniper forests and scrub vegetation. Both rivers exhibit the wide variation in flow characteristic of southwestern rivers. In September 1990, for example, La Plata went from its maximum discharge for the water year 1991 to its lowest — a peak of 2,290 cfs on September 11, followed by ten days with no flow from September 21-30<sup>120</sup>. Similarly, the Animas went from a water-year low discharge of 132 cfs on September 3 to a water year maximum of 4570 cfs on September 11<sup>121</sup>. USGS records show that La Plata has had frequent records of no flow at Farmington, but has also exceeded 5000 cfs; the Animas, on the other hand, has never entirely dried up (although flow has dropped to a minimum of 1 cfs) and

has exceeded 25,000 cfs in floods<sup>122</sup>.

### The La Plata Compact

As might be expected from the above data, pressure on water resources is greater on La Plata, and that river was therefore the subject of an early compact between New Mexico and Colorado. No administrative commission was created by this compact. Instead, the two state engineers are authorized to make rules and regulations, which remain in effect until one engineer notifies the other in writing that those rules are terminated.

The allocation is based on flow, and applies from February 16 to November 30 of each year. From December 1 to February 15, there are no restrictions, and each state has the right to use whatever water flows within its boundaries. The division is based on a flow of 100 cfs at the state line; so long as at least 100 cfs flows into New Mexico, no further allocation is made. In the event that state-line flow is less than 100 cfs, New Mexico becomes entitled to an amount equal to one-half the flow at the Hesperus, Colorado, gaging station near the headwaters. In a unique feature, the two state engineers are allowed to agree that each state may take the entire flow of the river for alternating periods to achieve the most beneficial use of the water<sup>123</sup>.

Since the La Plata Compact antedates the Upper Colorado Compact, the latter was made subject to the allocations of the La Plata, but those withdrawals in turn are charged against the allocations of Colorado and New Mexico under the Upper Colorado Compact.

## Litigation and Other Problems

The validity of the La Plata compact was challenged in a landmark Supreme Court case, Hinderlider v. La Plata River and Cherry Creek Ditch Co. (1938)<sup>124</sup>.

The Ditch Company asserted that it was being deprived of its water right because of the administration of the river by the state engineer of Colorado (Hinderlider) pursuant to the compact. As provided for in the compact, the state engineers had agreed to rotate the withdrawals from the river on a ten-day cycle; that is, New Mexico would withdraw water for ten days, and then Colorado for the next ten days. The Ditch Company claimed that this administration was a taking of its property, and the Colorado Supreme Court agreed, enjoining the engineer from administering the river in such a way as to deprive the Ditch Company of water even if that meant violating the compact.

The United States Supreme Court reversed, finding that the compact, approved by Congress, was binding on the citizens within each state, even if it affected water rights granted by the state before executing the compact. Moreover, the Court held that the compact did not take away any vested water right because the Ditch Company could never have held a right for more than Colorado's equitable share of the flow of the stream, and that equitable share was defined by the compact<sup>125</sup>.

Since the Hinderlider decision, the compact has not again been challenged in court, but there is still pressure on the available resources, and some uncertainty with respect to reserved rights because the river flows through the Southern Ute Reservation. Uncertainty over the quantification of those rights was resolved in an

agreement with the state of Colorado and other parties to the Animas-La Plata Project, but that project has been stalled by environmental objections. If it is not completed by 2002, the compromise with the Utes will cease to be of any effect<sup>126</sup>. The question of reserved rights will then have to be re-addressed.

### The Animas-La Plata Compact

The Animas-La Plata is the shortest of all the allocation compacts, containing only two paragraphs. In effect, the compact allows the Animas-La Plata project to go forward within the context and water allocation of the Upper Colorado Compact, as well as establishing priorities for the withdrawals for the project. There is no compact administration, and there is no allocation beyond what is contained in the Upper Colorado Compact (in this case, with respect to the San Juan and La Plata Rivers.)

The compact may not mean much because the project may never be completed. The project was intended to take water from the Animas south of Durango and put it into the La Plata, to be used for irrigation, municipal, and industrial use, as well as for recreation and fish and wildlife. Originally, a total of 72,000 acres were to be irrigated from the project, 23 percent in New Mexico and 77 percent in Colorado, with an additional 76,200 acre feet provided for municipal and industrial use<sup>127</sup>. Subsequent plans called for irrigation for 42,300 acres in Colorado, 5,630 acres in New Mexico, and to provide 26,500 acre feet per year to the Southern Ute Tribe<sup>128</sup>. The feasibility study was approved in 1962<sup>129</sup>, but there have been numerous roadblocks since that time. Problems include both cost and environmental issues<sup>130</sup>.

Although there has been some construction, a lawsuit is pending to require a supplemental Environmental Impact Statement, and that is holding up further construction. If construction does proceed (according to current plans set forth in a Memorandum of Understanding between the states of Colorado, Utah, and New Mexico, the Secretary of the Interior, and the Southern Ute, Ute Mountain Ute, and Jicarilla Apache tribes) the Project would entail an initial depletion of 57,000 acre feet per year to allow construction of a dam, reservoir, and pumping plant south of Durango. There would then be seven years of study to determine the effect on endangered species habitat, including operation of Navajo Dam on the San Juan River to mimic natural hydrographs<sup>131</sup>.

It is uncertain whether the project will ever be completed, but the problems associated with it illustrate one of the growing tensions in western water allocation, namely between the agricultural, off-stream users and those who want to preserve the natural flow of the rivers. An article in the *New York Times* expressed it succinctly:

Attorneys for the tribes say that most of the opposition comes from prosperous newcomers drawn to the beauty of the region who do not depend on local jobs. "Don't my clients have a right to live on the Western Slope?" [an attorney for the tribes] asked, referring to the scenic western edge of the Continental Divide. "Or is it going to be only people in \$1 million dollar houses in Telluride?"<sup>132</sup>

Backers of the project hope that Dan Beard, new head of the Bureau of Reclamation, will push the project along. Senator Campbell of Colorado apparently made his vote for Beard contingent on a commitment by Beard to support the project<sup>133</sup>.

### Summary

Water is scarce in the Southwest, and the states of the Colorado River Basin have spent many years in court and in negotiations dividing the available supplies. The compacts have survived, and functioned as planned (although the Animas-La Plata Compact may become moot if the underlying water development project does not materialize). Despite frequent litigation at the Supreme Court, the underlying division of the Colorado between the Upper and Lower Basins has survived. Increasing pressure on water resources may place additional stress on that division in future years, but for the present, these compacts would have to be classified as successes.



## Chapter Notes

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37. Norris Hundley, Jr., *supra*, n. 1, p. 9.
38. 43 U.S.C. §617 et. seq.
39. Norris Hundley, Jr., *supra*, n. 1, pp. 25-28.
40. Colorado River Compact, Article III.
41. *Ibid.*, Article III(a).
42. *Ibid.*, Article III(b).
43. *Ibid.*, Article III(c).
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55. Article IV (a) of the Colorado River Compact begins with the recital that "Inasmuch as the Colorado river has ceased to be navigable for commerce and the reservation of its waters would seriously limit the development of the basin...."
56. Arizona v. California, 283 U.S. 451 (1931).
57. United States v. Arizona, 295 U.S. 174 (1935).
58. 49 Stat. 1039 (1935).
59. Geographically, parts of Arizona, California, Nevada, Utah, and New Mexico are drained by the Colorado or its tributaries. In general use, however, California, Arizona, and Nevada are referred to as the Lower Basin States, while New Mexico, Utah, Colorado, and Wyoming are referred to as the Upper Basin States. This distinction comes in part from the Upper Colorado Compact, which defines the latter four states as states of the "Upper Division."
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62. Arizona v. California, 439 U.S. 419 (1979).
63. Upper Colorado River Commission, *Fifteenth Annual Report of the Upper Colorado River Commission* (Salt Lake City: Upper Colorado River Commission, 1963), 34.
64. S. E. Reynolds, *supra*, n. 24. See also Edward W. Clyde, "Institutional Response to Prolonged Drought," in *New Courses for the Colorado River*, ed. Gary D. Weatherford and F. Lee Brown (Albuquerque: University of New Mexico Press, 1986), 109-38.
65. 207 U.S. 564 (1908).
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68. Upper Colorado River Commission, *Forty-fourth Annual Report of the Upper Colorado River Commission* (Salt Lake City: Upper Colorado River Commission, 1992), 22-23.
69. *Ibid.*
70. Wayne Cook, *supra*, n. 10.
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75. David H. Getches and Charles J. Meyers, *supra*, n. 21, pp. 62-66.
76. Allen V. Kneese and Gilbert Bonem, *supra*, n. 71, pp. 94-98.
77. David H. Getches and Charles J. Meyers, *supra*, n. 21, p. 66.
78. *Ibid.*, at 68.
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80. Arizona v. California, 373 U.S. 546 (1963).
81. John W. Shields, Wyoming State Engineer's Office, Interstate Streams Division, verbal communication (9 June, 1993).
82. S. E. Reynolds, *supra*, n. 24, pp. 7-13.
83. Charles Meyers, "The Colorado River," *Stanford Law Review* 19 (1966): 7.
84. *Ibid.*
85. *Ibid.*, p. 26.
86. John W. Shields, Wyoming State Engineer's Office, Interstate Streams Division, verbal communication (9 June, 1993).

87. Wayne Cook, *supra*, n. 10.
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89. David H. Getches and Charles J. Meyers, *supra*, n. 21, pp. 56-58.
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95. See *Sporhase v. Nebraska ex rel. Douglas*, 458 U.S. 941 (1982).
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## CHAPTER 4

### THE PECOS RIVER

Although the Pecos River is a tributary of the Rio Grande, it deserves a chapter of its own, reflecting its status as the prime example of a river whose attempted allocation by compact did not work. The story of the Pecos River Compact illustrates many of the difficulties encountered when trying to divide the waters of western rivers, and shows that good intentions, hard work, and detailed planning may not be enough to guarantee success.

#### The Geographic Setting

The Pecos rises in the Sangre de Cristo Mountains northeast of Santa Fe, New Mexico. The headwaters are not far from the Rio Grande; from the crest of the mountains above the Santa Fe Ski Basin, it is possible to see both river valleys. Seven hundred and fifty miles to the South, the Pecos finally discharges into the Rio Grande near Langtry, Texas, if there is any water left to discharge<sup>1</sup> (see Figure 2).

One author has written, "The Pecos begins in mountain wilderness and ends in furnace desert with not much in between but long horizon and hard blue sky."<sup>2</sup> In fact, while that "in between" stretch may not be densely populated, it is a region with a number of cities and a long agricultural tradition, all dependent on the water



Figure 2: The Pecos River

supplied by the Pecos. The basic problem is that the Pecos does not carry enough water to satisfy all of those demands.

The river flows through a semiarid land, with the exception of a few high mountain peaks in the North and on the western edge of the basin. Precipitation over most of the basin is between eleven and fourteen inches, although the highest peaks in the Sangre de Cristo Range may receive above thirty inches, and the higher southern mountains on the western side of the basin, such as Sierra Blanca, may average above twenty inches<sup>3</sup>.

Precipitation is concentrated in the summer months, with about 75 percent of the total coming in thunderstorms during the May to October growing season<sup>4</sup>. Only in the higher mountains is there significant snowfall, and even there, summer precipitation is greater than winter. Humidity is generally low. Summer temperatures, except in the higher mountains, tend to be hot, with average maximum monthly temperatures in the lowlands from Santa Rosa south tending to be in the 92° to 96° (F.) range. There is also a high level of sunshine — Roswell, for example, receives about 75 percent of all possible insolation each year<sup>5</sup>.

The high temperatures coupled with low humidity results in the effective precipitation in the Pecos Basin being even lower than the raw numbers might suggest. Much of the rainfall is returned to the atmosphere almost immediately through evaporation, leaving little available for runoff in the river. The Pecos is not unique in this regard; many western river basins suffer from similar conditions.

The Pecos is not a large river. After rising in the Pecos Wilderness area east

of Santa Fe, it flows southeast and then south for 435 miles through the high plains of eastern New Mexico to the Texas border, and then another 320 miles through west Texas to join the Rio Grande at the head of Amistad Reservoir. From 1938 to 1991, the "average" annual discharge of the river at Artesia was 172,400 acre feet<sup>6</sup>, but the use of the word average may be misleading. During those same years, the flow fluctuated from 1,351,000 acre feet in 1941 to a low of 44,120 acre feet in 1964, a variation of more than 3000 percent. In recent years, the flow has been less; between 1963 and 1982, the average was only 105,700 acre feet<sup>7</sup>. Daily flows have ranged from zero on a number of occasions to an estimated 82,000 feet per second (sufficient to wash out the Avalon Dam<sup>8</sup>). In fact, the flow of the river is so irregular that the chairman of the Engineering Committee that developed the data for drafting a compact in 1948 stated that "This committee does not know what the ordinary flow of the Pecos is<sup>9</sup>."

The Pecos basin takes in 20,000 square miles of New Mexico and 15,000 square miles of Texas, and is sometimes divided for study into three sub-basins. The Upper Basin extends from the Sangre de Cristo range to the area of Fort Sumner. The Middle Basin, from Fort Sumner to the Texas state line, is an area of rolling plains and the Roswell Artesian Basin. The Lower Basin is in Texas, from Red Bluff Reservoir to the Rio Grande. In this Lower Basin, irrigation extends for about 110 miles, as far as Girvin. Downstream from Girvin, the topography becomes increasingly rough and for the last 100 miles the river flows through a deep canyon<sup>10</sup>.

The Upper Basin consists primarily of narrow canyons and valleys, irrigated by

community ditch systems since the late eighteenth century. Elevations at the valley floors range from 4,300 feet to 8,000 feet, while the surrounding mountains rise 10,000 to 13,000 feet. This is the only stretch of the Pecos with perennial tributaries, fed by snowmelt and summer storms over the mountains. These are typical mountain creeks in steep canyons with narrow floors. The largest of these upper tributaries, the Gallinas River, flows through the plains east of the mountains; it often disappears downstream from Las Vegas<sup>11</sup>.

The Upper Basin has a long history of settlement. When Coronado passed through in 1540, the Pueblo of Cicuye (whose ruins are now known as the Pecos National Monument) was a power on the plains, with a population of 2000<sup>12</sup>. Subsequent Spanish colonization led to the establishment of small settlements dependent upon community ditches<sup>13</sup>.

Even in the Upper Basin, close to the mountain sources of moisture, the river often disappears, swallowed by channel losses only to re-emerge as springs or groundwater inflow at some point downstream. The river often disappears around Colonias, for example, only to reappear in the area of Santa Rosa<sup>14</sup>.

The Middle Basin begins around Fort Sumner, where the valley widens into rolling plains for a distance of about seventy miles to the south. These plains merge into the Roswell Artesian Basin, which extends for another sixty miles along the river, until the Pecos enters the narrows below McMillan Dam. The valley then widens again at Avalon into the broad valleys developed as the Carlsbad Project.

This Middle Basin was for many years the domain of the cattlemen,

memorialized in any number of westerns. This was the land of Billy the Kid and John Chisum and the Lincoln County Wars, but here too irrigated agriculture has a history dating back into the last century. Much of this area is still used for grazing of sheep and cattle, and south of Santa Rosa, New Mexico, trees are rare. In fact, there is even a town named for that — Notrees, Texas, located just to the east of the eastern boundary of the Pecos drainage. Oil and gas are major industries in both the New Mexico and Texas portions of the Basin, and potash mining has been significant near Carlsbad.

The principal irrigated areas in the Pecos Basin are in the Fort Sumner (begun in 1863), Roswell and Carlsbad areas. Farmers around Roswell tapped the Rio Hondo (one of the few tributaries of the Pecos in the Middle Basin) in the period from 1899 to 1904<sup>15</sup>. Even before that, in 1891, the first Artesian well was completed in the Roswell basin; around Roswell much of the irrigation is not with water drawn directly from the river, but from artesian wells. Use of artesian water, which is hydrologically connected to the river, began in earnest in the first decade of this century. Subsequent irrigation in the Roswell area was accomplished with shallow groundwater wells, especially in the 1930s. This shallow groundwater is also tributary to the Pecos.

The Carlsbad area received irrigation water from two dams, McMillan and Avalon, completed in 1893. Both of these have experienced severe silting problems<sup>16</sup>. More recently, the Carlsbad Project has received water from the Alamogordo Reservoir (completed in 1937).

The Lower Basin, from the Texas-New Mexico border to the Rio Grande, saw the construction of irrigation ditches as early as 1876. Beginning about 1888, there was steady development for 25 years, extending downriver as far as Girvin. Below Girvin, the valley is too steep and the land too rough to make irrigation works practicable. All of these projects were dependent on the river flow, which was unreliable, so the ditch companies combined to form the Red Bluff Water Power Control District in 1934; the Red Bluff Reservoir was completed in 1936 as a Public Works Administration Project<sup>17</sup>.

These developments needed a dependable water supply, and the Pecos is a fickle stream, often disappearing into its bed only to reappear when recharged by groundwater or irrigation return flows. The only significant tributaries in the Middle Basin flow from the mountains to the west, and few of these streams actually reach the Pecos River. Those which do reach the river are often dry in their middle reaches but are recharged by groundwater near the river<sup>18</sup>. That groundwater is also used for irrigation, and by the 1930s the groundwater supply was threatened with exhaustion from overdraft, as was the Artesian basin. A dependable irrigation supply depends upon the system of reservoirs. The first two, Avalon and McMillan, were rebuilt and enlarged from time to time, but McMillan leaked, especially into the sinkholes which dot the Carlsbad region. Construction of the Alamogordo Reservoir was intended to offset those losses. Even in 1948, the water supply was inadequate to serve the existing level of development, in which about 210,000 acres were irrigated within the entire Pecos basin, 156,000 in New Mexico and 54,000 in Texas<sup>19</sup>.

To add to the problems created by natural shortages of water, the Pecos also has a salinity problem. In 1948, the Engineering Advisory Committee to the Compact Commission reported that "The quality of Pecos River water probably always has been bad, becoming increasingly worse downstream<sup>20</sup>." In the Malaga Bend area near the state line, a "virtual sea" of brine under artesian pressure feeds the river and contributes about 120,000 tons of salt per year to the river<sup>21</sup>. Flows into Texas are thus limited both in quantity, due to the hydrology of the river and its natural fluctuations, and quality, due to the natural injection of brine.

One further problem affecting demands on the Pecos is that much of the river channel is lined with salt cedars, which transpire large quantities of water into the atmosphere, as much as 6 acre feet per acre per year<sup>22</sup>. Above McMillan Dam, salt cedars covered 13,000 acres in 1939<sup>23</sup>. In 1948, the loss from these salt cedars was estimated to be 55,000 acre feet annually<sup>24</sup>. The salt cedar problem was significant enough in 1948 that the compact specifically provided that beneficial consumption did not include water lost by the encroachment of salt cedars<sup>25</sup>. Efforts have been underway since at least 1967 to remove these phreatophytes, but they continue to pose a problem.

There are few cities of any size along the Pecos or its tributaries. In New Mexico, Las Vegas (1940 population 12,362; 1990 population 20,071) uses the waters of the Gallinas. Further downstream, the areas around the New Mexico cities of Roswell (1940 population 13,482; 1990 population 45,329) and Carlsbad (1940 population 7,116; 1990 population 24,952) constitute the main centers of New Mexico



demand. In Texas, the largest town is Pecos (1940 population 4,860; 1990 population 12,609)<sup>26</sup>.

Even with this relatively small population within its basin, the river does not have enough water to meet the demands placed upon it. That was the case in 1948, when the present compact was negotiated, and it is even more the case today as cities such as Roswell and Carlsbad have grown, and the effects of groundwater pumping on the flow of the river have become apparent. The Pecos River Compact of 1948 was an effort to resolve those problems, but it did not do so. This failure is in part due to problems inherent in the compact itself, but those problems may also have been exacerbated by the historic antipathy between New Mexico and Texas.

#### Negotiating the Compact

It took a quarter century to finalize a compact on the Pecos. Compacts were twice before negotiated between Texas and New Mexico, but one or the other state had failed to ratify the pre-1948 agreements. In the meantime, pressure on the river continued to increase. Much of the delay might be understood on the basis of difficulty in negotiating an agreement aimed at such an uncertain target, but some of the delay might be attributed to an unarticulated, but nonetheless present, distrust of Texas by many New Mexicans.

#### New Mexico and Texas — 150 Years of Disputes

Relations between New Mexico and Texas have been strained since the early

days of the Texas Republic<sup>27</sup>. After gaining independence from Mexico in 1836, Texas began to look longingly upon its neighbor to the west, New Mexico, which was still a part of the Republic of Mexico<sup>28</sup>. In part, Texas' plan came from a desire to divert or control the lucrative Santa Fe trade, and seemed to be a way in which the new republic might be able to restore its depleted coffers. In 1841, Texas President Mirabeau B. Lamar sent a commercial and military expedition to Santa Fe, expecting New Mexicans to jump at the chance of joining with Texas, which claimed all land east of the Rio Grande despite the fact that the historic boundaries of New Mexico, never well-defined, penetrated far to the east of the current Texas/New Mexico border. The Texans surrendered by the time they reached Anton Chico, on the Pecos<sup>29</sup>.

In 1843, another group of Texans raided the town of Mora, in Northern New Mexico. They were again defeated and thrown out. In that same year another group of 180 Texans raided the Santa Fe Trail caravan along the Arkansas River and were similarly repulsed. Another New Mexico wagon train was set upon and its members murdered. Although some of the Texans were caught and hanged, the incident caused additional hard feelings in New Mexico<sup>30</sup>.

After the United States conquest of New Mexico in 1846, many Texans assumed that New Mexico would be engrafted onto Texas, and Texas even presumed to appoint officials for New Mexico counties. It was not successful in doing so because the New Mexicans paid no attention to the Texas appointees. The Civil War brought yet another Texas invasion, which, like its predecessors, was thrown back,

although not before the Texans had penetrated from Fort Bliss (near El Paso) as far north as Glorieta Pass.

Post Civil War years saw a new influx of Texans into New Mexico, although now as individuals rather than organized invaders. Prejudice against the existing New Mexican population came with them and was returned in kind, and the word "tejano" became a common pejorative in New Mexico except in what became known as "Little Texas," the flat plains of the Pecos valley in the southeastern part of the state. The continuing influx of "tejanos" became a matter of increasing concern in New Mexico, and remains so in some areas to this day.

#### The 1925 Proposal for a Compact

It was against this background of distrust that New Mexico and Texas attempted to negotiate the division of the Pecos River. A Compact Commission was created in 1923 as a result of years of pressure by Texas to develop a storage reservoir to supply water to the ditches in the Lower Basin. This first commission produced a draft of a compact during a four-day meeting in El Paso in late 1924. An amended draft was then agreed on in a one-day meeting in Santa Fe, and was signed by the commissioners and submitted to the two state legislatures for ratification.

This compact provided that all existing rights would be unimpaired; its purpose was to apportion any unappropriated flows and any flood waters. In addition, it barred the issuance of any permits for storage of more than 10,000 acre feet in the Upper Basin until 1940. In the Middle Basin, New Mexico would have the right to

divert water for the irrigation of 76,000 acres in perpetuity, while Texas would have the right to build a reservoir at Red Bluff to irrigate 40,000 acres in the Lower Basin. Any surplus was to be divided equally between the two states. In addition, New Mexico could increase irrigation after 1940 by 1/5 acre for every acre foot of storage capacity below 250,000 acre feet developed in the Lower Basin, and for every acre foot of original storage capacity that remained unused or abandoned for more than five years in the Lower Basin<sup>31</sup>. This put pressure on Texas to do its development quickly; if Texas did not develop its capacity, New Mexico could renew development efforts after 1940. The restrictions on storage may seem odd, unless it is recalled that the flows of the river are very uneven. If Red Bluff Reservoir were ever to fill, it would have to be on the basis of flood flows, and it was therefore important that those flows not be intercepted upstream.

The New Mexico legislature ratified the 1941 compact, but the Governor vetoed the bill, based on concerns expressed by the Pecos Water Users Association and others about the possibility that the compact would interfere with New Mexico's water laws. Texas ratified the proposed compact, but in 1931 rescinded its ratification and authorized its attorney general to file litigation if that became necessary to divide the waters of the river in a manner acceptable to Texas<sup>32</sup>.

The 1930s saw a new round of negotiations, this time prompted by efforts by both states to have the Federal Government develop further water supplies in the Pecos basin. Texas still wanted Red Bluff, while New Mexico needed improvements to insure the supply to the Carlsbad Project. In particular, New Mexico wanted the

Alamogordo Reservoir built upstream to replace the storage capacity that was being lost in McMillan Reservoir. McMillan had a serious silting problem, and also leaked large amounts through sinkholes. The Bureau of Reclamation by 1935 had the plans and funds to go ahead with the Alamogordo Reservoir, but Texas protested that the new reservoir would be harmful to the chances of developing a Texas reservoir at Red Bluff<sup>33</sup>.

To resolve the dispute, the Secretary of the Interior called representatives from the two states to a meeting in July 1935, and asked them to try and work out the problem. After several days of meetings, an agreement was executed between the Carlsbad Irrigation District on behalf of New Mexico interests, and a representative of the Ward County Irrigation District No. 1 for the Texas irrigators. The senators from the two states also signed<sup>34</sup>.

In effect, the agreement was that Texas would drop its opposition to the Alamogordo Reservoir if New Mexico agreed to let Texas receive the same proportion of flood waters originating above Avalon Dam as had passed Avalon during the past twenty years. New Mexico would also limit irrigation in the Middle Basin to 76,000 acres<sup>35</sup>.

The agreement was to go into effect when the Governor of New Mexico indicated his support for the proposal; a formal compact was then to be presented to the legislatures of the two states. The Governor of New Mexico announced his support for the proposal, and construction proceeded on the Alamogordo Reservoir. In due course, a bill to approve the agreement as a compact was introduced in the

Texas legislature, where it passed the Senate, but was not acted on by the House. As a result, no complementary legislation was introduced in the New Mexico legislature. In 1939, the compact bill was passed by both houses in Texas, but there was no corresponding New Mexico legislation so the states were left operating under the "temporary" agreement<sup>36</sup>. Alamogordo Reservoir was completed in 1937; Red Bluff was finished in 1936.

In 1939, the Secretary of the Interior, Harold Ickes, requested that the National Resources Committee undertake a major study of the water and related problems of the Pecos. The study was prompted by requests from the two states, as well as by the Federal interest in the irrigation projects in New Mexico and Texas which were competing for the water<sup>37</sup>.

In 1941, the Attorney General of Texas was again authorized by the Texas legislature to take legal action, including filing suit, to protect Texas' interests in the Pecos and to compel New Mexico to comply with the 1935 agreement. The legislature also authorized appointment of a compact commissioner to negotiate with New Mexico, should the attorney general determine that that was the best procedure. The compact negotiation route was chosen one more time, and another Pecos River Compact Commission was appointed in December 1942. Public meetings were held beginning in 1943, and the final document was fashioned in late 1948. The negotiation process included intensive engineering studies of the river, which formed the basis for a system of allocation based on the unsteady flow of the River<sup>38</sup>. Indeed, all matters considered by the Engineering Advisory Committee are

incorporated by reference into the compact<sup>39</sup>, resulting in the final "compact" being a half inch thick. The compact was approved by Congress in 1949<sup>40</sup>.

### The 1949 Compact

The final compact is a detailed document, complete with its own built-in legislative history and transcripts of final negotiating sessions<sup>41</sup>. For many years it appeared to function smoothly, even being held up as an example of how well compacts could function<sup>42</sup>. Eventually, though, the compact broke down; the Supreme Court has appointed its own representative to oversee operations.

### Allocation

The division of the water is based on a formula which is written in few words, but incorporates a great deal of engineering. The compact does not base its allocation on a straight percentage of flow; that was considered "not feasible or practical". In addition, it was felt that a compact based on irrigated acreage might be unfair because the effect of changes in natural losses or gains to flow in the river might not be reflected in a simple acreage-based system<sup>43</sup>. The method agreed upon is set out in Article III (a):

New Mexico shall not deplete by man's activities the flow of the Pecos River at the New Mexico-Texas state line below that which will give to Texas a quantity of water equivalent to that available to Texas under the 1947 condition.

The Compact defines the "1947 condition" as

that situation in the Pecos River Basin as described and defined in the Report of the Engineering Advisory Committee<sup>44</sup>.

It is important to realize that the "condition" of the river did not mean the amount of water present in 1947; rather, the phrase referred to the level of development in 1947. This specifically included the existing four reservoirs: Alamogordo, McMillan, Avalon, and Red Bluff<sup>45</sup>. As was explained in the final commission meeting,

It must be understood that the term "1947 condition" relates to the condition described in the report, and does not relate to the water supply that occurred in the year 1947<sup>46</sup>.

The significance of establishing the 1947 condition was that the Engineering Committee had developed an "Inflow-Outflow Manual"<sup>47</sup> for determining depletions and salvage based on the 1947 condition. The way the manual worked was simple in concept. Given X amount of inflow at point A, there should be Y amount of outflow at point B. If there is less than Y at point B, then something has caused a depletion beyond what would be expected under the 1947 condition, and the Commission would investigate to determine the reason for that depletion. If there were more than Y at point B, it would indicate successful salvage of water, which would be divided between Texas and New Mexico pursuant to Article III (c)<sup>48</sup>. In essence, this



allocation formula meant that New Mexico could not develop any further projects in the Pecos unless the water were obtained by salvage or unless other uses were retired to provide the water. Development was thus fixed as of 1947.

An important aspect of the allocation is that it makes New Mexico responsible only for depletion caused by "man's activities."<sup>49</sup> The loss from salt cedars, for example, would not be charged to New Mexico; the compact specifically excludes them from the definition of "deplete by man's activities,"<sup>50</sup> even though the plants are not native to the region and were introduced to the area by man.

Despite the detail of the engineering studies, one large gap appears to have been left in the allocation formula. The "1947 condition" referred to the condition of the river basin in 1947 as described and defined in the Report of the Engineering Advisory Committee<sup>51</sup>. At that time, there was extensive groundwater use in New Mexico, but the pumping had not at that time had an effect on the base flow of the river. It was pointed out that continued pumping at those rates would exhaust the shallow aquifers and deplete the inflow into the river<sup>52</sup>. The adverse effects of groundwater pumping were therefore "described" in the report, and could be included as part of the 1947 condition. There appears to be an ambiguity in the allocation as a result. The formula for "1947 condition" could be interpreted as meaning the condition of flow of the main stream as of 1947, which would exclude the effects of pumping, or it could mean that the effects of the pumping would be considered as a part of the 1947 condition whenever those effects finally reached the river because the pumping was described in the report as existing in 1947. In fact, as discussed below,

the Supreme Court eventually decided that the engineering report did not accurately reflect the condition of the river, and the Inflow-Outflow Manual based on that condition therefore had to be replaced.

### Administration

The compact created a Pecos River Commission, with one member each from New Mexico and Texas. There is also a federal representative, appointed by the President, but the federal representative has no vote<sup>53</sup>. The powers of the commission are focussed on collection and correlation of data and findings of fact; it has no power to actually allocate water within either state. If the commission should find that either state is not complying with its compact obligations (which, in practice, would mean that New Mexico was consuming too much water, since Texas has no obligations to ship water to New Mexico), the commission would inform the offending state, which would presumably then be obligated to correct that deficiency. The odds of this happening are somewhat reduced by the fact that any action of the commission requires a unanimous vote<sup>54</sup>.

### Dispute Resolution

The compact makes no provision for dispute resolution or for breaking any deadlock which might occur between the states. When an impasse is reached, the only recourse is litigation, and the Pecos has thus provided its share of Supreme Court opinions.

## Litigation and Other Problems

As decades have passed, the pressures on the Pecos have not decreased, and the water supply has not increased. As the effects of groundwater pumping have reached the river and reduced its base flow, without any expansion of use in New Mexico beyond that which existed in 1947, pressure on water supplies has become greater, and protracted litigation between Texas and New Mexico has resulted.

### Litigation

While the compact appeared to have been a technologically precise method of dealing with water allocation, there was one serious drawback: it did not work. Neither the 1948 Engineer's Report nor the Inflow-Outflow Manual accurately described the state of the river. In most years after 1949, the amount of water reaching the state line was substantially below what the 1948 Engineering Report and Inflow-Outflow Manual predicted, but with no obvious change in human use along the river in New Mexico to account for the deficit.

While the commission was able to agree on some things in its early years, it could not reach agreement on any new way to allocate the water. In 1957, the commission authorized a "Review of Basic Data", to try to get a more accurate picture of the 1947 condition; in 1959, a draft of a new Inflow-Outflow Manual was produced, but it was not adopted by the commission as an official replacement. As the Supreme Court concluded in 1983, agreements among the members of the commission in the first 15 years were reached by postponing consideration of these

more difficult issues<sup>55</sup>.

In 1970, the Texas commissioner claimed that by Texas calculations, there had been a delivery shortfall by New Mexico of 1.1 million acre feet between 1950 and 1969, and that Texas should be entitled to water under the formula set out in the original Inflow-Outflow Manual until something new was agreed upon. New Mexico did its own calculations based upon the 1957 Review of Basic Data, and disagreed with the Texas calculations. The commission was at an impasse, and in 1974, Texas filed suit in the United States Supreme Court seeking a decree commanding New Mexico to deliver water in accordance with the Compact<sup>56</sup>.

The procedural history of the litigation is set out in the 1983 and 1987 Supreme Court opinions in Texas v. New Mexico<sup>57</sup>. As is usually the case in suits between states, a special master was appointed to consider the problem. The first special master was Jean Breitenstein, a judge on the Tenth Circuit Court of Appeals and a recognized expert on western water law. The first report of the special master concluded that "[t]he 1947 condition is that situation in the Pecos River Basin which produced in New Mexico the man-made depletions resulting from the stage of development existing at the beginning of the year 1947 . . ." and that a new Inflow-Outflow Manual was required to reflect that true condition. The Supreme Court approved the report in full<sup>58</sup>.

The special master then spent two years taking evidence concerning the changes which should be made in the Inflow-Outflow Manual, but also reported that those changes could not be made without the approval of both states, which would not

happen. He therefore recommended that the Court designate some third party to sit on the commission and cast the tie-breaking vote.

The Court in its 1983 opinion held that it could not change the compact or the commission. The compact was, as a result of Congressional consent, a "law of the United States", which the Court said it was powerless to change absent unconstitutionality. Since the compact provided for only two members on the commission, and required unanimous vote, the Court held that it could not alter that arrangement to appoint an additional member. The Court also stated that it thought it would be unwise, and test the limits of proper judicial functions, for the court to undertake continuing supervision of water decrees, which would be the practical result if the court appointed a third member to the commission<sup>59</sup>. Instead, the Court continued the litigation but with a strong suggestion that New Mexico and Texas ought to be able to work out some sort of compromise<sup>60</sup>. In light of the general hostility between Texas and New Mexico and the particular animosity engendered by water disputes, that suggestion was unrealistic.

New Mexico and Texas at that time were also disputing the interpretation of the Canadian River Compact in Oklahoma and Texas v. New Mexico<sup>61</sup> (1991), and arguing over efforts by Texas to import New Mexico ground water in the vicinity of El Paso<sup>62</sup>. These additional disputes did not add to the likelihood of compromise between the two states, and the El Paso litigation in particular aroused strong emotions in New Mexico.

In 1987, the two states were again arguing before the Supreme Court about a

new Special Master's Report on the Pecos problem<sup>63</sup>. In 1984, the special master had recommended, and the Supreme Court had approved, a new inflow-outflow methodology to be used in calculating Texas' entitlement<sup>64</sup>. Since then, the states had been arguing about whether New Mexico had fulfilled its obligations under the new formula. The new special master, Charles Meyers (Judge Breitenstein had died in the interim), had found among other things that New Mexico owed Texas 340,100 acre feet of water to make up for past under-deliveries, and recommended that New Mexico be ordered to pay it to Texas over ten years, at the rate of 34,010 acre feet per year.

The Court agreed with the calculation of the delivery shortage, but the issue of an appropriate remedy was more difficult. New Mexico argued that under the compact, there was no provision for making up prior shortfalls. Since the Court had previously said it could not modify a compact absent unconstitutionality, New Mexico had a strong argument. The Court, however, shifted to a contract law analysis, emphasizing the nature of a compact as a contract. As such, the Court held that it could use its legal or equitable powers to fashion a remedy, but the choice of which remedy was still a problem. The Court concluded that damages, rather than repayment in water, might be appropriate and remanded the case back to the special master to recommend whether damages should be allowed, and if so, how much. The Court also entered an order requiring New Mexico to deliver water in conformity with the new formula approved by the Court<sup>65</sup>.

The Court's resolution is an interesting departure from its 1983 decision. If,

in fact, a compact is a law of the United States, and this compact contained a mechanism for determining entitlement to water, the Court should not have been able to "reform" that law even if that mechanism were flawed. The Court effectively reversed its position on the ability to modify a compact. An even greater departure, however, was the Court's appointment of a River Master to make the required calculations. In 1983, the Court had said it could not add a casting vote to the commission; in 1987, it bypassed the commission and appointed a separate decision maker. The Court specifically recognized that "The natural propensity of these two States to disagree if an allocation formula leaves room to do so cannot be ignored<sup>66</sup>."

The case is still open. The question of remedy was resolved, with New Mexico paying Texas \$14,000,000 in 1990 in satisfaction of all claims thorough 1986<sup>67</sup>, but the River Master is still in place, and presumably will be there as long as the river flows. His decisions are ultimately reviewable by the Court, and the Court has, in effect, taken upon itself the continued supervision of the water decree, despite its misgivings about doing so in 1983. The essential part of the compact, its allocation formula, has in effect been rewritten, and the administration has been redefined.

### Other Problems

While it might seem that the Pecos has seen enough trouble to suffice for any river, there are still problems left unresolved. Salinity is still a problem, and as it gets worse downstream, Texas may demand that New Mexico do something to remove

that salt load.

Perhaps more threatening is the possibility that endangered fish species live in the Pecos<sup>68</sup>. If such species are present, the federal reservoirs might be required to operate in such a manner as to guarantee certain levels of flow. Such water, if not discharged when needed for irrigation, would probably be lost to evaporation or other channel-type losses, reducing the amount available for beneficial consumptive use. If this "use" is considered to be beneficial and consumptive, it could be charged against New Mexico, pursuant to Article XII of the compact; if not, then the loss is eventually borne by Texas because New Mexico would not be charged with the depletion.

### Summary

The Pecos Compact was negotiated over a period of decades. Great effort went into understanding the hydrology of the river and the vagaries of its water supply and into crafting an allocation formula that recognized those realities. Nevertheless, the compact must be judged a failure. When the dispute between Texas and New Mexico arose, they were unable to resolve it within the framework of the compact, but had to appeal to the higher sovereign, in the form of the Supreme Court, and that higher sovereign in effect wrote a new agreement.

Why was this compact a failure? Perhaps it tried too hard. Rather than simply allocating water based on a percentage of flow geared to irrigated acreage or a flat amount of water to be delivered downstream, it attempted to model a complex



hydrological system and divide the water based on that model. The model was inaccurate. In fact, it carried the seeds of its own destruction because of the ambiguity with respect to groundwater pumping in the meaning of "1947 condition." The model may have been accurate for a period of time, but when it broke down, there was no fall-back position available. Neither state could "give away" any water because both were already facing shortages, and that meant that intervention by some third party would have to arbitrarily resolve the issue by coming up with a new system of allocation.

## Chapter Notes

1. The contribution of the Pecos has no effect on the Rio Grande Compact, which is concerned only with the Rio Grande above Fort Quitman, Texas, a distance of over 100 miles upstream from its confluence with the Pecos.
2. Cathy Newman, "The Pecos River," *National Geographic*, September 1993, 41.
3. National Resources Planning Board, *The Pecos River Joint Investigation. Reports of the Participating Agencies* (Washington, D.C.: United States Government Printing Office, 1942), 1-26.
4. *Ibid.*
5. *Ibid.*
6. J. P. Borland et. al., *Water Resources Data-- New Mexico Water Year 1991* (Albuquerque: United States Geological Survey, 1992), 328.
7. G. E. Welder, *Hydrologic Effects of Phreatophyte Control, Acme-Artesia Reach of the Pecos River, 1967-82*, Water Resources Investigations Report 87-4148 (Albuquerque: United States Geological Survey, 1988), 3-5.
8. J. P. Borland et. al., *supra*, n. 6, p. 328.
9. Pecos River Compact Commission, "Pecos River Compact Commission Meeting, November 8 to 13, 1948, inclusive. Austin, Texas," transcript, *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 75 (Washington, D.C.: Government Printing Office).
10. National Resources Planning Board, *supra*, n. 3, pp. 28-29.
11. *Ibid.* at 90, 99.
12. John Kessell, *Kiva, Cross and Crown. The Pecos Indians and New Mexico 1540-1840*, 1979 (Albuquerque: University of New Mexico Press, 1987).
13. National Resources Planning Board, *supra*, n. 3, p. 90.
14. *Ibid.*, at 59.
15. Engineering Advisory Committee to the Pecos River Compact Commission, "Report of Engineering Advisory Committee," *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 2 (Washington, D.C.: Government Printing Office).

16. *Ibid.*, at 30-31.
17. *Ibid.* at 41.
18. *Ibid.*, at 100.
19. Engineering Advisory Committee, *supra*, n. 15, p. 2.
20. *Ibid.*, at 13.
21. *Ibid.*
22. G. E. Welder, *supra*, n. 7, pp. 3-5.
23. National Resources Planning Board, *supra*, n. 3, p. 61.
24. Engineering Advisory Committee, *supra*, n. 15, p. xxvii.
25. Pecos River Compact, Article II (e).
26. Population figures for 1940 are from Table 114 in National Resources Planning Board, 1948, The Pecos River Joint Investigation in New Mexico and Texas, 1939-1941 (Washington, D.C.:National Resources Planning Board), p. 412. Population figures for 1990 are from the 1990 United States Census.
27. Erna Fergusson, *New Mexico: A Pageant of Three Peoples* (Albuquerque: University of New Mexico Press, 1973), 264-80.
28. For a discussion of Texas' territorial aspirations in the early years of the Republic, see D. W. Meinig, *Imperial Texas* (Austin: University of Texas Press, 1969).
29. *Ibid.*
30. *Ibid.*
31. National Resources Planning Board, *supra*, n. 3, pp. 40-41.
32. Engineering Advisory Committee, *supra*, n. 15, p. 5.
33. National Resources Planning Board, *supra*, n. 3, pp. 40-41.
34. *Ibid.*
35. *Ibid.*
36. *Ibid.*, at 43.

37. Ibid., pp. 48-51.
38. Berkeley Johnson, "Report of Federal Representative," *S. Doc. 109*, 81st Cong., 1st Sess. (1949): xi (Washington, D.C.: Government Printing Office).
39. United States. Congress. Senate. Committee on Interior and Insular Affairs, "Pecos River Compact," S. Rep. No. 409, 81st Cong., 1st Sess., *S. Doc. 109*, 81st Cong., 1st Sess. (1949): xiv (Washington, D.C.: Government Printing Office).
40. 63 Stat. 149 (1949).
41. The documents were collected together and bound as *Senate Document 109*, 81st Cong., 1st Sess.
42. R. Leach and R. Sugg, Jr., *The Administration of Interstate Compacts* (Baton Rouge: Louisiana State University Press, 1959).
43. Engineering Advisory Committee, *supra*, n. 15, p. xxxiii.
44. Pecos River Compact, Article II (e).
45. Engineering Advisory Committee, *supra*, n. 15, p. 10.
46. Pecos River Compact Commission, "Pecos River Compact Commission Meeting. December 3, 1948, Santa Fe, N. Mex.," transcript, *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 115 (Washington, D.C.: Government Printing Office).
47. Engineering Advisory Committee, "Manual of Inflow-Outflow Methods of Measuring Changes in Stream-flow Depletion. For Use in Commencement of Administration of Pecos River Compact," *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 145-72 (Washington, D.C.: Government Printing Office).
48. Pecos River Compact Commission, "Pecos River Compact Commission Meeting. December 3, 1948, Santa Fe, N. Mex.," transcript, *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 116-17 (Washington, D.C.: Government Printing Office).
49. Pecos River Compact, Article III (a).
50. Pecos River Compact, Article III (e).
51. Engineering Advisory Committee, *supra*, n. 15, p. 10.
52. Ibid., at 4.

53. Pecos River Compact, Article V.
54. Pecos River Compact Commission, "Pecos River Compact Commission Meeting. December 3, 1948, Santa Fe, N. Mex.," transcript, *S. Doc. 109*, 81st Cong., 1st Sess. (1948): 123-24 (Washington, D.C.: Government Printing Office).
55. Texas v. New Mexico, 462 U.S. 554, 560 (1983).
56. The two primary decisions in the case are Texas v. New Mexico, 462 U.S. 554 (1983); Texas v. New Mexico, 482 U.S. 124 (1987).
57. *Ibid.*
58. Texas v. New Mexico, 446 U.S. 540 (1980).
59. Texas v. New Mexico, 462 U.S. 566 (1983).
60. Texas v. New Mexico, 462 U.S. at 575.
61. 111 S. Ct. 2281 (1991).
62. City of El Paso v. Reynolds, 563 F. Supp. 679 (D.N.M., 1983); 597 F. Supp. 694 (D.N.M., 1984).
63. Texas v. New Mexico, 482 U.S. 124 (1987).
64. Texas v. New Mexico, 467 U.S. 1238 (1984).
65. Texas v. New Mexico, 482 U.S. 124 (1987).
66. *Ibid.*, at 134.
67. Texas v. New Mexico, 485 U.S. 388 (1990).
68. John Whipple, Staff Engineer, Office of the New Mexico State Engineer, verbal communication (1 June, 1993).

## CHAPTER 5

### THE UPPER RIO GRANDE BASIN

The Upper Rio Grande Basin is home to two compacts, the Rio Grande Compact<sup>1</sup> between Colorado, New Mexico, and Texas, and the Costilla Creek Compact<sup>2</sup> between Colorado and New Mexico. Both compacts are replacements for earlier agreements. The current Costilla Creek Compact reflects amendments made in 1963 to a 1944 compact<sup>3</sup>, while the present Rio Grande Compact was signed in 1938, replacing a temporary agreement made between the states in 1929<sup>4</sup>. There the similarity ends. The Rio Grande Compact allocates water from 650 miles of river draining tens of thousands of square miles and inhabited by over a million people; Costilla Creek drains a few hundred square miles and supplies water to isolated mountain communities and several small irrigation systems.

#### The Geographic Setting

The Rio Grande is the second longest river in North America, but length does not always equate with discharge. It has been referred to as "the fabled, historic, and forever undependable Rio Grande."<sup>5</sup> Undependable it may be, but it is the lifeblood of the people inhabiting its valleys from Colorado to Texas. The river rises in the mountains of southern Colorado, flowing about 180 miles across that state until it

reaches the New Mexico border. The river then bisects New Mexico as it flows south for a distance of some 400 miles, entering Texas at El Paso (see Figure 3.) For the next 1,250 miles, it forms the border between Texas and Mexico<sup>6</sup>.

Costilla Creek is a small tributary of the Rio Grande, rising in the Sangre de Cristo Mountains on the border between Colorado and New Mexico, flowing south and west out of the mountains and then bending north into the San Luis Valley of Colorado. It then curves south to cross the border again and, if any water remains in its channel, discharges into the Rio Grande just south of the Colorado-New Mexico border.

The Rio Grande is often said to have three separate regimes in the United States<sup>7</sup>: the river from its head in Colorado to Fort Quitman, Texas; the Pecos River<sup>8</sup>; and the mainstem from Fort Quitman to the Gulf. Although the river is shown on maps and in reference books as being a single stream over 1800 miles long, it is more accurate to describe it as two rivers. The first flows from Colorado to the canyons below Ft. Quitman, Texas (about 80 miles south of El Paso)<sup>9</sup>. By the time the river reaches that point, most of its water has been lost to natural processes or irrigation and only a trickle, if that much, remains to flow downstream<sup>10</sup>. It becomes a river again when it is joined 200 miles further south near Presidio, Texas, by the Rio Concho flowing east out of Mexico<sup>11</sup>. The area above Ft. Quitman is called the Upper Rio Grande, and is the subject of the compact. The Lower Rio Grande is divided between the United States and Mexico by a 1944 treaty<sup>12</sup>.

In Southern Colorado, the Rio Grande and its major Colorado tributary, the

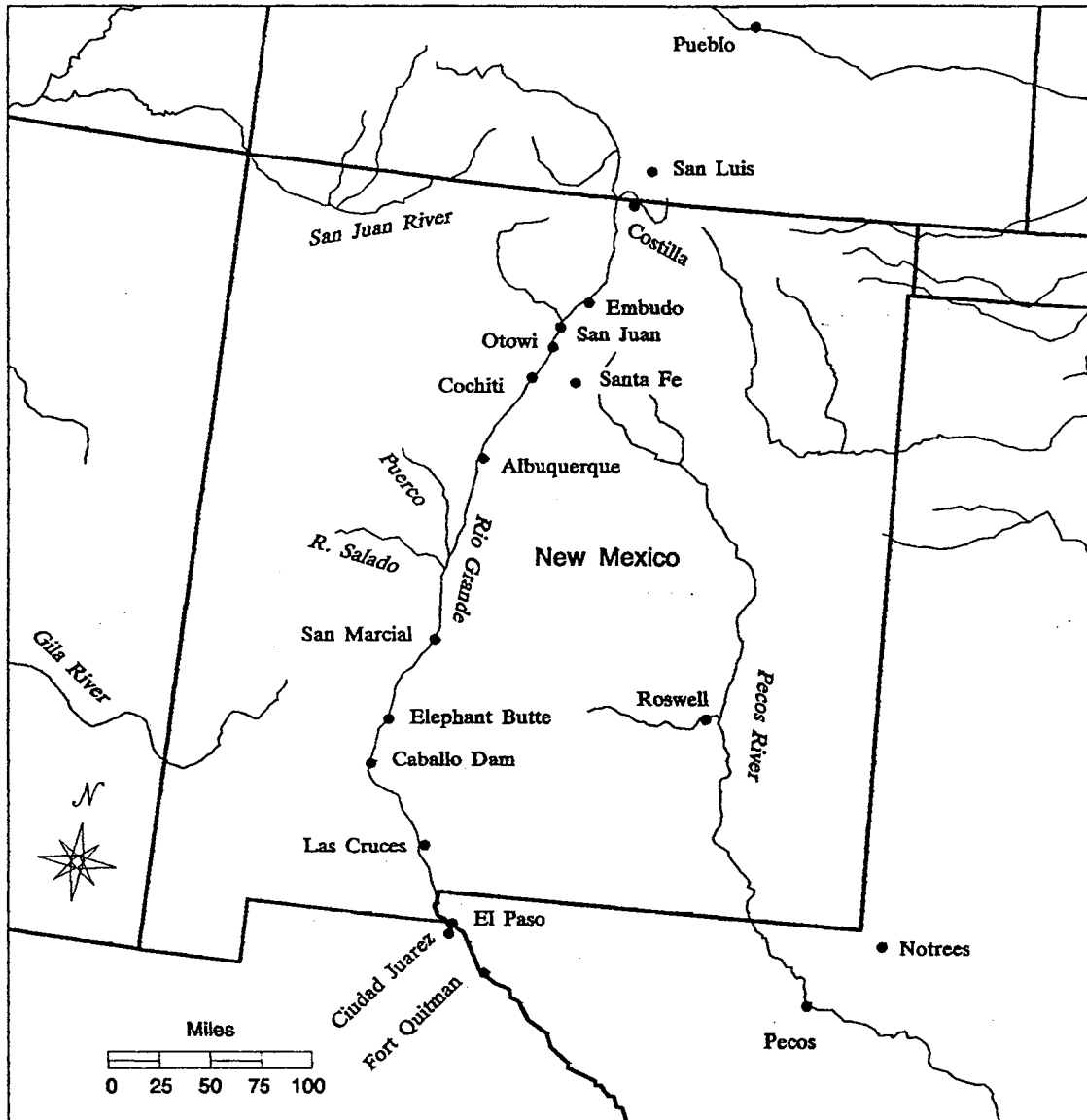


Figure 3: The Upper Rio Grande



Conejos River, pass through the large San Luis Valley where several hundred thousand acres of land have been irrigated for many years. Then for a distance of more than a hundred miles the river flows through a series of canyons where it enters the Middle Rio Grande Valley of New Mexico. This valley ends about 120 miles below Albuquerque, just upstream from Elephant Butte Reservoir. Completed in 1916, Elephant Butte stores water for the irrigation of lands in the Bureau of Reclamation's Rio Grande Project in New Mexico and Texas and for the delivery of 60,000 acre feet of water to Mexico each year pursuant to the Treaty of 1906<sup>13</sup>. This area below Elephant Butte comprises the third section of the river<sup>14</sup>.

The "producing" area of the Upper Rio Grande, that is, the part of the basin which produces more water than is consumed, is above Otowi, north of Santa Fe. From there to Ft. Quitman, the river loses more water than it gains. Streamflow is gained in three main reaches above Otowi: the San Juan Mountains of Colorado upstream from the Del Norte gaging station; the Costilla Plains between the Colorado/New Mexico border and Embudo, 100 miles to the south; and between Embudo and Otowi in the Española Valley, where the Rio Chama provides an average inflow of 602 cfs<sup>15</sup> (about 440,000 acre feet per year).

Precipitation, much of it in the form of winter snow, may exceed 50 inches per year in the northernmost mountains of the basin, but by the time the river reaches Albuquerque, the annual average is only 8 inches<sup>16</sup>. Even in mountain areas, a seasonal snow water accumulation of over 20 inches is rare<sup>17</sup>. More than 99 per cent of the water in the Upper Rio Grande comes from runoff from these mountains in

Colorado and New Mexico, in approximately equal amounts<sup>18</sup>. The virgin water supply (that is, the amount which would be available absent any human consumption or withdrawal) is estimated to consist of 1,567,000 acre feet per year from 7,980 square miles of watershed in Colorado; 1,475,000 acre feet from 24,463 square miles in New Mexico; and about 11,000 acre feet each from Mexico and from Texas, each with about 800 square miles of drainage basin<sup>19</sup>. The contribution to downstream flow from Colorado is somewhat less than the figures above indicate because they include the virgin supply from 2,940 square miles of "Closed Basin" in the San Luis Valley, which is considered part of the Rio Grande Basin but which has no natural outflow to the river; the Closed Basin generates about 187,000 acre feet of runoff annually<sup>20</sup>.

Within Colorado, the Rio Grande headwaters are on the wrong side of the mountains to receive maximum precipitation. Storms generally enter the region from the west and southwest, and give up much of their moisture on the windward side of the mountains, leaving the remnants for the Rio Grande<sup>21</sup>. In the Sangre de Cristo mountains, snowpack is generally under 30 inches in terms of water content; the supply is generally slightly above 30 inches from the San Juan Mountains on the western side of the San Luis Valley. At Wolf Creek Pass, for example, the average snowpack on April 1 is 179 inches, with a water content of 29 inches<sup>22</sup>.

The river has few reliable tributaries. In Colorado, the principal tributary is the Conejos, while in New Mexico, the main tributary is the Rio Chama. Below Cochiti (at the mouth of White Rock Canyon), there are no perennial tributaries until

the Concho joins the Rio Grande hundreds of miles to the south<sup>23</sup>. This reach below Cochiti collects water from a number of major drainages, such as the Rio Puerco and Rio Salado, but low precipitation, a dry climate, human use, and consumption by riparian vegetation often leave these streams dry, except after substantial rains<sup>24</sup>. The Puerco, and other tributaries further downstream, sometimes seem to produce more sediment than water. These sub-basins generate only .1 to .2 inches of runoff per square mile, but the Puerco alone has been estimated to contribute over fifty 50 percent of the sediment entering the Rio Grande above Elephant Butte in years when it has supplied only six percent of the water<sup>25</sup>.

### Competition for Water

Set against this environment of limited supply is a great demand for water from the river. When the Espejo expedition passed through the region in 1539, it found Indians irrigating about 25,000 acres. Spanish colonists brought their own water institutions, and then the Anglo-Americans arrived, with yet different ideas about property rights and water management. The region has one of the longest histories of irrigated agriculture in the United States, but is still marked by poverty in rural areas in both the northern and southern sections of the Upper Basin<sup>26</sup>.

In considering the demands placed on the river, it is easiest to divide the Upper Basin into three sections: the San Luis section in Colorado; the Middle section in New Mexico; and the Elephant Butte section in southern New Mexico, extreme west Texas, and adjacent portions of Mexico<sup>27</sup>.

## San Luis Valley

The San Luis Valley extends north from the Colorado/New Mexico border. It is a broad, north-south trending structural depression of smooth topography surrounded by mountains, except on the south where the river has cut an outlet for the southern portion of the valley. The northern portion does not drain to the river and is known as the Closed Basin<sup>28</sup>. The valley floor ranges in altitude from 7,440 to 8,000 feet and the surrounding mountains from 10,000 to more than 14,000 feet<sup>29</sup>.

San Luis, in the southeastern part of the valley, is the oldest town in Colorado<sup>30</sup>. Irrigated agriculture on a small scale began with the arrival of Spanish settlers in the early 1600s, but increased rapidly in the late 1800s. The earliest irrigation court decree in the valley dates back to 1852<sup>31</sup>, and growth was such that by 1904 all streams entering the Alamosa Basin were appropriated<sup>32</sup>. Each Colorado engineer's biennial report through the 1890s onwards mentioned a shortage of water in the valley<sup>33</sup>. By the time of the 1929 compact, about 600,000 acres were being irrigated within the valley<sup>34</sup>.

Irrigated agriculture remains an important part of the economy, but the valley is semi-arid, and without irrigation a successful agricultural economy would not be possible. The principal crops produced in the valley are small grains, alfalfa, native hay, sugar beets, potatoes, and vegetables<sup>35</sup>. Population is still sparse. In 1990, Alamosa was the only town in the valley with a population greater than 5,000<sup>36</sup>.

## The Middle Section

The Middle Section of the river extends from the Colorado border to Elephant Butte Reservoir. This "section" should not be confused with the Middle Rio Grande Valley, which is the name given to that area from Cochiti south to San Marcial. The Middle Valley is a part of the Middle Section, but the Middle Section also includes that part of the Rio Grande basin from Cochiti north to the Colorado border. The confusion is the result of the "Middle Rio Grande Project" in the 1940s and 1950s. The project did not include the entire middle "section", but the use of the phrase "Middle Rio Grande" took on this additional meaning of the area from Cochiti to San Marcial.

The Middle Section leaves Colorado in a canyon (up to 1,200 feet deep) running south to Embudo. At Embudo, the river valley widens out into the four to five mile wide Española Valley for the next twenty-five miles. The river then flows through the narrow, basaltic White Rock Canyon for twenty-five miles until it reaches Cochiti, where it has been dammed. Below Cochiti the valley opens into the Middle Rio Grande Valley to San Marcial, a distance of about 125 miles. The river valley itself is one to five miles in width<sup>37</sup>, but it is part of a larger basin marked by mesas and terraces along both flanks.

The history of irrigated agriculture in the Middle Rio Grande extends as far back in time as anywhere in the country. The climate is arid, with Albuquerque averaging about eight inches, so irrigation has always been necessary for profitable agriculture. The first irrigators were Indians; there were irrigated fields when

Coronado passed through in 1540<sup>38</sup>, and irrigation was practiced in prehistoric times by the Anasazi, the ancestors of the modern Pueblos<sup>39</sup>.

Spanish colonization began in 1598 at San Gabriel, near San Juan pueblo and the confluence of the Chama and the Rio Grande. By 1750, perhaps 4,000 colonists had settled in the Middle Section. In 1848, the region was taken over by the United States, with a great influx of Anglo settlers after the Civil War<sup>40</sup>. Even with its long history of irrigation, however, the middle Rio Grande never developed irrigation to the extent seen in the Upper or Lower sections. At the time of the current compact, there were about 8,000 acres irrigated in the Española Valley, about 60,000 in the Middle Valley, and about 87,000 on the various tributaries<sup>41</sup>. In the Middle Valley in particular, irrigation had fallen off from previous higher levels because of waterlogging of fields and deterioration of the irrigation works<sup>42</sup>; this was remedied to some extent by the Middle Rio Grande Project of the mid-1930s, which now provides water for irrigation of about 89,000 acres in the Middle Valley<sup>43</sup>.

The Middle Section of the Rio Grande contains over half of New Mexico's population. Bernalillo County, which includes Albuquerque, had a 1990 population of 480,577; other counties in the Middle Section (including Sandoval, Santa Fe, Rio Arriba, Los Alamos, Taos and Valencia) bring the total to more than 750,000<sup>44</sup>.

### The Lower Section

The Lower section begins with the 45-mile-long Elephant Butte Reservoir. About twenty-five miles below Elephant Butte is Caballo Dam, and downstream from

Caballo are the Rincon and Mesilla Valleys, extending about fifty-five miles downstream to the mountains at El Paso. Below El Paso to Ft. Quitman is another valley perhaps ninety miles long and five to six miles in width<sup>45</sup>. Irrigation in the El Paso-Juarez area dates at least back to the establishment of a Spanish mission in 1659 in what is now downtown Juarez; there appears to be little evidence of irrigation prior to that time. Under the Spanish, irrigation reached about 40,000 acres, but lack of proper drainage reduced that to a small fraction by the mid-1800s<sup>46</sup>. Irrigation in this section of the river was subsequently developed as the Rio Grande Project by the Bureau of Reclamation in conjunction with the construction of Elephant Butte Dam and reservoir. The project was authorized in 1905 and served the dual purpose of providing conservation storage for water needed to meet the 60,000 acre foot per annum obligation of the treaty with Mexico executed in 1906 as well as providing the water for development of these lower valleys. Elephant Butte Dam is the key to the Rio Grande Project, having a storage capacity of 2.1 million acre feet. Together with Caballo Dam and five downriver diversion dams, the Project irrigates 160,000 acres in New Mexico and Texas<sup>47</sup>. In addition, another 40,000 acres are irrigated in Mexico<sup>48</sup>.

Population, and demand for water, continue to grow in this lower section. Doña Ana County (Las Cruces) is New Mexico's second most populous county, with 135,000 people in 1990<sup>49</sup>. El Paso County in Texas had a population of 591,600 in that year<sup>50</sup>, and the 1990 Mexican census placed the population of Juarez at 797,679.

## Negotiating the Rio Grande Compact

Even at the beginning of this century, there was insufficient supply for all of the potentially irrigable land along the river. Despite the long history of use of the river, however, it was not until this century that efforts were made to divide the waters of the river among the three states. The division was made more complicated by the presence of a foreign dimension, namely demands by Mexico. Ditch companies had begun to spring up in the valleys around El Paso in the late nineteenth Century, and by the early 1890s, water shortages began to occur in the Mesilla and El Paso valleys. People in Mexico complained to their government, which in turn protested to the United States government in the 1890s, filing a claim for 35 million dollars in damages.

After the complaint by Mexico, the federal government began an investigation, and in connection with the investigation imposed an embargo of further development on the river in 1896. The embargo was an order by the Secretary of the Interior which prevented further development by suspending all applications for rights of way across federal land for use of Rio Grande water. The embargo remained in effect, with slight modification, until 1925<sup>51</sup>.

In addition, the International Boundary Commission was directed to make a report, which it did, finding that the flow at El Paso had in fact decreased in the 1890s. (The International Boundary Commission was created by an 1889 Convention between the United States and Mexico for the purpose of considering and in some cases resolving all questions or disputes arising along the boundary between the two



countries, including matters affecting the rivers forming parts of the boundary<sup>52</sup>.)

The commission found that beginning in 1888 or 1889, the river was dry every other year; before that, it had gone dry only about once every ten years. It was concluded that the reason for the diminished flow was not additional irrigation in New Mexico but rather the tremendous level of development in Colorado's San Luis Valley<sup>53</sup>.

The Mexican government was also concerned about private dams being built on the river, which threatened the supply to downstream users. Mexico had wanted an international dam in the Mesilla Valley to insure the availability of water to users in the area of Juarez. The end result of the negotiations with Mexico was the authorization of Elephant Butte Dam in 1905 and a treaty with Mexico in 1906, whereby Mexico was to receive 60,000 acre feet of water per year in exchange for relinquishing all claims against the United States for damages<sup>54</sup>. Elephant Butte Dam was built to regulate the river and provide a source of supply to meet the treaty obligations. In conjunction with the dam, the Rio Grande Project was established to irrigate 154,000 acres in New Mexico and Texas below the dam; an additional 40,000 acres would be supplied in Mexico<sup>55</sup>. The dam and canal system were completed in 1916<sup>56</sup>.

### The 1929 Compact

The international problem was eased, but the interstate problem still existed. The embargo had been strongly opposed in Colorado, since even by 1896 the irrigation in the San Luis Valley used all available flow of the river and the need for

new storage projects was apparent. Colorado continually pressed for construction of storage projects in the valley<sup>57</sup>.

The embargo was lifted in 1925, but Colorado could still not get financing for irrigation works in the San Luis Valley because of the threat of interstate litigation. Moreover, the federal government in 1926 undertook a study of the Middle Rio Grande with an eye to constructing new storage works, canals, and drains, and both Colorado and Texas became nervous about new demands which might be placed on the river<sup>58</sup>. As a result, renewed efforts were made to reach an agreement among the three states. A Rio Grande Compact Commission was formed, with one representative from each state and Herbert Hoover, as Secretary of Commerce, acting as chairman<sup>59</sup>. Negotiations began in 1928, and by 1929 a compact had been agreed upon<sup>60</sup>, albeit it was intended to be only a temporary agreement<sup>61</sup>.

The purpose of the 1929 Compact was to maintain the status quo in the use of the river and to provide time for the accumulation of data. The end goal was to permit maximum future development and utilization of the river<sup>62</sup>. The 1929 Compact also expressed the need for construction of a drain for the Closed Basin and the building of a large storage reservoir in the San Luis Valley<sup>63</sup>. On completion of that drain and reservoir, or no later than June 1, 1935, the three states were to appoint a commission to develop a final compact<sup>64</sup>.

The Middle Rio Grande Conservancy District was created to rehabilitate and improve irrigation projects in the Middle Valley shortly thereafter — just in time for a major drought. The combination led to a lawsuit by Texas against New Mexico in

1935<sup>65</sup> (see p. 168), which resulted in increasing antagonism between the water users of the Middle Rio Grande and those of the Rio Grande Project. During the same period, Colorado also felt that it had been treated unfairly in connection with the 1929 Compact; the drain from the Closed Basin and the new reservoir had not been built, and Colorado felt that New Mexico and Texas had not supported those projects to the extent they should have. The states therefore were again faced with dividing the insufficient supply among three antagonistic groups as they tried to negotiate a "final" compact pursuant to the requirements of the 1929 agreement<sup>66</sup>.

In 1935, in light of the problems apparent on the river, President Roosevelt requested federal agencies concerned with projects or allotments of water in the Upper Rio Grande to hold off on any further projects until they were approved by the National Resources Committee. The National Resources Committee then consulted with the Rio Grande Compact Committee (appointed by the three governors pursuant to the 1929 Compact), which requested that the National Resources Committee make a complete investigation of the river above Fort Quitman. The commission produced a 566-page report in 1937, providing a wealth of data for use in negotiating a new compact<sup>67</sup>.

#### Negotiating the 1938 Compact

Negotiations for the "final" compact began in September 1937. The agreement was completed in March of 1938<sup>68</sup>.

Colorado's position in 1937 was that there was sufficient water in the Basin to

supply all 1929 users, but that Colorado needed more facilities to regulate the flow and had been denied the opportunity to build such works by the embargo. Colorado therefore wanted the right to build storage facilities for the San Luis Valley<sup>69</sup>. Without that storage, irrigation in the valley was inefficient because it required flooding fields during the spring runoff to raise the water table high enough so that the roots of crops could reach the water during the growing season. This resulted in waterlogging of fields during part of the year and a chronic shortage of water in the summer growing season<sup>70</sup>.

New Mexico was willing to agree to additional storage in Colorado if that storage safeguarded the interest of New Mexico users and if a transbasin diversion from the San Juan River to the Rio Grande Basin in New Mexico was built coincident with the Colorado storage facilities. New Mexico also wanted the right to provide water for development of 123,000 acres of irrigated land within the Middle Rio Grande Conservancy District (which had authority over all irrigation works from Cochiti to San Marcial) and to erect flood protection as needed. Finally, New Mexico was willing to negotiate a fixed amount to which the users below Elephant Butte would be entitled<sup>71</sup>. Texas wanted 800,000 acre feet of water per year at San Marcial<sup>72</sup>.

To meet these diverse interests in the context of the antagonisms discussed above, the negotiators adhered as closely as possible to the language of the 1929 Compact, insuring the same supply downstream as in 1929, but allowing development upstream to the extent that that supply would not be impaired<sup>73</sup>. Colorado and New

Mexico agreed on a schedule for delivery by Colorado based on a proportional curve relating flow at the Lobatos gage compared to the sum of flow at the Mogote gage on the Conejos and at the Del Norte gage on the Rio Grande in Colorado. The curves were based on the historic relationship between those flow levels (in much the same way as the Pecos inflow-outflow curves were established). In the end, separate schedules were prepared for the Rio Grande and the Conejos in the San Luis Valley to allow for changes due to construction of future reservoirs. The final schedules allowed for variations in individual streams to be taken into account, and for the Colorado users to be able to determine among themselves responsibility for meeting the New Mexico obligation. The curves proposed were eventually adopted into the compact, but the delivery at Lobatos was reduced by 10,000 acre feet to avoid an impasse arising out of a dispute between water users on the Conejos and those on the Rio Grande<sup>74</sup>.

New Mexico's obligations were based on the relationship between flows at Otowi and those at San Marcial. The relationship was not easy to calculate. The engineering advisors to the commission wrote:

The relation between the amount of water in the Rio Grande above the principal agricultural areas in New Mexico and inflow to Elephant Butte Reservoir is quite erratic, due primarily to wide variations in the discharge of tributary streams. Your Committee tried many devices to eliminate the influence of such tributary

inflow. Finally it was found that there was a reasonable relationship between the discharge of Rio Grande at Otowi Bridge and the inflow to Elephant Butte Reservoir when the discharge at Otowi Bridge and the inflow to the reservoir during the months of July, August, and September were excluded. Such a relationship does not reflect possible changes in consumptive use during the summer months between these points, and tributary flow in other months still results in considerable variation, but it is our opinion that no more precise relationship can be developed from present information, and that use of a schedule of deliveries will be practicable<sup>75</sup>.

New Mexico rejected the first proposals by the engineers, but a curve was eventually adopted. July, August, and September were excluded because the flow of tributaries in those months was too erratic to fit any smooth curve, but New Mexico was also responsible for any additional man-made depletions in the reach between Otowi and San Marcial built after 1929<sup>76</sup>. This schedule was modified in 1948. The nine month schedule was superseded by a twelve month schedule, which also moved the downstream gaging point from San Marcial to the station just below the dam<sup>77</sup>; see p.161 below.

Insofar as Texas' entitlement was concerned, Texas wanted 800,000 acre feet per year released from Elephant Butte. New Mexico objected, and the final figure

agreed upon was 790,000 acre feet annually<sup>78</sup>. It was felt that under the general schedules in the compact, there would be enough water entering Elephant Butte to provide a sustained release of 790,000 acre feet per year<sup>79</sup>, but it was also noted that because of variations in natural flow, a system of debits and credits should be established. In fact, between 1915 and 1991, the average release from Elephant Butte has been only 718,000 acre feet per year<sup>80</sup>.

### The Rio Grande Compact of 1938

As one of the negotiators of the compact has noted, the Rio Grande Compact of 1938 "has been condemned by some as being unduly complicated, poorly written, and of uncertain intent.<sup>81</sup>" If the compact is considered in light of the history of the negotiations, though, it makes more sense.

#### Allocation

The allocation of the water of the Rio Grande reflects the status quo of the 1929 Compact, which had called for an equitable division based on the conditions of use as of 1929. The compact both allocates flow and restricts storage. The system of allocation between sections is unusual in one particular way. The sections do not reflect state boundaries, at least for the area below Elephant Butte. New Mexico has an obligation to deliver water to Elephant Butte, but the beneficiaries of that water are located in both New Mexico and Texas, as well as in Mexico. The Texas Commissioner represents the lower section interests on the Compact Commission,

even though many of those users are actually located in New Mexico.

Colorado has the initial obligation under the compact to deliver water to New Mexico<sup>82</sup>. The amount is not fixed, but is based on the available flow in the river before depletion by San Luis Valley irrigation. The compact contains a schedule of index flows at the Del Norte (for the Rio Grande) and Mogote (for the Conejos) gages, together with corresponding amounts which must be delivered to New Mexico in light of that index flow. The proportion of the flow which must be delivered to New Mexico increases as the index flow increases, ranging from zero per cent of the flow of the Conejos in very low flow years to over 60 per cent of the flow of the Rio Grande and Conejos in wet years. In essence, the Colorado allocation is based upon the historic depletion by users in the San Luis Valley.

New Mexico's obligation is to deliver water to Elephant Butte reservoir for subsequent use by the Rio Grande Project and for delivery to Mexico of the 60,000 acre feet called for by the Mexican treaty. The obligation is not a fixed quantity; it varies based upon the index flow at Otowi. As that index flow increases, the proportion due Elephant Butte also increases, pursuant to schedules set out in the Compact<sup>83</sup>.

New Mexico's obligations were originally based on the relationship between flows at Otowi and those at San Marcial for nine months of the year, but in 1948, a resolution of the Compact Commission modified the point of delivery and gaging stations for delivery to the lower section. Since that time, New Mexico has been obligated to deliver water at the gaging station below Elephant Butte dam; this means



that New Mexico now bears the risk of evaporation from the reservoir<sup>84</sup>. The changes were made in part because of damage to the San Marcial gaging station by floods in 1942; as the 1948 Resolution of the committee noted, it was no longer possible to obtain reliable information from the San Marcial gage<sup>85</sup>; in addition, the commission wanted a schedule for twelve months, rather than nine months, of deliveries<sup>86</sup>. The revised schedule did not change the amount of water to be required to be delivered; it simply changed the gaging station to be used and the months involved, and modified the schedules accordingly.

The way the compact is drafted, New Mexico's obligation is based on the flow at the Otowi gage, most of which results from snowmelt. When summer thunderstorms swell the river below Otowi, the Conservancy District in the Middle Valley can divert only a small part of those flood flows. In a year of deficient snowpack and heavy thunderstorms, New Mexico enjoys a credit year; if there is heavy snow but few thunderstorms, New Mexico will be in a debit position<sup>87</sup>.

The compact also recognized the possibility that water might be imported into the Rio Grande basin from the San Juan basin, and provided in Articles IX and X that Colorado would consent to the construction of such diversions, and also that any state importing water into the basin would be given appropriate credit for that water in the application of the schedules.

#### Debits and Credits

The drafters of the compact recognized that the vagaries of nature might not

always allow states to deliver all that was required, or to use all the water to which they were entitled. The compact therefore provides a system of debits and credits<sup>88</sup>. Both New Mexico and Colorado can accrue debits, but there are limits. Limitations on total debits and credits were based on a recognition that there had been and would be substantial variance from the curves comprising the schedules; the limits were designed to take into account natural variation in stream flow and other factors beyond the control of the states. Anything in excess of those amounts would be prohibited, as it was assumed they would be due to factors within control of the states<sup>89</sup>.

In the case of Colorado, neither annual nor accrued debits are to exceed 100,000 acre feet, unless the excess is stored in reservoirs constructed after 1937. New Mexico is not to exceed an accrued debit of 200,000 acre feet, except for debit water held in storage in reservoirs constructed after 1929. New Mexico cannot be charged with any debit greater than 150,000 acre feet in any one year, and 150,000 acre feet is also the maximum amount of annual credits permitted to either New Mexico or Colorado<sup>90</sup>. The limitation of 150,000 acre feet in any given year was based on past variation in flow, but the maximum annual limits were added to deal with the possibility that wider variations might be experienced in the future<sup>91</sup>.

The year 1929 was used as the dividing point for New Mexico's debit storage limitation because El Vado reservoir on the Chama had been built between the 1929 and 1938 compacts, and the 1938 compact was intended to reflect conditions as of 1929. The 1937 date for Colorado did not make much difference, since no storage projects were built in Colorado between 1929 and 1937<sup>92</sup>. The ability to accumulate

"debit water" upstream was recognized to be beneficial provided that it had no adverse effect on users below Elephant Butte<sup>93</sup>. The Commission can provide for the release of that debit water to alleviate a shortage at Elephant Butte or within the particular state, and this has frequently been done<sup>94</sup>. Generally, neither Colorado nor New Mexico may store water in reservoirs constructed after 1929 unless there is 400,000 acre feet of usable water in Rio Grande Project storage (that is, at Elephant Butte and Caballo reservoirs). Texas may demand that New Mexico or Colorado release debit water held in any reservoir constructed after 1929. Such demand, however, must be made in January, it applies only to accrued debit water, and the amount of release is only what is needed to bring the level of Project storage up to 600,000 acre feet for the period March 1 to April 30<sup>95</sup>.

If either Colorado or New Mexico has credit water in Elephant Butte, it may (with the consent of Texas) relinquish that credit water to Texas and in turn be entitled to store an equivalent amount in its own storage<sup>96</sup>.

Cancellation of credits and debits is based on the premise that the purpose of delivering water to Elephant Butte is to supply the needs of the Rio Grande Project. If water would not be used to meet those needs, the project has no rightful claim to it. Colorado and New Mexico, if they are to expand their use of the river, must do so with water that would otherwise be spilled from Elephant Butte and Caballo at rates which would make the water unusable to irrigators in the Rio Grande Project. A spill thus indicates that there is more water than the Rio Grande Project could use, so there can be no harm to project irrigators if Colorado or New Mexico use that water

instead.

It is assumed that "credit" water (water delivered to Elephant Butte in excess of the schedule requirements) is floating on top at Elephant Butte; in the event of a spill, the credits of New Mexico and Colorado are to be proportionately reduced<sup>97</sup> because their water is assumed to be the first to go over the spillway. All accrued debits of New Mexico or Colorado as of the beginning of the year of any spill are cancelled. Debits are also reduced in any year when project storage would be unable to accommodate all of the debit water, on the theory that if the debit water were released, it would have to be spilled and therefore wasted<sup>98</sup>. Similarly, in calculating debits and credits, years of actual spills are excluded because if there is a spill, the debit or credit makes no difference on the supply available for use in the Rio Grande Project, and the purpose for making deliveries into Elephant Butte is to supply that project.

An actual spill of water from Elephant Butte is defined both in the compact and in a subsequent refinement by the commission to include water passed through Caballo reservoir in excess of project requirements. Elephant Butte Dam includes a hydroelectric station; water may therefore be discharged through the dam for generating purposes before it is needed for irrigation. Such water is held downstream in Caballo reservoir to be released in response to irrigation needs<sup>99</sup>.

Article VII of the compact governs minimum levels of project storage. New Mexico and Colorado did not want to be charged with a shortage if the shortage were due to over-releases from the project dams, so the clause also contains a provision to

adjust obligations if the project dams are releasing water at a rate greater than 790,000 acre feet per year<sup>100</sup>.

### Administration

The compact is administered by a commission made up of one representative from each of the three states, plus a federal representative appointed by the President who serves as non-voting chairman. Action by the commission requires a unanimous vote by the three states.

The duties of the commission primarily involve monitoring the flow and deliveries of water. The commission does not administer the water within any state; the administration within each state is up to the proper official in that state<sup>101</sup>.

### Dispute Resolution

The compact does not contain any specific provisions for dispute resolution, but specifically provides that any signatory state may have recourse to the Supreme Court of the United States for redress "should the character or quality of the water, at the point of delivery, be changed hereafter by one signatory state to the injury of another."<sup>102</sup>

The Compact also has a provision for review at the conclusion of every five-year period of "any provisions hereof which are not substantive in character and which do not affect the basic principles upon which the compact is founded. . . ."<sup>103</sup> Any commissioner may request such a review, but in the first quarter century, only one

such request was made: New Mexico asked for a review of the delivery schedule for New Mexico<sup>104</sup>. The schedule was accordingly modified in 1948, as noted above, but the usefulness of this "review" provision is obviously limited by its ban against any "substantive" change.

### Litigation and Other Problems

The Rio Grande has a history of litigation and other disputes, stemming generally from the lack of an adequate supply of water. Problems of variable flow were illustrated by floods in the 1940s and droughts in the 1950s, both of which led to litigation in the Supreme Court.

The flow can be highly variable, as a review of USGS records shows. At the Lobatos gage, where Colorado's compliance is measured, the average flow since 1931 has averaged 449 cfs (325,300 acre feet per year), but that is only an average, and individual days and years can vary widely. The flow in this century has ranged from 13,200 cfs in 1905 to zero in the 1950s<sup>105</sup>. At the Otowi gage, which supplies the base measurement for New Mexico's obligations, the average discharge since 1900 has averaged 1,108,000 acre feet, or 1,530 cfs, but the flow is uneven, ranging from as low as 62 cfs on one occasion to as high as 24,400 cfs on another<sup>106</sup>.

### Litigation

Given the long history of competition for scarce water, and droughts and floods occurring after the 1929 and 1938 compacts were signed, it is not surprising

that the Rio Grande compacts have been to the Supreme Court. The first suit involved the 1929 compact; the latter two focussed on the present agreement.

Texas v. New Mexico, 1935<sup>107</sup>. In 1935, Texas sued New Mexico in the Supreme Court, claiming that New Mexico was violating the 1929 Compact by diverting too much water and causing the salt content of water delivered to Elephant Butte to increase. The problem arose because of the storage of water in El Vado reservoir on the Chama in 1935. El Vado was constructed for the Middle Rio Grande Conservancy District as a result of a 1926-28 study by the Bureau of Reclamation. The storage was to be offset by a new system of drains that would increase return flow to the river, but Texas was not satisfied with the result<sup>108</sup>. The case was never tried to conclusion because the 1938 Compact in Article XI contained a settlement of then-existing claims between Texas and New Mexico, but it was agreed that the various measurement programs put in place in connection with the litigation would be continued<sup>109</sup>.

Texas v. New Mexico, 1951<sup>110</sup>. In 1951, Texas filed suit asking that New Mexico be enjoined from diverting water above San Marcial and that a water master be appointed. This time, the suit by Texas was the indirect result of floods in 1942.

In 1940 (the first compact year), New Mexico had a debit, but in the next year it had a credit, which was wiped out by a spill in 1942. The floods of 1941-42, which caused that credit and then the spill, also caused serious channel deterioration

above San Marcial, making it impossible for New Mexico to continue to make the same beneficial use as before the compact was signed and yet still meet its delivery obligations<sup>111</sup>.

The Rio Grande Compact Commissioner for Texas recognized the problem in 1948, when he wrote to Congress in support of the Middle Rio Grande Project. He wrote that since 1942, deteriorated conditions in the irrigation and drainage systems of the Middle Valley and waterlogging of lands along the river had resulted in New Mexico not delivering the water required to be delivered; the Middle Rio Grande Project was necessary to allow those deliveries to be made. In particular, the drains along the river needed to be repaired, and the problem of river bed aggradation (three feet in ten years) needed to be addressed<sup>112</sup>.

Then, the drought of the 1950s came, and made it even less likely that New Mexico could deliver the required water. The flow at Otowi was only 530,000 acre feet in 1953 and 435,000 in 1954, less than fifty percent of normal. At Del Norte, just downstream of where the river leaves the San Juan mountains, discharge was 368,500 acre feet in 1955 and 333,700 acre feet in 1956, or about sixty-five percent of the average since the compact became effective in 1940. For the same two years at San Marcial, the flow was 264,050 acre feet and 141,224 acre feet, or twenty-seven percent of the post-1940 average. Debits of hundreds of thousands of acre feet were incurred by Colorado and New Mexico during these years, and on January 1, 1957, Elephant Butte and Caballo Reservoirs were down to two percent of capacity, despite having released only five inches per acre of irrigated land the prior year, compared



with a requirement of about three feet.

The Supreme Court never reached the merits of Texas' claims, and so never had to determine how the compact should operate in light of these natural disasters. In February 1957, the suit was dismissed for failure to join the United States as an indispensable party<sup>113</sup> by virtue of its administration of 8,000 acres of irrigated Indian land and ownership of various structures in the Middle Rio Grande project<sup>114</sup>. By the time the suit was dismissed, New Mexico's debit had increased from 263,100 acre feet to 529,400 acre feet<sup>115</sup>.

Despite dismissal of the lawsuit, there was progress in resolving the problem of under-delivery by New Mexico. In 1948, Congress approved the Middle Rio Grande Project, which authorized the Bureau of Reclamation and the Corps of Engineers to rectify the channel of the river, rehabilitate levies and irrigation works, and construct additional dams and reservoirs for flood and silt control. As this \$160 million project was brought on line, New Mexico's debit declined; the project helped make it possible for New Mexico to meet her obligations. Compliance by New Mexico was also aided by the State Engineer's assuming jurisdiction in 1956 over groundwater appropriation in the Rio Grande Basin above Elephant Butte, which prevented new appropriations that would have reduced the available flow from the river<sup>116</sup>.

Texas and New Mexico v. Colorado, 1966<sup>117</sup>. In 1966, the states were once more before the Supreme Court, this time because Colorado was not meeting her obligations under the compact. Colorado had maintained a credit under the Compact until 1951, but from 1950 through 1967 she consistently under-delivered, and by the

end of 1967 had an accrued debit of 944,400 acre feet. In 1966, Texas and New Mexico sued Colorado in the Supreme Court to enforce the compact, but the three states also then filed a joint motion for a continuance, in which they requested that the Court continue the case indefinitely on the condition that Colorado meet her delivery requirements at the state line each year<sup>118</sup>. The continuance was extended year by year until the suit was dismissed in 1985. Dismissal was the result of a spill, since pursuant to Article VI, a spill wipes out accrued deficits. It is interesting to note that the Colorado State Engineer has a photograph of the "spill" both in his office and in the corridor outside. There was not an actual flow of water over the spillway; water was let out a release gate. This was actually a "hypothetical" spill, representing water being stored upstream as well as in Elephant Butte, but the water would have spilled had it all been stored in Elephant Butte; the commissioners allowed upstream storage rather than wasting the surplus<sup>119</sup>.

### Other Problems

Aside from litigation, there are other pressures on the present compact arrangements. The two irrigation districts below Elephant Butte are now taking control of releases from the dams (in place of the Bureau of Reclamation), and Colorado feels these districts may be wasting water to avoid another spill. Spills are important to Colorado because they allow her to wipe out deficits and gain ownership of debit water. To the extent Elephant Butte is being operated to avoid spills which would otherwise occur, Colorado loses water. In addition, Colorado believes that

some Lower Section users are also trying to stir up another lawsuit by claiming excess depletion by upstream users<sup>120</sup>.

Another set of problems may arise out of the increasing needs of the cities of El Paso and Juarez. Both cities depend heavily on groundwater, and their main aquifer (the Hueco bolson) is rapidly being depleted. El Paso has attempted to drill wells in New Mexico to make up for that decline in water below El Paso, but so far without success.

El Paso filed suit against New Mexico in the federal district court for New Mexico, claiming that New Mexico's refusal to allow El Paso to drill wells violated the Commerce Clause of the United States Constitution. New Mexico in response argued as one defense that the Rio Grande Compact limited the amount of water to which Texas was entitled, but the court held that the Compact does not apportion groundwater<sup>121</sup>. The lawsuits by El Paso were dismissed in 1991, pursuant to an agreement with the irrigation districts to conduct further studies of the situation and attempt to come to some agreement. However, the El Paso/Juarez situation will become more severe as the Hueco bolson is depleted. When that happens, they may look again to the Rio Grande as a source for municipal water, but that will be no solution unless the compact and 1906 treaty are modified.

Perhaps the most pressing threat to the compact is a small fish, the Rio Grande silvery minnow. The Fish and Wildlife Service has proposed to designate the reach of the river above Elephant Butte Reservoir as critical habitat for the minnow<sup>122</sup>. If that were to occur, it could become illegal to use the low-flow channel (built as a key part

of the Middle Rio Grande Project) during years of low flow; that, in turn, would make it impossible for New Mexico to comply with its compact obligations<sup>123</sup>. The problems which led to the 1951 suit by Texas will be resurrected.

The basic problem facing the Rio Grande, however, is the same which has been present for hundreds of years. There is not enough supply to meet all present and potential demands, and as population increases, and demands rise, pressures to change existing allocations can be expected to increase.

### The Costilla Creek Compact

North of Taos on New Mexico Highway 3, there is a small bridge which spans a small stream just south of the Colorado border. The stream is perhaps five feet wide and a few inches deep at the beginning of June, which is shortly after its peak flow. There is no sign identifying the stream or the village nearby, but this is Costilla Creek, the focus of an interstate compact first negotiated in 1944 and amended in 1963<sup>124</sup>. The stream is more substantial a mile upstream. The reason lies in a major diversion dam just upstream from the town of Costilla, where most of the flow is diverted into irrigation canals. Upstream of that diversion dam, the river is a more typical mountain stream, perhaps thirty feet wide, flowing rapidly with spring snowmelt from the Sangre de Cristo Mountains to the east. Below Costilla, the creek moves into the flat plains of the southern San Luis Valley. This flow into the valley distinguishes Costilla Creek from other streams subject to interstate compacts: Colorado is an importer, rather than an exporter, of water.

This compact represents an attempt to accommodate interstate interests on a much more local scale than any of the other water allocation compacts with the exceptions of the Upper Niobrara (see Chapter 10) and La Plata (see Chapter 3). In essence, the Costilla Creek Compact is an interstate arrangement to maintain the priorities of irrigation ditches which cross the state line. On this southern edge of the San Luis Valley, irrigation is required for successful agriculture on both sides of the border, but the water supply is severely limited. USGS flow records show a peak flow in May, falling off rapidly during the summer months. By the time the creek reaches the town of Garcia, just downstream from the border, there is no flow on many days of many years; from June to October of 1991, the average flow was less than 6 cfs<sup>125</sup>.

The stream does not, in normal years, have enough water to fill its reservoirs, and this led to litigation in the early 1940s, when the New Mexico State Engineer barred the water company which controlled the reservoirs from diverting or storing water in New Mexico for use in Colorado. The Tenth Circuit Court of Appeals ruled in favor of the water company, and in the process noted that the water statutes of neither Colorado nor New Mexico had extraterritorial effect, and that neither state could authorize a change in diversion points across state lines<sup>126</sup>. Most of the ditches in this area cross state lines or could be used to irrigate lands in either state, so the court decision could have led to considerable difficulty in administering the creek. The compact was signed the next year.

### Allocation

The Costilla Creek compact has perhaps the most detailed allocation of any interstate water compact because it is, in essence, a schedule of priorities and quantities to which various irrigators and ditches are entitled. Water rights are broken down into increments as fine as .14 cfs.

### Administration

There is a compact commission, with one representative from each state. The commission meets annually, but also pays a water master to administer the division of water on a daily basis<sup>127</sup>. The cost is high, about three dollars for each acre foot of water consumed<sup>128</sup>.

The minutes of the Costilla Creek Commission meetings show a different set of concerns from what is seen in, say, the Upper Colorado Commission. The commissioners deal with questions such as placing locks on individual sluices, removing tumbleweeds from ditches, and problems with specific dams and diversion points. Individual irrigators attend the meetings, and often express dissatisfaction over the allocation to particular ditches or the day-to-day operation.

### Amendment

The compact was amended in 1963. The amendment was necessitated by an agreement between ditch companies, in which one transferred 5.88 cfs of water rights to another. This changed the points of diversion and use as between New Mexico and

Colorado and required an amendment to the compact<sup>129</sup>.

### Litigation and Other Problems

The Costilla Compact has never been the subject of interstate litigation, but does face pressure on its system of allocation. Most Colorado users rely on direct stream flow, especially around Garcia (downstream from the main diversion at Costilla), but there is often little or no flow left by the time the creek reaches that point. If there is no water, these farmers feel they have been wronged and want some sort of redress, even though the same situation probably prevailed in 1900. Those with rights to water from the reservoirs are more content, but those users whose rights are rights to direct flow often call for amendment of the compact<sup>130</sup>. At the 1992 Annual Meeting, there was discussion among water users about renegotiating the compact, but the consensus of the commission was that it would be preferable to find better ways and means of delivering and accounting for water<sup>131</sup>.

### Summary

The Rio Grande Compact has not been particularly successful. It has not, like the Pecos, been modified by the Supreme Court, but the operation of the compact has been dependent upon federal intervention. The problems leading to the 1951 lawsuit were eliminated only by the investment of substantial sums by the federal government in the Middle Rio Grande Project, while the 1966 lawsuit was ended only by a series of wet years. In the interim, between 1966 and 1985, Colorado, New Mexico, and

Texas were operating under agreements relating to the litigation, and the threat of pursuing the Supreme Court action was used to compel compliance by Colorado.

The Costilla compact shows a different type of problem, namely one of scale. A transfer of water rights required an act of Congress to amend the compact, and any future renegotiation or reallocation of water could require similar expense and effort for relatively little benefit. It is unfortunate that the stream crosses a state boundary; the problems of administration it presents are the sort better handled by a state engineer, without the added burden of the law of interstate compacts added to the equation.



## Chapter Notes

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3. Costilla Creek Compact of 1944, 60 Stat. 246 (1946).
4. Rio Grande Compact of 1929, 45 Stat. 767 (1930).
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6. R. J. Tipton, *San Luis Valley Project* (Denver: Colorado Water Conservation Board, 1939), 8.
7. J. W. Clark, "The Upper Rio Grande," *Natural Resources Journal* 1 (1978): 69-76.
8. See Chapter 4, *supra*.
9. Raymond A. Hill, "Analysis of Reports by United States Bureau of Reclamation and Corps of Engineers, United States Army on Flood Control and Rehabilitation of Middle Rio Grande Valley, New Mexico," *Middle Rio Grande Project*, House Doc. 653, 81st Cong., 2d Sess. (1950): 58 (Washington, D. C.: Government Printing Office).
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19. R. J. Tipton, 1939, *supra*, n. 6, p. 10.
20. *Ibid.*, p. 16.
21. *Ibid.*, p. 10.
22. Glenn A. Hearne and Jack D. Dewey, 1988, *supra*, n. 15, p. 5.
23. Kevin M. Leary, "Overview of the Upper Rio Grande Basin," *Law(s) of the Rio Grande del Norte. An Interstate Seminar* (1991) (Albuquerque: CLE of the State Bar of New Mexico).
24. *Ibid.*
25. Peter C. Duisberg, "Post Symposium Developments and the Job Ahead," in *Symposium on Problems of the Upper Rio Grande, an Arid Zone River*, ed. Peter C. Duisberg (Santa Fe: State Engineer Office, 1957), 65-69.
26. William Stone, et al., 1991, *supra*, n. 11.
27. J. W. Clark, "The Upper Rio Grande," *Natural Resources Journal* 1 (1978): 69-76 at 70.
28. The Closed Basin Project of the Bureau of Reclamation was scheduled for completion in 1993. This Project was designed to pump groundwater from the closed basin to the Rio Grande, to assist Colorado in meeting its Compact

obligations, as well as for various other potential uses.

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53. J. W. Clark, 1978, *supra*, n. 7, p. 73.
54. *Ibid.*, p. 74.
55. R. J. Tipton, 1939, *supra*, n. 6, p. 11.
56. J. W. Clark, 1978, *supra*, n. 7, p. 74.
57. Raymond A. Hill, 1974, *supra*, n. 18, p. 167.
58. *Ibid.*, p. 197.
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61. R. J. Tipton, 1939, *supra*, n. 6, p. 12.
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63. Rio Grande Compact of 1929, Article II (d).
64. Article VII (a).
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67. *Ibid.*, p. 170.

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92. *Ibid.*, p. 188.
93. *Ibid.*, p. 189.
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116. S. E. Reynolds and Philip B. Mutz, 1974, *supra*, n. 84, p. 203.
117. Texas, et al., v. Colorado, 386 U.S. 901 (1966).
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122. See *Federal Register*, vol. 58, no. 38, March 1, 1993, p. 11821.
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130. Hal D. Simpson, Colorado State Engineer; Director, Division of Water Resources, verbal communication (8 June, 1993).
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## CHAPTER 6

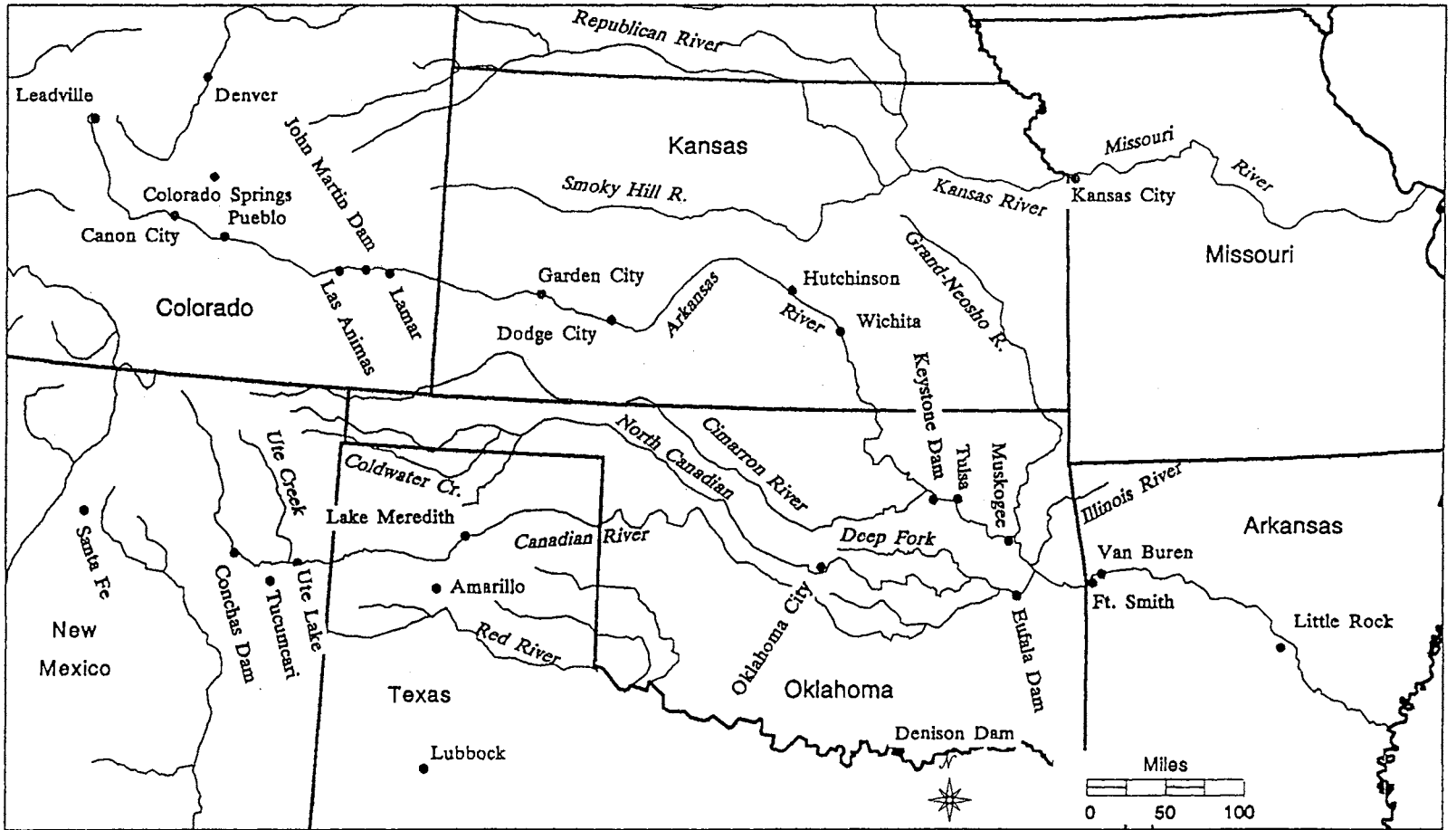
### THE ARKANSAS RIVER

The Arkansas River Basin<sup>1</sup>, covering parts of eight states extending from the Rocky Mountains to the Mississippi, is home to four compacts. Three of them, the subjects of this chapter, are on the main stem of the river. The fourth, the Canadian River Compact, is treated separately in Chapter 7 because it stands out as a compact which has not been successful. The first of the three main stem compacts was the Arkansas River Compact of 1949 between Colorado and Kansas. This was followed in 1965 by the Arkansas River Basin Compact between Oklahoma and Kansas, and in 1970 by the Arkansas River Basin Compact between Oklahoma and Arkansas. The first of the three is presently subject to litigation in the Supreme Court, while the latter two, being in a humid region with abundant water, have led to little controversy, at least with respect to allocation of flow.

#### The Geographic Setting

The Arkansas is the fifth longest river in North America, at least on a map (see Figure 4), but on the ground it looks more like two rivers, one in the west which often disappears somewhere between Hutchinson, Kansas, and the Colorado-Kansas border, and another river in the east, fed by the more abundant rainfall of the eastern

Figure 4: The Arkansas River



plains. In a 1907 decision<sup>2</sup>, the Supreme Court rejected a Colorado claim that there were in fact two separate river systems, a "Colorado Arkansas" and a "Kansas Arkansas", but a drive along U.S. Highway 50, which follows the river across much of western Kansas and into the mountains of southern Colorado, shows that as far as surface flow is concerned, there is a gap of many miles where no water is seen. Just a few miles to the west of Dodge City, even the riparian trees disappear, and where the river should be flowing there are wheat fields and not even a trickle of water shows at the surface. It is possible to walk across the river bed without getting your shoes muddy. The Arkansas may be one river system, as the Supreme Court held, and historically its flow may have reached from Colorado to the Mississippi, but today, the idea of two rivers does not seem so far-fetched. A continuous surface stream from the headwaters to the mouth would be the exception, rather than the rule.

The Arkansas rises in the Rocky Mountains just north of Leadville, Colorado, at an elevation of over 10,000 feet. By the time it has flowed 1,450 miles to the Mississippi, the river's elevation has dropped to 106 feet. In the interim, it drains 160,500 square miles in a drainage basin roughly 870 miles long and 185 miles wide, taking in parts of Colorado, New Mexico, Texas, Oklahoma, Kansas, Missouri, and Arkansas<sup>3</sup>. The Arkansas Basin has a number of large population centers. In Colorado, El Paso and Pueblo Counties (including the cities of Colorado Springs and Pueblo) have a combined population of over 500,000. Sedgewick County in Kansas (Wichita) has a population of over 400,000, while Tulsa County in Oklahoma has over half a million residents. Downstream in Arkansas, Pulaski County (Little Rock)

has a population of about 350,000<sup>4</sup>. Although ranching and irrigated agriculture still dominate the economy of much of the basin, particularly in the west, these cities have broad based economies. Their growing populations, particularly in Colorado, place increasing demands on the Arkansas as a source of water for municipal and industrial purposes as well as for agriculture.

The drainage basin is bounded on the west by the Sangre de Cristo, Sawatch, and Culebra Mountain ranges. The Sawatch range separates the Arkansas from the Colorado River, while the other two divide it from the Rio Grande. These ranges contain 23 peaks with elevations greater than 14,000 feet, but by the time the river reaches the Kansas border, the elevation is only 3350 feet. Perennial streams originate in these mountains, but tributaries from the plains east of the mountains are ephemeral<sup>5</sup>. Only when the river reaches the more humid region of eastern Kansas do dependable tributaries reappear to recharge the river.

The basin shows varied topography, from the mountains in Colorado to the flat to rolling prairies of eastern Colorado and western Kansas, through the broken and hilly country of eastern Oklahoma and western Arkansas to the alluvial valley of the Mississippi. For 185 miles downstream from its headwaters, the Arkansas is a mountain river running through a deep, narrow valley. After passing through the Royal Gorge near Cañon City, the valley gradually widens, moving through the foothills of the Rockies to meet the Great Plains at Pueblo. After it crosses the Kansas-Colorado border, the Arkansas valley is a broad, sandy bed with low banks and small tributary inflows until the area around Hutchinson. There, tributary inflow

increases and the river channel deepens. As the river flows south from Hutchinson towards Tulsa, the banks range from 600 feet to 2500 feet wide and 10 to 15 feet high; farther downstream, the valley widens and deepens, and in the Arkansas-Oklahoma border area becomes 1.5 to 3 miles wide, bounded by moderate hills<sup>6</sup>.

Climate varies greatly with altitude and longitude. It has been said that "The difference in average temperature between Pikes Peak and Las Animas, ninety miles to the southeast, is about the same as that between southern Florida and Iceland<sup>7</sup>." Precipitation and runoff also vary greatly across the basin from west to east. The orographic effect of the Rocky Mountains leads to most of the moisture brought by winter storms to the mountains of the Upper Basin being deposited on the western slope of the mountains. The available winter precipitation is stored as snowpack and is gradually released to groundwater and streamflow in the spring and early summer. This area of this mountain watershed is limited, so there is relatively little snowmelt runoff compared to other rivers originating in Colorado. This snowpack melts in late spring and early summer, resulting in a large percentage of annual streamflow occurring in a relatively short period of time in this upper basin. Summer precipitation, consisting primarily of convective storms arising in air moving northwest from the Gulf of Mexico, occurs primarily on the plains east of the mountains, providing heavy localized runoff peaks. Monthly precipitation is greater in spring and summer than in winter at lower elevations such as Canon City and Buena Vista<sup>8</sup>.

Total precipitation in the Upper Basin ranges from forty inches in the higher

mountains to the west to less than twelve inches around Pueblo. There is a rapid decline in precipitation from the mountains into the valleys, with the bulk of the mountain area receiving only sixteen to twenty inches. In general, the reach of the river above Cañon City is a gaining one, while below Pueblo and far into Kansas, the river loses water to groundwater storage or human consumption, including irrigation. Mean annual runoff in the western part of the basin is estimated to range from over thirty inches in the mountains to less than 0.1 inches on the plains downstream from Pueblo<sup>9</sup>.

East of Pueblo, precipitation gradually increases towards the east, averaging twenty inches at Dodge City, thirty at Wichita, forty at Muskogee, and fifty-two at the mouth of the river. This eastern precipitation includes more longer-lived storms, and more frontal precipitation, so that river flows are not as concentrated during a short period of the year as they are in the west. In the west, melting snows in the spring give the largest flows in the mountains and flood flows account for a large percentage of the annual discharge, so much of the year is characterized by long low-flow periods. In the east, floods originate from precipitation falling in the eastern part of the basin; storms in the west, or on the Canadian or Cimarron Rivers west of the longitude of Oklahoma City, rarely contribute to flooding in the east<sup>10</sup>. Precipitation is much more dependable in the eastern portions of the basin than in the west. The flow regimes of the "two" rivers are distinct, reflecting the differing climatic regions through which they flow.

There is one other significant source of water in the western Arkansas basin:

transbasin imports from the Colorado river. Ditches and tunnels bring water from the western slope of the Rockies — the Colorado River drainage — to the Arkansas headwaters. Transmountain diversions began at an early date as miners diverted water across low divides to provide water for sluices. Such diversions, especially those for irrigation and municipal supplies, continue<sup>11</sup>. The largest diversion is the Fryingpan-Arkansas Project, which brings in 69,000 acre feet per year, with the water being stored in the Pueblo Reservoir<sup>12</sup>.

The "break" in the surface flow of the river is illustrated by discharge records. At Cañon City, where the mountain runoff is largely unaffected by any irrigation diversion or regulatory dams, the average discharge from 1888 to 1987 was 531,000 acre feet per year (an average of 733 cfs), although this showed great variability on both an annual and daily basis. While the average flow was 733 cfs, daily flows ranged from 69 to 19,000 cfs in that century.<sup>13</sup> At Las Animas, downstream from the Pueblo reservoir and also downstream of 412,000 acres of irrigated farmland, the average flow was only 147,000 acre feet per year (203 cfs) before completion of the reservoir, and 200,700 acre feet per year (277 cfs) since then<sup>14</sup>. Over half of the Cañon City flow is gone. Below Las Animas are the John Martin Dam and Reservoir, and at Lamar, just downstream from the dam, the average flow is down to 81,140 acre feet per year (112 cfs), a significant decline from the 215,900 acre foot (298 cfs) average for the 30 years prior to closing the gates on the dam<sup>15</sup>.

There is some return flow from irrigation before the river reaches Kansas. At Garden City, Kansas, mean annual flow is 139,200 acre feet (192 cfs), but most years

have days with zero flow<sup>16</sup>. Dodge City has a mean flow of only 108,100 acre feet (149 cfs), and it, too, has zero flow at times. In water year 1991, Garden City recorded flow for only 16 days, in January and February, while there was no flow at Dodge City for the entire year<sup>17</sup>.

Flow increases downstream from Dodge City. At Hutchinson, the mean annual flow is 377,500 acre feet (521 cfs), three times the flow at Dodge City, and at Wichita, the flow doubles again, to an average of 734,400 acre feet (1,014 cfs)<sup>18</sup>. The river continues to gain as it works its way south and east. At Arkansas City, average discharge is 1,326,000 acre feet (1,830 cfs)<sup>19</sup>; at Tulsa (now regulated by Lake Keystone) 5,701,000 acre feet (7,869) cfs<sup>20</sup>, and at Van Buren, Arkansas, 23,600,000 acre feet (32,580 cfs)<sup>21</sup>.

In sum, the character of the river changes dramatically from west to east. In the west, it often dwindles to nothing; in the east, the Arkansas is a permanent river, regulated by a number of dams and reservoirs. Major concerns in the west have focussed on having sufficient water for crops; in the east, the concerns have been over floods and navigation. If this eastern river floods, those floods are "home-grown", based on precipitation falling in the eastern part of the basin. The basin is one hydrologic system, but insofar as surface flow is concerned, it is often two rivers, with the dividing point somewhere in western Kansas.

#### The Kansas-Colorado Compact of 1949<sup>22</sup>

The western part of the Arkansas, or the "Colorado Arkansas", has a long



history of conflict over water. On the plains of southeastern Colorado and southwestern Kansas, irrigation is necessary for profitable agriculture, and the Arkansas river is the primary source of supply. There was not, and is not, enough water to satisfy all of the demand for irrigation water. As long ago as 1901<sup>23</sup>, Kansas filed suit against Colorado in the United States Supreme Court, claiming that Colorado was depriving Kansas of the use of the river. The two states were at the court again in the 1930s and 40s<sup>24</sup>, and as of late 1993, the most recent Supreme Court case<sup>25</sup> was pending before a special master.

#### Kansas v. Colorado (1907)

The Supreme Court's 1907 decision in Kansas v. Colorado<sup>26</sup> marked the first time that the Supreme Court dealt with the question of allocation of water of western rivers. Because of the importance of this case for interstate water disputes, it is worthwhile to look at the decision in some detail. The issue was novel enough that after Kansas first filed suit in 1901, the Supreme Court's first opinion focussed just on the issue of whether the Court could decide this kind of a case at all<sup>27</sup>. The Court considered the matter in part from the standpoint of two independent states seeking to resolve a problem and noted that in the international context, war might provide a solution. Since that avenue was foreclosed to states within the United States, the courts were to be the substitute. From the time of this action, it has been accepted that the Supreme Court has the authority to rule on allocation of interstate waters. The rule of decision invoked in such actions may be a combination of federal, state,

and international law<sup>28</sup>.

The positions of Kansas and Colorado in this first action were fairly simple. Kansas, a riparian rights jurisdiction, argued that under the general rule of the common law, she (and her citizens) had the right to have the river continue to flow unimpaired through Kansas without unreasonable depletion by upstream users. Colorado, it was complained, was unreasonably depleting the entire flow of the river by the time it reached the state line.

Colorado, on the other hand, claimed that there were actually two rivers, a Colorado Arkansas and a Kansas Arkansas, not connected to each other. The Colorado Arkansas rose in Colorado, and Colorado, as a sovereign state, had the right to drain the entire river if she so chose so long as that water was within her borders. That argument reflected the 1895 opinion of the United States Department of Justice with respect to the Rio Grande River, in which it was stated that Mexico had no right to any water from the Rio Grande above El Paso, except as might be allocated by treaty<sup>29</sup>. Colorado also argued that Kansas had not shown herself to be injured by Colorado withdrawals.

The third major party to the suit was the federal government, which claimed that it had the right to regulate all flow on the river in exercising its power of reclamation of arid lands, so that neither Kansas nor Colorado (nor for that matter the Court by itself) should be allowed to set the standards for interstate flow.

In resolving the case, the Court established several rules which have affected interstate water allocation since that time. First, the Court found that reclamation was

neither an enumerated nor an implied power of the federal government. The government may reclaim arid lands of which it is the proprietor, as would be the case for territories before statehood, but within a state, it must bow to state water law in obtaining the water for such projects<sup>30</sup>. Second, the Court reaffirmed the principle that no state can legislate for or impose its own policy on another<sup>31</sup>, so that no state has the power to dictate the water laws of another. Finally, if the states cannot agree, the matter becomes one for the Court to decide.

The Court, having decided it had the power to resolve the controversy, still had to develop a rule for doing so. Its decision was based on the facts of the case, along with some peculiar notions of hydrology (which, fortunately, are not relevant to application of the rule to other cases)<sup>32</sup>. The Court found that

. . . the diminution of the flow of water in the river by irrigation of Colorado has worked some detriment to the southwestern part of Kansas, and yet when we compare the amount of this detriment with the great benefit which has obviously resulted to the counties in Colorado, it would seem that equality of right and equity between the two states forbids any interference with the present withdrawal of water in Colorado for irrigation purposes.<sup>33</sup>

In other words, the Court applied the standard equitable test of balancing benefits and hardships<sup>34</sup> in deciding whether to grant equitable relief in the form of an injunction

against Colorado withdrawals. The balance in this case was heavily against any such judicial interference.

The matter did not end there, however, for the Court went on to hold that

. . . it is obvious that if the depletion of the waters of the river by Colorado continues to increase there will come a time when Kansas may justly say that there is no longer an equitable division of benefits and may rightfully recall for relief against the action of Colorado.<sup>35</sup>

This pronouncement did two things: it summarized the applicable rule as being "equitable division of benefits", and it invited further litigation. The additional litigation did not take long to arrive.

Colorado v. Kansas (1943)<sup>36</sup>

Colorado was the plaintiff in the next round at the Supreme Court, but not because she was seeking more water; rather, she was seeking to enjoin Kansas and a Kansas water users' association from prosecuting lawsuits against Colorado users. A series of these suits, not involving the states directly but rather being suits by private users in Kansas against other users in Colorado, had begun in 1909. In 1928, Colorado sued to enjoin the further prosecution of those suits, claiming that the end result would be to establish an interstate priority system which would destroy Colorado's administration of the river within Colorado.

The Supreme Court referred the case to a special master, who made a number

of "findings of fact", including a proposed allocation of the Arkansas between Kansas and Colorado. The Court declined to accept the master's recommendation that the river be allocated on the basis of 5/6 to Colorado and 1/6 to Kansas (based on the sum of flows at Cañon City and at the mouth of the Purgatoire, the main perennial tributary). The Court refused to make any hard and fast rule dividing the water; the question was characterized as one of distribution of benefits, not of acre feet. A proportional division might be an appropriate remedy in cases of private appropriators, according to the Court, but it was not the solution in a case involving two states<sup>37</sup>.

Once again, Kansas lost. The principal reason was that Kansas could not show any damage due to increasing Colorado irrigation. In fact, there were more acres irrigated in Kansas in 1928 than there had been in 1907, which the court found proved that Kansas had not suffered damage from increased irrigated acreage in Colorado in the interim. The situation had, in fact, gotten better, so there was no basis for a court of equity to upset the existing equitable balance. The burden is on the complaining state to show an inequitable allocation of the benefits of the river, and Kansas could not carry that burden.

The issue is not yet concluded. The two states are even now before a special master, arguing this time about compliance with the compact. This pending case is discussed in more detail at page 204.

#### Conditions Leading to the 1949 Compact

The problems leading to the litigation had not sprung forth overnight. They

were the result of years of rapid development along the river which finally reached a point where the water was insufficient to satisfy demands.

The earliest development of water in this region was by direct diversion from streams for irrigation or mining. The earliest formal appropriation date is 1859, but the evidence is clear that there were diversions well before that date. Small ditches were originally dug to irrigate small areas in the floodplains<sup>38</sup>. Once the irrigable land in the floodplains was developed, irrigation began on the higher terraces. More expense was involved, and larger units were formed to provide a sufficient land base to finance the diversions, serving thousands or tens of thousands of acres<sup>39</sup>. The ditches below Pueblo are generally large; the Fort Lyon canal, 95 miles long and with a capacity of 1500 cfs, is the largest irrigation canal in the state. Of the 400,000 acres irrigated within the Colorado portion of the Arkansas basin, 92,000 are served by the Fort Lyon canal<sup>40</sup>.

By the middle 1880s the Arkansas and its tributaries were fully appropriated for normal years. Most water rights after 1887 are essentially flood rights, allowing diversion when the river is at greater than normal levels<sup>41</sup>. Only the earliest ditches have an assured supply. Even in the mountain valleys of the Upper Basin, diversions can be curtailed in times of drought to supply senior rights on the plains beyond Pueblo<sup>42</sup>.

At the time the compact was signed, Kansas had about 68,000 acres being irrigated from the Arkansas. USGS estimates in 1989 were that over 200,000 acres were being irrigated from Arkansas surface water or hydrologically connected

groundwater; as noted above, the figure for Colorado is now about 400,000 acres<sup>43</sup>.

### The 1949 Compact

After their years of litigation, Colorado and Kansas finally agreed on a Compact in 1949<sup>44</sup>. The Compact is unusual in that, although it is called the Arkansas River Compact, it does not really allocate the water of the Arkansas River. What it allocates is the water stored in John Martin Reservoir, some fifty-eight miles upstream from the border. The reservoir provided a mechanism for flood control and storage. Unregulated, the river had tremendous variation in flow; early reports from the 1800s indicated that in the late summer and fall the river was often reduced to a series of salty pools, while raging floods were common at other times. The reservoir allowed for storage of flood water which would otherwise be wasted<sup>45</sup>.

The reservoir was central to the resolution of the Kansas-Colorado dispute over the river. When funding appeared to be threatened in early 1940, one Colorado water lawyer who was deeply involved in the project declared that unless the John Martin water were available for purposes of reaching a settlement, all ongoing efforts would have to be "thrown in the waste basket"<sup>46</sup>. In efforts to obtain federal funding, Kansas and Colorado needed to be in agreement on plans for the river, but their agreement in turn was dependent on the development of the federal project.

Negotiation of the compact took several years. The first goal of the compact negotiators was to protect existing users. Second, they understood that the stateline flow would decrease with the completion of the John Martin Reservoir, but that *usable*

flow would increase because of the storage in the reservoir. Third, they agreed that the water conserved by the reservoir should be divided sixty percent to Colorado and forty percent to Kansas. Fourth, they agreed that the flow to Kansas would be measured at the state line. Fifth, they agreed that increased diversion upriver from the reservoir was to be permitted only to the extent the water came from imports into the basin, from reservoir spills, or from Colorado's sixty percent of the water which was to be stored in the new reservoir. This is reflected in Article VI of the compact, which prohibits any future development which would materially deplete the "usable flow" of the river. This allows the same amount of water to reach the reservoir as would have reached it prior to the compact. However, the compact does not specify just how much usable flow there was, and a dispute over that point has led to litigation<sup>47</sup>.

#### Allocation

The allocation is tied to water in storage at John Martin Reservoir, and the compact is supposed to insure that the inflow into John Martin Reservoir is not depleted beyond what was the case under conditions existing when the compact was negotiated. Colorado gets sixty percent of the releases from the reservoir, and Kansas gets forty, but Colorado's allocation is measured at the dam, while Kansas' is measured at the state line<sup>48</sup>. This gives Colorado the advantage of using accretions and return flows to make up Kansas' share at the border, so that Colorado can actually use something more than sixty percent of the water.



Storage at the reservoir is divided into a winter storage season from November 1 to March 31, when all inflows are stored and releases are limited to 100 cfs for use in Colorado<sup>49</sup>, and a "summer" season the rest of the year<sup>50</sup>, when all inflows are stored and all releases are limited to 1,250 cfs unless the compact commission determines that extraordinary conditions exist<sup>51</sup>.

The states are restricted with respect to the amount of stored water they can call upon at any given time. Separate releases for Colorado cannot exceed 750 cfs, while releases for Kansas cannot exceed 500 cfs; in addition, if the conservation pool is reduced below 20,000 acre feet, the limits are 600 cfs and 400 cfs, respectively<sup>52</sup>.

There is no provision for accumulation of debits or credits<sup>53</sup>. When the reservoir is drawn down, the river is administered as if no compact existed, on the basis of seniority in Colorado<sup>54</sup>. In these circumstances, Kansas is not apportioned any water, except what may happen to flow across the border<sup>55</sup>.

Prior to 1948, discharge from the reservoir was erratic. Since then, it has been based on the compact. Provisions in the compact providing for the rate of discharge to which each state is entitled are not limited by the volume of water stored assigned to each state, with the result that the states, to insure that they get their share, must ask for concurrent releases. This resulted in drawing down the pool before all users were ready for delivery of the water. If either state waited until the water was needed, it might find that the reservoir had already been drained by the other. If one state was withdrawing water, therefore, the other also needed to withdraw simultaneously in order to insure that it received its share of whatever the

reservoir held. Once the pool is depleted, the priority system applies from the state line to the headwaters as if no compact existed. In practice, this arrangement resulted in the floodgates being closed between November 1 and March 31. Then, that winter storage would be drawn down to empty by the middle of April, too early in the irrigation season to be of optimal use<sup>56</sup>.

Because of the unsatisfactory timing of depletion of the pool, a new agreement was reached by the representatives on the Arkansas River Compact Administration in 1980<sup>57</sup>. Stored water not immediately called by downstream users is theoretically called from the "Compact Pool" to the "Agreement Pool." This transfer takes place at the rate of 1,000 cfs if the conservation pool is at less than 20,000 acre feet and 1,250 if it is greater than 20,000 acre feet. The states can thus "draw" their water simultaneously, as before, to protect their share of the stored water, but now the water is not actually released through the dam until it is needed.

Water in the Agreement Pool is prorated at the rate of the compact agreement between Kansas and Colorado, with Colorado's share being further pro-rated on the basis of water rights of the ditches drawing water below the dam. When the theoretical release to the Agreement Pool has decreased the Compact Pool to zero, the reservoir is considered dry, and rights among the Colorado ditches are operated in priority with upstream users as if the compact did not exist<sup>58</sup>. The states can still thus engage in the "race" to withdraw their full shares of the water, but the water does not have to be sent downstream until it is needed, so more efficient use can be made. The water in the Agreement Pool is held in account for the ditch companies in the two

states, to be called upon during the irrigating season.

Yet another agreement was reached in 1983, pursuant to which the storage account of each Colorado ditch below the dam was limited. The ditches are not allowed to call for water through the reservoir in excess of those limits. This was done in response to concerns that the theoretical transfer from the Compact Pool to the Agreement Pool was faster than it should have been<sup>59</sup>.

### Administration

The compact is overseen by a commission, the Arkansas River Compact Administration<sup>60</sup>. Each state has three representatives, but there is only one vote per state. Decisions of the commission require a unanimous vote. The administration may refer a matter to arbitration, but this also requires a unanimous vote<sup>61</sup>, and there has been no arbitration under the compact.

### Litigation and Other Problems

Despite hopes to the contrary, the compact did not resolve the disputes between Kansas and Colorado. By the early 1980s, Kansas believed that Colorado was depleting the flow of the River before it reached the reservoir to an extent not permitted by the compact. The legislature authorized studies to be made, and these studies showed that average annual state line flows had declined by 132,000 acre feet since execution of the compact. Usable flows were said to have increased for the first twenty-four years of compact operation, but between 1974 and 1981 the average

annual usable flow was claimed to have declined by 62,200 acre feet, from 113,700 to 105,600 acre feet per year. In addition, Kansas claimed that average annual inflows into John Martin Reservoir had declined by 152,000 acre feet<sup>62</sup>. In 1985, Kansas filed a motion with the Supreme Court asking for leave to file a complaint against Colorado, and leave was granted in 1986<sup>63</sup>. In 1989, Kansas sought leave to amend its complaint to assert a claim for damages and also to assert that Colorado had failed to make certain deliveries from the reservoir.

The claims by Kansas arise out of new water development projects in Colorado. The basic issue is whether these new projects diminish the flow that should be going into the reservoir. Kansas' preliminary study indicated that post-compact development of water resources in Colorado accounted for a depletion of 40 to 50 thousand acre feet for the period 1974 to 1981. This depletion was attributed to alluvial wells along the Arkansas, operations at Trinidad reservoir, and operations at the Pueblo reservoir<sup>64</sup>.

In its suit, Kansas began by contending that Colorado had materially depleted the flow of the Arkansas into John Martin Reservoir by post-compact well development. Second, Kansas contends that transfers in Trinidad reservoir have materially depleted the inflow to John Martin Reservoir. Third, Kansas claims that the operation of a winter storage program at the Pueblo reservoir by Colorado without approval of the compact commission is in violation of the compact and has materially depleted the inflow into the reservoir<sup>65</sup>.

Colorado counterclaimed, asserting that Kansas had permitted unregulated well

development which has materially depleted the flow of the river in Kansas, causing Kansas to make additional demands on the reservoir. Colorado also claims that Kansas has stored water released from John Martin in Lake McKinney in Kansas, in violation of the compact, which prohibits storage below John Martin without approval by the compact commission<sup>66</sup>.

Final submissions were made to the special master in the fall of 1993, and no final decision has been announced either by the special master or the court. However, the claims with respect to the Trinidad reservoir were dismissed on summary judgement<sup>67</sup>.

The Pueblo Reservoir issues turn on operation of the reservoir to store water during the winter. Colorado claims that this water was previously diverted in the winter by ditches above John Martin, and so its storage at Pueblo does not deplete the available water for Kansas; rather, it simply makes it possible for Colorado to make better use of water which it was already diverting<sup>68</sup>. Kansas, of course, disagrees, believing that the water being stored in Pueblo Reservoir would otherwise have flowed into John Martin.

The groundwater issues stem from increasing use of groundwater in the basin. Groundwater has been used in the upper Arkansas basin from the beginnings of settlement, but a drastic increase in groundwater use began in the 1950s to the extent that it began to affect the flow of the river. Since 1969, Colorado water law has required that the priority of groundwater withdrawals from aquifers hydraulically connected to surface streams be prioritized in conjunction with surface rights, and this

includes water from the Arkansas<sup>69</sup>. Kansas wants Colorado to cut back on pumping from post-compact wells. Colorado has agreed that this pumping may have an effect in dry years, but it argues that the overdraft is compensated for by recharge in wet ones, and that the groundwater withdrawals are simply a matter of making efficient use of the resource<sup>70</sup>. Both Kansas and Colorado claim that the other is pumping too much.

Kansas may have difficulty in prevailing in this most recent suit. Under the compact, pre-compact water rights can draw water (in priority) in Colorado without regard to the amount of water crossing the state line, so withdrawals by those users cannot form the basis of a claim of breach of compact by Kansas. In addition, Kansas will have to explain why its irrigated acreage has increased at the same time it is claiming that Colorado has depleted the flow of the river<sup>71</sup>. This is the same hurdle which Kansas failed to overcome in 1943.

#### The Kansas-Oklahoma Compact of 1965 and the Arkansas-Oklahoma Compact of 1970

The problems plaguing the use of the Arkansas between Kansas and Colorado are not present between Kansas and Oklahoma or between Oklahoma and Arkansas. The reason may well be that there is sufficient water in the eastern part of the basin to meet the demands placed on the river.

The two eastern basin compacts, the "Arkansas River Basin Compact, Kansas-Oklahoma"<sup>72</sup> and the "Arkansas River Basin Compact, Arkansas-Oklahoma"<sup>73</sup>, in contrast to the Kansas-Colorado compact, were not born out of any particular pending

dispute over water supplies. Rather, they appear to have been negotiated as precautions against problems which could arise out of shortages at some unknown future date.

The 1950s, when negotiations for both of these compacts commenced, was a time of renewed interest in interstate compacts in general and water allocation compacts in particular. Zimmermann and Wendell<sup>74</sup> produced their monograph extolling the benefits of interstate compacts for the Council of State Governments in 1951, and updated it in 1961. Leach and Sugg<sup>75</sup> in 1959 reviewed with satisfaction the benefits brought by the use of interstate compacts in prior decades. A flurry of water allocation compacts were ratified in the late 1940s and early 1950s: the Pecos, Upper Colorado and Arkansas (Kansas-Colorado) compacts in 1948; the Snake in 1949; the Yellowstone and Canadian in 1950; the Sabine in 1953; and the Bear in 1955. Interstate compacts were in vogue as a means of addressing actual or prospective problems of western rivers, and the eastern Arkansas was to be the subject of similar agreements.

Part of the reason for compacting may have been a reaction to continued efforts throughout the New Deal to create basin-wide river authorities modeled on the Tennessee Valley Authority. One such "mini-TVA" would have created an Arkansas Valley Authority with jurisdiction over the basin from Colorado to the Mississippi. The idea was strongly opposed in Colorado, where it was felt by some, such as Judge Stone of the Water Conservation Board, that these basin wide authorities were nothing more than an attempt to wipe out state lines and state authority in water and to subject

the entire basin to federal control<sup>76</sup>. Compacts provided a method of resolving transboundary issues without such extensive federal involvement.

During the 1940s and 50s there was at the same time a major push for flood control and navigation developments in the eastern Arkansas Basin. The original bill to improve navigation on the Arkansas and Verdigris Rivers (ultimately to become the McClellan-Kerr Waterway) had passed the Congress in 1946<sup>77</sup>. In 1950, the Arkansas-White-Red Basins Interagency Committee (AWRBIAC) had been established by Congress, creating a committee to develop a "comprehensive, integrated plan of improvements" for those river basins<sup>78</sup>. In light of all this potential development of the river, it was thought to be advantageous to use compacts to define in advance just what the interstate relationships would be when it was all done. The plans were focussing on river basins, and the boundaries of basins are seldom, if ever, the same as state boundaries, so that development would be facilitated by such interstate agreements<sup>79</sup>. States would be more likely to agree to such plans, after all, if they knew in advance that their rights to use the rivers would not be affected by some federal development. As the Senate Committee on Public Works put it, "It is highly desirable for the states to negotiate a compact as an aid in planning the works for stream control and use<sup>80</sup>." In the case of the Arkansas, the stream control and use would include the construction of a navigable waterway in the largest civil construction project ever undertaken by the Corps of Engineers up to that time.

Compacts were thought to be an integral part of planning for development of river basins, and these two Arkansas Basin compacts were part of that process.



Oklahoma's Congressman Edmondson reaffirmed this general view in commenting on the 1955 passage of a bill allowing Kansas and Oklahoma to negotiate, stating:

[T]he passage of this bill brings to a successful conclusion the efforts of the entire Oklahoma delegation, and of the delegations of several sister States, to establish a firm foundation by interstate compact for the wise and fair use of several principal rivers in the Southwest. . . .

[T]he groundwork has been laid for all-important agreements between and among the States, which are so essential to the full protection of each State's rights on these rivers, and equally essential to the full enjoyment and use of the waters involved.<sup>81</sup>

This interstate development theme is again expressed in the Arkansas-Oklahoma compact, which states that one of its purposes is "To facilitate the cooperation of the water administration agencies of the States of Arkansas and Oklahoma in the total development and management of the water resources of the Arkansas River Basin."<sup>82</sup> The Kansas-Oklahoma Compact lists promoting the "orderly development" of the waters of the basin as one of the major purposes<sup>83</sup>.

The development included both navigation and flood control works. The Arkansas River Navigation System includes 17 locks and dams (5 in Oklahoma and 12 in Arkansas), and in addition there are a number of other dams such as Keystone on the Arkansas and Eufala on the Canadian which are actively managed by the Corps to

regulate water levels and siltation in the navigation channel<sup>84</sup>. Development on such a massive scale could reasonably be expected to have prompted efforts to control and divide the benefits of that development among the affected states, and negotiation of the compacts went forward at the same time as the construction, although a cause and effect relationship is difficult to document.

One difference between these Arkansas compacts and earlier agreements, such as those for the Colorado, Pecos, and Rio Grande, is a new focus of water pollution, which was becoming a matter of public concern. Both compacts state that one of their goals is "To encourage the maintenance of an active pollution abatement program in each of the two states and to seek the further reduction of both natural and man-made pollution in the waters of the Arkansas River Basin."<sup>85</sup> Like the allocation portion of the compacts, this goal was not based on an existing crisis or dispute; it was aimed at conditions which might arise in the future.

While these compacts focus on allocation of water between the states, the ability of the states to actually enforce those allocations is problematic. The river system is tightly regulated by the Corps of Engineers, which has built its own dams to control the river, and which also is responsible for flood control activities of the Grand River Dam Authority dams in Oklahoma. Lakes and reservoirs from the Mississippi River into Kansas are controlled by the Corps, both for flood protection and navigation, and it is the Corps which controls the release of water from those dams, and which thus controls to a large extent the water actually available to users within the compacting states.

Arkansas River Basin Compact, Kansas-Oklahoma (1965)

This compact is misnamed, at least to the extent that it refers to itself as the Arkansas *Basin* Compact. It does not cover the entire Arkansas Basin in either state, much less the basin as a whole. One of the comments by the Department of the Interior in 1955 was that it would be desirable to have the states of the basin form one basin-wide compact, rather than two or three separate agreements<sup>86</sup>, but Congress never went so far as to require basin-wide agreements.

The geographic scope of the compact is limited to the parts of the river basin of interest to both states. It excludes the mainstream of the Arkansas and Little Arkansas River above their confluence in the vicinity of Wichita, and excludes everything below the confluence of the Arkansas with the Grand-Neosho River near Muskogee<sup>87</sup>. The compact also governs tributaries which empty into the main stream between those points<sup>88</sup>, which means that the entire length of the Cimarron in Kansas and Oklahoma is included within the geographic scope of the compact.

The upstream reach of the mainstem between Dodge City and Wichita was excluded "because of the rather erratic nature of stream flows and a dearth of good reservoir storage sites to control these variable discharges<sup>89</sup>." The Little Arkansas was excluded because it includes an extensive groundwater area which was being used by Wichita for a municipal supply. The return flows from use of that water in Wichita, however, flow into the section of the river governed by the compact.<sup>90</sup>

The compact divided the river into five sub-basins<sup>91</sup>, each of which might have been the subject of an individual compact according to the negotiating

committee. The states divided the basin in this way to provide more flexibility in the event inter-basin projects were to be constructed in the future<sup>92</sup>. The five sub-basins are those the Grand-Neosho, Verdigris, Main Stem Arkansas, Salt Fork, and Cimarron Rivers.

### Allocation

One of the stated purposes of the compact is "To divide and apportion equitably ... the waters of the Arkansas River Basin."<sup>93</sup> "Equitable apportionment" was the test used by the Supreme Court in Kansas v. Colorado<sup>94</sup>. In effect, the two states were agreeing on what was equitable through negotiation in advance, rather than litigation. In this case, the equitable division was based on an allocation of the right to store water in reservoirs<sup>95</sup>. Only new conservation storage (that is, storage of water for later release for supplying water needs, as opposed to storage for flood protection) was so apportioned<sup>96</sup>.

Apportionments were made on the basis of storage, rather than consumptive use, "to simplify Compact administration<sup>97</sup>." In addition, it was believed by the negotiators that use of the river would be limited without regulatory structures. The water problems in this part of the river basin were not based on a lack of total runoff, but rather the need to control that runoff in reservoirs to make the flood flows available for beneficial use. The apportionments in terms of new conservation storage were designed to encourage the development of water supplies in both states<sup>98</sup>.

The system of allocation gives Kansas free and unrestricted use of the water in

Kansas, except as specifically limited by the compact. Subsections A through D of Article V (which govern all of the basin except the Cimarron) allow the construction of sizable storage facilities in Kansas, which could then be increased as Oklahoma constructed new capacity in her portion of those eastern sub-basins. Storage levels for Kansas were set high enough to allow future storage in large and small impoundments because it was believed this would benefit both states by allowing release in time of drought<sup>99</sup>.

Except on the Cimarron, Oklahoma is allowed to construct unrestricted conservation storage<sup>100</sup>, which is not surprising since Oklahoma is the downstream state in every sub-basin except the Cimarron, where it is both an upstream and a downstream state as the river crosses and recrosses the border. The Cimarron is treated differently than the rest of the basin because whereas the eastern sub-basins have relatively high to medium runoff, the Cimarron flows from an area that experiences highly erratic runoff. The compact allows for small developments to proceed, but major developments require agreement by the Compact Commission<sup>101</sup>.

#### Pollution Control

Pollution control was given as one of the primary purposes for this compact, even though at the time the compact was executed, it was not believed that there was any water quality problem. Nevertheless, the states pledged to use the resources at their command to maintain adequate water quality. If there were to be a future problem which one state did not address, it was felt that the other could utilize the

provisions of the Federal Water Pollution Control Act to resolve it<sup>102</sup>. The pollution control provisions of Article IX are more precatory than mandatory. The Compact Commission has no power to order any abatement of pollution, and the responsibility for pollution control rests with the states individually. The states may take joint action on pollution concerns, but the compact does not require that they do so.

#### Administration

The compact is administered by a commission comprised of three members from each state plus one federal representative appointed by the President. The federal representative is chairman, but has no vote<sup>103</sup>. Each state has one vote, representing the votes of a majority of its three members<sup>104</sup>.

The duties and powers of the commission consist primarily of monitoring streamflows and making annual reports, but the commission is also supposed to cooperate with federal agencies with respect to water affected by federal projects, reflecting part of the initial impetus behind these compacts.

Dispute Resolution. The fact that each state has one vote leaves open the possibility of deadlock, but the compact contains no provision for dispute resolution in such a case. The negotiating committee gave consideration to procedures for breaking a tie vote, but rejected them. "It was felt that if a proposal under consideration were so unacceptable to one of the interested States that a satisfactory compromise could not be effected within the Commission, the decision by a third party would not make the decision any more acceptable<sup>105</sup>."

There is provision in Article XII(A) for future review of the compact, in recognition of the fact that the apportionments of the compact did not exhaust all possibilities for development and that not all future needs and uses could be foreseen. The drafters believed that each state had the responsibility to enter into a reconsideration and review in good faith if requested by the other<sup>106</sup>. No such request has been made<sup>107</sup>.

It seems clear that the states contemplated the possibility of litigation at some point in the future because they insisted that the United States waive sovereign immunity in the event of any such action. The consent of the United States to be a party to future litigation was felt to be essential. All of the major reservoirs except Grand Lake are federal projects, so the likelihood is that federal interests would be affected by any suit over the compact. No satisfactory judicial solution would be possible without joining the United States as a party<sup>108</sup>. This lesson had been learned from the dismissal of Texas' 1951 suit against New Mexico<sup>109</sup>. The effectiveness of the compact was conditioned upon Congress giving its consent to suit, which it did.<sup>110</sup>

#### Litigation and Other Problems

There has been no litigation or other serious problem affecting the operation of this compact. There is either sufficient water for all users or, in the case of the Cimarron, the water is too salty to be of practical use<sup>111</sup>.

Arkansas River Basin Compact, Arkansas-Oklahoma (1970)

Like its Kansas-Oklahoma counterpart, the Arkansas-Oklahoma compact is misnamed, at least insofar as that name implies that the entire river is the subject of the compact. The Arkansas River Basin referred to in the compact is limited to that part of the basin in which Arkansas and Oklahoma are mutually interested.

Tributaries entering the river above Muskogee, including the Eufala Dam and reservoir, are excluded<sup>112</sup>. The compact attempts to deal with only water originating within that defined area. Water entering the river above Muskogee is controlled by the Kansas-Oklahoma compact or the Colorado-Kansas compact, and the water in Lake Eufala is from the Canadian River, which is controlled by the Canadian River Compact<sup>113</sup>.

One exception to this geographic limitation is Spavinaw Creek in Arkansas. The Oklahoma portion of this creek is "included" within the Kansas-Oklahoma compact to the extent that it is within the geographic scope of that compact. The Spavinaw Creek drainage in Arkansas, however, was excluded from the scope of the Kansas-Oklahoma Compact, and so was included in the Arkansas-Oklahoma agreement because it generates water within the compact area and is not governed by any other compacts<sup>114</sup>. The lower portion of the compact area is at Lee Creek, which is the farthest downstream tributary having headwaters in Arkansas and flowing into Oklahoma.



## Allocation

In contrast to the Kansas-Oklahoma Compact, the Arkansas-Oklahoma Agreement allocates flow rather than storage<sup>115</sup>. Like its Kansas-Oklahoma counterpart, though, the allocation is said to be an equitable apportionment<sup>116</sup>.

It was recognized during negotiations that large quantities of water are available, but because flows fluctuate, provision for storage is essential. At early stages of the negotiations, consideration was given to allocating conservation storage, but it was eventually decided to make the allocation based on percentages of annual yield. Annual yield refers to the runoff originating within an area and which would occur in the absence of any development<sup>117</sup>. It was recognized by the negotiators that this calculation was generally going to be an approximation, but relationships between annual yield and runoff were expected to be relatively easy to establish, especially since depletions are small in relation to the average yield of the basin.<sup>118</sup>

Problems of low flow were recognized to be present, especially during dry periods when some tributaries may cease to flow, but it was considered impractical to specify minimum flows. Rather, it was assumed that releases from existing and future major reservoirs would assure adequate flows on the main stem into Arkansas<sup>119</sup>.

The flows are divided on the assumption that the upstream state generally should have first call on available water, and that it is generally infeasible to develop more than sixty percent of the available flow of any of the sub-basins. Therefore, the basic rule of allocation is sixty percent to the originating state. The exceptions are the Spavinaw and Lee Creek Basins. Tulsa had already developed significant quantities of

water in the Spavinaw basin, so Arkansas' allocation was reduced to fifty per cent of that stream. Lee Creek originates in Arkansas but has tributaries from Oklahoma, and it would be a logical source of supply for the Fort Smith area on both sides of the border. These factors led to Lee Creek being allocated on the basis of each state being able to use the full amount of water originating in that state<sup>120</sup>.

The annual yield provisions make no provision for debit or credit. If one state uses more than its share, it is supposed to make up for it by delivering not less than sixty percent of the runoff of the basin to the downstream state.<sup>121</sup> The commission can modify this obligation, and the drafters wrote that they intended that restitution be made as soon as practicable consistent with proper water management. No system of long-term debits and credits was included because water resources of the area were believed to be of such magnitude and the physical conditions limiting storage facilities such that complete utilization of those quantities might never be reached anyway<sup>122</sup>. Any federal withdrawals are to be charged against the state in which the withdrawn water is utilized<sup>123</sup>.

### Pollution Control

The pollution control provisions in this compact are identical to those in the Kansas-Oklahoma compact and were included for the same reasons. There was no immediate problem, but the states were looking to avert future problems.

### Administration

The administration under this compact is similar to that under the Kansas-Oklahoma Compact. The commission consists of three members from each state, plus a non-voting federal chairman. Each state has one vote.<sup>124</sup> The powers are primarily focussed on monitoring flow and compliance with the compact, but the commission also has the power to hold hearings and adopt findings of fact concerning matters within the scope of the administration of the compact. Based on those hearings, it can issue such orders as it deems necessary for administration of the compact, and request the courts of the state involved to enforce those orders. Findings of fact made by the commission may also be presented as *prima facie* evidence in state or federal courts or commissions<sup>125</sup>.

Although the commission has this fact-finding power, it does not have its own enforcement arm and must depend on state authorities for that. The Kansas-Oklahoma Commission also has the power to hold hearings, but that power is not nearly so detailed, nor is enforcement so clearly defined, as in this agreement.

Dispute Resolution. Unlike the Kansas-Oklahoma Compact, the Arkansas-Oklahoma Compact contains an arbitration clause<sup>126</sup>. "Arbitration is not to be compulsory but is provided in the event that some matter of extreme concern to one of the States requires such action."<sup>127</sup> The phrasing of the arbitration clause is ambiguous in that it states that arbitration is not compulsory, but issues may be submitted to arbitration on the written request of a majority of the commissioners

from either state. If arbitration is not compulsory, does that mean that the other state does not have to go along with this request? Or does it mean that the parties may choose to litigate rather than arbitrate? The question has not yet arisen, and so has not yet been resolved.

As with the Kansas-Oklahoma Compact, a waiver of federal immunity from suit was obtained in association with the ratification of the compact by Congress.

Litigation and Other Problems. The problems in the Arkansas-Oklahoma Arkansas River Basin stem from issues of quality, not quantity. While the compact itself has not been the subject of litigation, there has been litigation between the two states over the quality of water in the Illinois river, one of the larger tributaries<sup>128</sup>.

The Illinois is designated as an Oklahoma Scenic River, but in 1985, the city of Fayetteville, Arkansas, applied for a National Pollution Discharge Elimination System (NPDES) permit to discharge waste from a new sewage treatment facility into a tributary of the Arkansas. The permit was eventually granted, but the matter went all the way to the Supreme Court for resolution. The Supreme Court decision never mentioned the anti-pollution provisions of the compact; instead, it was based on a finding that there was no detectable effect on the quality of the water in the Illinois in Oklahoma, and so no violation of Environmental Protection Agency regulations governing the issuance of discharge permits occurred<sup>129</sup>.

Because of the popularity of the Illinois as a recreational river in Oklahoma, the case generated a great deal of interest, and although the permit has now been issued, both states are continuing to monitor water quality and are using the compact

commission to facilitate discussions.

### Summary

The three compacts on the mainstem of the Arkansas represent three ways of allocating water, each being based on particular geographic conditions. Considered as a group, they illustrate a basic factor with respect to the success of compacts: the more water there is, the less stress is placed on the agreements. At least insofar as allocation is concerned, the two eastern compacts have been successful, and also uneventful, because there have been no shortages to test whether users are really willing to accept the allocations. In the west, there have been water shortages, and the states are litigating issues arising out of the Kansas-Colorado compact before the Supreme Court. Whether the compact is eventually upheld or not, it is clear that it failed to resolve the dispute between Kansas and Colorado.

## Chapter Notes

1. The pronunciation of "Arkansas" varies depending on where along the river the speaker is found. In Colorado and Arkansas, it is called the "AR-kan-saw", with the accent on the first syllable. In Kansas, it is often called the "ar-KAN-sas". To avoid problems, many of those who deal with the river on a regular basis and do not wish to show favoritism simply refer to it as the "Ark."
2. Kansas v. Colorado, 206 U.S. 46 (1907).
3. United States. Army. Corps of Engineers, "Arkansas River, Kans., Okla., and Ark.," H. Doc. 447, 78th Cong., 2d Sess. (Washington, D. C.: Government Printing Office, 1944), 3.
4. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
5. P. O. Abbott, *Description of water-systems operations in the Arkansas River Basin, Colorado*, Report 85-4092, U. S. Geological Survey Water Resources Investigations (Lakewood, Colo.: U. S. Geological Survey, 1985), 6.
6. Corps of Engineers, 1944, *supra*, n. 3, pp. 20-21.
7. P. O. Abbott, 1985, *supra*, n. 5, p. 4.
8. Thomas N. Crouch et. al., *Water-Resources Appraisal of the Upper Arkansas River Basin from Leadville to Pueblo, Colorado*, Report 82-4114, U. S. Geological Survey Water Resources Investigations (Lakewood, Colo.: U. S. Geological Survey, 1984), 21-22.
9. P. O. Abbott, 1985, *supra*, n. 5 , p. 4.
10. Corps of Engineers, 1944, *supra*, n. 3, pp. 25-26.
11. Thomas N. Crouch et. al., 1984, *supra*, n. 8, pp. 21-22.
12. David W. Robbins, "Arkansas River Controversy," in *Boundaries and Water: Allocation and Use of a Shared Resource* (Boulder: Natural Law Resources Center, University of Colorado School of Law, 1989), 1-12.
13. R. C. Uglund, J. L. Ebling and R. D. Steger, *Water Resources Data for Colorado, Water Year 1987, Volume 1. Missouri River basin, Arkansas River basin, and Rio Grande basin* (Lakewood, CO: U. S. Geological Survey, Water Resources Division, 1988), 152.

14. Ibid., p. 232.
15. Ibid., p. 340.
16. C. O. Geiger et. al., *Water Resources Data, Kansas, Water Year 1991* (Lawrence, KS: U. S. Geological Survey, Water Resources Division, 1992), 156-57.
17. Ibid., p. 158.
18. Ibid., p. 174-179.
19. Ibid., p. 190.
20. R. L. Blazs et. al., *Water Resources Data for Oklahoma, Water Year 1990* (Oklahoma City: U. S. Geological Survey, Water Resources Division, 1991), 77.
21. E. E. Morris, J. E. Porter and P. W. Westerfield, *Water Resources Data, Arkansas, Water Year 1991* (Little Rock: U.S. Geological Survey, Water Resources Division, 1992), 274.
22. 63 Stat. 145 (1948).
23. Kansas v. Colorado, 206 U.S. 46 (1907).
24. Colorado v. Kansas, 320 U.S. 383 (1943).
25. No. 105 (Original) on current docket.
26. 206 U.S. 46 (1907).
27. Kansas v. Colorado, 185 U.S. 125 (1902).
28. Ibid., at p. 147.
29. Judson Harmon, Attorney General of the United States, *Letter to Secretary of State regarding Treaty of Guadalupe Hidalgo — International Law, December 12, 1895*, 21 Op. Att’y Gen. 274.
30. Kansas v. Colorado, 206 U.S. 46, 93 (1907).
31. Ibid., at 95.
32. See Olen Paul Matthews, "The Ark: A Tale of Two Rivers," in *The American Environment: Interpretations of Past Geographies*, ed. Lary M. Dilsaver and Craig E. Colten (Lanham, Maryland: Rowman and Littlefield Publishers, Inc.,

- 1992), 163-192 at 176.
33. Ibid., at p. 114.
  34. See generally Dan Dobbs, *Handbook on the Law of Remedies* (St. Paul: West Publishing Co., 1973), 52-54.
  35. 206 U.S. at 117.
  36. Colorado v. Kansas, 320 U.S. 368 (1943).
  37. Ibid., at p. 392.
  38. P. O. Abbott, 1985, *supra*, n. 5, p. 4.
  39. Ibid.; and see James E. Sherow, *Watering the Valley: Development Along the High Plains Arkansas River, 1870-1950*. (Lawrence: University of Kansas Press, 1990).
  40. David W. Robbins, 1989, *supra*, n. 12.
  41. P. O. Abbott, 1985, *supra*, n. 5, p. 8.
  42. Thomas N. Crouch et. al., 1984, *supra*, n. 8, p. 2.
  43. David W. Robbins, 1989, *supra*, n. 12.
  44. 63 Stat. 145 (1948).
  45. David W. Robbins, 1989, *supra*, n. 12.
  46. Michael Welsh, *A Mission in the Desert, Albuquerque District 1935-1985* (Washington, D.C.: Government Printing Office, 1985), 69.
  47. Mark J. Wagner, "The Parting of the Waters-- The Dispute Between Colorado and Kansas Over the Arkansas River," *Washburn Law Journal* 24 (1984): 99-122.
  48. Arkansas River Compact, Article V(E)(3).
  49. Ibid., Article V(A).
  50. Ibid., Article V(B).
  51. Ibid., Article V(C).
  52. Ibid., Article V(C).



53. Ibid., Article V(E)(5).
54. Ibid., Article V(F).
55. Ibid., Article V(G).
56. P. O. Abbott, 1985, *supra*, n. 5, p. 47.
57. *Resolution Concerning an Operating Plan for John Martin Reservoir*, adopted 24 April, 1980.
58. Ibid., §1(c).
59. P. O. Abbott, 1985, *supra*, n. 5, p. 47.
60. Arkansas River Compact, Article VIII.
61. Article VIII(D).
62. Mark J. Wagner, 1984, *supra*, n. 47.
63. Kansas v. Colorado, No. 105 (Original), 475 U. S. 1079 (1986).
64. Mark J. Wagner, 1984, *supra*, n. 47.
65. David W. Robbins, 1989, *supra*, n. 12.
66. Ibid.
67. Hal D. Simpson, Colorado State Engineer; Director, Division of Water Resources, verbal communication (8 June, 1993).
68. Ibid.
69. P. O. Abbott, 1985, *supra*, n. 5, p. 9.
70. Hal D. Simpson, Colorado State Engineer; Director, Division of Water Resources, verbal communication (8 June, 1993).
71. David W. Robbins, 1989, *supra*, n. 12.
72. 80 Stat. 1409 (1966) [hereafter referred to as the Kansas-Oklahoma Compact].
73. 87 Stat. 569 (1973) [hereafter referred to as the Arkansas-Oklahoma Compact].
74. Frederick L. Zimmermann and Mitchell Wendell, *The Interstate Compact Since 1925* (Chicago: The Council of State Governments, 1951).

75. R. Leach and R. Sugg, Jr., *The Administration of Interstate Compacts* (Baton Rouge: Louisiana State University Press, 1959).
76. Michael Welsh, *supra*, n. 46.
77. William A. Settle, Jr., *The Dawning. A New Day for the Southwest. A History of the Tulsa District Corps of Engineers 1939-1971* (Tulsa: U. S. Army Corps of Engineers, Tulsa District, 1975), 2.
78. *Ibid.*, p. 88.
79. United States. Congress. Senate, *Granting the consent of Congress to the states of Kansas and Oklahoma, to negotiate and enter into a compact relating to their interests in, and the apportionment of, the waters of the Arkansas River and its tributaries as they affect such states*, Report No. 1067, 84th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1955).
80. United States. Congress. Senate, *Granting Consent of Congress to a Compact Between the States of Arkansas and Oklahoma Relating to the Waters of the Arkansas River and Tributaries*, Report No. 539, 84th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1955).
81. Ed Edmondson, Remarks, *Congressional Record*, 1 August 1955, 12704 (Washington, D. C.: Government Printing Office).
82. Arkansas-Oklahoma Compact, Article I(E).
83. Kansas-Oklahoma Compact, Article I(B).
84. William A. Settle, *supra*, n. 77, p. 6 et seq.
85. Kansas-Oklahoma Compact, Article I(D). The language is identical in Article I(D) of the Arkansas-Oklahoma Compact, except that the numeral "2" is included in parentheses after the word "two."
86. United States. Congress. Senate, *Granting the consent of Congress to the states of Kansas and Oklahoma, to negotiate and enter into a compact relating to their interests in, and the apportionment of, the waters of the Arkansas River and its tributaries as they affect such states*, Report No. 1067, 84th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1955).
87. Kansas-Oklahoma Compact, Article II(C).
88. Kansas-Oklahoma Compact, Article II(D).

89. Arkansas River Compact Committee, *Arkansas River Basin Compact, Kansas-Oklahoma, 1965, with Supplemental Interpretive Comments. Supplement No. 2* (Austin: Office of Representative [to the Committee], United States, 1965).
90. *Ibid.*, p. 26-E10.
91. Kansas-Oklahoma Compact, Article IV(A).
92. Arkansas River Compact Committee, 1965, *supra*, n. 89, p. 26-E7.
93. Kansas-Oklahoma Compact, Article I(B).
94. 206 U. S. 46 (1907).
95. Kansas-Oklahoma Compact, Articles V and VI.
96. Kansas-Oklahoma Compact, Article II(F),(G).
97. Arkansas River Compact Committee, 1965, *supra*, n. 89, p.26-E9.
98. *Ibid.*
99. Arkansas River Compact Committee, 1965, *supra*, n. 89, p. 26-E8-10.
100. Kansas-Oklahoma Compact, Article VI.
101. Arkansas River Compact Committee, 1965, *supra*, n. 89, p. 26-E10.
102. Arkansas River Compact Committee, 1965, *supra*, n. 89, p.26-E15, 16.
103. Kansas-Oklahoma Compact, Article X(A)-X(C).
104. Kansas-Oklahoma Compact, Article X(D).
105. Arkansas River Compact Committee, 1965, *supra*, n. 89, p. 26-E18.
106. *Ibid.*, p. 26-E22.
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108. Arkansas River Compact Committee, 1965. *supra*, n. 89, p. 26-E24.
109. Texas v. New Mexico, 352 U. S. 991 (1957).
110. 80 Stat. 1415 (1966).

111. Harold Springer, Chief Engineer, Oklahoma Water Resources Board, verbal communication (17 August, 1993).
112. Arkansas-Oklahoma Compact, Article II(C).
113. 66 Stat. 74 (1950).
114. Arkansas River Compact Committee, *Arkansas River Basin Compact, Arkansas-Oklahoma, 1972, with Supplemental Interpretive Comments. Supplement No. 1* (Austin: Office of Representative [to the Arkansas River Compact Committee], United States, 1970, revised 1972).
115. Arkansas-Oklahoma Compact, Article IV.
116. Arkansas-Oklahoma Compact, Article I(B).
117. Arkansas-Oklahoma Compact, Article II(J).
118. Arkansas River Compact Committee, 1970, *supra*, n. 114, pp.4-7.
119. *Ibid.*
120. *Ibid.*, pp. 8-10.
121. Arkansas-Oklahoma Compact, Article V.
122. Arkansas River Compact Committee, 1970, *supra*, n. 114, p. 13.
123. Arkansas-Oklahoma Compact, Article VI(B).
124. Arkansas-Oklahoma Compact, Article VIII (A)- VIII(D).
125. Arkansas-Oklahoma Compact, Article IX(A)(6),(7).
126. Arkansas-Oklahoma Compact, Article VIII(E).
127. Arkansas River Compact Committee, 1970, *supra*, n. 114, p. 13.
128. Arkansas v. Oklahoma, 112 S. Ct. 1046 (1992).
129. *Ibid.*

## CHAPTER 7

### THE CANADIAN RIVER

The North and South Canadian Rivers, subjects of the Canadian River Compact, do not flow anywhere near Canada. They are rivers of the southwest, rising in northeastern New Mexico and flowing east to join the Arkansas River in eastern Oklahoma (see Figure 4). The source of the name is uncertain. Some say it was bestowed by trappers in honor of their native Canada<sup>1</sup>, but others believe it derives from the Caddoan word "kanohatino", meaning "red river."<sup>2</sup>

The two Canadian Rivers are subject to a 1952 compact between Texas, New Mexico, and Oklahoma. The South Canadian (often referred to simply as the Canadian, without an adjective) flows through the Texas panhandle and around the southern edge of the Oklahoma City metropolitan area, while the North Canadian flows through the Oklahoma panhandle and then swings south through the central part of the Oklahoma City area. The two come together in Eufala Reservoir, a few miles upstream from the Arkansas River in eastern Oklahoma.

Like the Pecos Compact, the Canadian River Compact has recently been before the Supreme Court, which in 1991 issued an opinion construing the language of the compact. A final decree in the litigation between Texas, New Mexico, and Oklahoma was entered in December, 1993.

## The Geographic Setting

The Canadian River Basin was studied in some detail by the Corps of Engineers in the 1930s as part of a basin-wide study of the Arkansas<sup>3</sup>, of which the Canadian River (below the confluence of the North and South branches)<sup>4</sup> is a tributary. While much of the terrain through which the North and South Canadian Rivers flow is similar, it is easier to understand their underlying geography by considering them separately, as did the Corps.

### The South Canadian

The South Canadian River rises in the mountain and plateau region of the Sangre de Cristo and Cimarron Mountains of Colfax County in northeastern New Mexico. It flows south through San Miguel County, New Mexico, then bends to the east and flows in a generally easterly direction across New Mexico, Texas, and Oklahoma to join the Arkansas River 27 miles below Muskogee. The river is approximately 900 miles long, draining an area 560 miles long from east to west with a basin of 30,650 square miles (exclusive of the basin of the North Canadian River, which is discussed below.)<sup>5</sup>

About half (15,200 square miles) of the drainage basin is in New Mexico, in an area of high plateaus and rough mountains. The headwaters are fed by perennial streams rising in mountains reaching elevations of over 12,000 feet. Much of the summer flow of these streams is diverted for irrigation. The river has cut two canyons above Conchas Dam. At Conchas the canyons give way to a wide valley

bounded by gravelly hills. The river then cuts deeper and deeper into the Llano Estacado, until at the Texas-New Mexico border it lies in a canyon 300-400 feet below the plains<sup>6</sup>.

The basin narrows as it crosses Texas, with few tributaries of any importance. Most of the course of the river is in a canyon 400 to 600 feet below the adjacent plains. The bottom lands in these canyons are not even good for pasture. There is rugged, deeply eroded land for about 10 miles on either side of the river, used primarily for grazing. Beyond that rugged zone are upland regions of extensive farming.

As the river enters Oklahoma, the level plains give way to rolling prairies and the valley widens. Within Oklahoma, the watershed is narrow, extending for a distance of 300 miles with an average width of less than 25 miles. The river occupies a wide, meandering channel until the vicinity of Norman, where the banks gradually increase and the adjacent uplands are more heavily timbered. No important tributaries enter the river between Oklahoma City and the Arkansas River until the Little River joins the Canadian at Calvin<sup>7</sup>.

The annual rainfall on the watershed of the South Canadian is about 21 inches. Precipitation is about 26 inches in the extreme west, along the crest of the Sangre de Cristo mountains, then drops to about 15 inches in the plains just to the east of the mountains. From there, rainfall increases fairly steadily to about 42 inches annually at the mouth of the river. The averages can be misleading. Rainfall is sporadic in the drier areas of the plains, and the amount received in any given year can vary widely,

particularly in the western parts of the basin. Three fourths of the rainfall in New Mexico and Texas falls during the growing season, from April to September, while in Oklahoma the heaviest storms occur in Spring and Fall. Storms of great intensity often occur in the New Mexico plains and Texas panhandle, where the terrain is conducive to rapid runoff and high flood flows. In general, however, the river does not produce floods of major importance because the watershed is so narrow and lacking in tributaries. Nevertheless, the Corps of Engineers in 1935 characterized the South Canadian as the "most treacherous" of all streams in Oklahoma, because its often-dry bed could be filled with a wall of water running from bank to bank without warning during the severe thunderstorms to which Oklahoma is often subject<sup>8</sup>.

Before 1950, irrigation in the basin was generally confined to the upper reaches and the tributaries in the headwaters. By 1935, only about 70,000 acres were irrigated, but possibilities were noted for extensive development near Tucumcari<sup>9</sup>. Those possibilities became realities in the 1950s with the construction of the Bureau of Reclamation's Tucumcari Project.

The Tucumcari Project was dependent on Conchas Dam and Reservoir for a water supply. The dam was authorized by the Flood Control Act of 1936 and was completed by the Corps of Engineers in 1940. Under prevailing economic tests, the dam should not have been built, but political pressure was brought to bear to have it constructed anyway. Once it was already in place, the reclamation project became more feasible. The story is told in considerable detail in the history of the Albuquerque District of the Corps of Engineers<sup>10</sup>. Although built under the authority



of a flood control act, the dam construction included a headworks structure for an irrigation canal. In 1936 the Bureau of Reclamation was authorized to conduct investigations into the economic feasibility of building a canal and distribution system to serve an area in the vicinity of Tucumcari, using those headworks which were already being built at Conchas. The Bureau's report was completed in 1937, and in April, 1938, Congress authorized construction of the project, subject to Presidential approval. The President gave his approval in November of that year, and construction on the irrigation project began in 1940. Work was suspended because of the war, but construction was essentially completed by 1950. The project can supply water to irrigate over 41,000 acres. The water supply from the drainage area above the dam (6,538 square miles) averaged 157,890 acre feet per year. The reservoir has a total capacity of 528,951 acre feet, with a conservation storage capacity of 252,334 acre feet. The remaining capacity is reserved for sedimentation and flood control.<sup>11</sup>

Forty-five miles downstream from Conchas at the confluence of the South Canadian River and Ute Creek is Ute Reservoir, which was built by the state of New Mexico. This dam and reservoir were completed in 1963 with an initial storage capacity of 109,600 acre feet. In 1982, New Mexico began to enlarge the reservoir, completing that task in 1984. The result was a reservoir with a capacity of 278,000 acre feet (now reduced to around 237,900 by silting<sup>12</sup>). This capacity is important, for it became the focus of the Supreme Court's 1991 decision construing the Canadian Compact.

The only reservoir on the river in Texas is Lake Meredith, completed in the

1960s. This "Canadian River Project" of the Bureau of Reclamation was built to provide a source of municipal water to the cities of the Texas panhandle, including Amarillo and Lubbock. The Sanford Dam, which impounds the water, is about 37 miles northeast of Amarillo. The capacity of the reservoir is over 1,400,000 acre feet<sup>13</sup>. Construction of this project was one of the factors behind negotiation and execution of the 1952 compact; the Congressional authorization for construction was, at New Mexico's insistence, contingent upon ratification of the compact<sup>14</sup>.

The river increases in flow as it crosses Oklahoma. At Bridgeport, the gaging station furthest upstream in Oklahoma, the average discharge since the construction of Lake Meredith is 210,000 acre feet per year (down from 339,800 prior to the construction of the dam). By the time the river reaches Purcell, the average is 554,200, and at Calvin (between Oklahoma City and Eufala Reservoir) the average is 1,235,000 acre feet per year<sup>15</sup>. There are no major reservoirs on the river in Oklahoma until Eufala.

The South Canadian basin becomes increasingly more populous from west to east. In New Mexico, Tucumcari is the primary city in the basin, with a population of only 6,831 in 1990. In Texas, Amarillo had 157,615 residents in 1990. In Oklahoma, the river passes through Norman and the southern parts of the Oklahoma City metropolitan area, which has nearly one million inhabitants<sup>16</sup>.

### The North Canadian

The North Canadian River also rises in the high plateau region of northeastern

New Mexico, where it is known locally as Corruppa Creek. It flows easterly through the panhandle of Oklahoma, where it is sometimes known as Beaver Creek or the Beaver River, then bends south towards Oklahoma City, where it again bends east to join the South Canadian in forming the Eufala Reservoir. The river is 800 miles long, draining an area of 16,950 square miles<sup>17</sup>.

In Cimarron County, Oklahoma, at the western end of the panhandle, the river passes through a sandy bed with no tributaries of importance, and the bed is dry most of the time. In Texas County, Oklahoma, the river is deeper and wider and has two tributaries, Paloduro and Coldwater Creeks, which rise in Texas and are fed by springs<sup>18</sup>. The Optima Reservoir in Oklahoma was built to capture the flow of Coldwater Creek where it joins Beaver Creek, but this reservoir, with a conservation storage capacity of 129,000 acre feet, has never stored more than 2,200<sup>19</sup>.

Most of the course of the river in the panhandle is lined with tablelands 100 to 150 feet above the river valley, which is about 1 mile wide. As the river moves into Beaver County, the watershed becomes more rolling, and the river begins to be separated from the Cimarron by a relatively narrow belt of sand hills. Below Oklahoma City, the watershed is rolling, with a significant amount of cultivation<sup>20</sup>.

The North Canadian basin experiences extremes of temperature and erratic precipitation. The western region often sees periods of drought followed by intense rainfall. In the west, because of sandy soils, annual runoff seldom exceeds one inch, while in the east, with 30 to 40 inches of precipitation, the runoff amounts to about 12 inches<sup>21</sup>.

There are two other major reservoirs upstream of Oklahoma City. Fort Supply Reservoir controls a tributary just above the mainstem. Canton Reservoir regulates flow south into the Oklahoma City area. Before the dam was closed at Canton, the average flow at Canton was 185,000 acre feet per year; since the dam was closed, the average has dropped to 116,600. In Oklahoma City itself, the river is regulated by Lakes Overholser and Hefner. At El Reno, upstream of these latter two reservoirs, the average flow was 191,300 before the Canton Reservoir, and 151,400 since. The river gains downstream of Oklahoma City, averaging 541,900 acre feet per year near Wetumka<sup>22</sup>.

The Deep Fork River, which is not navigable, is the principal tributary of the North Canadian River. The Deep Fork watershed is entirely within Oklahoma, rising near Oklahoma city and joining the North Canadian six miles north of Aphelia<sup>23</sup>.

There are no major cities along the river in either New Mexico or Texas, but in Oklahoma it passes through the heart of the Oklahoma City metropolitan area, and serves as a major source of water for the city<sup>24</sup>.

### Negotiating the Compact

The existing Canadian River Compact, negotiated in 1950 between Texas, New Mexico, and Oklahoma and consented to by Congress in 1952<sup>25</sup>, represents the second round of negotiations for an agreement allocating the water of the Canadian Basin. The first efforts were in 1926, when a compact was negotiated but never ratified by all the states. The 1926 compact appears to have had little or no impact on

the 1950 agreement, but it is interesting to review because of its expansive goals and unique administrative structure.

### The 1926 Effort

Information about the 1926 compact<sup>26</sup> is difficult to come by. There are occasional references to it in studies of the Canadian river<sup>27</sup> or collections of documents relating to compacts<sup>28</sup>, but the background of the negotiations is uncertain. It was during the 1920s that the Interstate Land Development Company made a study of land and water resources in the Tukumcari area, and in 1925, the Canadian River Development Association was formed to foster a flood control and irrigation project. In 1926, commissioners from four states negotiated an agreement.

The 1926 compact is unusual because the negotiators included representatives of Arkansas, and the Canadian River does not flow into Arkansas. The Canadian could, however, have an impact on Arkansas, especially with respect to flooding, since flood waters from the Canadian would have swollen the Arkansas River a short distance upstream from the Arkansas state border before the construction of the dam and reservoir at Eufala. Although the Arkansas commissioners are given credit for negotiating the agreement in its preamble, they apparently did not sign the final version; only the representatives from Texas, Oklahoma, and New Mexico are shown as signatories.

This focus on areas outside the river basin which might nonetheless be affected by activities within the basin is uncommon, and this broad geographic scope is further

emphasized in Article I, which expressed the hope that representatives of Kansas, Colorado, Louisiana, and Mississippi would join in the compact for the purpose of controlling the entire Arkansas River system<sup>29</sup>. Louisiana and Mississippi are not in the Arkansas Basin. The negotiators apparently recognized that the Canadian and Arkansas were part of a much larger hydrologic system and knew that upstream activities on the Canadian could have effects on those downstream rivers. At the same time, however, the compact also provided that individual states could exclude tributaries within their boundaries from the operation of the compact<sup>30</sup>, which seriously weakens any chance for total management and control of the entire river basin.

The 1926 compact placed heavy reliance on commissions, which would have been formed of one commissioner from each state. "Commission" was defined as "the commissioner of the respective signatory states . . ." <sup>31</sup>. In some cases, these commissions were to work jointly, as in making decisions on what works to construct<sup>32</sup>. In other cases they were to act individually, with each commission (or, what would amount to the same thing, each commissioner) having absolute authority over the release of water belonging to the conservancy district created by the compact within his own state<sup>33</sup>. Commissioners were to be appointed for terms of six years, and were not removable from office except for cause.

The compact had a dual focus, flood control and irrigation. Flood control is the first purpose mentioned in Article I. No specific allocations of flow among states were spelled out. Instead, division between Texas and New Mexico was to be made

by the "joint commission" after a complete study of the area<sup>34</sup>. In addition, Texas and New Mexico pledged themselves not to allow the flow of impounded water allotted to any other state to be diminished. It was recognized that most flood flows would originate in Texas and New Mexico, and that the major impoundments would be in those states.<sup>35</sup> The joint commission was to review the allotment to the states five years after the completion of all flood control and storage works. There is, however, no allocation set forth in the compact, so it is not clear exactly what allocation the joint commissioners would have reviewed.

A key element in this plan for flood control and conservation was the building of reservoirs in New Mexico with sufficient capacity (up to 850,000 acre feet) to supply water to all irrigable land in the "signatory states", and in addition to build such additional reservoir capacity as was necessary for flood control<sup>36</sup>. These works would be financed by conservancy districts, one in each state. These districts would determine the benefits received by lands within the districts as a result of these improvements, and could then levy assessments against those lands, up to the amount of the benefit to each parcel, to pay for the improvements.<sup>37</sup>

It was an interesting plan. The river basin could be developed without waiting for federal action by forming what would, in effect, be a multi-state conservancy district with the power to assess landowners for the cost of improvements. Those improvements could include flood control as well as irrigation supply. Thus, the cost of dams designed to provide irrigation water in New Mexico could be spread to those in eastern Oklahoma who would benefit from flood protection provided by that

upstream dam. Operation of the conservancy districts would be by the commissioners, either individually (if it were a matter of concern only to that state/district) or jointly (if more than one state/district were involved.)

The plan to create a basin-wide authority bears some resemblance to modern efforts such as the Delaware River Basin Compact<sup>38</sup> which creates a commission with territorial jurisdiction over an entire basin, including territory within each signatory state<sup>39</sup>. The compact was also ahead of its time, perhaps, in its requirement that the allotments to the signatory states be reviewed periodically. Some commentators, such as Muys (1971)<sup>40</sup> have suggested that such review provisions be included in all allocation compacts. In the case of the 1926 Canadian compact, however, one drawback to this plan is that there is no initial allocation to be reviewed; the compact speaks in general terms of equitable allocation, but there is no measurement set out.

The compact was ratified by Oklahoma in 1927<sup>41</sup>. New Mexico also ratified, but with such conditions attached as to effectively re-write the compact<sup>42</sup>. Foremost among these were a requirement that New Mexico be allotted sufficient water to irrigate at least 100,000 additional acres below the planned reservoirs; that any assessments for the cost of water development against land in New Mexico be limited to lands which would receive irrigation water, and be limited to twenty-five dollars per acre; and finally that no action by the Commission would be binding on New Mexico unless approved by the Governor and State Engineer of New Mexico. New Mexico apparently did not trust the relatively autonomous commission to the extent the drafters of the agreement may have liked.



Texas never ratified the agreement. Welsh (1985)<sup>43</sup> states that this was in retaliation for New Mexico's refusal to agree to the first Pecos River Compact. At any rate, the 1926 compact never came into effect, and it was not until 1950 that negotiations began anew.

### The 1950 Compact

As noted above in connection with the Kansas-Oklahoma and Arkansas-Oklahoma Arkansas River Compacts<sup>44</sup>, the 1950s were an era when many compacts were being negotiated. Along the South Canadian, the Tucumcari Project had just come into operation, and Texans in the Panhandle were looking to develop what was to become Lake Meredith. Demands on the river were increasing, and some sort of agreement seemed desirable, particularly in light of the general movement to allocate interstate waters by compact. The Bureau of Reclamation had, in its report on the Canadian River Project in Texas, recommended that a compact be in place before construction was begun on the project, and the New Mexico delegation in Congress was successful in attaching amendments to the authorization for the Texas project requiring that a compact be ratified by the states and consented to by Congress before any funds were appropriated for construction<sup>45</sup>.

Negotiations were rapid. The states met informally in February 1950. A few months later, Congress gave its consent to the negotiations, but required that a federal representative be appointed. The federal representative, Berkeley Johnson<sup>46</sup>, was appointed by President Truman in May, and the first official meeting of the

Commission was held June 30, 1950. The second official meeting was held in October, and a partial draft was prepared by November. Texas wanted to have the compact completed by December 6 in order to be able to proceed with the Sanford Dam Project (the reservoir later became known as Lake Meredith), and so the final meetings were held at the beginning of December.<sup>47</sup> In all these negotiations took only about six months.

The history of the negotiations is set out, to a limited extent, in a memorandum prepared in January, 1951, by Raymond Hill, the engineering advisor to the federal representative<sup>48</sup>. The goal of the negotiations was to protect existing developments within the three states while providing for the conservation of the waters not being used at the time under limitations that were fair to all three states. It was believed that the way to achieve this goal was to place reasonable limits on conservation storage in New Mexico and Texas. No restrictions were placed on the use of the unregulated flow of the river or its tributaries, and no restrictions were placed on construction of works for flood control, hydroelectric power, or other purposes since it was believed that these matters could be better handled by the federal government in cooperation with the affected states<sup>49</sup>.

The restrictions agreed upon seemed fairly straightforward. Since New Mexico had already fully developed all waters originating above Conchas, it was felt that no purpose would be served by placing any restriction on increase in the amount of storage of such waters. New Mexico was already using all of that water, and since existing uses were to be protected, restrictions would be meaningless.

The negotiators agreed that New Mexico was also entitled to a reasonable amount of storage below Conchas. New Mexico was allowed to develop 200,000 acre feet of storage below Conchas, which it was felt would be sufficient to provide for regulation of the tributaries and leave a reasonable margin for storage of any North Canadian waters unappropriated at the time. New Mexico was originally to be unrestricted in its use of North Canadian water, but these provisions were subsequently changed to make them consistent with those applicable to Texas<sup>50</sup>.

On the North Canadian, Texas was limited to storing water for municipal and farm purposes (not including irrigation except for direct household consumption). The restriction was a practical one, because most of the flood waters in the North Canadian were already earmarked for authorized projects in Oklahoma, and Texas had no sites presenting good opportunities for storage of irrigation water. On the South Canadian, Texas was to be allowed to impound a quantity equal to 200,000 acre feet plus whatever amount Oklahoma could store in conservation facilities west of the 97th meridian (to the east of Oklahoma City), but with the proviso that Oklahoma would be presumed to have at least 300,000 acre feet of such storage<sup>51</sup>. Texas therefore was to be allowed to store at least 500,000 acre feet. Oklahoma was not restricted as to use or storage of Canadian River water, since as the downstream state such actions would not affect the other two.

### The 1950 Compact

The compact which emerged from the negotiations was characterized by the

Senate Committee on Interior and Insular Affairs as "an outstanding example of able draftsmanship<sup>52</sup>." It turned out not to be, at least according to the Supreme Court 40 years later.

### Allocation

The allocation mechanism for the Canadian Basin is based on limitations on storage. New Mexico is granted "unrestricted use of all waters originating in the drainage basin of Canadian River above Conchas Dam."<sup>53</sup> New Mexico also has unrestricted use of all waters originating in New Mexico below Conchas Dam, but the practical scope of that use is bounded by a provision limiting the amount of conservation storage for the water "originating in the drainage basin of Canadian River in New Mexico below Conchas Dam" to 200,000 acre feet<sup>54</sup>. On the North Canadian, New Mexico could provide conservation storage for any water which at the time was unappropriated in either New Mexico or Oklahoma<sup>55</sup>.

Texas was given free and unrestricted use of all Canadian River water in Texas, but here too a practical limitation was imposed by restricting storage. Texas is allowed only 500,000 acre feet of conservation storage on the South Canadian until such time as Oklahoma constructs storage west of 97° W longitude; as Oklahoma builds storage west of that line, Texas' storage allocation increases<sup>56</sup>. (Oklahoma has, to date, built only about 10,000 acre feet of conservation storage facilities on the South Canadian west of that meridian<sup>57</sup>.) If Texas stores more than the allocated amount, Oklahoma can demand that the excess be released as rapidly as practicable

into the main channel of the river. On the North Canadian, Texas is restricted to impounding water only for household and domestic use, stock watering, and irrigation restricted to providing food for the household doing the irrigating<sup>58</sup>, reflecting the practical limitations recognized by the negotiators. Oklahoma, as the downstream state, has no restrictions on use or storage<sup>59</sup>, because the upstream states would presumably not be affected by such actions.

### Administration

The compact is administered by a compact commission made up of one member from each state, plus a non-voting federal representative. All three commissioners are required for a quorum, and action by the commission requires a unanimous vote<sup>60</sup>. The duties of the commission are centered on collecting and disseminating data to determine compliance with the compact<sup>61</sup>. There are no separate provisions regarding dispute resolution.

### Litigation and Other Problems

In recent years problems have arisen on both the North and South Canadian Rivers. The problems on the North Canadian stem from a declining water supply; on the South Canadian, the problems relate to interpretation of the compact.

### Oklahoma and Texas v. New Mexico

The Canadian compact functioned fairly smoothly until the enlargement of the

Ute Reservoir by New Mexico, beginning in 1982. The enlargement increased the capacity of Ute Reservoir above 200,000 acre feet, and Texas and Oklahoma claimed that this violated the compact, because Ute Reservoir is below Conchas. New Mexico disagreed, pointing out that the compact referred to water "originating" below Conchas, and arguing that water released from Conchas that had originated above that dam could be stored in Ute without regard to compact limitations. In the Spring of 1987, the problem became more concrete with a flood above Conchas and a spill of over 250,000 acre feet. By June of 1988, Ute was holding 232,000 acre feet, of which 180,900 was claimed to derive from the 1987 Conchas spill<sup>62</sup>.

Texas and Oklahoma had already filed suit against New Mexico in the Supreme Court based on the capacity of Ute Reservoir; the suit was now amended to claim violation of the compact based on amounts actually stored.

The Supreme Court addressed two principal issues. The first was whether the compact limited the amount of storage capacity which could be constructed below Conchas, or only the amount of water actually stored. The Court found for New Mexico on this point, holding that there was no violation of the compact from expanding Ute beyond 200,000 acre feet; a violation would result only if more than 200,000 acre feet of water originating below Conchas were actually stored.

The second point was more difficult, and led to a five to four split among the justices. This issue concerned the meaning of "originate." New Mexico argued that "originate" meant just that: water which entered the Canadian system somewhere above Conchas even if that water later managed to find its way over the spillway at

Conchas. The other two states and five members of the court decided that the word "originate" was ambiguous, and that what the compact really meant was something like "originating above Conchas, *if such waters are stored, used, or diverted for use at or above Conchas Dam*"<sup>63</sup>. That is, under the Supreme Court's interpretation, New Mexico is limited to storage of up to 200,000 acre feet of water found in the Canadian below Conchas, regardless of the actual place of origin of that water.

It is this part of the Court's opinion which is most troubling. Representatives of Oklahoma<sup>64</sup> and Texas<sup>65</sup> view it as an interpretation of compact language based on the intent of the negotiators; representatives of New Mexico<sup>66</sup> view it as a re-writing of the compact. The Supreme Court's decision is based on the findings of the special master, who explored the background of the negotiations and concluded that the intent of the draftsmen was that water spilled from Conchas was to be considered as water originating below Conchas, regardless of where the water might have first entered the river system<sup>67</sup>.

New Mexico's position on this point, concurred in by the four dissenting justices, was that "originate" meant just that, and there was no ambiguity in the compact to be construed by considering evidence outside the document itself. New Mexico also urged that the history of the negotiations did not support the special master's findings.

Ambiguity is in the eye of the beholder. Five members of the Supreme Court and at least one commentator<sup>68</sup> found the word "originate" to be ambiguous; four justices said it was not; and the Senate Committee on Interior and Insular Affairs felt

that the compact was an "outstanding example of able draftsmanship"<sup>69</sup>. If nothing else, the litigation illustrates the fact that compacts consist of words, and with the passage of time, the interpretation of those words may become less simple than was originally the case.

The Court went through a laborious rationale to explain why the compact did not mean what it said, but as the dissent pointed out, there was no ambiguity in the wording of the compact. In effect, the Court rewrote this compact, as it did with the Pecos, in order to resolve an impasse arising out of the lack of any way of breaking a deadlock among the states which were parties to the agreement.

The case has been concluded for the present by the entry of a stipulated judgement on December 13, 1993. The decree limits New Mexico to an aggregate of 200,000 acre feet of storage in all reservoirs below Conchas and further requires that Ute Reservoir be operated at specified levels until the year 2002. This latter requirement has the effect of providing Texas and Oklahoma with an additional 25,000 acre feet of water per year through 1997, and lower additional quantities until 2002. The decree further defines the meaning of "conservation storage" and adds provision for sediment surveys to determine the extent to which that storage is actually being reduced by sedimentation. Lastly, New Mexico was required to pay \$200,000 each to Texas and Oklahoma for attorneys fees. The decree does not actually end the case; the Supreme Court retained jurisdiction to modify or supplement the decree in the future.



### Other Problems

The flow of the North Canadian River is declining, particularly in the west. Precipitation patterns have not changed, but something is causing surface flow to disappear. No studies have yet been conducted to determine the reason, but at Guymon, for example, the river flowed so seldom in the last decade that the state of Oklahoma removed the measuring gage. It was not worth the expense of maintaining it to measure a meager flow every few years or months<sup>70</sup>.

This decrease in flow could be related to groundwater use in the panhandles of Texas and Oklahoma, as well as in adjacent areas of Kansas, Colorado, and New Mexico. As groundwater is pumped, whatever flow used to recharge the river may no longer be available and the river may in fact be losing surface flow to recharge the aquifer. If groundwater pumping is the basis of the problem, then the compact will provide no solution, because the compact limits only storage of streamflow and says nothing about groundwater. If the river continues to decline in flow, the limitations on use of the North Canadian may become moot.

At the same time, however, a decline in discharge on the North Canadian could have an indirect effect on demand for the South Canadian. The North Canadian is a major source of municipal water for Oklahoma City. If that source is diminished, Oklahoma City will have to look elsewhere, and that elsewhere could be towards the South Canadian. That in turn would increase demand on the South Canadian, which could intensify disputes such as the recent litigation between the three states. Such a future conflict is purely theoretical conjecture, but the scenario is possible.

## Summary

The Canadian River Compact has not been successful. The three states were not able to resolve their disagreement within the framework established by the agreement, and it was left to the Supreme Court to resolve the issues. Oklahoma and Texas believe that the Supreme Court resolved the dispute in a manner reflecting the intent of the negotiators; New Mexico believes the compact was re-written. Either way, it required a superior sovereign authority to intervene and settle the matter.

This may be one of the major lessons to be learned from the Canadian compact: litigation is uncertain. On the question of the meaning of the word "origination", the Supreme Court divided five to four. What was actually meant by those who negotiated and ratified the agreement will never be known, because with the passage of time memories fade and people die. Unfortunately, with interstate compacts, it is likely that significant time will pass before serious disputes arise, so that any resort to litigation will be beset by this same uncertainty.

## Chapter Notes

1. George A. Shirk, ed, *Oklahoma Place Names*, 5th printing (Norman: University of Oklahoma Press, 1974), 42.
2. T. M. Pearce, *New Mexico Place Names. A Geographical Dictionary* (Albuquerque: University of New Mexico Press, 1965), 24-25.
3. United States. Army. Corps of Engineers, *Arkansas River and Tributaries*, H. Doc. 308, 74th Cong., 1st Sess. (Washington, D.C.: Government Printing Office, 1936).
4. Before the construction of the Eufala Dam and Reservoir, the North Canadian and South Canadian joined about 38 miles upstream from the Arkansas. The two rivers now combine in Lake Eufala. Either way, there was only one Canadian River below Eufala.
5. Corps of Engineers, *supra*, n. 3, p. 823.
6. *Ibid.*
7. *Ibid.*
8. *Ibid.*, at 826, 827.
9. *Ibid.*, at 858.
10. Michael Welsh, *A Mission in the Desert. Albuquerque District 1935-1985*. (Washington: Government Printing Office, 1985).
11. United States. Bureau of Reclamation. Southwest Region, *Tucumcari Project — New Mexico: Quay and San Miguel Counties*, Region Revision 6/83 (Washington, D.C.: Bureau of Reclamation, 1983).
12. Oklahoma and Texas v. New Mexico, 111 S. Ct. 2281, 2285 (1991).
13. United States. Bureau of Reclamation. Region 5, *Canadian River Project*. Texas, Hutchinson, Moore and Potter Counties (Washington, D.C.: Bureau of Reclamation, [1964]).
14. Oklahoma and Texas v. New Mexico, 111 S. Ct. 2281, 2285 (1991).
15. R. L. Blazs et. al., *Water Resources Data for Oklahoma, Water Year 1990* (Oklahoma City: U. S. Geological Survey, Water Resources Division, 1991).

16. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
17. Corps of Engineers, *supra*, n. 3, p. 996.
18. Ibid.
19. R. L. Blazs et. al., *supra*, n. 15.
20. Corps of Engineers, *supra*, n. 3, p.997.
21. Ibid.
22. R. L. Blazs et. al., *supra*, n. 15.
23. Ibid., at 1090.
24. Harold L. Springer, Chief Engineer, State of Oklahoma Water Resources Board, peronal communication (16 November, 1993).
25. 66 Stat. 74 (1952).
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29. 1926 Canadian River Compact, Article I.
30. Ibid., Article II (a).
31. Ibid., Article II (d).
32. Ibid., Article V.
33. Ibid., Article X (e).
34. Ibid., Article III (a).

35. Ibid., Article III (b).
36. Ibid., Article V (a).
37. Ibid., Article X.
38. 75 Stat. 688 (1961). The Delaware compact is not made a subject of a separate chapter in this paper because its purpose was not primarily to allocate water supplies among states, but to provide a comprehensive plan for overall management of the river basin. The Delaware compact is discussed in Chapter 13.
39. Frank P. Grad, "Federal-State Compact: A New Experiment in Cooperative Federalism," *Columbia Law Review* 6 (1963): 825-55.
40. Jerome C. Muys, *Interstate Water Compacts* (Washington, D. C.: National Water Commission, 1971).
41. Okla. Sess. L. 1927, p. 290.
42. Act of March 10, 1927, Laws 1927, p. 50.
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44. See Chapter 6.
45. Report of the Special Master, October 15, 1990, in Oklahoma and Texas v. New Mexico, No. 109, Original, United States Supreme Court, p. 8.
46. Mr. Johnson had also been the federal representative in the negotiations for the Pecos River Compact.
47. Report of the Special Master, *supra*, n. 45, 11-12.
48. Raymond A. Hill, *Memorandum to Canadian River Compact Commission Regarding Development of Final Wording of Compact* (29 January, 1951). This is the "Hill Memorandum" referred to in the Supreme Court opinion in Oklahoma and Texas v. New Mexico, 111 S. Ct. 2281 (1991).
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52. United States. Congress. Senate, *Granting the Consent of Congress to a Compact Entered into by the States of Oklahoma, Texas, and New Mexico Relating to the Waters of the Canadian River*, Report No. 1192, 82d Cong., 2d Sess. (Washington, D. C.: Government Printing Office, 1952).
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68. Joseph H. Robertson, "Note: Oklahoma and Texas v. New Mexico: A Hastily Negotiated River Compact Leads to Problems in Equitable Apportionment of the Canadian River," *Natural Resources Journal* 32 (1992): 705-22.
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## CHAPTER 8

### THE REPUBLICAN RIVER

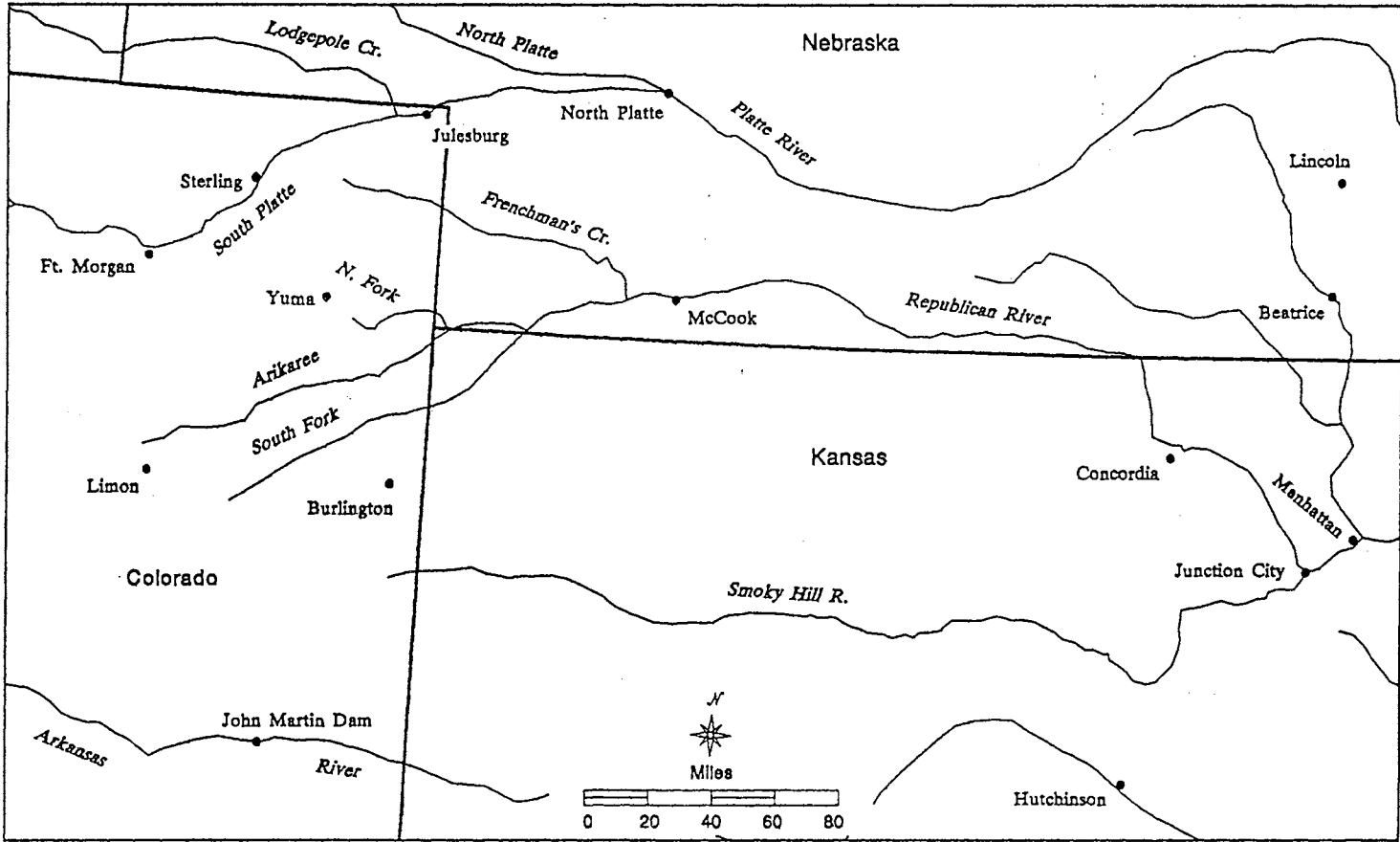
The Republican is a river of the High Plains, with its drainage basin sandwiched between those of the South Platte and the Arkansas (see Figure 5). Unlike those two rivers, however, the Republican has no mountain source; it rises from the precipitation over the plains. The compact dividing the waters of the Republican Basin illustrates two major issues involved, directly or indirectly, in any agreement between states to divide water: the possibility of federal jurisdiction over the same waters, and the need to address groundwater withdrawals.

#### The Geographic Setting

The Republican River grows from the combination of four major tributaries, all rising in Colorado, which eventually combine in Nebraska to form the Republican River itself. The river also has numerous minor tributaries along its course. Many of these tributaries, both large and small, are intermittent, being dry during some part of the year in at least part of their courses. The drainage basin of 24,960 square miles lies in an area of semi-arid to subhumid climate, with about 18 inches of precipitation per year on the western margins and 28 inches in the east<sup>1</sup>. The result is that tributary rivers are more intermittent in the west, and become more perennial toward



Figure 5: The Republican River



the eastern edge of the basin.

The land is flat to rolling, traversed by broad, shallow valleys, except in the northwestern part of the basin, which encompasses a small part of the sand hills of western Nebraska. Altitude decreases from around 5,500 feet on the western margins of the basin to 1,500 feet where the river crosses the Nebraska-Kansas border<sup>2</sup>.

The Republican River, as such, begins at Haigler, Nebraska, just east of the point at which Colorado, Kansas, and Nebraska meet, with the confluence of the North Fork of the Republican River and the Arickaree River, which is intermittent for much of its length in its western reaches. Twenty miles downstream, the Republican is joined by the South Fork, another largely intermittent stream rising in Colorado between Limon and Burlington. The last of the major tributaries is Frenchman's Creek (or River, depending on which map you use), which joins the main river upstream of McCook, Nebraska.

The river flows generally toward the east just to the north of the Kansas-Nebraska border until it bends to the southeast at Superior, Nebraska. From there it flows past Concordia, Kansas, to Junction City, where it joins with the Smoky Hill River to form the Kansas River. Over most of this course, the river valley is two to three miles wide, bounded by uplands rising 100 to 200 feet above the valley floor<sup>3</sup>.

The flow of the river is not great. The compact itself contains an estimate of the available virgin water supply for the basin, which is only 478,900 acre feet of water per year<sup>4</sup>. Flows can be uneven. The North Fork, for example, averages 47 cfs (34,050 acre feet) per year at the Colorado-Nebraska border, but has ranged from

no flow on days in 1932 to 2,110 cfs in April of 1947<sup>5</sup>. At McCook, where all four main tributaries have joined, the average discharge is 164 cfs, or 119,000 acre feet per year, but daily flows have ranged from zero in 1931 to 245,000 cfs in the floods of 1935<sup>6</sup>.

The basin is predominantly rural. In Colorado, the largest town in the basin is Yuma, with a population of 2,719. In Nebraska, McCook is the largest, with 8,112, while in Kansas, Concordia had 6,167 inhabitants in 1990<sup>7</sup>. Much of the area is in decline and has been losing population since the 1930s; the central part of the valley, along the Nebraska-Kansas border, lost 46 per cent of its population between 1930 and 1980<sup>8</sup>.

#### Negotiating the Compact

Unlike the Rio Grande, Arkansas (as between Colorado and Kansas), or Pecos compacts, the Republican River Compact did not stem from any immediate interstate controversy needing to be resolved by interstate agreement. In fact, there had been little development of water resources in the basin at the time the compact was negotiated in the early 1940s. Rather than resolution of some existing dispute, the impetus for negotiation was a desire to entice the federal government to fund development projects as part of the New Deal<sup>9</sup>.

There had been some negotiations among the states in the 1930s. Kansas and Nebraska had discussed some arrangement on the South Fork and the Arickaree, while Colorado and Nebraska had held some discussions concerning the North Fork<sup>10</sup>. The

floods in 1935 resulted in a halt in these discussions, but the states came together again in 1940. The new negotiations began at a meeting in December 1940, with the governors of Kansas, Colorado, and Nebraska meeting in McCook, Nebraska (the hometown of Senator Norris of Nebraska). The governors agreed it would be a good idea to engage in some form of interstate planning for the basin for irrigation and reclamation, and they appointed commissioners to negotiate a compact<sup>11</sup>. A drought in the years preceding 1940 had an influence on the desire to compact, as the states began to decide that some sort of irrigation works would be needed to avoid similar problems in the future<sup>12</sup>. In addition, there had been a study done by the Bureau of Reclamation in the late 1930s, which provided a source of information to be used in developing an agreement<sup>13</sup>.

Insofar as the negotiations themselves are concerned, research has not shown any major points of disagreement between the states as to the quantities to be allocated or the use of beneficial consumptive use as the measure of use; in fact, a compact was drafted by the states and ratified by Congress by March, 1941, just three months later. Unfortunately, that ratification was vetoed by President Roosevelt on April 2, 1941, because of Roosevelt's concern about loss of federal jurisdiction over the waters of the river<sup>14</sup>.

### The 1941 Veto

The compact agreed upon in 1941 was essentially the same as the compact eventually approved by Congress and the President, but with one significant

difference: the 1941 compact contained a declaration that neither the Republican nor its tributaries were navigable. That declaration was included as an effort to avoid federal jurisdiction and power to control later developments on the river. The negotiators were concerned that investment in irrigation works would not be made if those investments were subject to being wiped out by some later federal project to "develop" the river for some other reason, such as the generation of electricity<sup>15</sup>.

This concern apparently stemmed from the Supreme Court's December, 1940, decision in the New River case<sup>16</sup>. The case arose out of a dispute over jurisdiction to license a power dam on the New River, which flows in Virginia and West Virginia. The Federal Power Commission (FPC), a New Deal Agency, was asserting that it had jurisdiction to issue a license for the dam because it was on a navigable river. In addition, the proposed license contained a number of conditions beyond those which might be thought applicable to navigation.

The power company denied that the river was navigable, and in defiance of Washington, began to build its dam. The United States sought an injunction, but was unsuccessful in both the District Court and Court of Appeals, which found that the river was not navigable and therefore concluded that the FPC had no jurisdiction. The Supreme Court disagreed, substituting its own findings of fact for those of the courts below, and upheld the authority of the Commission.

The holdings of the case were of significance far beyond one small dam in the East. To begin with, the Supreme Court had, it seemed, rewritten the rules with respect to what constituted a "navigable" stream. Navigability was the linchpin on

which the federal government based its claims of jurisdiction to regulate development on rivers. By expanding the definition, the Supreme Court also expanded the scope of potential federal intervention over rivers and streams throughout the country.

Even more worrisome, especially to those in the west, was the expansion of the scope of federal authority which the Court found to go along with the new navigability:

In our view, it cannot properly be said that the constitutional power of the United States over its waters is limited to control for navigation. By navigation Respondent means no more than operation of boats and improvements of the waterway itself. In truth the authority of the United States is the regulation of commerce on its waters. Navigability, in the sense just stated, is but a part of this whole. Flood protection, watershed development, recovery of the cost of improvements through utilization of power are likewise parts of commerce control.<sup>17</sup>

The point was emphasized a few paragraphs later:

The point is that navigable waters are subject to national planning and control in the broad regulation of commerce granted the federal government<sup>18</sup>.

Just as disturbing to western water users, however, was the court's additional holding

that "there is no private property interest in the flow of the stream"<sup>19</sup>. To those used to dealing with water rights as a form of property, such a statement was anathema.

To understand the impact this ruling might have had on the men negotiating the compact, it is helpful to consider a statement in 1921 by Delph Carpenter, one of the architects of the Colorado Compact and Colorado's "minister to all foreign powers"<sup>20</sup>. The statement is lengthy, but deserves to be quoted at some length because it so well sums up western attitudes towards control of water. Carpenter wrote:

[The movement to form compacts among the western states in the early 1920s] has been awakened, in part, through abuses of federal power in the grasp of control of the waters of certain Western streams by denial of rights of way for further private development, and by the openly declared ambition for ultimate Federal control of the detailed administration of all western streams, as revealed by the doctrine urged by the United States in *Kansas v. Colorado* (206 U.S. 46, 87, 97) and later in the case of *Wyoming vs. Colorado* wherein the United States again urged the same doctrine notwithstanding definite and positive denial thereof by the decision in the former case. These assertions and manifestations of bureaucratic ambitions for ultimate Federal control over

the most precious natural resource within the sovereign jurisdiction of each of the States of the Arid Region, emanating though they may from high minded motives, have naturally awakened those entrusted with the administration of our State Governments to the dangers confronting the establishment of any such un-American and un-Constitutional policy and to apprehension and grave concern respecting any doctrine of national control whereby State sovereignty would cease and the streams would be burdened down with interstate servitudes against the will and beyond the control of the Constitutions and laws of the servient States; and whereby all future advancement, essential to the welfare and self-preservation of each of the States would ultimately pass from the jurisdiction of the States and the exercise of their sovereign will as expressed in their Constitutions and laws, and into the keeping of those men who may happen to be in successive control of bureaus at Washington and who will be answerable in the exercise of discretionary powers not to the States but to the ever changing and oftentimes ill-advised and overworked heads of administrative departments of the Government and



who, in turn, are ever subject to human prejudices, preconceived opinions, caprice, personal ambitions, political motives and, above all, to the advice of prejudiced or partially informed but assuming theorists who are ever present and covertly seeking to shape National and State affairs to fit their favorite formulas.<sup>21</sup>

These attitudes did not fade away in the next twenty years. In the Hearings before the Congress in 1943, Senator Reed of Nebraska stated "As a state matter, we refuse to acknowledge that the Government of the United States is entitled to take control of waters, except of navigable streams."<sup>22</sup>

Judge Clifford Stone, chairman of the Colorado Water Conservation Board, in an address to the Western State Engineers in 1940, discussed the claims made by the Federal government to control water in the west, arguing that the states control the water, not the federal government, and adding that

The national interest and a coordinate plan of development are not contrary to the recognition of states' rights in the water, but the idea of centralized control by the federal government of water of non-navigable streams is abhorrent to those interested in the utilization of the water resources of the west.<sup>23</sup>

This was the rock upon which the first compact foundered. The states were concerned that there be some reasonable assurance for those investing in irrigation

works that a subsequent federal project would not wipe away that investment; the federal agencies wanted to maintain their power and expand their authority. The states inserted the "non-navigable" language into the compact to negate any claim of federal jurisdiction, but the Federal Power Commission, fresh off its victory in the New River case, led the opposition<sup>24</sup>, and Roosevelt was persuaded to veto the bill. In his veto message, he stated that he agreed in concept with the idea of a compact, but went on to say it was "unfortunate that the compact also seeks to withdraw the jurisdiction of the United States over the waters of the Republican Basin . . . ."<sup>25</sup>

The veto was not challenged; instead, Congress authorized the three states to negotiate a new compact, but this time with a federal representative to be involved in the negotiations<sup>26</sup>. (There was no federal representative during the first series of negotiations, and the states had not sought Congressional consent to negotiation in advance.)

#### Negotiating the 1943 Agreement

The states still wanted their compact, and they were still concerned about the possibility of subsequent federal actions. The new negotiations, therefore, focussed on ways of achieving the same restrictions on federal action, but in a way more agreeable to the federal government<sup>27</sup>. The compact which finally resulted differed substantively from the 1941 agreement only with respect to these federalism issues; the allocations and other provisions remained the same<sup>28</sup>.

A new draft was prepared by the negotiating commission, including the federal

representative (Glenn A. Parker, chief hydraulic engineer with the United States Geological Survey). This draft replaced the "non-navigability clause" with a "paramountcy clause", which recited that beneficial consumptive use as defined in the compact was the paramount use of Republican River water, so that all other uses, including power generation, would be subservient to those beneficial consumptive (that is, irrigation and domestic) uses. Drafts of the new compact were circulated among the various federal agencies which had some interest in the river, and it was originally understood by the federal representative that that language was acceptable to the FPC. A meeting was held in Denver on December 2, 1942, at which the federal agencies were invited to meet with the compact commission. The FPC then expressed its strong desire to have the paramountcy clause removed. This caused some consternation among the state negotiators, who were "unanimous in the opinion that an adequate compact could not be consummated by the states without providing in some manner for allocating the water according to the principle of beneficial consumptive use and for protecting the right of such use when once established<sup>29</sup>."

Another meeting was held in Lincoln, Nebraska, on December 29, 1942. The FPC this time submitted its own draft compact, which did not refer to beneficial consumptive use or attempt in any way to address the problems of meeting possible conflicts between state and federal interests. The states rejected the FPC draft, and came up with their own new version of the compact, which dealt with the state/federal problem by deleting paramountcy but instead placing conditions on the effectiveness of the compact<sup>30</sup>.

Specifically, Article X and XI of the new compact stated that it would be of no effect unless, in conjunction with ratifying the agreement, Congress also enacted legislation requiring that the United States and its agencies do three things. First, if the United States ever beneficially consumed any water from the Republican basin, it would do so in keeping with the compact allocations agreed to between the states. Second, the federal government would first consult with various interested federal *and* state agencies before undertaking any programs that would interfere with the "full beneficial consumptive use of waters within the basin". Finally, if after those consultations a federal program were undertaken which encroached on established uses of water, those established uses would be recognized as property<sup>31</sup>. This last provision is particularly significant in that it would help avoid part of the specter raised by the New River case concerning property rights in stream flows. It would also make the Fifth Amendment applicable, and require just compensation to be paid for any taking of those property rights by any federal agency.

Congress agreed, and in approving the compact, it enacted the additional laws<sup>32</sup>. It should be noted that the FPC objected to this compact as well<sup>33</sup>, but unsuccessfully this time. The compact was in effect, but not much was done with it for a number of years thereafter.

### The 1943 Compact

The Republican River Compact is a straightforward agreement<sup>34</sup>. It does not contain any elaborate provisions for administration, and its allocation is set forth in

terms of acre feet, rather than any sort of formula.

### Allocation

Allocation between the states is governed by Articles III and IV of the compact. Article III spells out the assumptions made by the negotiators with respect to the water supply within the basin; Article IV divides that supply on the basis of a specific number of acre feet allocated to each state within each subbasin. The allocations are for beneficial consumptive use, not merely withdrawals, and equal the entire virgin supply.

One unusual provision, however, is found in the last paragraph of Article III. If the virgin water supply is found to vary more than ten per cent from the amounts spelled out in Article III, then the quantities specified in Article IV are to be adjusted proportionately. There is, however, no system of debits and credits to be used if such adjustments are found to be necessary nor is there any sanction for using more than an allocated share of the water.

Since 1964, an "engineering committee" has made annual calculations of virgin supply and consumptive use to determine if there has been compliance. This is an after-the-fact calculation, and there is no sanction if it is determined that one state or another exceeded its allocation in the prior year. The compact does not require an annual review, and Kansas has suggested that a longer period such as 10 years be used<sup>35</sup>.

A current issue with respect to the allocation formula is whether it includes

groundwater. Colorado and Kansas are of the opinion that it does; Nebraska disagrees<sup>36</sup>. This disagreement is the principle problem facing the compact at the present time, and is discussed in greater detail below.

### Administration

Since there had been no particular controversy between the states at the time the compact was made, there was no active administration of the compact for some time after it became effective. About 1960, however, minutes of the Republican River Compact Commission become more formal and regular.

The compact itself does not create an administrative body, but rather provides that "It shall be the duty of the three States to administer this compact" through the official of each who is in charge of public water supplies<sup>37</sup>. In fact, the states have formed a Republican River Compact Administration, which meets regularly to deal with compact issues. The Administration has also appointed an engineering committee to provide technical information and assistance, and a legal committee to consider legal issues such as the interpretation of the allocation.

There is no method of dispute resolution specified, but at the present time, the legal committee is discussing the issue of groundwater pumping and its effect on allocation.

### Litigation and Other Problems

The compact itself has not yet been tested in litigation. That situation may

soon change, however, if the dispute with Nebraska over groundwater pumping is not otherwise resolved.

For the first decades of the compact, development of water resources was relatively slow, and each state was receiving its share of river water. In fact, when the compact was executed, it was predicted that with regulation in storage reservoirs, there would be ample water to meet all future needs with enough left over for any out-of-basin navigation requirements that might arise<sup>38</sup>. By 1974, however, there began to be concern over potential shortages and how to deal with them should they arise<sup>39</sup>. A Special Engineering Committee was appointed by the Administration to develop a procedure for equitably dividing water within the basin in the event shortages should occur<sup>40</sup>. The committee agreed that in the event of shortage, division should be made in relative proportions based on Article III, but no procedure for actually making or enforcing such allocations has yet been agreed upon. Shortages have occurred in recent years, and Kansas attributes those shortages to excessive use of groundwater by Nebraska<sup>41</sup>.

According to Kansas, groundwater consumptive use increased rapidly from 1959 to 1978, and by 1977 exceeded consumptive use from surface sources. Groundwater use declined from 1978 to 1981, but then increased again, so that after 1985 it was exceeding surface water use. At the same time, the amount of surface flow has been decreasing, and there has been no decline in precipitation sufficient to account for that decrease<sup>42</sup>.

Colorado, being the upstream state, has been unaffected by this situation, but

Kansas is expressing increasing concern and has claimed that part of the reason for lack of supply in Kansas is because of "intolerable" overuse by Nebraska<sup>43</sup>, which exceeded its allocation in nine subbasins in 1991 if groundwater withdrawals are charged against its allocation. The key question appears to be whether groundwater consumptive use is within the scope of compact allocations. Nebraska is taking the position that it is not, while Kansas is marshalling evidence from a variety of sources indicating that groundwater was included as part of what was allocated<sup>44</sup>. It appears that Kansas may have the better argument. For example, M. C. Hinderlider, the Colorado commissioner to the compact negotiations, reported to the Colorado legislature that ". . . this Compact equitably apportions the total available average annual virgin water supplies of the basin, *both surface and underground*, among the three states . . . [emphasis added]<sup>45</sup>, and the definition of "Virgin Water Supply" found in Article II of the Compact is "the water supply within the Basin . . . ."

Nevertheless, Nebraska takes the position that since the compact does not specifically refer to groundwater, groundwater is not within the allocations.

If the matter is not resolved within the legal committee, or by some compromise among the three states, it will likely go to litigation before the Supreme Court<sup>46</sup>.

### Summary

The Republican River Compact illustrates two important points. The first involves the scope of federal jurisdiction over rivers. Realizing that they could not



finest the federal government into abandoning its claims for authority over development along the river, the states obtained an agreement under which they would at least be consulted with respect to any federal projects and, what is more important, that compensation would have to be paid for loss of water rights to federal projects.

It is also significant that the provisions for that consultation and compensation are not mere recitals in the compact, but are embodied in separate enactments by Congress, so that Congress is estopped from claiming not to be bound by a "contract" to which it was not a party. Judge Stone of Colorado made it clear in his Congressional testimony in 1943 that the states would not be willing to rely on a recital within the compact; they wanted express recognition of these property rights in addition to the ratification of the compact itself<sup>47</sup>. An additional Congressional enactment of this nature appears to be the only practical method of protecting property interest in water rights on streams since the New River decision.

The second point is that groundwater should be explicitly dealt with. Groundwater is a key part of the hydrologic cycle and cannot be ignored in dividing water resources, but unless it is specifically mentioned, there may be claims in subsequent years that the compact deals only with the visible surface flow of the river. If water is to be allocated, it must be assured that there are no leaks in the system allowing one party to bypass the allocation provisions and obtain water without accounting for it. At least some of the negotiators believed that groundwater was encompassed within the compact, but it appears that specific mention of groundwater should be made in compacts to avoid future problems.

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## CHAPTER 9

### THE BEAR RIVER

The Bear River is the major tributary of the Great Salt Lake. In its course to get there, it passes through Utah, Wyoming, and Idaho (see Figure 6). The three states have allocated the water of the river by compact, first in 1955 and then again in 1978. The compact calls for review every twenty years, and the next review is due this decade. It remains to be seen whether further amendment will result.

#### The Geographic Setting

The Bear River is the largest river in North America whose waters do not reach an ocean. It follows a 500 mile route to cross the 90 miles between its headwaters in the Uintah Mountains and its mouth in the Great Salt Lake, crossing the Utah, Wyoming, and Idaho borders five times as it flows first north, then west, then south again. In the process, it drains an area of just under 7,500 square miles, producing an average water supply of 2.9 million acre feet, of which perhaps 1.5 million reached the Great Salt Lake before human development of the river basin<sup>1</sup>.

The basin can be generally divided into two main parts, an upper basin and a lower one, with the dividing point at Stewart Dam, just east of Montpelier, Idaho. Much of the water supply originates in the lower basin. The mountain valleys of the

upper basin are semi-arid, with irrigated hay or pasture land in the lowlands and sage or scrub covering much of the uplands. Higher lands in the east are forested or woodland. In the upper basin, flow is highly seasonal, being dependent upon snowmelt. The peak flows generally occur from April and May through June or July<sup>2</sup>, with about 337,000 acre feet crossing the border from Wyoming into Idaho every year<sup>3</sup>.

Straddling the Utah-Idaho border south of Montpelier is Bear Lake, a blue-green oasis sandwiched between high mountains on its south, east, and west sides, but opening into a poorly drained, broad lowland to the north. A natural causeway divides Bear Lake from Mud Lake and Dingle Swamp, which lie just to the north. These wetlands between Bear Lake and Montpelier are occupied in large part by the Bear Lake National Wildlife Refuge.

In the past, the lake and wetlands drained north into the Bear River, but that pattern was modified in the early 1900s. In 1898, the Department of Agriculture published a study discussing the feasibility of diverting water from the river *into* the lake. By raising the causeway in a few places, a range in water level of five feet could be obtained, providing storage for 400,000 acre feet of water<sup>4</sup>. In 1918, Utah Power and Light Company (UP&L) completed inlet and outlet canals to and from the lake. The inlet canal is fed by water diverted at Stewart Dam; the outlet canal goes back through the wetlands and rejoins the river just north and west of Montpelier. The river is much diminished between the inlet and outlet canals, and the outlet canal could be mistaken for the river itself were it not for the signs on the bridges.

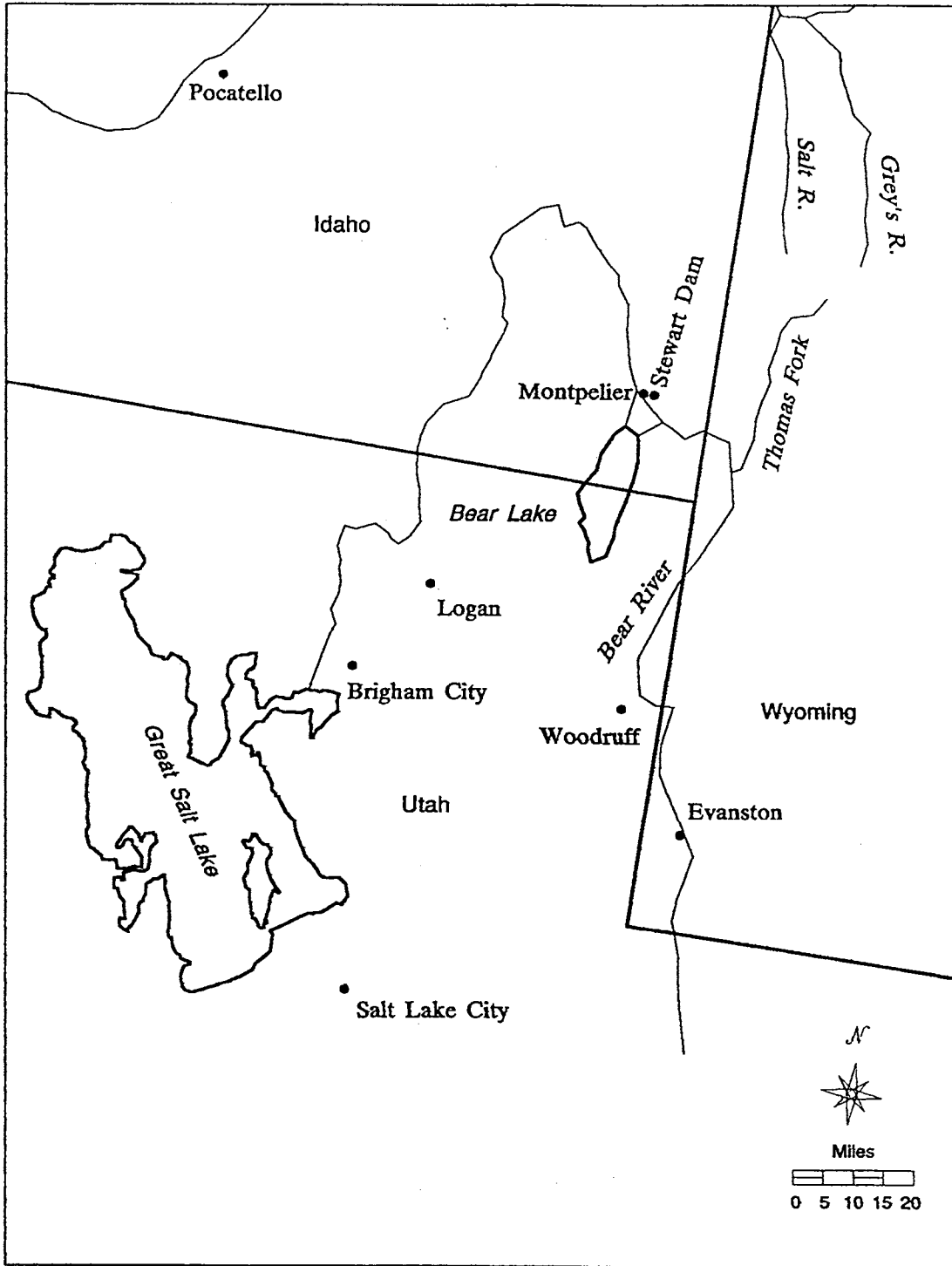


Figure 6: The Bear River

The canals, together with a pumping station to lift water from the lake into the outlet canal, were central to development of the lake as a storage reservoir to regulate the flow of the river as a power source for five hydroelectric dams constructed downstream. The power plants were completed by 1927, and in the 1950s, when the compact was first negotiated, these plants generated an estimated 75 per cent of UP&L's power. This has been the single most important development affecting the river and has placed Bear Lake and its storage capacity at the center of compact deliberations<sup>5</sup>.

Downstream from Montpelier, the river loops around the Bear River Range and then flows south towards Utah. The valley widens considerably in the vicinity of Preston, Idaho, and remains a broad, relatively flat valley to its mouth at the Great Salt Lake between Brigham City and Promontory Point. This lower reach of the river is the site of the Bear River Migratory Bird Refuge, established in 1928 and consisting today of 65,000 acres of open water, mudflats, and wetlands<sup>6</sup>.

The first white trappers to explore the basin came with Astor's American Fur Company in 1812. The French and British Northwest Fur Company trappers came in 1818, and the river came to be called the Bear River because of the large number of bears in the region. Bear Lake was "discovered" in 1824<sup>7</sup>.

Mormon pioneers entered the valley a few decades later upstream from Evanston, and began to develop the water resources<sup>8</sup>. The Myers irrigation canal, with an 1862 water right, is the oldest in the state of Wyoming. By the time Wyoming and Idaho became states in 1890 and Utah became a state in 1896, there



was already considerable irrigation development, and also considerable potential for interstate conflict. G. K. Gilbert noted in a report to J. W. Powell in 1878 that sufficient water was available to irrigate 90 square miles "under ditch" in the Woodruff-Randolph area of Utah, but added that if the water were appropriated, it would leave too little for use by lands bordering the river in Wyoming. Gilbert felt these lands should have an equal claim, and that a "proper" allocation would distribute the water to the land in the two states. On the other hand, where the river re-entered Utah from Idaho, there was too much water for it all to be used<sup>9</sup>.

Powell in a report to Congress in 1878 asked that laws governing priorities and beneficial use of water be included in the homestead laws, but such rules were omitted by Congress. Again in 1889, in the Eleventh Annual Report of the Geological Survey, Powell noted plans for diversion of water from the river. He asked how water would be apportioned in times of scarcity, and noted concern among residents of Idaho about the possibility of a contest for the available water<sup>10</sup>. Powell's concerns were not addressed until the 1950s and 1970s, with the compacts.

Although population is sparse in the upper reaches of the river, the Logan area of Utah is increasing rapidly in population, and in water use, and the state of Utah is looking at the Bear river, among others, as a source of water to supply the needs of the growing population of the central valley with its expanding population<sup>11</sup>. Demands for water for municipal and industrial use may come into increasing conflict with demands for water for irrigation.

## Negotiating the Compact

The concurrent, but distinct, development of the river as a source of both electrical power and irrigation water, together with the jurisdictional problems posed by five border crossings, resulted in what has been called "a prime example of complexity of water rights<sup>12</sup>." By the 1950s, over 500 irrigation companies, plus many individuals, municipalities, and small industrial users, were competing with each other and with UP&L for the water<sup>13</sup>.

Water rights in the river were affected by a number of court decrees. By the "Dietrich Decree" of July 14, 1920, UP&L was granted the right to divert 5,500 cfs into Bear Lake, thereafter to be released at UP&L's pleasure for the generation of electric power or any other beneficial purpose recognized by law. This was the only right to store water in the lake. There were no restrictions on water levels, or on total quantities to be stored. As a practical matter, based on the pumps and other UP&L works, the usable reservoir range was 21.65 feet, resulting in a usable capacity of 1,421,000 acre-feet<sup>14</sup>.

This UP&L water right created some problems for those upstream. The right has a priority date of 1911 and 1912. The flow reaching Stewart Dam, the point of diversion, has never reached 5,500 cfs, and therefore any upstream rights with later priorities might have been left high and dry. Users in Wyoming, however, were not parties to the Dietrich litigation, nor were users in two upstream Utah counties, and the decree was therefore not directly binding upon them.

Nevertheless, this UP&L water right resulted in restricted development of

storage in the upper basin from 1920 to 1958 because of concern that use of any such storage could be enjoined by UP&L. This was a sore point with upstream users, who had "hiority" if not "priority", and the chance to divert the water first. A drought in the 1930s, aggravated by what was seen as inequitable allocation among states, led Idaho users upstream of the dam to look for some avenue for relief, such as litigation or compact<sup>5</sup>.

Additional pressure to come to some sort of agreement among the states (including some sort of resolution of water rights issues) came from a desire to have federal reclamation projects constructed. The Bureau of Reclamation had investigated several projects in the basin, but completion of those studies had been deferred because uncertainties with respect to water rights left the amount of water available for such projects indeterminate. An integrated administration of the waters of the river was seen as necessary to facilitate further development<sup>6</sup>.

These factors — a belief among Idaho users that they were not receiving their fair share of the river, friction among upper basin users with respect to Bear Lake storage rights, lack of interstate control over irrigation season natural flow, and the Bureau of Reclamation's concern for future developments — brought about negotiations for a compact.

Informal meetings began in 1943 among the three state engineers and personnel from the USGS and Bureau of Reclamation. The first agreement was to conduct a comprehensive streamflow data collection program on both tributaries and the main stem. In 1946, Congress granted consent for the states to negotiate, conditioned upon

the appointment of a representative of the United States to participate in the negotiations<sup>17</sup>. In addition to the states and the federal government, Utah Power was also closely involved in the negotiations, since its storage rights at Bear Lake were pivotal with respect to the issues being addressed.

Early negotiations, aimed at administering the basin on a priority basis without regard to state lines, met with strong resistance. On a strict priority basis, storage above Bear Lake would have been out of the question. In addition, strict adherence to priority in the central basin would have resulted in serious deficiencies in supply for 10,000 acres of land already under irrigation<sup>18</sup>. Some other solution was needed.

Two main concepts finally emerged. The first was that some storage allocation above Stewart Dam would be granted without being junior to the UP&L right to divert into Bear Lake. The second was that the upper and middle basin<sup>19</sup> water would be allocated on the basis of amounts of irrigated land in the respective states.

UP&L and Idaho were not pleased by the threat to Bear Lake storage. Hydropower based on Bear Lake storage was critical to UP&L (over 75 per cent of its generation at the time), and release of Bear Lake water was also critical to Idaho irrigators, who relied on releases by UP&L to supply the water they used for irrigation<sup>20</sup>.

There was no real controversy between Idaho and Utah users in the lower basin, because except in 1934, the UP&L releases from Bear Lake had provided sufficient supplemental irrigation water for users in both states. The negotiators therefore did not concentrate on the lower basin, except to give priority to users in

Utah over junior Idaho users<sup>21</sup>.

Meetings continued, focussing on storage rights in the upper basin, and it looked at times like negotiations would collapse. Idaho wanted zero, Wyoming wanted 150,000 acre feet. Five years of "horse-trading" resulted in a figure of 36,500 acre-feet, including 1,000 acre feet on Thomas Fork for use in Idaho.

The Thomas Fork storage stirred its own controversy, which delayed approval for another year. Idaho actually had a supplemental requirement of 9,000 acre-feet in the Thomas Fork region. Thomas Fork users, when they found out they would get 1,000 acre-feet instead of 9,000, went to their Congresswoman, who delayed passage of the compact for a year<sup>22</sup>.

There was also a dispute concerning the Bear Lake Irrigation reserve. For storage to mean anything in the Upper Basin, it could not be junior to Bear Lake storage rights, but the diminution of flow into Bear Lake could adversely affect lower basin users. They wanted to be assured of having at least the same amount of water as there had been at the lowest levels of the drought years of the 1930s. The only way to accomplish this was to change the priority for release of water into the river for power generation. To achieve this goal, a lake water level was chosen such that if basin runoff were the same as it had been in the past, the lower users would be assured of the same supply as in the five-year drought period, even with the additional upper basin storage. When the lake was below this level, water could not be released solely for generation purposes. This water, between the lower usable limit and the "generation" level, became the irrigation reserve. The water still belonged to UP&L;

it was simply earmarked for irrigation instead of power when the level of the lake was below a certain stage<sup>23</sup>.

### The 1955 Compact

By 1955, the negotiators had reached agreement. The Utah and Idaho legislatures ratified the compact in 1955. Late filing in the Wyoming legislature delayed passage there until 1957<sup>24</sup>. When the compact reached Congress, Congresswoman Pfof of Idaho delayed action for a year because of the Thomas Fork controversy, noted above, but in 1958, Congress consented to the Bear River Compact<sup>25</sup>.

### Allocation

Reflecting the dual nature of the concerns noted above, that is, both storage and rights to direct flow, the compact allocated both the right to draw water from the river and the right to storage above Bear Lake. The allocation divided the basin into three divisions. The Upper Division was defined as the reach from the headwaters to Pixley Dam (in Wyoming, just south of the latitude of the Idaho-Utah border). The Central Division was from Pixley dam to Stewart Dam, while the Lower Division was from Stewart Dam to the Great Salt Lake<sup>26</sup>. Because the greatest problems had been in the region above Stewart Dam, the allocations focussed on the Upper and Central divisions.

The compact allocations come into effect only when a "water emergency" is

declared<sup>27</sup>. A water emergency is defined in terms of divertible flow measured in cubic feet per second for each division. If divertible flow (the sum of actual diversions plus water leaving the division) in the Upper Division is less than 1,250 cfs, a water emergency is in effect<sup>28</sup>. The same is true in the Central Division when the divertible flow is less than 870 cfs or the flow at the gaging station on the Wyoming-Idaho border is less than 350 cfs<sup>29</sup>.

These figures were based on historic usage of water and the number of acres being irrigated in each section. The 1,250 cfs for the Upper Division was based on providing 1 cfs for each 70 acres, which is the basic amount of water allowed under Wyoming water law. The 850 cfs for the Central Division was based on 1 cfs for every 50 irrigated acres, which was a negotiated figure based on Idaho water rights of one cfs per 33 acres in flood season and one cfs per 50 acres during the remainder of the year. Using 50 acres per cfs, the level would have been 810, and this was negotiated up to 850<sup>30</sup>. Most years result in declaration of a water emergency<sup>31</sup>.

If an emergency is declared, the water is then allocated between sections of the river in the Upper Division, with a percentage according to the acreage irrigated allocated to each of four sections<sup>32</sup>; within each of those sections, water is allocated according to state law. In the Central Division, Wyoming receives 43 percent of the flow and Idaho 57 percent<sup>33</sup>.

The Lower Division allocation is not based on any fixed amount of flow or set percentages. Rather, in this reach an emergency declaration was to be initiated by petition of any Utah appropriator who believed that he was being deprived of water to

which he was entitled. If the commission determined that the claim were true, it would declare a water emergency and administer water rights between Utah and Idaho on the basis of priority as if no state boundary existed<sup>34</sup>.

Upper and Central Division users had also been concerned about rights to store water without running afoul of the UP&L Bear Lake priority. The compact therefore provided that an additional 35,500 acre feet of storage could be constructed above Stewart Dam, to be equally divided between Utah and Wyoming, and 1,000 acre feet could be added on the Thomas Fork for the benefit of Idaho<sup>35</sup>. The negotiators tried to include some flexibility by giving Utah and Wyoming the right to modify the allocation of the 35,500 acre feet between themselves without amending the compact. This made the Bureau of the Budget nervous<sup>36</sup> so the statute approving the compact carried with it the proviso that Wyoming and Utah could not reallocate their shares of storage absent Congressional consent<sup>37</sup>. By the same article, the irrigation reserve discussed above was created to allay fears of farmers in the lower reaches of the river that Bear Lake would not be able to supply their needs.

### Administration

The compact did not provide for constant administration of the river; in fact, the allocations went into effect only when an emergency was declared. Since, however, there is an emergency in most average years<sup>38</sup>, the commission administers water use on a fairly steady basis.

The compact created a Bear River Commission of nine members, three from



each state. In addition, if the President of the United States appoints a federal representative, the federal representative serves as non-voting chairman of the commission. Each commissioner has one vote, and a two-thirds vote of those present is necessary for commission action (a quorum consists of at least six members, two from each state)<sup>39</sup>. This means that no state has a veto *per se* over compact operations.

### Dispute Resolution

The compact contains no express provisions for dispute resolution, although the fact that unanimity is not required for commission action could help avoid deadlock if some dispute did arise. In recognition of the fact that conditions might change, the original compact contained a review provision in Article XIII, which stated:

At intervals not exceeding twenty years, the Commission shall review the provisions hereof, and after notice and public hearing, may propose amendments to any such provision, provided, however, that the provisions contained herein shall remain in full force and effect until such proposed amendments have been ratified by the legislature of the signatory States and been consented to by Congress.

The compact was reviewed in the 1970s, resulting in an amended compact being executed in 1978 and ratified by Congress in 1980<sup>40</sup>.

## The 1978 Compact

While the initial compact provided a "workable agreement"<sup>41</sup> with respect to the two pressing problems of storage and division of flow above Bear Lake, it left other matters unresolved, and these were addressed in a lengthy series of negotiations in the 1960s and 1970s. In particular, the original compact did not divide either direct flow or storage between Idaho and Utah below Bear Lake, did not require any accounting for groundwater withdrawal, and left residents above Bear Lake unhappy with their allocation<sup>42</sup>.

The original compact's treatment of the Lower Division on the basis of interstate priority raised concern among Idaho residents that new Utah developments would be senior to any additional Idaho developments because Idaho was not growing as rapidly<sup>43</sup>. This was the same sort of concern that led the Upper Basin states on the Colorado to desire a compact allocating that river. Idaho wanted to address this potential problem. Related to that issue was a Bureau of Reclamation proposal to build a dam at the Oneida Narrows, along the mainstem of the river in Idaho. If Utah and Idaho could not agree on the allocation of the water to be stored, the project was unlikely to proceed; some agreement was necessary if that project was to go forward<sup>44</sup>.

The Oneida Narrows question led to a meeting between the governors of Utah and Idaho in 1967. This meeting in turn led to the formation of a tri-state committee to draft revisions to the compact and address the various issues which had been raised. In addition to groundwater concerns and the Utah-Idaho division, these issues included

the perpetual question of storage above Bear Lake and the creation of depletion or consumption limitations, which had not been included in the 1955 compact because of the perceived complexity of administering such allocations.<sup>45</sup>

A major concern during the negotiations was that any revisions should not affect existing irrigation rights. The only way to do that while allowing additional groundwater or storage development above Bear Lake would be to diminish the amount of water available for power production<sup>46</sup>.

Meetings were held for over six years in furtherance of the goal of modifying the compact to address these additional issues. Many of the same problems were present in these later negotiations as had been addressed in the 1950s — storage above Bear Lake, decreases in water in Bear Lake for generation, and protection of downstream irrigators. The UP&L objections to the possibility of reduced water available from Bear Lake for generation and the fears of lower river irrigators about lower storage were mostly assuaged by a provision prohibiting new storage above Bear Lake when the lake level was below 5,911 feet<sup>47</sup>. The upper limit of storage is at an elevation of 5,923.6 feet, while the bottom of the outlet works is at 5,902 feet. The "irrigation reserve" begins at just under 5,915 feet.<sup>48</sup>

A new factor was thrown into the negotiations by the Fish and Wildlife Service, which wanted water reserved for future expansion of the Bear River refuge (at the mouth of the river). In early drafts of the amended compact, 120,000 acre feet had been reserved for that purpose, but Fish and Wildlife officials questioned the adequacy of that amount. Rather than include it in the compact submitted to

Congress, which might have resulted in opposition because of questions as to the sufficiency of the amount reserved, the State of Utah agreed to provide the Fish and Wildlife Service with a letter of understanding concerning water for the refuge, which averted the crisis<sup>49</sup> (at least for a while). The issue of the scope and priority of any federal rights for expansion of the refuge has not yet been judicially resolved.

### Effect of Amendments

The result of the negotiations was a new compact, approved by Congress in 1978<sup>50</sup>. The new compact retained most elements of the earlier one, and focussed generally on post-1976 conditions (that is, water rights and usages established before the amendments were not affected; only those begun after the states reached agreement in 1976 were subject to the new terms). As with the original compact, the 1978 agreement focussed on allocation of both flow and storage, but now, restrictions were also placed on groundwater consumption, and allocations were framed in terms of consumption as well as storage.

### Allocation

The direct flow allocation above Bear Lake is unchanged from the 1955 compact<sup>51</sup>. Allocation in the Lower Basin is unchanged for water beneficially used prior to 1976, but thereafter, all new surface and groundwater use is divided on a depletion basis. Idaho has the right to deplete by new development the first 125,000 acre-feet of available water; Utah gets the next 275,000 acre feet; and the next

150,000 acre feet is equally divided. Anything thereafter is split 70/30 (Utah/Idaho)<sup>52</sup>.

The right to develop 74,500 additional acre feet of storage is granted above Bear Lake. Idaho is allotted 4,500 acre feet and Utah and Wyoming are each allotted 35,000 acre feet<sup>53</sup>. The depletion of flow above Stewart Dam resulting from this increased storage plus withdrawal of any additional water, including groundwater, appropriated after 1976 cannot exceed 28,000 acre feet. Wyoming and Utah are each allocated 13,000 acre feet of this new depletion, while Idaho is allocated 2,000<sup>54</sup>.

The 28,000 acre feet of additional depletion was a compromise, designed to keep the lake from being drawn down to zero in the event of another five-year drought. In addition, to protect Bear Lake and irrigators downstream, this additional diversion to storage is not permitted when Bear Lake is below 5,911 feet<sup>55</sup>. This water level, plus the 28,000 acre-foot depletion limit, was projected to be sufficient to allow Bear Lake to meet then-existing requirements through the worst runoff sequence on record. The 5,911 foot level is below the irrigation reserve line, so no water could be released solely for power generation under those circumstances<sup>56</sup>.

Additional rights are granted to store water above Bear Lake if that water would otherwise be spilled or bypass Bear Lake when all other direct flow and storage rights on the river are satisfied. Six per cent of this surplus storage, if any, is allocated to Idaho, and 47 per cent each to Wyoming and Utah<sup>57</sup>.

## Litigation and Other Problems

The 1955 compact and its successor have, on the whole, been successful. The provisions for amendment from the 1955 compact were carried forward into the 1978 compact<sup>58</sup>, and another review is due sometime this decade. The compact is not clear about whether the twenty years would run from the date of the last amendments being approved by the states, by Congress, or some other point in time.

The compact was under stress during its first five years of operation. These first years were fairly dry, with the flow of the river ranging from 80 to 61 per cent of normal. There were major difficulties with Wyoming users in the Central Division who were unused to much state regulation and who did not like being regulated by a commission for the benefit of another state<sup>59</sup>. One lawsuit was filed by a private party against the Wyoming State Engineer in which a tributary of Smith Fork was declared by the court not to be such and therefore not subject to the compact allocations. (A former engineer-manager of the Compact Commission attributes the court's decision to a "very inept defense."<sup>60</sup>) The Bear River Commission was not a party to this lawsuit, and so might not be bound to the decision. To date, this is the only litigation challenging the operation or allocations of the compact.

Other problems loom on the horizon, however. The Fish and Wildlife Service has made a claim of reserved federal rights with respect to the Bear River Migratory Bird Refuge<sup>61</sup>. In a similar vein, there is an increased push for review and revision of the compact to provide recognition of instream uses, and the Federal Energy Regulatory Commission, which licenses hydroelectric dams, has indicated that in the

upcoming relicensing proceedings for UP&L dams, it is going to seek to impose a minimum flow requirement<sup>62</sup>. At the same time, Utah is looking to more fully develop its Bear River water, particularly in the booming area around Logan.

When the compact was drafted and amended, the focus was on balancing production of electrical power (and UP&L's rights to store water to regulate flow for that power) with the needs of irrigators above and below Bear Lake. The next revision will introduce a new set of issues, focussing on in-stream as well as consumptive users, which will place an added burden on the available supply.

### Summary

The Bear River Compact has, by and large, been successful, providing an accommodation between the needs for equitable division of rights to flowing water and storage among users in the three states. It has been significantly amended once, but since the compact itself calls for review and possible revision every twenty years, such amendment should be considered as an indication of success: the compact was reviewed and amended as planned.

The challenges to the compact will come in the next round of review, sometime this decade. A new generation of users is now concerned with water quality and recreation more than with power generation and irrigation, and it may be difficult to reconcile those competing demands. The 1978 amendments were made at a time when there was still surplus water available for allocation; the same may not be true in 1998.

## Chapter Notes

1. United States. Congress. Senate, *Granting the consent of Congress to the Amended Bear River Compact between the States of Utah, Wyoming and Idaho*, Report No. 96-526, 96th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1979).
2. Kent C. Glover, *Stream-aquifer System in the Upper Bear River Valley, Wyoming* (Cheyenne, Wyoming: U.S. Geological Survey, 1990).
3. Wallace N. Jibson, *History of the Bear River Compact* (Salt Lake City: Bear River Commission, 1991).
4. *Ibid.*, p. 3.
5. *Ibid.*, p. 4.
6. United States. Department of the Interior. Fish and Wildlife Service, *Bear River Migratory Bird Refuge* (Washington, D. C.: Government Printing Office, 1980).
7. Wallace N. Jibson, 1991, *supra*, n. 3, p. 1.
8. The Bear River flows through a region with a long history of Mormon settlement. What effect, if any, this common culture might have had on early allocations of water or on the course of later negotiations is unknown. On the one hand, there was strong anti-Mormon bias in parts of Idaho (see Grenville H. Gibbs, "Mormonism in Idaho Politics, 1880-1890," *Utah Historical Quarterly* XXI, no. 4 (October 1953), 285-306), which could have made interstate negotiations with Mormon-dominated Utah difficult. On the other hand, the common Mormon heritage of many residents of the Bear River Basin may have made state lines less significant barriers and promoted cooperation. No research has been found addressing this point, but this could be another type of factor to consider in studying transboundary resource management.
9. Wallace N. Jibson, *supra*, n. 3., p. 2.
10. *Ibid.*
11. Sue Lowry, Wyoming State Engineer's Office, Interstate Streams Division, verbal communication (9 June, 1993).
12. United States. Congress. House, *Granting the Consent of Congress to a Bear River Compact*, Report No. 1375, 85th Cong., 2d Sess. (Washington, D. C.: Government Printing Office, 1958), Letter from Department of the Interior.



13. Ibid.
14. Wallace N. Jibson, 1991, *supra*, n. 3, pp. 5-6.
15. Ibid., p. 7.
16. United States. Congress. House, *Granting the Consent of Congress to a Bear River Compact*, Report No. 1375, 85th Cong., 2d Sess. (Washington, D. C.: Government Printing Office, 1958), Letter from Department of the Interior.
17. 60 Stat. 658 (1946).
18. Wallace N. Jibson, 1991, *supra*, n. 3, pp. 7-8.
19. The "Upper Basin" is the reach of the river shared by Utah and Wyoming. The "Middle Basin" is the reach shared between Wyoming and Idaho.
20. Wallace N. Jibson, 1991, *supra*, n. 3.
21. Ibid., p. 11.
22. Ibid., pp. 9-10.
23. Ibid., pp. 10-11.
24. Ibid.
25. 72 Stat. 38 (1958) (Bear River Compact of 1955).
26. Bear River Compact of 1955, Article II.
27. Ibid., Article IV (A).
28. Ibid., Article IV (A) 1 (a).
29. Ibid., Article IV (A) 2 (a).
30. Wallace N. Jibson, 1991, *supra*, n. 3, pp. 14-15.
31. Kent C. Glover, 1990, *supra*, n. 2.
32. Bear River Compact of 1955, Article IV (A) 1 (a).
33. Ibid., Article IV (A) 2 (a).
34. Ibid., Article IV (A) 3.

35. Ibid., Article V.
36. United States. Congress. Senate, *Granting the Consent and Approval of Congress to a Bear River Compact, and for Related Purposes*, Report No. 843, 85th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1957).
37. 72 Stat. 78 (sec. 3) (1958).
38. Kent C. Glover, 1990, *supra*, n. 2.
39. Bear River Compact of 1955, Article III (A).
40. 96 Stat. 4 (1980) (Bear River Compact of 1978).
41. Wallace N. Jibson, 1991, *supra*, n. 3, p. 22.
42. United States. Congress. Senate, *Granting the consent of Congress to the Amended Bear River Compact between the States of Utah, Wyoming and Idaho*, Report No. 96-526, 96th Cong., 1st Sess. (Washington, D. C.: Government Printing Office, 1979), Letter from Governor Herschler and State Engineer Christopulos of Wyoming.
43. Wallace N. Jibson, 1991, *supra*, n. 3, p. 23.
44. Ibid.
45. Ibid.
46. Ibid.
47. Ibid.
48. Ibid., p.11.
49. Ibid., p. 25.
50. 94 Stat. 4 (1978) (Bear River Compact of 1978).
51. Bear River Compact of 1978, Article IV.
52. Bear River Compact of 1978, Article V.
53. Ibid., Article VI (B).
54. Ibid., Article IV (B).

55. Ibid.
56. Wallace N. Jibson, 1991, *supra*, n. 3, pp. 26-27.
57. Bear River Compact of 1978, Article VI (C).
58. Ibid., Article XIV.
59. Wallace N. Jibson, 1991, *supra*, n. 3, p. 20.
60. Ibid.
61. Sue Lowry, Wyoming State Engineer's Office, Interstate Streams Division, verbal communication (9 June, 1993).
62. Ibid.

## CHAPTER 10

### OTHER MISSOURI BASIN RIVERS

Besides the Republican River, five other Missouri Basin rivers are allocated by interstate compacts. Colorado and Nebraska divided the water of the South Platte in 1923<sup>1</sup>. A bit farther north, Wyoming and Nebraska allocated the water of the upper reaches of the Niobrara River in 1962<sup>2</sup>, and Wyoming and South Dakota divided the water of the Belle Fourche in 1943<sup>3</sup>. The largest of the Missouri sub-basins to be addressed by compact is the Yellowstone, which was divided between Wyoming, Montana and North Dakota in a 1950 agreement<sup>4</sup>. On the eastern side of the basin, Kansas and Nebraska agreed on allocation of the Big Blue River in 1971<sup>5</sup>.

One common element among these five agreements is that they have led generally dispute-free lives, unlike most of the compacts previously discussed. In some cases, such as with the Big Blue and the Yellowstone, this may be because there is usually sufficient water to meet present needs so no one is in a position to complain of shortage. In the case of the Upper Niobrara, the quantity at stake is probably too small to justify any interstate "warfare" in the form of litigation even if there were some dispute over the allocation. The South Platte may have had the best potential for failure because of the limited supply and relatively great demand, but that compact basically formalized an existing situation, and users seem to be satisfied that the

division was equitable.

The five compacts vary in both geographic setting and in the way in which the rivers are divided and administered. Because no interstate litigation has arisen from these compacts, and none is on the horizon, the discussion of each will be more abbreviated than was the case with the more controversial agreements discussed previously. This is not to imply that these compacts are less significant or important than those which have led to interstate controversy; it is simply the result of focussing this paper primarily on areas where problems have occurred, and these compacts generally fall outside that focus.

### The South Platte River

The South Platte River Compact is one of the three oldest water allocation compacts, signed by the states in 1923, the year after the Colorado and La Plata Compacts. In the 70 years since, it has operated to divide the water of the South Platte without serious problem.

#### The Geographic Setting

In 1974, James Michener published *Centennial*, a novel about the South Platte area of Colorado. In the opening pages, the narrator expressed his original view of the Platte:

The South Platte was the most miserable river in the west, a trickle in summer when its water was needed, a

raging torrent in spring. It was muddy, often more island than river, and prior to the introduction of irrigation, it had never served a single useful purpose in its halting career<sup>6</sup>.

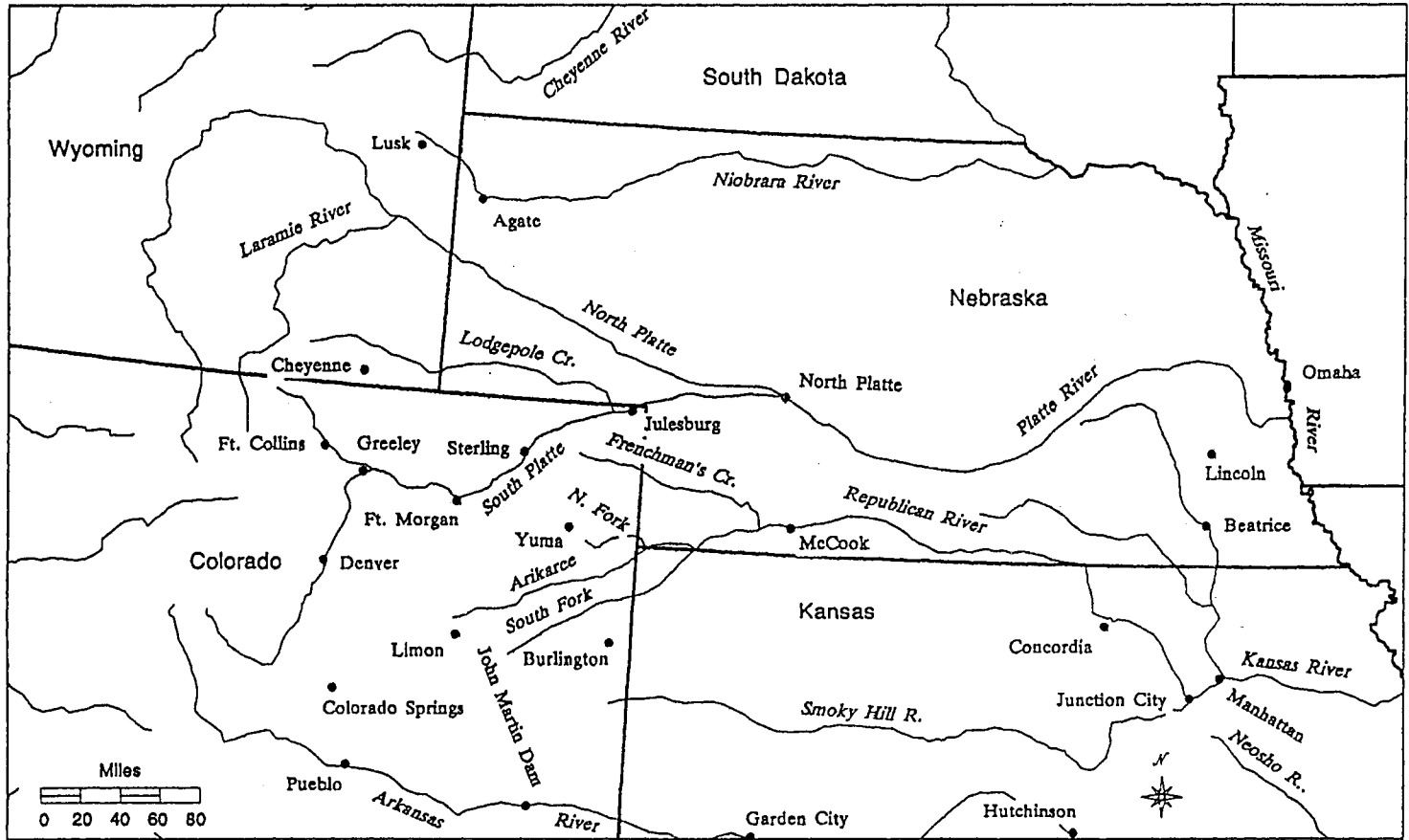
Irrigation was introduced in the second half of the 19th Century, and the South Platte began to serve its useful purpose.

The river rises in the Rocky Mountains south and west of Denver. It flows through Denver, then north towards Greeley, where it bends to the east, to flow into Nebraska at Colorado's northeast corner. At North Platte, Nebraska, the South Platte joins the North Platte to form the Platte, famed in history as being a mile wide and an inch deep. The Platte flows east, to discharge into the Missouri south of Omaha. In Nebraska, the river provides water for wetland habitats for whooping cranes and other endangered species. (See Figure 7).

The South Platte is 450 miles long, draining 24,030 square miles. Significant tributaries are limited to the Cache la Poudre, which enters at Greeley, and Lodgepole Creek, which rises in southeast Wyoming and cuts across the Nebraska Panhandle to join the main stem in Colorado just upstream of Julesburg<sup>7</sup>. In recent decades, the Big Thompson River in Colorado has become more significant as well because of water imported from the western slope of Colorado by the Colorado-Big Thompson Project.

After leaving the mountains, the South Platte flows across the central Great Plains, a flat to rolling region with a semi-arid climate. The headwater reaches in the

Figure 7: The Platte River Basin



mountains receive more than 40 inches of precipitation per year, but that decreases to about 15 inches in the foothills of the Front Range, gradually increasing again as the river flows eastward. In the plains, 75 to 80 per cent of the precipitation falls as rain during the growing season, so dryland farming can be successful, but irrigation can produce yields twice as great. References to "average" precipitation can be misleading in this region, though; the area tends to go through multi-year wet and dry cycles<sup>8</sup>.

What perennial flow there is in the river comes from mountain runoff as the winter snowpack melts, especially in the late spring and early summer (from April to July). Because of extensive use for irrigation in upstream areas, the flow of the river in much of the plains, particularly towards the Nebraska border, consists mostly of return flows from upstream irrigation projects<sup>9</sup>. Irrigation is extensive. Upstream of Julesburg (which would include essentially the entire drainage in Colorado, plus Lodgepole Creek), 1,200,000 acres were irrigated in 1991<sup>10</sup>.

The largest cities on the South Platte are in the west, along the Front Range. The Denver-Boulder area had a population of 1,848,319 in 1990; Greeley had 131,821. Downstream, Sterling (10,362) is the largest town between Greeley and North Platte (22,605)<sup>11</sup>.

Despite the demands placed on it by the irrigation districts and urban areas upstream, the river still maintains some flow at the border, averaging 392,000 acre-feet per year at Julesburg. That average is only an average; the river has at times had no flow, and at times experienced great floods<sup>12</sup>.



## The 1923 Compact

Competition for water from the Platte increased in the late 1800s with the advent of large-scale irrigated agriculture. The feeling of some was expressed by one of Michener's *Centennial* characters, Potato Brumbaugh:

When the Platte flows past my farm, I want it to be as big as the Mississippi, and when it leaves Colorado to enter Nebraska, I want it to be bone-dry<sup>13</sup>.

It did not turn out that way. Nebraska farmers were also developing water for irrigation. By 1923, all the water in the river was fully utilized, having been developed for irrigation by private projects.

By 1923, when the compact was signed, Colorado had already been the defendant in the only two interstate river allocation lawsuits decided by the Supreme Court. In Kansas v. Colorado (1907)<sup>14</sup>, the Court had developed the concept of equitable apportionment, which relied heavily on preserving existing uses. In the second case, Wyoming v. Colorado (1922)<sup>15</sup>, the Court upheld the theory that when two states both operate under the doctrine of prior appropriation, that doctrine can be applied on an interstate basis. The Wyoming case tangentially involved the South Platte, to the extent that the lawsuit arose out of a Colorado plan to divert water from the Laramie River (a tributary of the North Platte) into the South Platte basin. Colorado officials felt "limited" by these decisions, and were therefore interested in negotiating compacts with neighboring states as a means of protecting Colorado's waters for future use<sup>16</sup>.

The compact which resulted for the South Platte divided the supply among existing users, and also made provision for division of any additional water which might become available.

### Allocation

For purposes of the compact, the river was divided into two sections, an upper and a lower, with the division point being the western boundary of Washington County in Colorado (between Sterling and Fort Morgan)<sup>17</sup>. Only one Colorado water district, No. 64, was downstream of that line. This reach of the river, and the water district that extended to the Nebraska border, was characterized in 1934 as having "one of the most reliable water supplies in the state," with most of its supply derived from the return flow of upstream projects<sup>18</sup>. On the other side of the state boundary, Nebraska's main user was the Western Irrigation District, with a June 14, 1897, priority to appropriate 180 cfs<sup>19</sup>.

The basic compact allocation was designed to recognize these existing uses. Colorado is required to administer the lower section of the river to assure that no withdrawals with a priority date after June 14, 1897, reduce the flow at the Julesburg gaging station below 120 cfs between April 1 and October 15 of each year<sup>20</sup>, provided that Nebraska can make beneficial use of that water<sup>21</sup>. If there is any shortage due to neglect in administration, it must be made up within 72 hours<sup>22</sup>.

Lodgepole Creek, the only major tributary of the lower section, is divided two miles north of the Colorado-Nebraska state line. Above that point, Nebraska is

entitled to full use of the river; below that point, Colorado is entitled to full use<sup>23</sup>.

In addition, the rights of canals serving users on both sides of the border are recognized and protected by both<sup>24</sup>.

With respect to future developments, Colorado was given a prior right to store up to 35,000 acre feet in the lower section during the storage season (October 15 to April 1), while Nebraska was given the right to divert up to 500 cfs of the remaining flow by means of a proposed Perkins County Canal<sup>25</sup>. The canal has not yet been built.

#### Administration

Like its contemporaries, the Colorado and La Plata Compacts, the South Platte Compact established no administrative commission or agency, and created no dispute resolution mechanism.

#### Litigation and Other Problems

There has been no litigation between Colorado and Nebraska challenging the validity of the compact or its actual operation. No serious problems in administration have been reported<sup>26</sup>. The primary controversy on the South Platte has involved the proposed Two Forks Dam upstream of Denver<sup>27</sup>. That project, had it been built, would have had only an indirect effect on the reach of the river which is actually subject to the compact. The compact limits Colorado action only in the eastern part of the state and so would not be a deciding factor in whether or not the project could

be built.

The Platte River is habitat for endangered species, such as whooping cranes, and downstream demands for water to maintain that habitat could have some effect on upstream users. It is difficult to say whether such demands will ever be made.

### Summary

The South Platte seems to have had the potential for protracted litigation over water. Irrigators were competing for water, and the supply seemed insufficient to meet the demand. Nevertheless, the compact hammered out 70 years ago has been a success. Just why it has succeeded is a matter of speculation, but perhaps the reason is that the agreement basically recognized and formalized the existing institutions as of the date it was made. There was water for those 1923 users, if not for any new appropriators, but no one "lost," and there was no great demand for new development because potential developers could see that there was no point in trying — there was no more water available. In addition, some pressure on compact allocations may have been eased by the importation of Colorado River water into the South Platte basin (above the compact area) beginning in 1945 through the Big Thompson Project. The division which seemed fair in 1923 apparently still seems fair, the burdens of supplying water and the risks of not getting it are understood, and the compact survives.

## The Belle Fourche River

The Belle Fourche River Compact of 1943 divided the water of the Belle Fourche basin between Wyoming and South Dakota<sup>28</sup>. It followed the example of the contemporaneous Republican River Compact in attempting to limit future federal actions by requiring the Federal Government to recognize existing rights and uses in the course of any future federal developments<sup>29</sup>.

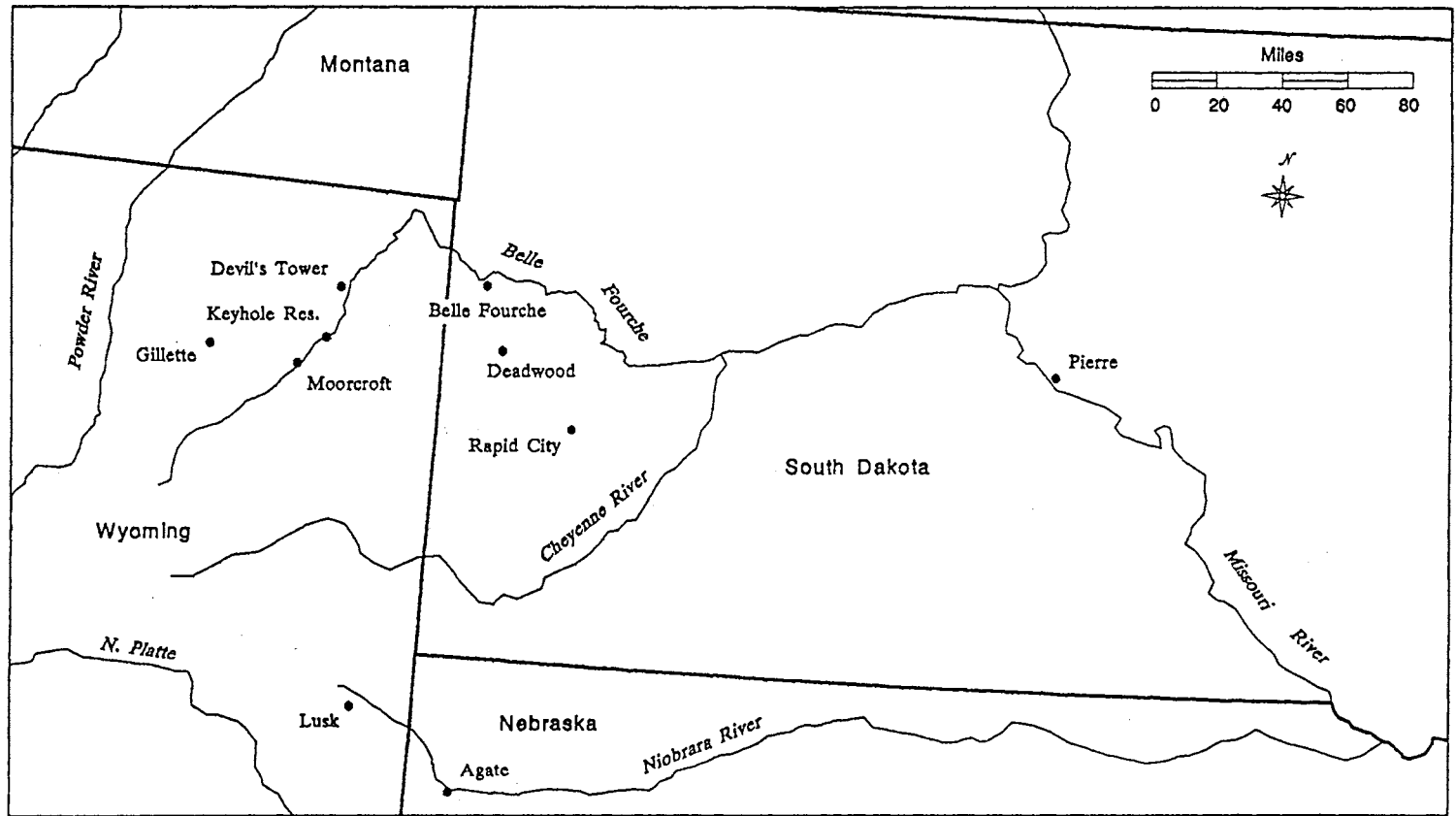
### The Geographic Setting

The Belle Fourche River rises in the high plains of eastern Wyoming, separated by a low divide from the Powder River Basin to the west. The Belle Fourche flows north, past Devil's Tower, and at the northwestern end of the Black Hills bends to the east and south, curving around the northern flank of the Black Hills. It then flows into the Cheyenne River, which flows around the southern flanks of the Black Hills. The Cheyenne joins the Missouri north of Pierre, South Dakota. (See Figure 8).

The headwaters of the Belle Fourche are in the plains, not in any high mountains, and so its flow is not dependent on melting of winter snows. Instead, the flow is primarily derived from rainfall, 70 percent of which falls in the growing season. Rainfall averages only about 16 inches per year, and can be sporadic. Heavy rains can translate quickly into high peak flows<sup>30</sup>.

The basin is generally an area of rolling prairies, but there are some uplands, such as the Black Hills on the flanks of the basin and the hilly region around Devil's

Figure 8: The Belle Fourche and Niobrara Rivers



Tower. Much of the land is devoted to grazing.

There are no large natural lakes. Keyhole Reservoir, created by damming the river north of Moorcroft, Wyoming, is the only large flat-water recreation area in northeast Wyoming. Keyhole was built to provide supplemental water for the Bureau of Reclamation's Belle Fourche Project in South Dakota, and to supply water for irrigation of about 6,000 acres in Wyoming<sup>31</sup>. The Belle Fourche Project, constructed between 1904 and 1915 as one of the Bureau of Reclamation's first projects<sup>32</sup>, includes the Belle Fourche Reservoir, which is located on a tributary near the town of Belle Fourche, South Dakota. The project provides irrigation water for about 57,100 acres, most of it devoted to hay and forage crops<sup>33</sup>.

The river is not particularly large. Discharge at the Wyoming-South Dakota border averages 62,450 acre feet per year, and there have been periods of no flow<sup>34</sup>.

The largest city in the basin is Gillette, Wyoming, which actually straddles the divide between the Belle Fourche and Powder River Basins. Gillette's population has increased with the increase in coal mining in the Powder River region, and in 1990 stood at 17,635. Rapid City, South Dakota, which is actually in the Cheyenne Basin, but near the Belle Fourche, had a 1990 population of 81,343. The largest city wholly located in the Belle Fourche basin is Belle Fourche, South Dakota, with a 1990 population of 4,335<sup>35</sup>.

### The 1943 Compact

Congress first authorized the states to negotiate a compact in 1927, in part in

response to Bureau of Reclamation studies made in connection with the Belle Fourche Project<sup>36</sup>. One of the conditions of negotiation was that a representative of the Department of the Interior be included in the negotiating committee<sup>37</sup>. An agreement was finally reached in 1943<sup>38</sup>, and Congress consented to the agreement in 1944.

### Allocation

The basic allocation recognized all existing water rights in both states<sup>39</sup>. Water which was unappropriated was then allocated ninety percent to South Dakota and ten percent to Wyoming. One important exception to this division, however, was the exclusion from the compact of reservoirs for domestic purposes and stock watering, provided that those reservoirs did not exceed twenty acre feet in capacity. Grazing was and is a major land use, and cattle need water<sup>40</sup>. The importance of water for cattle is also shown by the requirement that if South Dakota ever builds any reservoirs in Wyoming, at least ten cfs must be allowed out of those reservoirs for purposes of watering stock<sup>41</sup>. In effect, the compact allows Wyoming to deplete an additional ten percent of the flow beyond the amount which was being depleted at the time of the compact<sup>42</sup>. The remainder goes to South Dakota.

### Administration

No commission is established to administer the river. Rather, the two states are to administer the compact through the officials of each state who are in charge of public waters in each state. There is no process specified for dispute resolution,



either, but litigation may have been contemplated as the mechanism because the compact has a provision specifying that nothing in the compact is to be construed as barring resort to the courts<sup>43</sup>.

Although there is no formal administration, the two states have been in contact for several years to gather and exchange information about streams feeding the river from the Bear Lodge Mountains (a part of the Black Hills). They are jointly paying for a gage on one of those streams, Redwater Creek, at the state line, and some effort is being made to develop a system of rules and regulations for compact administration<sup>44</sup>. The administrative system can be characterized, for the present, as communication rather than active management.

#### Litigation and Other Problems

The Belle Fourche Compact has not been challenged in litigation, and there appear to be no serious problems looming on the horizon<sup>45</sup>. Much of the land is still devoted to grazing, although there has been a large increase in coal mining in the Gillette area in recent years.

One of Wyoming's principal uses for its ten percent share of the water allocated by the compact is to maintain a recreation pool at Keyhole Reservoir. Doing so could require taking more than ten percent of the water from the main stem of the Belle Fourche, but on other streams, such as Redwater Creek, Wyoming is taking less than its 10 per cent share. If the compact is construed to provide for a 90/10 division of all water of the basin taken as a whole, rather than with respect to each individual

stream, there will be no compliance problem because any excess which Wyoming might use from the main stem would be offset by water not taken from others. At the present time, South Dakota would rather have water from Redwater Creek than the main river because of quality concerns<sup>46</sup>.

A possible source of future demand is Rapid City, which is not in the Belle Fourche basin, but is very close. The Bureau of Reclamation and the Geological Survey have been looking at water supplies and doing modelling studies to determine ways to meet future Rapid City needs. It is unknown whether this will have any effect on the compact.

#### Restrictions on Federal Actions

The Belle Fourche Compact was negotiated and presented to Congress at about the same time as the Republican River Compact, and the Belle Fourche negotiators followed the Republican model in conditioning effectiveness of the compact on Congress' agreeing to limitations on future federal activity. Specifically, Congress agreed that future federal projects would be undertaken only after giving full recognition to the proposition that beneficial use within the basin (meaning depletion by usefully employing the water for the benefit of man<sup>47</sup>) is of paramount importance to the development of the basin. Congress has agreed to require full consultation with all interested federal agencies and state officials to determine that any exercise of federal power which would interfere with such beneficial uses would still be in the interest of the best utilization of the water for multiple purposes<sup>48</sup>. Moreover,

Congress agreed to "recognize" any established use for domestic or irrigation purposes which might be impaired by a federal project<sup>49</sup>.

These provisions caused some concern to Secretary of the Interior Ickes, who realized that it could require payment of compensation by the federal government for water taken for federal use, as well as restricting federal action in some cases<sup>50</sup>. Nevertheless, President Roosevelt signed the compact, saying that while these restrictions were not entirely satisfactory from the point of view of the national government, there did not appear to be any practical effect since there were no significant prospects for any new federal projects. He nevertheless cautioned that these provisions should not be considered as precedent with respect to any other rivers<sup>51</sup>.

### Summary

The Belle Fourche has not been the focus of serious conflict. Demand on the river system has not expanded significantly beyond what was present when the agreement was signed. The two states cooperate in gathering and sharing data, but no active administration has been needed to allow the compact to function.

### The Yellowstone River

The Yellowstone River Compact of 1950<sup>52</sup> among Wyoming, Montana, and North Dakota divides the water of four main tributaries (Clark's Fork, Big Horn, Tongue, and Powder Rivers) between Montana and Wyoming, and the water of the

main stem of the river between Montana and North Dakota. Two of the more interesting aspects of this compact are its dispute resolution mechanism, which will not work, and its ban on water exports, which does.

### The Geographic Setting

The Yellowstone River and its major tributaries rise in the mountains of western Wyoming. The tributaries flow north to join the main stem, which empties into the Missouri in North Dakota just downstream of the Montana-North Dakota border. The river system drains 70,400 square miles (35,920 in Montana, 33,740 in Wyoming, and only 740 in North Dakota<sup>53</sup>). To the north, the basin is bounded by the Missouri basin; to the south by the Platte; to the west by the Rockies; and to the east by the Cheyenne basin. In general, the western and southern parts of the basin are mountainous, while the northern and eastern sections lie in the plains. (See Figure 9).

The region is generally rural. Much of the basin is grazing land, but there are also over a million acres of irrigated crop land. In 1935, the Corps of Engineers reported 1.4 million acres under irrigation<sup>54</sup>. The USGS water resources report for Montana for water year 1991 shows over 1,250,000 acres irrigated upstream of Sidney, Montana<sup>55</sup>. Additional acreage downstream in Montana and North Dakota would not be included in that figure.

While grazing and irrigated farming have been important since the compact was signed, coal mining is a relatively new, but very significant, part of the economy

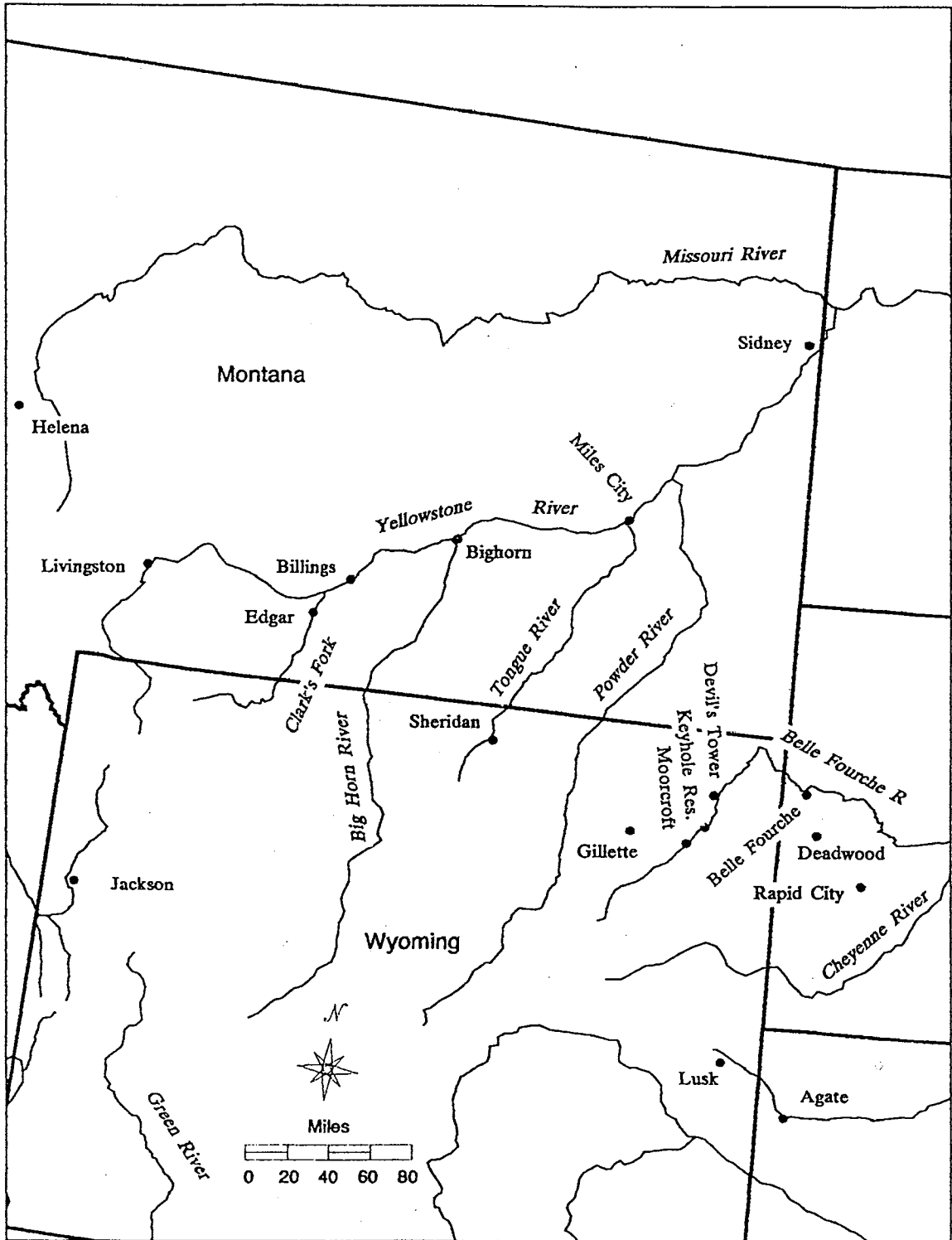


Figure 9: The Yellowstone Basin

of the basin. The area known as the Powder River Basin (which for purposes of coal statistics includes the Powder River Basin and adjacent areas of Montana and Wyoming) has become a vital part of the U.S. energy picture. The subbituminous coal of the Powder River Basin, especially from the eastern areas around Gillette, is low in sulfur, which is less deleterious to air quality than the high sulfur coals of the east, and is surface minable at very low cost. Wyoming has reserves of over 26 billion tons of this coal, while Montana has over 33 billion tons, plus more than 15 billion tons of lignite<sup>56</sup>. Production of Powder River coal has increased from 7 million tons in 1970 to 145.8 million in 1987, with production above 170 million tons per year forecast for the year 2000<sup>57</sup>. The mines are large, but so is the country, and most of it is still devoted to grazing.

Precipitation over the basin is variable. In the higher mountains of Yellowstone Park, annual precipitation exceeds 24 inches, but this declines to about 6 inches in basins to the east of the mountains. From that low point, rainfall gradually increases toward the east, with about 15 inches per year at the mouth of the river<sup>58</sup>. Melting of winter snowpack results in high stream flow in the late Spring and early Summer, with 60 percent of the runoff coming between May and July<sup>59</sup>. Over the Plains, 70 percent of the precipitation is in the form of summer thunderstorms<sup>60</sup>.

The Yellowstone has four main tributaries. Clark's Fork, the easternmost, rises just to the east of Yellowstone National Park, flowing through a series of canyons and then a broader valley. The lowland reaches, marked by alluvial fans and terraces, are generally arid. Slightly further east is the Big Horn, which drains west

central Wyoming, from the Wind River Range northward, joining the Yellowstone near Custer, Montana. The Big Horn is the largest tributary, flowing in deeply entrenched valleys with wide flood plains. Like the lowlands along Clark's Fork, these Big Horn lowlands are also arid or semi-arid. The remaining two large tributaries, the Tongue and the Powder, flow to the east of the Big Horn Range, often in narrow valleys with high bluffs and terraces<sup>61</sup>.

The main stem of the Yellowstone begins at Yellowstone Lake, where the discharge averages 962,900 acre feet per year<sup>62</sup>; at Sidney, Montana, 30 miles upstream from its mouth, contribution from tributaries and the surrounding basin has swelled the average to 9,266,000 acre feet<sup>63</sup>. In fact, the Yellowstone contributes more water to the Missouri at the confluence of those two rivers than does the Missouri itself<sup>64</sup>.

The compact specifies gaging points for the four tributaries. Clark's Fork is measured at Edgar, Montana, where the average discharge is 745,500 acre feet per year (after irrigation of 41,500 acres upstream)<sup>65</sup>. The Big Horn is measured near Bighorn, Montana (three miles upstream from its mouth), where the average discharge is 2,770,000 acre feet per year. Upstream from the gage, the river is controlled by the Big Horn reservoir, and is also diverted to irrigate 445,200 acres<sup>66</sup>. The contribution of the Tongue is more modest. Measured at Miles City, Montana, the average discharge (after diversions for 100,800 acres) is 304,300 acre feet. The fourth tributary, the Powder River, is slightly larger, yielding an average discharge at Locate, Montana, of 420,200 acre feet per year, with 101,000 acres irrigated

upstream<sup>67</sup>. Clark's Fork and the Big Horn have never been completely dry at the measurement stations since measurement was begun, but the eastern tributaries, the Tongue and the Powder, have both had periods of no flow, the Powder more often and more recently<sup>68</sup>.

In Wyoming, the largest cities are Gillette (on the divide between the Belle Fourche and the Powder Rivers), with a 1990 population of 17,635, and Sheridan, on the Tongue River, with 13,900 residents. The largest city in the entire basin is Billings, Montana, with a 1990 population of 113,419<sup>69</sup>.

### The 1950 Compact

The compact signed by North Dakota, Montana, and Wyoming in 1950 represented the fourth attempt at dividing the Yellowstone's waters. The first proposed compact was signed in 1935 between Wyoming and Montana. Neither state's legislature ever took any action on the agreement. The second attempt was in 1942, with all three states involved. After the compact was signed, the Wyoming legislature was the first to consider ratifying it, but failed to approve the agreement. The third effort in 1944 passed all three state legislatures but was vetoed by Wyoming's governor<sup>70</sup>. Finally, the 1950 agreement was ratified by all three states. In 1951, Congress gave its consent<sup>71</sup>, and the compact went into effect.

Although North Dakota is a party to the compact, the principal focus is on divisions between Wyoming and Montana. The commission which is established has representatives from only those two states; it was felt that the allocation between



North Dakota and Montana could be handled without any formal commission<sup>72</sup>.

### Allocation

The main focus of the compact is division of the tributaries which flow into Montana from Wyoming, although there is also a division of main stem water between Montana and North Dakota. The four main tributaries are divided between Wyoming and Montana on a percentage basis, but the water subject to that allocation is water which was not appropriated as of January 1, 1950. The compact recognized existing rights as of that date<sup>73</sup>, and sought to allocate only water remaining after those existing uses were satisfied *and* after supplying whatever was needed for supplemental supplies for existing rights<sup>74</sup>. In addition, water for domestic use or stock watering (not to exceed twenty acre feet per use) was excluded, as was the case with the Belle Fourche and Upper Niobrara Compacts to which Wyoming was also a party.

The actual allocations vary by tributary. On Clark's Fork, the division is 60/40 (Wyoming/Montana); on the Big Horn (exclusive of the Little Big Horn), 80/20; on the Tongue, 40/60; and on the Powder, 42/58<sup>75</sup>. The main stem itself is not divided between the states, since the river within Yellowstone National Park is excluded from the compact<sup>76</sup>, and the entire main stem in Wyoming is within the boundaries of the park.

As between Montana and North Dakota, existing rights were to remain unimpaired. The compact focussed on the river below Intake, Montana (about 50 river miles upstream from the border). From May 1 to September 30 each year,

North Dakota and Montana are to share the water on the main stem in proportion to the acreage of irrigated lands in each state below that point<sup>77</sup>.

The compact provides that from time to time, the Commission shall re-examine the allocations to determine if they are still equitable; however, the commission can only recommend changes to the states; it cannot of its own volition change the compact<sup>78</sup>. To date, there have been no adjustments.

### Administration

As discussed above, a commission was established to administer the compact as between Wyoming and Montana, but as between Montana and North Dakota, there is no formal commission. The "Wyoming-Montana" commission is composed of one representative from each state, plus a non-voting federal member appointed, not by the President (as is the case with other compacts with federal representation) but by the head of the USGS. The federal representative serves as chairman of the committee.

The states built into the compact a provision to avoid the deadlock which may result from having only two states on the commission. Article III (F) states that if the two states cannot agree, the federal representative casts the deciding vote. The concept may be a good one, but the federal representative (currently the head of the USGS for North Dakota) has informed the two states that he will not take sides in any dispute between the states, and so will not cast the deciding vote. This policy apparently is not based on this particular representative's whim, but rather is the policy of the head of the USGS in Washington<sup>79</sup>. Fortunately, Montana has always

received enough water under the compact, and Wyoming and Montana have had no compact disputes resulting in a deadlocked commission. They are now trying to develop a new system for dispute resolution, in case one should ever be needed<sup>80</sup>.

Other compacts with federal representatives specify that those representatives are to be appointed by the President; the Yellowstone is unique in its reference to the Geological Survey. The point did not go unnoticed at the time Congress was considering granting its consent. The Bureau of Budget referred to this designation as being "at variance with sound principles of federal administration<sup>81</sup>" and also described it as "regrettable."<sup>82</sup>

The commission currently meets once a year to review flow and hydrology reports and interstate adjudications. Generally, the administration is passive, rather than active, but there was more activity by the commission in the 1970s and '80s when energy developments were booming within the basin.

#### Litigation and Other Problems

The compact has not been challenged by the states, but there has been one attack upon the constitutionality of one section of the agreement. In 1973, the Intake Water Company, a subsidiary of Tenneco, appropriated 80,650 acre feet (50,000 gallons per minute) of Yellowstone River water in Montana. Some of the water was to be used outside the Yellowstone Basin. The Yellowstone Compact bans any export of water from the basin without the approval of all three states<sup>83</sup>. The states did not consent, and Intake filed suit in federal court, claiming, among other things, that the

export ban violated the Commerce Clause of the United States Constitution. The Federal District Court for Montana<sup>84</sup> and the Ninth Circuit<sup>85</sup> found in favor of the compact, holding that Congressional consent to the compact had the effect of converting the compact to federal law, thus immunizing it from any commerce clause challenge.

One other area of tangential litigation involves Indian tribes and water rights. The Big Horn River has been the subject of protracted litigation in the Wyoming Courts in an effort to adjudicate the rights of all users, including the Shoshone and Arapaho Tribes. That litigation is now, probably, concluded<sup>86</sup>. While the compact states that it is not intended to affect any water rights of Indian tribes or reservations<sup>87</sup>, the presence of three major Indian reservations within the basin and the potential claims on the water of the rivers by those tribes could lead to future claims for adjustment in the division as between the states.

Montana is also attempting to address the issue of reserved rights. A statewide adjudication of water rights began in 1979, and the state also adopted a policy allowing state agencies, political subdivisions, and the federal government to reserve water for future preferred uses. The development of energy resources in the Yellowstone Basin led to a flurry of such reservations in the 1970s<sup>88</sup>. Montana's efforts to adjudicate its water resources should not have any adverse impact on the compact because the water to be divided within Montana would be limited to the quantities allocated by the compact.

## Summary

The Yellowstone Basin is sparsely populated and generally rural. While there is a demand for water for irrigated agriculture, the supply appears to be adequate; as a result, there has been no challenge by any of the states to the administration of the compact. If such a challenge were mounted, it would be interesting to see whether the federal representative would in fact refuse to break a deadlock, and if so, what mechanism would be substituted for resolving the dispute.

### The Upper Niobrara

The Upper Niobrara Compact<sup>89</sup>, between Nebraska and Wyoming, is notable in two respects. It involves less water than any other compact, and it recognizes the importance of and makes provision for later allocation of groundwater. Perhaps because of the former, the latter has never happened.

### The Geographic Setting

The Niobrara River rises on the high plains of eastern Wyoming, near the town of Lusk. (See Figure 8). It has been characterized as "entering Nebraska as a small, high plains stream<sup>90</sup>." That description may be optimistic much of the time. Some maps, such as one by the Army Map Service in 1957<sup>91</sup>, show the river to be intermittent until well inside Nebraska, and in June, 1993, the "channel" at Node, between Lusk and the Nebraska border, was just a grassy swale. USGS records show the flow at the state line averaging only 2,670 acre feet per year (3.68 cfs), but some

of the flow is diverted upstream to irrigate about 4,000 acres<sup>92</sup>.

The river gains water as it flows east through the sand hills of Nebraska. At Agate, about 15 miles from the border, the average annual discharge has increased to 9,850 acre feet. The discharge continues to increase toward the east, as the river flows toward the Missouri River, which it joins at the eastern end of the South Dakota-Nebraska border. There is enough water further east to support a designation of three reaches in central and eastern Nebraska as Wild and Scenic Rivers<sup>93</sup>. The compact, though, governs only that part of the river west of Range 55 west in Nebraska -- a line about 10 miles east of the Wyoming border.

Rainfall in the compact area averages about 16 inches per year<sup>94</sup>, but much of the rain in the western part of the basin infiltrates into the sand hills, and so does not appear as surface flow.

The compact area is rural. The largest town is Lusk, Wyoming, with a population of 1,462<sup>95</sup>. There is some irrigated land; the USGS reports about 6,700 acres irrigated above Agate<sup>96</sup>. Agate is just downstream from the compact limits.

### The 1962 Compact

In 1953, Congress granted its consent for Wyoming, Nebraska, and South Dakota to negotiate compacts allocating the water of the Niobrara and Ponca Creek (a tributary of the Niobrara entering Nebraska from South Dakota<sup>97</sup>). Two compacts were eventually negotiated: a Lower Niobrara Compact between Nebraska and South Dakota<sup>98</sup>, and an Upper Niobrara Compact between Wyoming and Nebraska. Little

information is available on the "lower" compact, but it was negotiated simultaneously with the "upper" compact. Because river conditions and problems differed between the upper and lower basins, the negotiating committee decided to use two compacts. The lower compact was actually signed first, in 1961, and was ratified by the Nebraska and South Dakota legislatures<sup>99</sup>. Bills to approve the Lower Niobrara Compact were introduced in Congress at least twice, in 1961 and 1963<sup>100</sup>. No further action was apparently taken, however, and the Lower Niobrara Compact died a quiet death in Congress.

The Upper Niobrara Compact was signed in 1962 and finally consented to by Congress in 1969<sup>101</sup>. Consent to the compact was originally given by the Senate in 1966, but the House did not act on the bill in that session<sup>102</sup>.

The compact between Nebraska and Wyoming placed some restrictions on Wyoming's use of the water, but is more interesting in its recognition that groundwater could have an effect on surface flow and providing for future consideration of groundwater allocation.

### Allocation

The restrictions placed on Wyoming's use were characterized by Wyoming's State Engineer in 1982 as "limited<sup>103</sup>." As with other Wyoming compacts, domestic and stock-watering uses are exempted from the restrictions of the compact<sup>104</sup>. Beyond that, there are restrictions on the times and quantity of storage, with the restrictions based in part on whether the priority date was before or after August 1,

1957<sup>105</sup>. Direct flow rights along the border are to be administered on an interstate priority basis (that is, looking solely at the date of priority, without regard to the state line) with special provision made for certain existing ditches<sup>106</sup>.

The importance of groundwater and its possible effect on surface flow were recognized in Article VI, but information was felt to be inadequate for purposes of making an allocation, so apportionment was to be delayed, and a supplemental compact was to be negotiated when studies indicated that it would be desirable to do so. There have been no further negotiations along these lines.

#### Administration

The compact does not create any administrative agency; rather, it is to be administered by the state official in each state charged with administering public water rights. No rules have been established, and the states rarely, if ever, even meet to discuss the compact<sup>107</sup>.

#### Litigation and Other Problems

As might be surmised from the fact that the states do not even meet regularly to discuss the compact, there have been no lawsuits or other serious problems affecting the allocation of water under this agreement.

#### Summary

The Upper Niobrara Compact represents an effort to divide a small amount of



water in a small area. To that extent, it resembles the Costilla Creek Compact. Unlike Costilla Creek, however, administration is not active. It may be that the amount of water involved, although undoubtedly of great importance to the residents of the basin, does not warrant the time and expense which would be involved in additional effort, particularly the effort which might be required to allocate the groundwater. The allocation agreed upon in 1962 appears to work, and so long as that is the case, no purpose would be served in upsetting the existing institutions.

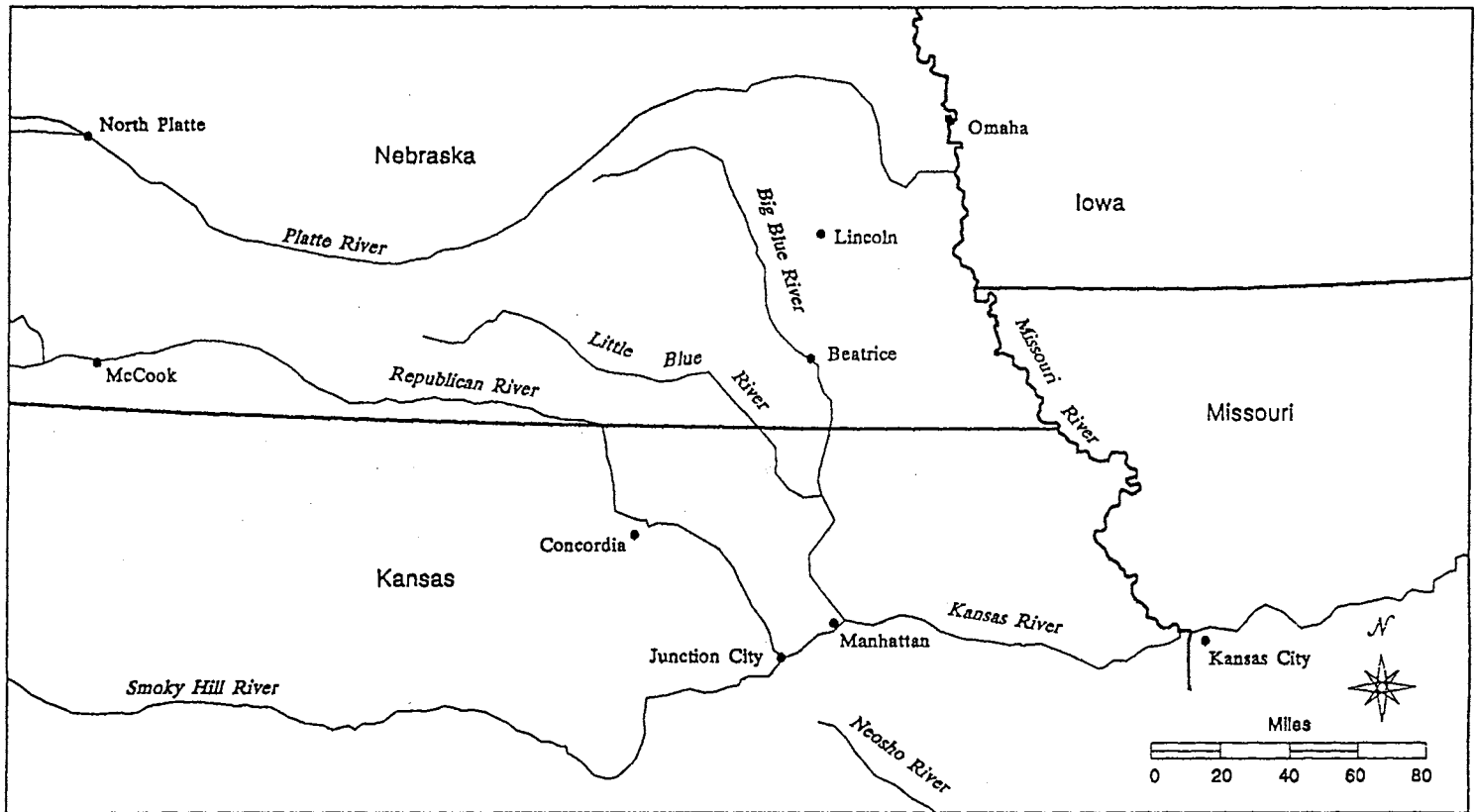
### The Big Blue River

The Big Blue River<sup>108</sup>, flowing from east-central Nebraska south into Kansas, is dissimilar to most of the other compact rivers in that it flows through a sub-humid to humid environment. Water shortages are less common than might be the case in drier areas. Like the Upper Niobrara Compact, the Kansas-Nebraska Big Blue River Compact<sup>109</sup> takes into account the effect of groundwater pumping, but uses an opposite approach: groundwater use can be restricted to enhance surface flow *until* it becomes apparent that there is no relationship between the two.

### The Geographic Setting

The Big Blue rises in central Nebraska and flows south to join the Kansas River at Manhattan. The Little Blue River, principal tributary of the Big Blue, also rises in Nebraska and joins the Big Blue at Blue Rapids, north of Manhattan. (See Figure 10). The drainage basin encompasses 9,883 square miles<sup>110</sup>.

Figure 10: The Blue River Basin



The area is humid, with rainfall averaging about 36 inches, with most of that falling in the growing season<sup>111</sup>. Violent cloudbursts resulting in flooding are possible, and in the summer of 1993, the basin suffered from the flooding which ravaged much of the central United States.

Most of the area upstream of Manhattan is agricultural, devoted to both grazing and cropland. The largest city outside of Manhattan (1990 population 37,712) is Beatrice, Nebraska, with a 1990 population of 12,354<sup>112</sup>.

In Nebraska, the basin is generally underlain by sand and gravel, which provides a groundwater reservoir. In Kansas, there are no significant groundwater supplies except in the bottoms of the major stream valleys<sup>113</sup>. The basin produces a considerable amount of water. Annual runoff of the Big Blue at Manhattan averages 1,679,000 acre feet (being regulated by Tuttle Creek Reservoir, just upstream of Manhattan)<sup>114</sup>. The river gains water as it moves across Kansas. At Beatrice, the Big Blue discharges an average of 537,600 acre feet per year<sup>115</sup>, while the Little Blue, just downstream of the state border, averages 364,000 acre feet<sup>116</sup>.

### The 1971 Compact

The compact which was signed in 1971 gives Nebraska priority for existing uses as of November 1, 1968. Uses arising thereafter are subject to restriction to insure minimum flows to Kansas. In addition to quantity questions, the compact also makes some steps toward addressing issues of water quality.

### Allocation

The division of the water takes as a starting point the conditions existing as of November 1, 1968, a date selected by the negotiators as a baseline<sup>117</sup>. Nebraska was given the right to use all water originating in Nebraska and being used as of that date; inactive rights were to be cancelled<sup>118</sup>. Uses in Nebraska with priorities subsequent to November 1968 are subject to curtailment to insure specified minimum flows of the Big Blue and the Little Blue between May and September of each year<sup>119</sup>. The schedules were based on considerations of historic use of the water, but were also designed to allow sufficient water to Nebraska to supply water projects proposed as of 1971. The August minimum flows established were historically exceeded 80 per cent of the time for the Big Blue and 85 per cent for the Little Blue<sup>120</sup>, so the drafters apparently recognized that there would be times when Kansas did not receive the minimum flow even after the compact came into effect.

To achieve the minimum flows, Nebraska agreed to limit diversions to amounts actually appropriated in accordance with Nebraska law; to cut off junior appropriators, if necessary; and to regulate groundwater withdrawals from wells "installed" after 1968<sup>121</sup>. This final step, groundwater regulation, was conditioned upon a showing that regulation of wells did in fact have an effect on surface flow<sup>122</sup>. (A study undertaken for the commission indicates that there is a relationship, but a final model has not been developed; data is still being gathered<sup>123</sup>.) In addition to restrictions on withdrawals, the compact also places restrictions on storage in Nebraska to insure sufficient flows into the Tuttle Creek Reservoir<sup>124</sup>. The interpretive comments

supplied by the initial commission contain an interesting gloss on the minimum flow requirements. It was apparently anticipated that water might on occasion be released from federal reservoirs to provide minimum flows for purposes of maintaining water quality. If such releases are made, they may count as part of Nebraska's contribution to minimum flow, if the water quality problem arises in Kansas, but if the pollution problem arises in Nebraska, Nebraska cannot take credit for that flow at the border<sup>125</sup>. The idea makes sense, but does not appear anywhere in the text of the compact itself; it appears only in the interpretive comments.

### Administration

The compact created a "Kansas-Nebraska Big Blue River Compact Commission"<sup>126</sup>. Each state has one *ex officio* member and one advisory member who must reside in the Big Blue Basin portion of the state he represents. In addition, a federal member, appointed by the President, acts as non-voting chairman<sup>127</sup>. Each state has one vote, so any action by the commission requires unanimity. There is no specific provision for dispute resolution, but the compact does provide that after five years, either state may request a review of the compact's terms. Neither state has thus far requested such a review.

### Litigation and Other Problems

The relative abundance of water in the basin has resulted in fairly smooth operation of the compact without litigation<sup>128</sup>. On occasion, Nebraska has not met

the minimum flow requirements, but has responded to Kansas' requests to take the steps called for under the compact, including restriction of groundwater pumping<sup>129</sup>.

At present, water quality is of greater concern than quantity. The compact contains provisions calling for cooperation of the states in assuring water quality, and a special committee has been created by the commission to address water quality issues. In this respect, the compact is similar to the Arkansas Basin compacts between Kansas and Oklahoma and Oklahoma and Arkansas; each state has responsibility within its borders, but they have agreed to cooperate.

### Summary

The Big Blue Compact is unusual in that it controls a river in a humid area where water quantity is not usually thought of as a matter of much concern. Even here, though, the quantities called for are not always delivered. Litigation has been avoided, however, because the compact recognized that such deficiencies might occur, and spelled out the steps to be taken when it happened. Nebraska has taken those steps when called upon, and so the compact has been successful.

### Summary

These five compacts form an interesting collection. Three of the compacts lack any type of commission. Only one has a formal dispute resolution mechanism, and that will not work if it is ever needed. The methods of allocation include minimum flows, percentages of flow, and restrictions on storage. The compacts allocate vastly

different quantities of water, and the geographic settings are varied. The thing they all have in common is that they have been successful.

The lack of common factors makes it difficult to say why these five compacts have succeeded where others have failed. In some cases, the reason may be that there is enough water for present uses so conflict has just been postponed. In other cases, though, such as the South Platte and the Big Blue, there have been water shortages but litigation has not ensued. A possible reason is that in these compacts, when water is short, no state has made a guarantee of delivery. Instead, what has been promised is that the upstream state will take certain measures to limit upstream depletion. Once those measures have been taken, the risk of insufficient supply is on the downstream state. Users may not be happy, but in these cases the burden and risk is shared; each side knows where it stands and what must be done to try to meet the compact goals.

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## CHAPTER 11

### THE NORTHWEST

Two compacts divide the water of rivers in the northwestern part of the country. Wyoming and Idaho divided the water of the Snake River with the Snake River Compact of 1949<sup>1</sup>, while the Klamath River was allocated by California and Oregon in the Klamath River Basin Compact of 1956<sup>2</sup>. (See Figure 11). Neither compact has yet been the subject of interstate litigation, but both are facing pressure from increasing downstream demands, including demands that instream flows be maintained for fish and wildlife.

#### The Snake River

The Snake River Compact of 1949 represented the second effort at negotiating a compact for the river. An earlier compact was negotiated in 1933<sup>3</sup>, but was never ratified by Wyoming. The compact which was signed in 1949 is similar in part to other Wyoming compacts (such as the Belle Fourche, Yellowstone, and Upper Niobrara) in that it allocates only water not already appropriated as of the time of the compact, and excludes from compact limitations water used for domestic purposes or livestock watering. The compact also provoked a letter from President Truman to the federal representative in the negotiations concerning guidelines to be followed in



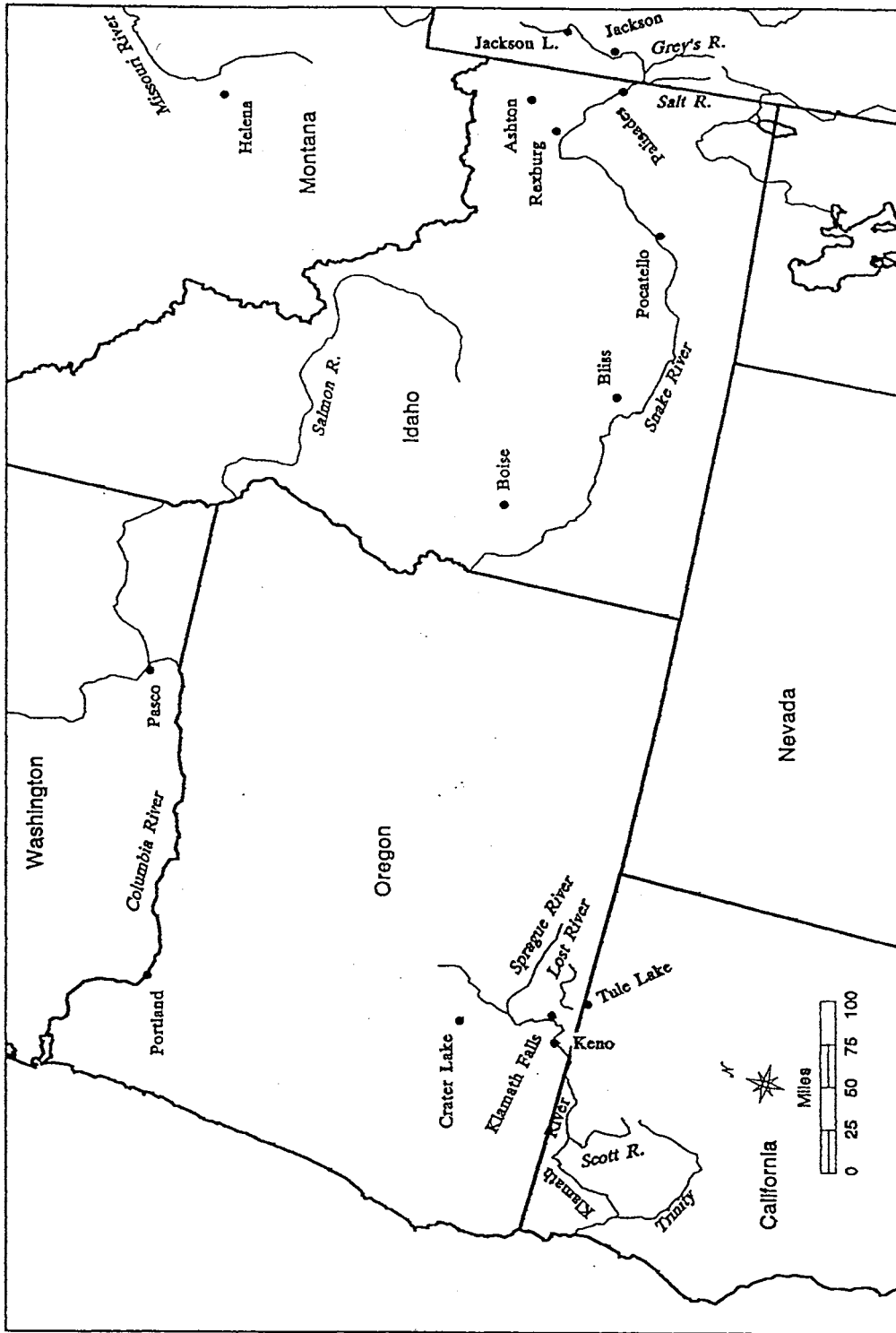


Figure 11: The Northwest

future compacts.

### The Geographic Setting

The Snake River rises in Yellowstone National Park, just south of the headwaters of the Yellowstone River. It flows south about eight miles through the park, and then continues south through Grand Teton National Park and Jackson Hole on its way to the Idaho border. From there, it flows generally west to join the Columbia River near Pasco, Washington.

The upper Snake basin is bordered by the basins of other compacted rivers. To the north and east are the Yellowstone and its tributaries<sup>4</sup>. The Bear River<sup>5</sup> drainage basin is on the south, and the Green River (a part of the Colorado system<sup>6</sup>) is on the other side of the Gros Ventre and Wyoming ranges on the southeastern boundaries of the Snake basin. The Snake basin is separated from the Salmon River by the Sawtooth Range, while the Bitterroot and Centennial Ranges separate the Snake from the Missouri (this latter divide also forms a part of the boundary between Montana and Idaho). The headwaters area of the Snake include the eastern slopes of the Teton Range, with Grand Teton rising to 13,766 feet<sup>7</sup>.

The Snake does not flow uninterrupted for long. After leaving Yellowstone Park, it soon flows into Jackson Lake, at the foot of the Tetons. The dam creating the lake was built in 1907 to store water for the Bureau of Reclamation's Minidoka Project downstream in Idaho<sup>8</sup>, and was rebuilt in 1987-89. After leaving Jackson Lake, the river flows 55 miles south through Jackson Hole, and then flows another 26

miles through a narrow canyon to the Idaho border. Just below the border, the river is impounded by Palisades Dam and Reservoir. Below Palisades, the Snake flows through a wider canyon for about 60 miles, and then enters the Snake River Plain of south central Idaho<sup>9</sup>. The Snake River Plain was covered mostly with sagebrush until construction of the Bureau of Reclamation's Minidoka Project in the first decade of this century. The project supplies water to lands stretching discontinuously for 300 miles across southern Idaho, from Ashton to Bliss. What was sagebrush in 1904 became farmland by 1920. Over 2,200 farms were established in those early years of the twentieth century<sup>10</sup>.

At the time the compact was signed, over 1.5 million acres were irrigated in the Upper Snake Basin (generally speaking, the area upstream of Bliss, Idaho)<sup>11</sup>. The Minidoka Project does not supply water to all of those lands, but it does provide a full irrigation supply to 220,980 acres, and a supplemental supply for an additional 945,000 acres, all of it in Idaho. Principal crops include cereals, alfalfa, and potatoes<sup>12</sup>.

While most of the irrigated land is on the plains of Idaho, there are also smaller areas upstream of the border. In 1952, shortly after the compact was signed, 31,000 acres were irrigated in Jackson Hole, 52,000 in the Salt River Valley (the Salt River is a tributary joining the Snake from the South at Palisades), and about 2,000 acres upstream in Idaho (primarily in the Salt River drainage)<sup>13</sup>.

The Wyoming portion of the Snake River basin receives substantial precipitation, much of it in the form of winter snow. The average annual precipitation

in the Wyoming part of the basin is 31 inches, ranging from over 60 inches on the crests of the divides to about 20 inches in the rain-shadowed valleys to the east<sup>14</sup>. The precipitation results primarily from frontal storms out of the Pacific Northwest and the orographic effect of the mountain ranges. Precipitation is at its maximum in winter, with a July-August minimum. Melting snow produces peak flows in late spring and early summer (April through July)<sup>15</sup>.

These mountain watersheds produce a substantial amount of runoff. By the time the river reaches Jackson, Wyoming, discharge averages 2,560,000 acre feet per year<sup>16</sup>. Below Jackson, the river continues to gain. By the time it enters Palisades reservoir, the discharge has increased to 3,293,000 acre feet<sup>17</sup>. The Salt River also flows into Palisades, contributing an average of 567,300 acre feet after diversions for 60,500 acres of irrigated cropland<sup>18</sup>. Grey's River contributes an additional 465,900 acre feet per year to the reservoir<sup>19</sup>.

The average of over four millions acre feet of annual runoff at the border is still not enough to meet downstream needs. In 1946, appropriators in Idaho with priorities as early as 1891 received only 25 per cent of their requirements<sup>20</sup>, and in most years before the construction of Palisades dam there were shortages<sup>21</sup>. Construction of Palisades has helped ease shortages by providing additional storage, and has also helped ameliorate downstream flooding problems<sup>22</sup>. Although most of the flow of the river is diverted by the Minidoka Project, the Snake gains flow in western Idaho downstream of Minidoka Project lands. By the time it enters Washington State, the average annual discharge has increased to 25,940,000 acre

feet<sup>23</sup>.

Population figures for the Wyoming portion of the basin can be misleading. Lincoln County, Wyoming (the Salt River valley) had a 1990 population of 12,625, while Teton County (Jackson) had a population of only 11,172<sup>24</sup>. What those figures omit is the number of tourists visiting the national parks. In 1981, Jackson Lake alone received over 3,174,645 visitors<sup>25</sup>. The Idaho reaches of the river have a larger permanent population. Rexburg had a 1990 population of 14,302; Idaho Falls had 63,159 people<sup>26</sup>.

### The 1949 Compact

The 1949 Compact was, as noted above, the second effort at allocating the water of the river. The first attempt, in 1933, had involved an elaborate system of interstate adjudication and administration of priorities; the 1949 agreement relies more on a simple percentage distribution of the available water.

### Allocation

Like other Wyoming compacts (Belle Fourche, Upper Niobrara, Yellowstone), the Snake River Compact recognizes existing uses as of the date of the compact, and allocates only unappropriated water<sup>27</sup>. Also, like the other compacts, it exempts water used for domestic purposes and stock watering from the compact allocations<sup>28</sup>. The water which is actually allocated by the compact is that which is in the Snake River from its headwaters to the Wyoming-Idaho border (together with all tributaries

flowing into the Snake within the boundaries of Wyoming) and the Salt River and its tributaries<sup>29</sup>.

The water subject to the compact is divided 4 per cent to Wyoming and 96 per cent to Idaho<sup>30</sup>. While this may seem unfair to Wyoming, it should be remembered that all established Wyoming uses as of the time of the compact are exempt, and by the time the compact was signed, most irrigable land in the Wyoming part of the basin was already being irrigated<sup>31</sup>. Of the four per cent allocated to Wyoming, half may be used by direct diversion or by diversion from storage, without any requirement of creating replacement storage. If the other half is diverted, Wyoming must provide replacement storage (equal to one-third the total amount which may be diverted) for the benefit of Idaho users<sup>32</sup>. This condition has been met by Wyoming, which bought 35,000 acre feet of storage capacity in Palisades Reservoir to comply with this compact requirement<sup>33</sup>.

The compact also bars any diversion by Wyoming for use outside the Snake River drainage basin. Idaho faces a similar restriction with respect to any diversions from the Salt River or its tributaries<sup>34</sup>, a few of which reach into Idaho. One other restriction placed on both states is that any reservoir built by either in the other state release at least 5 cfs if necessary for stock and wildlife<sup>35</sup>. As a practical matter, this would involve Idaho reservoirs in Wyoming, because Wyoming would have no incentive to build reservoirs downstream in Idaho.

One further "allocation" is found in Article VI. This provision limits storage for electrical generation, allowing such storage but making it subordinate to domestic,

stock, and irrigation use. If water is impounded solely for power generation, that diversion is not charged against Wyoming's share<sup>36</sup>. The restriction bothered the Bureau of the Budget, which passed its concerns to President Truman. The executive branch's concerns were expressed in a letter from the President to the federal negotiator (R. J. Newell, who was also the federal representative in the Yellowstone Compact negotiations<sup>37</sup>). The executive branch was concerned that restrictions on storage for power might interfere with federal development projects, notwithstanding a savings clause in the compact which purported to disclaim any intent to subject federal power to any new restrictions<sup>38</sup>. The same sort of concern had led to the veto of the first Republican River Compact 10 years earlier<sup>39</sup>, but President Truman signed the Snake River Compact despite those concerns.

### Administration

No formal commission is created by the compact. Instead, it is to be administered by the official in each state who is charged with the administration of public water supplies<sup>40</sup>. No separate Snake River commission has been created by those two officials, but they are attempting to develop some rules and regulations concerning water use subject to the compact<sup>41</sup>.

The compact contains a dispute resolution procedure similar to that incorporated in the Yellowstone Compact one year later. In the event of a deadlock, the director of the U.S.G.S is to appoint a federal representative, who can cast the tie-breaking vote<sup>42</sup>. This procedure has never been invoked, and if it were, the states

could face the same problem as is present in the Yellowstone Compact -- the USGS does not wish to be put in a position of siding with one state against another<sup>43</sup>. If a deadlock ever arises, some other method of resolution may be needed.

### Litigation and Other Problems

There has been no interstate litigation challenging the compact, but downstream demands are placing pressure on the agreement. Water was short downstream when the compact was signed<sup>44</sup> and there are still shortages in places. The downstream dams of the Minidoka project essentially cause the river to dry up below that point. The Bureau of Reclamation is looking at the upper basin as a potential source for more water; in part, the additional water would be used to restore the downstream flow to increase the salmon population in the lower Snake<sup>45</sup>.

Wyoming's main concern at the present is to maintain streamflow below Jackson Lake, through Jackson Hole and the canyons to the south. This is being accomplished in part by the storage purchased in Palisades Reservoir. The Palisades water is exchanged for Jackson Lake water, which makes no difference to the users because they are all in Idaho downstream of Palisades Dam. The Palisades water right is not as old as the Jackson right, so a problem could arise if the water were not available for exchange because the later priority was curtailed. At this time the system appears to be working<sup>46</sup>.



## Summary

The Snake River Compact has been successful so far. Most of the restrictions are placed on Wyoming, as the upstream state, but most of the Wyoming uses, particularly for irrigation, were in existence when the compact was signed and so are not subject to compact limitations. The most serious problem could be the result of pressures hundreds of miles downstream as instream use interests seek to have greater quantities of water available in the river. Any increase would have to come from the upper basin, and that could disrupt the compact allocations.

## The Klamath River

The Klamath River drains south central Oregon and far northern California. The Klamath River Basin Compact<sup>47</sup>, signed in 1956, was a defensive action on the part of users in the Upper Klamath basin to prevent Klamath water from being diverted into California as part of California's water development projects<sup>48</sup>.

## The Geographic Setting

The Klamath River Basin Compact actually focusses on the upper Klamath Basin, which comprises the river and all tributaries which enter it above Keno, Oregon (near the California-Oregon border). In addition, the upper Klamath basin includes a number of smaller areas of interior drainage, including Crater Lake<sup>49</sup>.

The lower Klamath basin contrasts sharply with the upper. There is a natural geographic division at Keno, where the river flows over a lava reef and continues 235

miles to the sea through deep canyons in heavily forested mountains. The upper basin, above Keno, consists primarily of volcanic plateaus, less heavily forested and often marshy, particularly in areas of interior drainage. To the west of the upper basin are desert mountains; to the east are the Cascades. The upper basin can be subdivided further into two main regions. In the north, 3,750 square miles drain into Upper Klamath Lake, which in turn feeds the Klamath River. The remainder of the upper basin, mostly to the south, contains a number of closed basins — most of the southern portion was drained by Lost River into Tule Lake, which had no outlet<sup>50</sup>.

Before agricultural development, the upper basin had over 185,000 acres of wetlands. Three-fourths of the wetlands are now gone, having been reclaimed for agriculture. Most of the remainder are protected in six wildlife refuges<sup>51</sup>. The Lower Klamath Refuge, established under President Theodore Roosevelt in 1908, was the nation's first waterfowl refuge. Other refuges were subsequently established: Clear Lake (1911), Tule Lake (1928), Upper Klamath (1928), Klamath Forest (1958) and Bear Valley (1978)<sup>52</sup>.

The actual headwaters of the Klamath are in the Williamson River, which rises west and slightly north of Upper Klamath Lake, flows north, and then turns south again to flow into Klamath Marsh. Leaving the southern end of the marsh, the Williamson flows through a canyon and slightly wider valley into Upper Klamath Lake. North of the lake, it is joined by the Sprague River, which drains the central part of the Upper Basin.

Klamath Lake is natural, but regulating structures were built in 1917 to control

the discharge from the lake for irrigation and power generation as part of the Bureau of Reclamation's Klamath Project. The California-Oregon Power Company was given the right to construct the outlet works, along with the power to regulate the lake level between 4,143 feet and 4,137 feet elevation -- a total of 6 feet<sup>53</sup>.

Upper Klamath Lake is drained by the Link River, which drops sixty feet in its one mile course to Lake Ewauna<sup>54</sup>. The rapids found in this area apparently are the "falls" giving rise to the name Klamath Falls. Lake Ewauna is about two miles long and one-half mile wide; at some undefined point near its lower end, the lake narrows enough to be considered a river, and the Klamath River rises<sup>55</sup>.

The Klamath River drains the northern section of the upper basin, while the southern section is drained by the Lost River, which formerly discharged into Tule Lake. Drainage in these basins is now substantially modified by the Klamath Project of the Bureau of Reclamation, which drained much of Tule Lake. Water from the closed basin not needed for irrigation is diverted into the Klamath River by means of a dam and canal on Lost River. A second Lake, Lower Klamath, was also drained as part of the Klamath Project; the "strait" between the Klamath River and Lower Klamath Lake was closed in 1917<sup>56</sup>.

Below Keno, a number of tributaries join the Klamath as it makes its way to the Pacific. These tributaries, the largest being the Shasta, Salmon, Scott, and Trinity rivers<sup>57</sup>, result in far greater discharge in the lower basin than the upper. At Keno, the average annual discharge is 1,207,000 acre feet<sup>58</sup>; 1,154,000 of that comes from Upper Klamath Lake via the Link River<sup>59</sup>. By the time the river reaches the Pacific,

average annual discharge has increased to 12,690,000 acre feet<sup>60</sup>.

The relatively small contribution of the Upper Basin is explained in part by its leeward position relative to the Cascades. Pacific storms leave their moisture on the windward side of the divides, resulting in a deficiency in the plateaus to the east<sup>61</sup>. Precipitation in the upper basin ranges from 100 inches or more on the western divides to less than 15 inches in the leeward basins. Seventy-five per cent of the precipitation falls between November and March, so runoff is closely tied to snowmelt. Above Upper Klamath Lake, runoff is much greater in spring and early summer than in the remainder of the year, but the lake regulates the flow downstream so that discharge at Keno remains fairly constant<sup>62</sup>.

As noted above, much of the wetland area in the Upper Basin was drained as part of the Klamath Project. Authorized in 1905, the project provides irrigation water for 240,412 acres of land, 100,361 in California and 140,051 in Oregon. The primary crops are cereals, especially barley, and hay and forage crops<sup>63</sup>. Much of the project lands occupy former lakebeds, including Tule Lake. Some of the return flow from irrigation in those project lands provide water to maintain wetlands and refuges in Tule Lake, Clear Lake, and Lower Klamath Lake. The principal city in the upper basin is Klamath Falls, with a 1990 population of 17,737 in the city itself, and 42,838 for the city plus its surrounding area<sup>64</sup>.

### The 1956 Compact

Congress authorized California and Oregon to enter into negotiations for a

Klamath River compact in 1955. One of the primary concerns leading to desire for a compact was protecting the water of the upper river from potential future demand in the coastal cities or central valley of California<sup>65</sup>.

Four of the wildlife refuges were in existence when the compact was negotiated, which may help account for the fact that one of the purposes of the compact is to promote the enhancement of fish, wildlife, and recreation resources<sup>66</sup>, in addition to the domestic and irrigation uses found in most compacts.

### Allocation

The 1956 agreement begins by recognizing all established vested rights as of the date of the compact. Unappropriated water is then made subject to the compact allocations, which are unlike those of any of the other compacts. Rather than dividing the flow of the river or the right to store water between the states, the Klamath compact sets out a series of priorities of uses, which are then to be administered on an interstate basis. The priorities are, in descending order: domestic, irrigation, recreation (including fish and wildlife), industrial use, hydropower, and "other"<sup>67</sup>.

Rights acquired after the date of the compact for domestic or irrigation use within the basin are given superior claim to the water over *any* right to use outside the basin acquired after the date of the compact, regardless of relative time of priority. Moreover, even within the basin, these domestic and irrigation rights take precedence over recreation, including fish and wildlife, industrial uses, or hydropower generation (if these latter rights were acquired after the date of the compact.<sup>68</sup>) The irrigation

portion with this super-priority is limited to a maximum of 100,000 acres of newly irrigated land in California, and 200,000 acres in Oregon<sup>69</sup>, but those levels are greater than will probably ever actually be reached<sup>70</sup>.

The compact also addresses the issues raised by the irrigation of land in closed basins. Water diverted for irrigation from the Klamath River or Upper Klamath Lake that reappears as return flow from those irrigated lands must be returned to the Klamath River above Keno<sup>71</sup>. This requires pumping that return flow water out of the closed basins back to the river because most of the irrigated lands were developed in the old lake beds of the closed basins. (Some water originates in the closed basins; this water does not have to be pumped back. It either directly or as return flow supplies the water for several of the wildlife refuges.) In addition, water diverted from the Klamath River (as opposed to that from the closed basins) for use in California cannot be transported out of the basin<sup>72</sup>.

Except for the division between California and Oregon of the right to develop new irrigation with the "super-priority," the compact does not allocate water between the states. Instead, it allocates the water between different uses, and also provides that the water cannot be diverted outside of the basin in California (except perhaps for water from closed basins). The "interstate" allocation is between the Upper Klamath Basin, which gets the water, and the rest of California, which is barred from taking it.

### Administration

The compact establishes a three member commission, with one voting member from each state and a non-voting federal representative, appointed by the President, who acts as chairman<sup>73</sup>. The commission is supposed to appoint an executive director<sup>74</sup>, but the position has been vacant for the past ten or fifteen years. A Klamath Falls attorney acts as a "consultant" to the commission and maintains an office for it in Klamath Falls, but there is no executive director with responsibility for administering the compact<sup>75</sup>.

The compact is generally self-executing, and so does not require much active administration. The commission does meet, using those meetings as opportunities for disseminating information to and receiving comments from water users and other interested parties. The year 1992 was the only time in the history of the compact when restrictions had to be placed on withdrawals for irrigation; the prior seven years had been abnormally dry on the west coast<sup>76</sup>.

The compact provides that in the event of a deadlock between the two voting members of the commission, a panel of arbitrators will be appointed to resolve the deadlock<sup>77</sup>. However, there has never been such an impasse, and the arbitration procedure has never been invoked<sup>78</sup>.

### Litigation and Other Problems

The compact has not been the subject of interstate litigation, but problems are on the horizon, due particularly to downstream demands for instream flow

maintenance and demands for water for fish and wildlife in both the upper and lower basins. In 1992, after seven years of drought, restrictions were placed on withdrawals of water for irrigation, in part because the Fish and Wildlife Service insisted that Upper Klamath Lake be maintained at a minimum level for wildlife protection. Under the terms of the compact, to which Congress bound the federal government, irrigation is a higher priority than fish and wildlife, at least as to water rights arising after 1956. Rather than press the point, however, the irrigators went along with the curtailment. Rains and winter snows returned in the winter of 1992 and 1993 so further conflict was averted, but the incident demonstrates a potential for increasing tension between wildlife interests and irrigation.

On the lower river, the concern is over salmon. At one time, there was an important commercial salmon fishery on the river, but even as early as 1934, the fisheries were being seriously depleted<sup>79</sup>. Maintenance of instream flows is one aspect of salmon restoration; to the extent the Upper Basin is called upon to provide additional water, pressure could be placed on the compact allocations.

One aspect of any conflict concerning the compact which cannot be ignored is the relatively strong position the water users in the compact area have *vis a vis* the federal government. In granting its consent to the compact, Congress also agreed to be bound by the priorities established in the compact, to recognize uses existing at the time of the compact, and not to impair those uses without payment of just compensation<sup>80</sup>. If changes in water use are required, the federal government may have to pay for the change, and that could slow down any demands to readjust water



use in favor of federal projects.

### Summary

The Klamath River Basin Compact is unusual in several respects. The first is that it does not divide water so much between states as between uses. Moreover, the division between the states is a division within the compact area; on a wider scale, the division is one between the upper basin including parts of both Oregon and California, and the rest of California. The compact has so far worked successfully, but there is pressure to change to benefit instream and fish and wildlife interests. As that pressure becomes greater, the explicit requirement of just compensation will assume greater importance.

### Summary

The two northwestern compacts are similar in that they both focus on the headwaters basins. Beyond that, they diverge. The Snake River Compact divides water between two states, while the Klamath Compact focuses on uses, rather than physical boundaries, and protects the water within an interstate basin against encroachment by one of those states. Both are facing pressure from downstream interests seeking greater instream use of the rivers, but whether those demands will lead to any modification of allocations is unknown.

## Chapter Notes

1. 64 Stat. 29 (1950).
2. 71 Stat. 497 (1957).
3. The 1933 compact is reproduced in T. Richard Witmer, editor and compiler, *Documents on the Use and Control of the Waters of Interstate and International Streams. Compacts, Treaties, and Adjudications, 2d ed.*, H. Doc. 319, 90th Cong. 2d Sess. (Washington, D. C.: Government Printing Office, 1968), 311-18.
4. See Chapter 10.
5. See Chapter 9.
6. See Chapter 3.
7. United States. Army. Corps of Engineers, *Columbia River and Tributaries, Vol. 4*, House Doc. 531, 81st Cong., 2d Sess. (Washington, D.C.: Government Printing Office, 1952), 1133.
8. United States. Department of the Interior. Bureau of Reclamation, *Minidoka Project. Idaho and Wyoming: 16 Counties*, Region revision 9/83 (Washington, D.C.: Bureau of Reclamation, 1983).
9. Corps of Engineers, *supra*, n. 7, p. 1137.
10. Bureau of Reclamation, *supra*, n. 8.
11. Corps of Engineers, *supra*, n. 7, p. 1154.
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13. Corps of Engineers, *supra*, n. 7, p. 1182.
14. *Ibid.*, p. 1135.
15. *Ibid.*, p. 1136.
16. S. A. Druse, W. R. Glass, D. A. Peterson and M. L. Smalley, *Water Resources Data for Wyoming, Water Year 1991* (Cheyenne: U. S. Geological Survey, 1992), 461.

17. Ibid., p. 463.
18. Ibid., p. 468.
19. Ibid., p. 464.
20. Corps of Engineers, *supra*, n. 7, p. 1148-51.
21. Ibid.
22. Bureau of Reclamation, *supra*, n. 8.
23. W. A. Harenberg et al., *Water Resources Data, Idaho, Water Year 1991* (Boise: U. S. Geological Survey, Water Resources Division, 1992), 227.
24. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
25. United States. Department of the Interior. Bureau of Reclamation, *Annual Report 1981. Appendix III, Project Data* (Washington, D.C.: Bureau of REclamation, 1981).
26. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
27. Snake River Compact, Article II (A).
28. Ibid., Article III (C).
29. Ibid., Article II (A).
30. Ibid., Article III (A).
31. Corps of Engineers, *supra*, n. 7, pp. 1148-51.
32. Snake River Compact, Article III (A) (1) and (2).
33. Sue Lowry, Wyoming State Engineer's Office, Interstate Streams Division, verbal communication (9 June, 1993).
34. Snake River Compact, Article IV.
35. Ibid., Article XI.
36. Snake River Compact, Article V.

37. The President's letter and Bureau of the Budget Memorandum may be found in George L. Christopoulos, Compiler, *Compacts, Treaties, and Court Decrees. Documents on the Use and Control of Wyoming's Interstate Streams*. (Cheyenne: State of Wyoming, 1982), 54-56.
38. Snake River Compact, Article XIV (A) (5).
39. See Chapter 8.
40. *Ibid.*, Article VI.
41. Sue Lowry, *supra*, n. 33.
42. Snake River Compact, Article VI (C).
43. See page 323.
44. Corps of Engineers, *supra*, n. 7, pp. 1148-51.
45. Sue Lowry, *supra*, n. 33.
46. *Ibid.*
47. 71 Stat. 497 (1957).
48. Richard Fairclo, Consultant, Klamath River Basin Compact Commission, verbal communication (21 June, 1993).
49. Klamath River Basin Compact, Article II (B).
50. United States. Army. Corps of Engineers, *Klamath River, Oregon and California*, House Doc. 181, 73d Cong., 2d Sess. (Washington, D.C.: Government Printing Office, 1933), 7.
51. United States. Department of the Interior. Fish and Wildlife Service., *Klamath Basin National Wildlife Refuges, California-Oregon* (Washington, D.C.: Department of the Interior, 1983).
52. *Ibid.*
53. Corps of Engineers, *supra*, n. 50, p. 21.
54. *Ibid.*, p. 7.
55. *Ibid.*, p. 17.
56. *Ibid.*, p. 17.

57. United States. Congress. House, *Granting the Consent of Congress to the Klamath River Basin Compact Between the States of California and Oregon, and for Related Purposes*, Report No. 1130, 85th Cong., 1st Sess. (Washington, D.C.: Government Printing Office, 1957).
58. L. E. Hubbard, T. A. Herrett, R. L. Kraus and C. G. Kroll, *Water Resources Data, Oregon, Water Year 1991* (Portland, Oregon: U.S. Geological Survey, Water Resources Division, 1992), 58.
59. *Ibid.*, p. 57.
60. L. F. Trujillo, K. L. Markham, J. R. Palmer and M. F. Friebel, *Water Resources Data, California, Water Year 1991, Volume 2: Pacific Slope Basins from Arroyo Grande to Oregon State Line Except Central Valley* (Sacramento: U.S.G.S., Water Resources Division, California District, 1992), 297.
61. Corps of Engineers, *supra*, n. 50, p. 8.
62. *Ibid.*, p. 28.
63. Bureau of Reclamation, *supra*, n. 12.
64. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
65. Richard Fairclo, *supra*, n. 48.
66. Klamath River Basin Compact, Article I.
67. *Ibid.*, Article III.
68. *Ibid.*, Article III (C).
69. *Ibid.*, Article III (C).
70. Richard Fairclo, *supra*, n. 48.
71. Klamath River Basin Compact, Article III (B) (2) and (3).
72. *Ibid.*, Article III (B) (3) (a).
73. *Ibid.*, Article IX (A) (1).
74. *Ibid.*, Article IX (A) (4).
75. Richard Fairclo, *supra*, n. 48.

76. Ibid.
77. Klamath River Basin Compact, Article IX (A) (10).
78. Richard Fairclo, *supra*, n. 48.
79. Corps of Engineers, *supra*, n. 50, p. 25.
80. Klamath River Basin Compact, Article XIII; 71 Stat. 497, §2 (1957).

## CHAPTER 12

### THE SABINE AND RED RIVERS

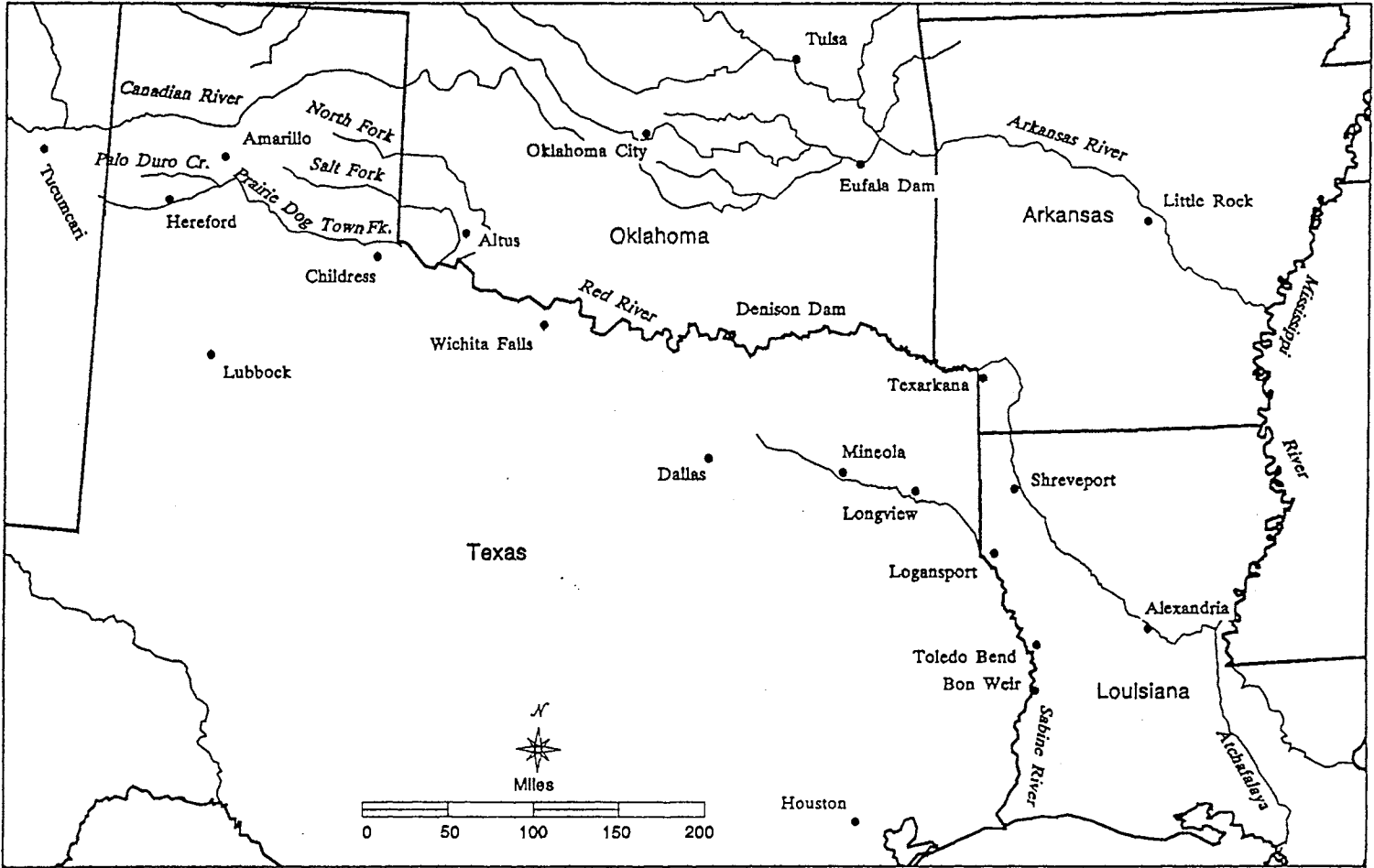
The borders of Texas are the focus of the final two water allocation compacts. The Sabine River forms part of the border between Texas and Louisiana, while the Red River forms part of the Oklahoma-Texas border. (See Figure 12). Both of these rivers have been the subject of litigation in the Supreme Court, but the suits have been over boundary locations, not water<sup>1</sup>.

The Sabine River Compact<sup>2</sup> was a product of the 1950s, when compacts were seen as a method of encouraging development by defining water rights. The Red River Compact<sup>3</sup> might also have been a product of the 1950s, but negotiations took 25 years. It is the most recent of the compacts, having been signed in 1978 and consented to by Congress in 1980.

#### The Sabine River

The Sabine river was apportioned between Texas and Louisiana in the 1950s. No imminent crisis impelled negotiations; rather, Texas had made compacts on its western rivers (the Canadian<sup>4</sup>, the Pecos<sup>5</sup>, and the Rio Grande<sup>6</sup>), and it seemed to be appropriate to make similar arrangements with Texas' other transboundary rivers<sup>7</sup>. The Sabine compact has operated smoothly since Congress consented to it in 1954<sup>8</sup>,

Figure 12: The Red and Sabine Rivers





in large part because there is sufficient water to meet demands<sup>9</sup>. Success was probably also aided by the fact that the compact specifically avoided involvement with the Texas-Louisiana boundary dispute along the river<sup>10</sup>.

### The Geographic Setting

The Sabine rises in east Texas about 35 miles northeast of Dallas. It flows east, then southeast to the Louisiana state line at Logansport, where it bends south to form the boundary between the two states. The reach within Texas is 165 miles long (about 310 river miles); the border reach, from Logansport to Sabine Lake, extends another 145 miles (265 river miles). The river basin is narrow, only 16 to 48 miles wide. To the north and northeast, it is bounded by the Red River Basin; the Trinity River Basin adjoins on the northwest, the Neches on the west, and the Calcasieu Basin on the east<sup>11</sup>.

The Sabine Basin lies in the Western Gulf Coastal Plain, with elevations ranging from 730 feet at the headwaters to near sea level at the mouth. Tidewater extends about 33 miles upriver from the mouth. In the western reaches, the terrain is undulating or gently rolling. The land is hillier in the central reaches, but then becomes flatter for the last 60 miles as it approaches the Gulf of Mexico.<sup>12</sup>

Much of the land is devoted to cattle raising and general farming, but there are also extensive areas of forest. The area has great energy reserves. The river cuts through the East Texas oil fields, and near Longview, derricks line stretches of the river. In recent years, the lignite reserves of the region have become important and

are now being mined to fuel electric generating stations<sup>13</sup>. The largest urban area in the basin is Marshall-Longview, with a 1990 population of 162,431<sup>14</sup>.

The region is generally humid, but goes through multi-year periods of low precipitation, followed by periods of flood-producing rainfall. Rainfall generally increases from west to east. As a result, although more than half of the watershed (4,800 square miles) is located in Texas (either as the main stem or tributaries joining the main stem in Texas), that part of the watershed produces only about one-third of the total runoff. The remaining two-thirds is generated by the part of the watershed which feeds the state line reach of the river. Half of that runoff comes from Texas' 2,700 square miles of contributing watershed, and the remainder is generated by Louisiana's 2,200 square miles<sup>15</sup>. Discharge increases significantly downstream as a result.

At Mineola, Texas, (50 miles east of Dallas) the average discharge was 763,000 acre feet per year before the river was regulated upstream by Lake Tawakoni; since then the average is 635,400. By the time the river reaches the border at Logansport, discharge averages 2,324,000 acre feet<sup>16</sup>. (This average is equivalent to 3,208 cfs; the compact calls for minimum flow of 36 cfs).<sup>17</sup> Averages, however, can be misleading. At Longview, between Dallas and the border, flows in 1990 dropped as low as 25 cfs<sup>18</sup>, and there have been days, albeit rare, when the minimum 36 cfs has not been met at Logansport<sup>19</sup>. Below the border, as the remaining two-thirds of the runoff enters, the river continues to grow. At Bon Weir, Texas, 100 miles from the mouth but below the regulating effects of Toledo Bend Reservoir, the average has

increased to 4,719,000<sup>20</sup>. At the time of the compact, the average runoff at the furthest downstream gage (near Ruliff, Texas) was approximately 6,750,000 acre feet<sup>21</sup>.

### The 1953 Compact

The compact was negotiated to establish the rights of the two states to the water, to aid in development and to provide a basis for cooperative planning by the states<sup>22</sup>. There was no pressing problem at the time; it was simply an attempt to avoid any problems which might arise in the future<sup>23</sup>. Although water quantity was not a problem in the 1950s, there was a quality problem stemming in part from the large petroleum operations in the river basin. The compact noted a concern over pollution and salt water intrusion, but specifically stated that the compact was designed to allocate water, not to undertake the resolution of the pollution problem<sup>24</sup>.

Negotiations began in 1952, pursuant to a 1951 statute granting Congressional consent to negotiate<sup>25</sup>. The compact was completed and signed by 1953, and approved by Congress in 1954<sup>26</sup>. According to the report of the federal representative, Brig. Gen. Lewis Prentiss of the Corps of Engineers, the negotiations had three main goals: that apportionment not be an obstacle to future development; that the compact be understandable and its administration simple; and that there be no bookkeeping involved with carrying forward debits and credits<sup>27</sup>. The negotiators appear to have achieved those ends.

Allocation was based on a study of existing and future development

requirements for the basin. The system needed to account for the fact that Texas was an appropriation state, while Louisiana was a riparian rights jurisdiction, which at the time had no regulation on water use. Many appropriations were already filed in Texas; in Louisiana, considerable water was already diverted for irrigation. To accommodate these competing interests, the basin was viewed as comprising three sectors: a wholly Texas region (including the main stem above the border and all tributaries entering the river above the border), and two state line sections, one in Texas and one in Louisiana. Using this division, the actual allocation was then based on the origin of the water, with a minimum flow requirement at the state line. The minimum was felt to be insignificant, amounting to only one per cent of the average flow<sup>28</sup>.

### Allocation

The allocation which resulted is straightforward. In the basin above the state line (including the main stem and those tributaries which enter the river above the state line), Texas has unrestricted use of the water<sup>29</sup>, subject only to a requirement that a minimum flow of 36 cfs be maintained at Logansport<sup>30</sup>. Actually, neither state is to reduce the flow at Logansport below that level, but since the river is entering from Texas at that point, the burden is on Texas rather than Louisiana.

In the state line reach, the water is divided evenly, reflecting the fact that the contribution of the watersheds in the two states is roughly equivalent in that stretch. The even division applies to water in the stateline reach *regardless* of origin<sup>31</sup>. Thus,

even though Texas may have had the right to use water above Logansport, once the water crosses the boundary, it becomes subject to the division for that reach. The problem which appeared in the 1970s concerning the Canadian River Compact and its use of the word "originating"<sup>32</sup> is therefore avoided. Tributaries to the main stem in this state line reach are controlled by the 50/50 division in the sense that any reduction in flow in the state line reach due to storage on such tributaries is charged against the state which stores the water<sup>33</sup>. Developments such as dams on this state line reach require the consent of both states.

The allocation between states is not limited to water which was unappropriated at the time of the compact. Instead, it confirms water rights existing as of the date of the requirement, but states that they are subject to the availability of water in accordance with the interstate allocation<sup>34</sup>.

In accordance with the desire of the negotiators to keep matters simple and avoid accounting problems, the compact requires that each state must use its allotment from the river as the water becomes available; "there shall be no allowance of accumulation of credits or debits<sup>35</sup>." Although no particular reason is given for the prohibition of debits and credits, it should be noted that Texas was a party to the Rio Grande Compact, and was involved in disputes with New Mexico and Colorado over debits and credits under that compact.<sup>36</sup> It may have seemed simpler to avoid the issue entirely.

### Administration

The compact establishes a commission to monitor the use of the river and administer compact provisions<sup>37</sup>. The commission is comprised of two members from each state, each member having one vote, plus a non-voting federal chairman<sup>38</sup>. The compact has twice been amended to reflect changes in state laws as they relate to selection of those members<sup>39</sup>, but the basic function of the commission has not been altered. Day-to-day administration is handled by the Sabine River authorities of each state<sup>40</sup>.

Action by the commission does not require a unanimous vote; action may be taken on the vote of three commissioners<sup>41</sup>, so deadlock might be avoided if a state delegation were to split its vote. If there were to be a deadlock, the compact requires arbitration as a precondition to any litigation<sup>42</sup>.

### Litigation and Other Disputes

The arbitration provisions have never been invoked because there has never been any serious problem or dispute with the operation or administration of the compact<sup>43</sup>. This is due in large part to the fact that there is sufficient water in the interstate reaches of the basin. There have been rare days when the minimum flow requirements have not been met at Logansport, but the presence of Toledo Bend Reservoir immediately downstream renders those lapses relatively insignificant. Minimum flow is controlled by release from the reservoir, not by what passes the state line<sup>44</sup>. In fact, measurement at Logansport was discontinued because the

backwater from storage interfered with the gaging<sup>45</sup>.

Although there have been no serious problems, the commission is working on development of procedures to be used in the event a shortage of water occurs. A more pressing concern on the Sabine, however, is water quality. The compact was amended in 1977 to delete the de facto ban on pollution control efforts by the commission<sup>46</sup>, but nothing in the compact requires the commission to take any action with respect to pollution. The problem which was recognized in 1953 still exists, but does not appear to have an impact on the operations or allocations of the compact.

### Summary

The Sabine Compact was negotiated when allocation of river waters was seen as a prerequisite for future development. There was no crisis in water supplies at the time, and there is still sufficient water. The compact has therefore led a quiet existence, and the only potential problem with compact allocations, the minimum flow requirement, has been largely rendered meaningless by the subsequent construction of a large reservoir just downstream of the point where the river becomes the state boundary.

### The Red River

The Red River Compact of 1978<sup>47</sup> stands in sharp contrast to the Sabine Compact. The Sabine adopted a simple mode of allocation, designed to be easily understood and administered; the Red River Compact goes into great detail, dividing

the river into reaches and sub-basins, and providing different, but similar, allocations for each. The Sabine Compact took one year to negotiate; the Red River Compact took twenty-five. Part of the difference is due to different geographic settings. The Red River Basin encompasses five states, with climates ranging from semi-arid to humid, and there were already conflicts over water supplies when negotiations began.

### The Geographic Setting

The Red River is the sixth longest river in North America. It rises on the Llano Estacado of eastern New Mexico as intermittent streams, and ends at the Mississippi River and Atchafalaya River<sup>48</sup>. Along its course it drains 98,000 miles in five states (New Mexico, Texas, Oklahoma, Arkansas, and Louisiana) and four physiographic regions (High Plains, Central Lowlands, Gulf Coastal Plain, and Ouachita Mountains)<sup>49</sup>.

The westernmost streams of the basin are Tierra Blanca Creek and Blanca Creek, rising in the High Plains Province on the Llano Estacado south of Tucumcari, New Mexico. These two streams, shown as intermittent on at least some maps<sup>50</sup>, drain about 450 square miles, and constitute New Mexico's entire share of the Red River Basin.

These two streams merge into one at Hereford, Texas, and then join with Palo Duro Creek near Canyon, Texas. This confluence results in Prairie Dog Town Fork. Prairie Dog Town Fork flows eastward and forms the southern border of Oklahoma beginning at the 100th meridian (west). It is joined by the Salt Fork of the Red



River; further downstream, the North Fork also flows into Prairie Dog Town Fork. At that confluence, the Red River proper is born. From the junction of Prairie Dog Town Fork and North Fork, the river flows 1,022 miles to the Mississippi<sup>51</sup>.

The reach from the point where Prairie Dog Town Fork becomes the Oklahoma border to Denison Dam, which forms Lake Texoma, has been much litigated — not because of water supply but because of boundary disputes and political disputes over construction of the dam. The boundary disputes were occasioned in part by the wide and shifting nature of the bed of the river, making demarcation difficult, but were also in part due to ambiguities and lapses in laws. One round of litigation was devoted to which fork of the Red River was intended as the northern boundary of Texas; thereafter, problems arose because the boundary was at the south bank but Oklahoma's title went only to the center of the river. When oil was discovered between those two lines, litigation and confrontation (approaching the point of actual battle between the two states) were inevitable<sup>52</sup>.

Lake Texoma itself was created by the construction of Denison Dam by the Corps of Engineers in the 1940s despite strong opposition by Oklahoma<sup>53</sup>. Completed in 1944, the dam controls the drainage from 38,290 square miles, and can store over 5 million acre feet<sup>54</sup>.

Denison Dam and Lake Texoma divide the basin into two contrasting regions. To the west, the land is semi-arid; to the east, the climate is humid. Problems of supply are dominant in the west; flood control is of greater concern in the east. Water supplies in the east are of good quality; water upstream of the dam is degraded

by salts dissolved into the water in its course across the plains<sup>55</sup>.

Downstream of Lake Texoma, the river bed is better defined as the river moves into the coastal plain<sup>56</sup>. As the main stem enters Arkansas and Louisiana, the land becomes flatter as the Red River flows toward the Mississippi. The land is flat enough that the discharge of the Red River actually takes two paths to the sea; part of it through the Mississippi River and part flows through the Atchafalaya River<sup>57</sup>.

Also downstream of Lake Texoma are the Ouachita Mountains, a rugged region in southeastern Oklahoma and southwestern Arkansas. Rivers from the Oklahoma part of this upland generally drain into the Red River in Oklahoma or western Arkansas. From the Arkansas part of the uplands, much of the drainage is into the Ouachita river, which flows between the Red River and the Mississippi, eventually merging with the Black River in the bayou country of south central Louisiana. The Black River flows into the Red River near Alexandria, Louisiana<sup>58</sup>.

The climate of the basin becomes progressively more humid from west to east. At Amarillo (located on the Red River side of the divide of the Canadian Basin), average annual precipitation is 21 inches. At Denison, the average has increased to 39 inches, while near the mouth at Alexandria, Louisiana, the average is 57 inches<sup>59</sup>. Discharge increases from west to east as well. Prairie Dog Town Fork near Childress averages only 81,870 acre feet per year<sup>60</sup>; Salt Fork at Mangum, Oklahoma, averages 61,780<sup>61</sup>; and North Fork, measured at Carter Oklahoma, averages only 87,610<sup>62</sup>. By the time these three have combined and the river reaches Gainesville, Texas (a few miles above Texoma) the annual average is 2,296,000 acre feet<sup>63</sup>, and at Index,

Arkansas, the average has more than tripled, to 9,035,000 acre feet per year<sup>64</sup>. The contrast between the dry western and humid eastern reaches of the river is striking.

Only one irrigation project is of particular importance to understanding the compact. The W. C. Austin Project of the Bureau of Reclamation uses the Lugert-Altus reservoir in Oklahoma to provide irrigation water for 48,000 acres of land, as well as for municipal supplies and for flood control<sup>65</sup>. The reservoir is in Oklahoma, but Sweetwater Creek and the North Fork of the Red River which supply that reservoir both collect much of their runoff in Texas. Many other reservoirs, large and small, are scattered throughout the basin<sup>66</sup>, but it is Lugert-Altus which has been a focal point of disagreement over river allocation.

Like precipitation and river discharge, population in the basin also increases from west to east. The largest city in the western basin is Amarillo (187,574). Moving east, the cities are more closely spaced, and include Wichita Falls, Texas (122,378), Denison-Sherman, Texas (95,021), Texarkana, Texas and Arkansas (120,132), and Shreveport, Louisiana (334,341)<sup>67</sup>.

### The Red River Compact of 1978

Preliminary meetings to consider some sort of allocation of the Red River were held as early as the 1940s. In 1948, representatives of the five basin states "more or less agreed" that a compact would be an appropriate mechanism for allocating water<sup>68</sup>. In 1950, Oklahoma's governor invited the governors of the other four basin states to send representatives to a meeting. All but New Mexico did so (New Mexico

declined because of the limited watershed and infrequent flow of the Red River tributaries in that state<sup>69</sup>). No formal action was taken, but the states took some preliminary steps, such as the appointment of a compact commissioner by Oklahoma.

The need to reach some sort of agreement became more pressing in the 1950s. Drought was affecting all of the states. In Louisiana, New Orleans' water intakes were threatened with salt water intrusion because of the low level of the Mississippi. In Texas, Dallas sought permission to divert water from the Red River Basin on an emergency basis to fill dry municipal reservoirs. Oklahoma became concerned by national advertisements from Texas companies trying to lure new industry to the Red River area of Texas by promising, among other things, water from the river in such quantities as would leave nothing for Oklahoma. Arkansas was worried that it would have insufficient water to attract new industries. In Texas and Oklahoma, new permits to divert water were being held in abeyance, pending some sort of agreement on the amount of water to which each state was entitled<sup>70</sup>.

Several efforts had been made to obtain Congressional permission to negotiate a compact (although, as noted in Chapter 2, such permission is not required). Finally, in 1955, Congress authorized the four states to negotiate an agreement<sup>71</sup>. Even if permission were not necessary, it gave some impetus to negotiation.

The 1955 Congressional consent was only a beginning. The size and diversity of the basin, the water quality problems, and the involvement of four states with different legal systems led to slow progress. Texas and Oklahoma both followed a modified system of prior appropriation water law where permits were required to

divert water and priority in time was important. Arkansas was a modified riparian rights state where riparian owners had the right to use the water from the river, including the making of reasonable diversions. Louisiana had no regulation; it was a purely riparian rights jurisdiction at that time. One of the difficulties faced in negotiating a compact was the need to take into account these different systems, but there was also a practical difficulty. Texas and Oklahoma, because of their permit requirements, had fairly good knowledge of existing water uses and quantities being diverted. The two downstream states had no such collection of data, and many years were spent trying to develop that information<sup>72</sup>.

Problems of water quality also slowed negotiations. For the first 18 years, discussions centered around how to control pollution and the proper relationship between the federal government, the compact commission, and the states in dealing with those problems. Federal water pollution control laws were in their infancy, and trying to develop an enforcement or control method satisfactory to all four states was difficult. Difficulties were compounded by the fact that the states were distrustful of the federal government, and preferred to leave the national government out of the arrangement, except for having it waive immunity from suit<sup>73</sup>. (Texas' suit against New Mexico over the Rio Grande had been dismissed in 1957 for failure to join the United States, which was an indispensable party, but was also immune from suit<sup>74</sup>.)

After 1973, the focus turned more to questions of allocation of the water. The negotiators were faced with reconciling divergent priorities among the states. Oklahoma was concerned about projects like the Lugert-Altus reservoir, where the

reservoir was in one state but much of the water came from another. The Altus reservoir was a particular sticking point. Oklahoma claimed that the Altus priority was ahead of new Texas projects; Texas took the position that water which originated in Texas belonged to Texas and need not be sent downstream at all. (It is difficult to reconcile this attitude with Texas' demands on New Mexico for water from the Rio Grande and the Pecos.) The Altus problem was further complicated by the fact that the water users of the irrigation district had an obligation to repay the federal government for construction of the project; diversions in Texas could make it impossible to do so<sup>75</sup>.

Downstream, Louisiana wanted minimum flows to be maintained. The other states could build reservoirs to provide a water supply in times of low flow, but there were no reservoir sites in Louisiana. Louisiana therefore wanted minimum flows established, and wanted compliance with those flows on a daily basis. Texas and Oklahoma were strongly opposed to any requirement that water be released from storage to maintain minimum flows, and preferred that obligations to deliver water be based on yearly totals, not daily measurements<sup>76</sup>.

Arkansas, meanwhile, wanted a sufficient supply of industrial water, and it objected to any guarantee of minimum flow to Louisiana, because Arkansas' own riparian users did not have any similar guarantee of availability<sup>77</sup>. Later in the negotiations, Arkansas also insisted that sufficient flow be maintained to protect navigation as far upstream as Index, Arkansas<sup>78</sup>.

Texas and Louisiana had their own side issues to consider. Caddo Lake on

Twelve Mile Bayou straddles the border between the two states. Texas and Louisiana wanted a separate compact dealing with rights to that Lake, and a Caddo Lake Compact was actually signed by them in conjunction with the Red River Compact. The Caddo Lake agreement never received Congressional approval; several federal agencies felt that more study was needed, and that compact died<sup>79</sup>.

With all of these competing and conflicting interests, progress was slow. By 1978, the sticking points had been resolved, in large part by dividing the river into five reaches and providing separate allocations on each of those five in an effort to meet the different needs of each area. The compact was signed in 1978, and approved by Congress in 1980.

### Allocation

The first step in allocation of the water of the Red River Basin is the division of the basin into five reaches<sup>80</sup>. Each reach, except the fifth (which is located entirely within Louisiana) is divided into sub-basins, and separate allocations apply to each sub-basin.

The allocations within each sub-basin follow a general pattern (modified where required to compose the competing interests.) First, existing uses at the time of the compact are included within compact allocations<sup>81</sup>, in contrast to those compacts such as the Snake or Belle Fourche which addressed only future uses<sup>82</sup>. Second, stock watering and domestic uses are excluded from the compact allocations, provided that the individual impoundments do not exceed 200 acre feet in capacity<sup>83</sup>.

Beyond those two general principles, there are variations applicable to sub-basins in each reach, but the general pattern is that tributaries within the reach are designated as *intrastate* or *interstate*. States have unrestricted use of intrastate tributaries. On interstate portions, however, a 60/40 division is used, with the originating state allowed to use 60 per cent of the water while sending 40 per cent downstream. Four of the five reaches have slight variations on this theme (the fifth is entirely within Louisiana, which therefore has unrestricted use).

Reach I: Reach I extends from the New Mexico border to Lake Texoma, and includes the Lugert-Altus irrigation district. The reservoir impounds water from interstate streams rising in Texas, and would normally only be entitled to receive 40 per cent of the flow. In a compromise, Texas agreed to suspend most development on those tributaries until the year 2000, or until sufficient water was imported to meet the irrigation district's needs, whichever came first. After that, the 60/40 ratio applies<sup>84</sup>. The year 2000 was chosen because that was when the debt would finally be retired<sup>85</sup>. The main stem of the river from the 100th meridian to Lake Texoma is divided equally between the two states<sup>86</sup>. (The 100th meridian (west) is the north-south border of Texas and Oklahoma along the Texas panhandle).

Reach II: Reach II extends from Denison Dam to the Arkansas-Louisiana border. The allocations here are the most complex because all four states are involved, and flow maintenance provisions are included. The definition of interstate and intrastate is based on the most downstream location of any existing or planned



dam. Upstream of those locations, the streams are considered intrastate and there is no requirement of sharing. Downstream, the streams are considered to be interstate. If the flow at the Louisiana-Arkansas border is greater than 3,000 cfs, there are no restrictions on use. If the flow is between 1,000 and 3,000, the 60/40 division applies, but there is no requirement that stored water be released. If the flow is less than 1,000 cfs (calculated on a weekly basis), the upstream states will allow enough water to flow downstream to bring the flow at the border to 1,000 cfs — again, with no requirement that water be released from storage. In addition, there is provision for maintaining the flow at Index, Arkansas if certain conditions are met<sup>87</sup>.

Reach III: Reach III consists of the western tributaries which enter the Red River in Louisiana after crossing the Texas or Arkansas borders. The reach is divided into sub-basins on the basis of dam sites, as with reach II. The states have unrestricted use above those dam sites, and the 60/40 rule applies below them. The exception is Caddo Lake and the tributaries feeding that lake. That Caddo Lake water is divided evenly between Texas and Louisiana<sup>88</sup>.

Reach IV: Reach IV comprises the tributaries entering the Red River from the east, that is, from Arkansas (the Ouachita in particular). The division is again based on dam sites, with Arkansas having unrestricted use above those sites, and a 60/40 split below. However, in the event of low flow, Arkansas also pledges to limit diversions to allow an equitable portion of the available water to enter Louisiana<sup>89</sup>.

Reach V: Reach V comprises the river and tributaries located wholly within Louisiana. Since there is no further downstream state, there are no restrictions on Louisiana's use of the water<sup>90</sup>.

### Administration

The compact is administered by a Red River Compact Commission created by Article IX. Each state has two members and two votes. A non-voting federal representative appointed by the President acts as chairman of the commission<sup>91</sup>.

The compact has no formal dispute resolution mechanism, but allows most actions to be taken by a vote of six of the eight commissioners, so no state has a veto. One exception to this rule is that if the action would impair an existing water right within a state, the vote must be unanimous<sup>92</sup>. The commission has established a Legal Committee which has been wrestling with the issue of whether "existing" water rights means existing as of the date of the compact or as of the date of the commission action. The committee is also uncertain as to whether water rights include water quality as well as quantity<sup>93</sup>.

Implicit in the compact is the idea that litigation in federal court was considered an appropriate mechanism for dispute resolution. This is because the compact included as conditions to ratification (which were agreed to by Congress) a requirement that United States District Courts be given concurrent jurisdiction of suits involving the compact, including suits between states, and a further requirement that the United States provide a limited waiver of sovereign immunity so that the federal

government could be made a party to any such suits<sup>94</sup>.

### Litigation and Other Problems

So far, no litigation has arisen out of the compact, and there have been no serious disputes between the states. One problem which looms on the horizon, though, is the Lugert-Altus Irrigation District. This problem was not resolved by the compact; it was merely postponed. As the year 2000 grows closer, some resolution is needed. Texas and Oklahoma have been discussing possible solutions to the problem<sup>95</sup>, but no resolution has yet been found. Part of the difficulty lies in the fact that the 60/40 allocation in Reach I does not refer to individual streams, as is the case in the other reaches. Rather, it requires that Texas allow 40 percent of the water of those interstate streams to pass downstream after the year 2000. This could be interpreted as allowing Texas to limit each stream to 40 percent, or it could be interpreted to refer to an aggregate of all streams so that Oklahoma might receive more than 40 percent on some and less than 40 percent on others. As it stands, the Lugert-Altus District is using well over 40 per cent of certain tributary streams; the problem will become concrete in the year 2000, if not before.

### Pollution Control

As noted above, the Red River has a quality problem, particularly in the west, where chlorides and sulfates are leached into the water from rocks and soils in the plains. The compact recognizes that the increase in population and growth of

industrial, agricultural, and mining operations may add to those problems<sup>96</sup>. The commission is empowered to make findings with respect to sources of pollution and, under certain conditions, may initiate legal action in its own name, but primary responsibility is left to the states.

### Summary

The Red River Compact is in some ways similar to the Upper Colorado Compact. It involves four states, and water in tributaries is divided among those states by separate parts of the compact. The Red River, however, posed more problems in negotiations. In part, this was due to different legal systems in the states and in part to widely varying geographic conditions. The end result is a division which reflects a compromise between appropriation and riparian interests, and between desires for storage and desire for flow. So far it has been successful, but at least one of the compromises, Altus Reservoir, now seems to be more of a postponement than a compromise. It remains to be seen how and if that problem will be resolved.

### Summary

These two compacts on the Texas borders provide an interesting contrast. Both involve heavily litigated rivers, but problems of water allocation seem to have been kept separate from the boundary disputes which plague those borders.

The Sabine River flows through a fairly uniform geographic region, with sufficient water to meet demands. Its allocation is correspondingly simple and

straightforward. The Red River drains a more diverse region, which caused greater difficulty in reaching a settlement. Part of the problem was due to a difference in legal systems, but that same problem did not seem to hamper negotiations for the Sabine. The real difference seems to be in the desire to maintain minimum flow on the Red River. On the Sabine, a token gesture was enough; on the Red, Louisiana wanted much greater protection, and the result was a compact of considerably greater complexity.

## Chapter Notes

1. See, e.g., Texas v. Louisiana, 410 U.S. 702 (1973); United States v. Texas, 162 U.S. 1 (1896); Oklahoma v. Texas, 252 U.S. 372 (1920).
2. 68 Stat. 690 (1954), amended 76 Stat. 34 (1962), 91 Stat. 281 (1977), and 106 Stat. 4661 (1992).
3. 94 Stat. 3305 (1980).
4. See Chapter 7.
5. See Chapter 4.
6. See Chapter 5.
7. Herman Settermeyer, Engineer, Texas Natural Resources Conservation Commission, Personal Communication (14 October, 1993).
8. 68 Stat. 690 (1954).
9. Albert Gray, Vice Chairman of Engineering Advisory Committee, Sabine River Compact Commission, Personal Communication (7 December, 1993).
10. Sabine River Compact, Article IX.
11. United States. Army. Corps of Engineers, *Sabine River and Tributaries, Texas and Louisiana*, House Doc. 91-429, 91st Cong., 2d Sess. (Washington, D.C.: Government Printing Office, 1971), 88.
12. Ibid.
13. BXG Inc., *Gulf Coast Lignites, 1985 Update* (Boulder, CO: BXG, Inc., 1985).
14. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
15. United States. Congress. House, *Granting the Consent of Congress to a Compact Entered Into by the States of Louisiana and Texas and Relating to the Waters of the Sabine River*, Report No. 2321, 83d Cong., 2d Sess. (Washington, D.C.: Government Printing Office, 1954).
16. United States. Geological Survey, *Water Resources Data for Texas, Water Year 1990, Volume 1: Arkansas River, Red River, Sabine River, Neches River, Trinity River Basins and Adjacent Coastal Basins* (Austin: U.S. Geological

- Survey, 1991).
17. Sabine River Compact, Article V (2).
  18. Geological Survey, *supra*, n. 16.
  19. Albert Gray, *supra*, n. 9.
  20. G. J. Arcement, Jr., L. J. Dantin, C. R. Garrison and W. M. Lovelace, *Water Resources Data for Louisiana, Water Year 1990* (Baton Rouge: U.S. Geological Survey, 1991), 329.
  21. United States. Congress. House, *supra*, n. 15.
  22. *Ibid.*
  23. Herman Settermeyer, *supra*, n. 7.
  24. Sabine River Compact, Preamble. This provision was deleted in 1977, 91 Stat. 281 (1977).
  25. 65 Stat 736 (1951).
  26. 68 Stat. 690 (1954).
  27. United States. Congress. House, *supra*, n. 15.
  28. *Ibid.*
  29. Sabine River Compact, Article IV.
  30. *Ibid.*, Article V (b) (2).
  31. Article V (a).
  32. See Chapter 7.
  33. Sabine River Compact, Article V (d).
  34. *Ibid.*, Article III.
  35. *Ibid.*, Article V (i).
  36. See Chapter 5.
  37. Sabine River Compact, Article VII.

38. Ibid., Article VII (b).
39. 76 Stat. 34 (1961) (terms of Texas commissioners changed from 2 years to six); 106 Stat. 4661-4662 (1992) (mode of selection of Louisiana commissioners changed to provide that both shall be appointed by the governor.)
40. Albert Gray, *supra*, n. 9.
41. Sabine River Compact, Article VII (e).
42. Ibid., Article VII (j).
43. Albert Gray, *supra*, n. 9.
44. Ibid.
45. United States. Geological Survey, *supra*, n. 16.
46. 91 Stat. 281 (1977).
47. 94 Stat. 3305 (1980).
48. United States. Army. Corps of Engineers, *Red River and Tributaries, Texas, Oklahoma, Arkansas, and Louisiana*, House Doc. 488, 83d Cong., 2d Sess. (Washington, D.C.: Government Printing Office, 1954), 11.
49. Ibid.
50. United States. Army. Map Service, *Santa Fe*, Map NI 13, series 1301 (Washington, D.C.: Army Map Service, 1957).
51. Corps of Engineers, *supra*, n. 48, p. 11.
52. Marguerite Ann Chapman, "Where East Meets West in Water Law: The Formulation of an Interstate Compact," *Oklahoma Law Review* 38 (1985): 1-112, at 20 *et seq.*
53. Ibid., p. 4.
54. Corps of Engineers, *supra*, n. 48, p. 17.
55. Chapman, *supra*, n. , at 4-7.
56. Corps of Engineers, *supra*, n. 48,p. 11.
57. Ibid.



58. See Figures 3 and 10 in Red River Compact Commission. Engineering Advisory Committee, *Report of the Engineering Advisory Committee to the Red River Compact Commission* (Red River Compact Commission, 1978).
59. Corps of Engineers, *supra*, n. 48, p. 14.
60. United States. Geological Survey, *supra*, n. 16.
61. Red River Compact Commission, *Report of the Red River Compact Commission, 1992* (1993), 54.
62. *Ibid.*, p. 58.
63. *Ibid.*, 62.
64. G. J. Arcement, Jr., et al., *supra*, n. 20, p. 329.
65. R. L. Blazs et. al., *Water Resources Data, Oklahoma, Water Year 1992; vol. 2, Red River Basin*. (Oklahoma City: U.S. Geological Survey, Water Resources Division, 1993), 58.
66. Red River Compact Commission. Engineering Advisory Committee, *Report of the Engineering Advisory Committee to the Red River Compact Commission* (Red River Compact Commission, 1978).
67. United States. Department of Commerce. Bureau of the Census, *1990 Census of Population and Housing* (Washington, D. C.: Government Printing Office, 1991).
68. Marguerite Ann Chapman, *supra*, n. 52, p. 58.
69. *Ibid.*, p. 67.
70. *Ibid.*, pp. 58 et. seq.
71. 69 Stat. 654 (1955).
72. *Ibid.*
73. *Ibid.*
74. Texas v. New Mexico, 352 U.S. 991 (1957).
75. Marguerite Ann Chapman, *supra*, n. 52 , pp. 79-82 et seq.
76. *Ibid.*, p. 6.

77. Ibid., p. 13.
78. Ibid., p. 79.
79. Ibid., p. 84.
80. Red River Compact, Article II, §2.12.
81. Ibid., §2.01.
82. See, e.g., discussions of Yellowstone, Snake, Belle Fourche, and Niobrara Compacts in Chapter 10.
83. Red River Compact, Article II, §2.08.
84. Ibid., §4.05.
85. Marguerite Ann Chapman, *supra*, n. 52, p. 93.
86. Red River Compact, Article 4, §4.04.
87. Ibid., Article V.
88. Ibid., Article VI.
89. Ibid., Article VII.
90. Ibid., Article VIII.
91. Ibid., Article IX, §9.01.
92. Ibid., §9.03.
93. Red River Compact Commission, *Report of the Red River Compact Commission, 1992* (1993), 25.
94. Ibid., Article XIII, §§ 13.02, 13.03.
95. Harold Springer, Chief Engineer, State of Oklahoma Water Resources Board, Personal Communication (16 November, 1993).
96. Red River Compact, Article XI, §11.01.

## CHAPTER 13

### THE FEDERAL DIMENSION

The preceding chapters have focussed primarily on the relations of the states *inter se*. This can be thought of as a horizontal relationship between sovereigns of equal authority. In the federal system of the United States, however, there is an additional dimension which must be considered in transboundary questions, namely the relationship between states and the federal government. By virtue of the Supremacy Clause of the Constitution<sup>1</sup>, laws of the United States (if made pursuant to a constitutional grant of power) are supreme over state law. If there is a conflict between state law and federal law in an area in which the federal government has jurisdiction, the federal law prevails.

The allocation compacts came into being in large part because there is a paramount sovereign. The potential of a Congressionally or judicially mandated allocation of water which may not be as favorable to a state as a negotiated compact can act as an incentive to compacting. Moreover, the federal government provides a forum for enforcement of compact obligations; without that potential for enforcement, compacts would be of much less utility.

The federal dimension is not purely vertical. There are many instances in which both state governments and the federal government may act; such cases present

situations of concurrent or overlapping jurisdiction<sup>2</sup>. The basic rule describing when concurrent jurisdiction is possible was set out in Cooley v. Board of Wardens (1851)<sup>3</sup>, which held that if the subject of the regulation was such that national uniformity was necessary, then Congress had exclusive power over that subject, but if the object of regulation involved a particularly local concern where diversity of treatment was appropriate, then concurrent state authority exists unless Congress says otherwise.

Water resources are often the subject of such concurrent authority. States grant water rights and control use of water, but the federal government simultaneously exercises authority directly or indirectly over that same water. Any allocation of water, to be successful, must take this concurrent jurisdiction into account.

#### Whose Water Is It?

The compacts described in this paper are intended to allocate water resources between states, but that presupposes that the states which reach agreement in those compacts actually own some interest in the water being divided. They cannot divide what they do not own (at least, they cannot divide it in any way which binds the true owner), so to the extent that the water is owned by the federal government, an interstate compact to which the federal government is not a party may be ineffective in providing a definitive allocation. This is one reason that the promoters of the Republican River Compact insisted that Congress separately state that it would recognize the allocations set forth in the agreement.

The usual water right is only a right to use the water, as opposed to ownership

of the corpus of the water itself. Who actually owns the water? The answer depends in large part on who is asked. Federal officials are likely to respond that the water belongs to the federal government; state officials will say it belongs to the individual states. The actual status is murky, due in no small part to inconsistency in Supreme Court opinions addressing the issue<sup>4</sup>. The question is not merely academic; the owner of an interest in water has property rights, subject to some greater or lesser degree to the vested usufructuary rights granted by that owner. Conversely, only the owner of an interest in water can grant lesser included rights, such as the right of use. If water rights are granted by the states but the water is in fact owned by the federal government, the federal government could conceivably take away those rights without compensation. The rights holders could have no greater standing than their grantor, and if the state had nothing to grant, the holders are left with nothing<sup>5</sup>.

The federal claims stem from the fact that the most of the western United States was once a part of the public domain. Everything in that domain belonged to the federal government until it was alienated. The common law rule, which could have been applicable since it prevailed in the established eastern states, was that water rights were riparian. This rule was largely ignored in the west, where rules of prior appropriation were adopted by miners and farmers with federal government acquiescence<sup>6</sup>. At the same time, however, the water remained subject to the rule expressed in Supreme Court decisions since Gibbons v. Ogden<sup>7</sup> (1824) that water in streams and rivers is uniquely controllable by the federal government because of its relationship to commerce and navigation. In one decision, the Supreme Court has

flatly stated that the rights of the states and individuals to appropriate the water of the Colorado River is subject to this paramount right of Congress to control the river for navigation purposes<sup>8</sup>.

On the other hand, the same Supreme Court has also recognized the right of the states to control the allocation of water within their own borders. In Hudson County v. McCarter (1908)<sup>9</sup>, the Court held that while the Commerce Clause of the Constitution prohibited states from reserving natural resources for their own citizens, water was different from other resources and *could* be regulated by the states for the benefit of their own citizens. The Court changed its mind in 1982 in Sporhase v. Nebraska ex rel. Douglas<sup>10</sup>, finding that water was an article of commerce, and so the states could not restrict its use or its transfer outside state borders. Sporhase does not specifically address surface water, but the connection between ground and surface water is a physical, if not legal, fact, and Sporhase may have thus severely reduced state authority to regulate transfers of water.

Nevertheless, the Supreme Court has for most of this century recognized, or at least acquiesced in, the power of states to adopt their own systems of rights with respect to surface waters. State claims to the power to regulate water within their borders are grounded in tradition and in the 1935 Supreme Court decision in California Oregon Power Co. v. Portland Beaver Cement Co.<sup>11</sup> That case involved a dispute between a federal patentee (claiming riparian rights as successor to the federal government) and a state water rights holder. The Court held that three statutes — the Act of July 26, 1866<sup>12</sup>, the Act of July 9, 1870<sup>13</sup>, and the Desert Lands Act of

1877<sup>14</sup> — "effected a severance of all waters on the public domain, not theretofore appropriated, from the land itself." From that decision flowed the conclusion that states were free to choose their own systems of water rights, except for purposes of navigation and protection of Indian reservations. California Oregon Power remains the foundation of state responses to increasing federal challenges to the states' powers to establish water rights<sup>15</sup>. The Supreme Court has recognized that "There has been a thread of purposeful and continued deference to state water law by Congress<sup>16</sup>," but "deference" may not be the same thing as a true cession of authority. The question of who ultimately owns the water and has authority over water rights is still unanswered.

Even assuming the continuing vitality of California Oregon Power, the question of the extent of remaining federal rights is unsettled and hangs as a cloud over state water rights. The cloud takes the form of federal reserved rights. Briefly stated, this doctrine holds that when the federal government reserved parts of the public domain for federal purposes, it also reserved the rights to sufficient water to accomplish those purposes. In 1978 in United States v. New Mexico<sup>17</sup>, the Court held that the implied purpose was to be strictly construed, but that still leaves unanswered the basic question of how much water is reserved for what purpose. The priority date for these federal reservations is usually established as of the date of the reservation, which may have been in the 19th century. Federal priority could therefore be superior to the rights of others who believed they were secure in a vested high priority.

The scope of the federal reservation in national forests is still unclear. The

Organic Act for which established the authority to create forest preserves<sup>18</sup> has been the basis for "channel-maintenance" claims by the Forest Service, which argues that certain minimum levels of flow are necessary to "secure favorable conditions of water flow" to maintain the viability of stream channels as conduits for flood waters and to minimize erosion or deposition of sediment resulting from disequilibrium of channel size and available flow. The Forest Service claims are substantial, amounting generally to 50 percent of normal flow, and are now in litigation<sup>19</sup>.

Of potentially greater effect on existing water rights are the claims for rights reserved for Indian tribes. These were the first reserved rights to be recognized. Since the 1908 decision in Winters v. United States<sup>20</sup>, it has been accepted that the reservation of lands for Indians included a reservation of water to allow the beneficial use of those lands. Like other federal reserved rights, the amounts reserved were not quantified at the time of the reservation, and the priority date is the date of creation of the reservation. The measure to be used in quantifying these water rights is the amount needed to irrigate the "practicably irrigable acreage" on the reservation<sup>21</sup>, which still does not identify any specific amount until some court has decided how much acreage is practicably irrigable and how much water is needed to irrigate it.

These reserved federal rights, both on and off Indian reservations, complicate transfers of water rights in the west. Until it is known just how much water is involved, with what priority, the value of junior rights cannot be ascertained with any certainty, and this impedes any large-scale marketing of water rights. Thorson (1989)<sup>22</sup> provides an analogy to explain why: it is as if you are trying to sell a car,



but doubts are cast on the make, actual model year, miles it has been driven, and even title to all the pieces. Buyers are likely to be wary of making such a purchase. The same holds true for water rights.

The extent of federal claims is a major unknown quantity in many areas of the west. Compacts divide water as between the states, but within those states, the ability to use that water, or rely on it as a supply for future development, is uncertain absent some quantification or adjudication of the federal claims.

### The Effect of Federal Projects

It is difficult to discuss most western rivers without also looking at federal water development projects on those rivers. A few examples illustrate the scope of those projects. The Colorado is regulated by a series of great dams. The lower Arkansas River has been dammed and channelized to create a navigable waterway from the Mississippi River to Catoosa. The Upper Rio Grande Basin focusses on Elephant Butte, while Jackson Lake on the Snake River is seen in almost every set of photos of the Tetons.

These federal projects may function as either a carrot or a stick with regard to interstate compacts. In some cases, the existence of a federal project has made the compact possible, as with the John Martin Dam and the Colorado-Kansas compact on the Arkansas. In other cases, such as on the Canadian, political support by one of the states for projects to be built in another has been made contingent upon execution of a compact. In yet other cases, the federal projects have not been directly related to

negotiation of the compacts, but have nevertheless had significant impact on their operation.

### Federal Projects As an Incentive to Compacting

The twenty-two allocation compacts provide six examples of cases in which the construction of specific federal water projects was contingent upon a compact being executed, plus one more where a compact and a federal dam were closely intertwined.

The earliest example is the Colorado River Compact of 1922. The lower basin users were seeking new facilities to store water for irrigation, while the upper basin states were still in no position to use what they felt to be their fair share of the river. The upper states were concerned that once the water was put to use in the lower basin, the upper states would lose all claim to it. They were therefore not enthusiastic about new projects which would promote development in the lower basin unless some arrangement were in place to protect upper basin rights in the future. The proposed dam at Black Canyon, later to be known as Hoover or Boulder Dam, was such a project. One of the compelling factors leading to negotiation of the compact was the need of the lower basin states to obtain the political backing of the upper basin states for these major reclamation projects<sup>23</sup>.

Further east, on the Pecos, the same sort of political horse-trading was employed by Texas and New Mexico. New Mexico wanted the Alamogordo Reservoir built to replace supply being lost from the leaking downstream dams, while Texas wanted some agreement on flow into Texas. The Pecos Compact was the price,

or at least part of the price, for Texas' withdrawing its opposition to the New Mexico project<sup>24</sup>. Of course, two can play at this game, and in the 1950s, when Texas wanted Lake Meredith built on the Canadian River, New Mexico insisted that there first be a compact establishing rights to water on the Canadian<sup>25</sup>.

Between the Colorado and the Pecos lies the Rio Grande. It too is subject to a compact made in large part to provide a legal foundation for construction of specific federal projects. The temporary 1929 Rio Grande Compact specifically referred to projects to be built in the San Luis Valley of Colorado<sup>26</sup> and was made to provide assurance to Texas and Colorado that proposed federal projects on the Middle Rio Grande in New Mexico would not adversely affect the other two states<sup>27</sup>. When the 1929 agreement ran into problems, President Franklin Roosevelt ordered a suspension of all federal projects on the river pending further study; that study resulted in the 1938 compact, and the federal projects went forward<sup>28</sup>.

The Arkansas River Compact of 1949 between Kansas and Colorado presents a slightly different fact pattern. The compact was not a condition precedent to construction of the John Martin Dam, but it was based on completion of that dam. The water to be stored in the dam was considered to be the central focus of negotiations between Kansas and Colorado<sup>29</sup>. After the dam was completed, the federal representative on the compact negotiating committee (a retired Brigadier General who had been district engineer during construction of the dam) managed to "knock heads" enough to obtain an agreement<sup>30</sup>. The compact was not a condition to construction, but the two went hand in hand; the Congressional approval of the

compact authorized the Chief of Engineers to operate the dam in a manner conforming to the compact<sup>31</sup>.

On the Bear River, a desire to pave the way for construction of a federal project at the Oneida Narrows in Idaho was one of the reasons for amendment of the Bear River Compact. The original Bear River Compact provided for review of its terms anyway, but the review and revision was spurred by an understanding that the federal government would not proceed with the Oneida Narrows dam absent some agreement between Idaho and Utah with respect to the water in the lower Bear River<sup>32</sup>. The compact amendments therefore included new provisions allocating water among new users in Idaho and Utah.

One other compact made to pave the way for a specific federal project was the Animas-La Plata Compact. This agreement was necessary for construction of the Animas-La Plata Project. It does not allocate any water, but instead grants rights to New Mexico to divert water from the project in Colorado while confirming that New Mexico's share of the water is limited by the Upper Colorado River Compact allocation.

The first five of these compacts share a dubious distinction: each has been the subject of interstate litigation before the Supreme Court. Indeed, they represent the only compacts which have been litigated between the party-states. (The La Plata Compact was challenged, but by private parties, as distinguished from those suits where the states themselves have been the opposing parties disputing the meaning or operation of compacts before the court.)

The Court has rewritten two compacts, the Pecos<sup>33</sup> and the Canadian<sup>34</sup>, to at least some degree (see chapters 4 and 7). The Rio Grande Compact was litigated twice<sup>35</sup>, but neither case ever reached the point of a decision on the merits. The Colorado has the most extensive history of litigation<sup>36</sup>, but that compact has survived, in large part because the litigation has generally focussed on what was not included in the compact (an allocation between individual states) rather than what was. The fifth compact, the Arkansas River Compact of 1949, is the subject of pending litigation. Of the compacts made to facilitate specific federal projects, only the Animas-La Plata and Amended Bear River Compacts have escaped interstate litigation.

The issues in the interstate litigation have been complex, and it would be unduly simplistic to attribute the failure or threatened failure of those compacts solely to the fact that they all involved negotiations aimed at securing (or in the case of the Arkansas, based upon having secured) construction of particular projects designed to fix existing problems. However, the correlation should not be ignored. It is one of two things that the litigated compacts, with the exception of the Arkansas, have in common. The other common factor is that the remaining four litigated compacts were signed at Santa Fe, which seems more coincidental than causal.

There may be no causal link between negotiations based on desire to construct a specific project and subsequent court challenge to compacts, but there appears to be some relationship between the two. The impact of federal spending and concurrent jurisdiction over water in such cases can be a spur to compacts, but it may also sow the seeds of future problems.

It is possible to speculate on reasons why compacts made as incentives to federal projects tend to be unsuccessful, or at least to be subject to major interstate challenge. The relationship may be merely coincidental, but causal relationships are also plausible. Focussing on the need to build a particular project, for example, might lead negotiators to overlook other problems which need to be addressed.

The time pressures involved may similarly lead to an incomplete agreement. One law review article suggests in its title that one reason for the failure of the Canadian compact may have been the fact that it was "hastily negotiated"<sup>37</sup>. When one considers the years that went into formal and informal negotiations on some of these compacts, such as the Pecos, that seems unlikely to be the sole explanation.

The relationship between focus on specific projects and subsequent litigation may be symptomatic, rather than causal. When matters have reached the point that it is felt that the only remedy is a particular federal project, the situation may have already deteriorated to the point where a compact is doomed to failure anyway.

The fact that the Bear and Animas-La Plata compacts have not been to the Supreme Court does not necessarily disprove a causal relationship. The Bear River Compact was already in existence when it came time to focus on the Oneida Narrows; the amendments to that compact incorporated lessons learned in the operation of the already existing compact, which had been negotiated without regard to promoting federal development. The Animas-La Plata Compact is similar in that it built on a previously settled compact rather than making a new allocation simply to facilitate construction of some federal development.

Other compacts have been made with an eye toward encouraging federal development. One purpose behind the Republican River Compact was to encourage federal projects (although no specific proposals were contemplated; it was more of a general hope<sup>38</sup>). Similarly, the negotiators of the lower Arkansas basin compacts hoped to encourage federal developments for flood control and navigation, but these projects proceeded independently of compact negotiations.

Where the negotiation and execution of a compact is not driven by an existing or proposed federal project, federal water projects may still have an impact on actual operations under the compacts. A large part of the annual reports of the Upper Colorado River Commission, for example, is devoted to reports on ongoing federal projects within the compact area. Compact rights are one thing, but wet water (that is, water which is actually available for use) is another, and those federal projects provide the wet water which can actually be used. On the Klamath River, to take another example, federal game refuges are a major water user, and water allocation in that basin must take those refuges into account. The same is true for the game refuges in the Bear River basin.

Federal water projects are ubiquitous in the west, and compact obligations and operations must be undertaken in the context of those federal projects. Indeed, the only compacts unaffected by federal projects seem to be Costilla Creek and the Upper Niobrara, two of the three smallest compact rivers in terms of discharge.

## Compacts as Counters to Federal Power

When a dispute arises between states over the use of a transboundary resource such as water, there are three basic ways to resolve it. The states can reach an agreement; they can litigate and ask a court to settle the dispute; or Congress can impose a solution, so long as the matter is one within the exclusive or concurrent jurisdiction of the federal government. Water resources, particularly those that cross state lines, fall within the scope of federal jurisdiction as it is now perceived, so it is possible that Congress could impose a settlement on the affected states with respect to any interstate dispute over water. Even if there is no dispute between states sharing a river or a stream, Congress may come up with a plan for use of the water. Compacts have been seen as a way to block, or at least impair, federal actions which might affect local water resources.

Use of compacts as a means of forestalling federal actions extends back to the 1920s. Colorado's Delph Carpenter noted that the movement to make compacts in the 1920s was spurred in part by attempts by the federal government to take control of western water (see p. 264). New Deal programs aimed at water development renewed those concerns in the 1940s and 1950s.

During the New Deal, Harold Ickes, the Secretary of the Interior, wanted to gather all federal activities relating to natural resources into his own hands to administer the nation's natural wealth in an "orderly" fashion<sup>39</sup>. Ickes also wanted to control electric power generation<sup>40</sup>, which in turn would lead to federal control over any body of water with a current of fall large enough to generate electricity.



President Roosevelt established a National Resources Planning Board which, among other things, looked at development of an integrated plan of national water development<sup>41</sup>. At the same time, the Tennessee Valley Authority was created, and there were proposals to create additional TVA-type authorities for the nation's other river basins<sup>42</sup>.

Such plans for national control of western water resources were not warmly received by all residents of the west. In Oklahoma, the proposed creation of an Arkansas Valley Authority (AVA) in the 1930s and '40s was characterized as an attempt by federal bureaucrats "to socialize industry and everything else we do"<sup>43</sup>. Further upstream, Judge Stone of the Colorado Water Conservation Board warned that the AVA "represents an attempt to wipe out state lines, states' rights in water and its control and subject the entire basin to a creature of federal enactment with extensive powers"<sup>44</sup>.

While no direct evidence has been found that compacts were made in a specific effort to pre-empt such federal control, interstate agreements would provide one way of forestalling federal action. If Congress agreed to a division of water between states, it would be more difficult at a later time for Congress or an administrative agency to upset that division and investments made in reliance upon it. The clearest example of this line of reasoning appears with the Republican River Compact (see Chapter 8). The initial proposal was vetoed by President Roosevelt because it posed a threat to potential federal developments on the river. The Federal Power Commission was particularly concerned that its future activities might be circumscribed by

limitations on use found within the compact<sup>45</sup>. In 1952, in response to similar efforts to place limits on power generation in the Snake River Compact, the Bureau of the Budget sent a memorandum to President Truman urging that compacts be drawn in language "which does not attempt to define or limit the powers of the United States<sup>46</sup>."

The tension between states and the federal government did not end with passing of the New Deal. In 1980, for example, the western states saw the rise of a "Sagebrush Rebellion" against bureaucratic control of western land and water by the federal government<sup>47</sup>.

The result of this tension between federal plans for national projects and state desires for local control is reflected in the compacts. While the basic agreements reflect horizontal concerns, the federal dimension was not neglected, and various mechanisms for protecting federal power or restricting federal action were employed.

### Compact Provisions and Concurrent Jurisdiction

The attempt to balance federal desires to maintain freedom to develop future projects against state desires to restrict such federal prerogatives and maintain state controls is manifested in several typical ways in the allocation compacts and in the legislation approving those compacts. Each of the compacts has some unique elements, reflecting the divergent geographic and institutional settings, but several common approaches were employed in varying combinations in the compacts. Most of these are designed to protect or recognize federal interests, but a few are intended

to restrict federal rights for the benefit of the affected states.

### Protection of Federal Interests

Despite the Supremacy Clause of the Constitution, federal officials have from time to time expressed concern that language contained in compacts may inhibit federal action which would otherwise be permitted. To allay those fears (which could adversely affect the chances of obtaining congressional and presidential consent), sixteen of the twenty-two compacts include one or more of five fairly standard clauses in either the text of the compact, the Congressional consent to the compact, or both. The five clauses are: a reservation of the right of Congress to alter, amend, or repeal the consenting legislation; a disclaimer of any intent to affect rights of Indian tribes; a disclaimer of any intent to adversely affect any sovereign power of the United States over the rivers; a disclaimer of any intent to subject federal property to state taxes; and a disclaimer of any intent to make any federal project subject to state law solely because of the compact.

### Reservation of the Right to Alter or Amend

Eleven of the twenty-two compacts were passed subject to a reservation by Congress of the right to alter, amend, or repeal the consenting legislation<sup>48</sup>. The language used in the consent to the Amended Bear River Compact is typical: "The right to alter, amend, or repeal this Act is expressly reserved<sup>49</sup>." In three of the eleven cases (Sabine, Canadian, and Yellowstone compacts), Congress added a

proviso to its reservation. In these three, Congress added that "This reservation shall not be construed to prevent the vesting of rights to the use of water pursuant to applicable law, and no alteration, amendment, or repeal of this Act shall be held to affect rights so vested<sup>50</sup>."

This reservation may not provide as much flexibility for Congress as appears at first reading. The constitutionality of such a reservation in the context of an interstate compact was challenged, but not decided, by the Court of Appeals for the District of Columbia Circuit in Tobin v. United States (1962)<sup>51</sup>. Austin Tobin was the executive director of the Port of New York Authority, a bi-state agency established by interstate compacts between New York and New Jersey in 1921 and 1922. In approving the compacts, Congress reserved the right "to alter, amend, or repeal" its approval. In 1960, the Judiciary Committee of the House of Representatives initiated an investigation of the Authority, purportedly for the purpose of determining whether Congress ought to alter, amend, or repeal its consent. In the course of the investigation, a subpoena was issued requiring production of documents by the Authority. The Authority, through Tobin, declined to comply, and Tobin was subsequently convicted of contempt of Congress. Tobin argued that Congress did not have the power to reserve the right to alter, amend, or repeal, and that the subpoena was therefore an unconstitutional invasion of powers reserved to the States under the Tenth Amendment.

The appeals court declined to determine whether the reservation was constitutional, but noted that there was no way of knowing what ramifications would

result from a holding that Congress had the power to alter, amend, or repeal its consent to a compact. It went on to state that "No doubt the suspicion of even potential impermanency would be damaging to the very concept of interstate compacts<sup>52</sup>." The court then avoided deciding the constitutional question by finding that the subcommittee issuing the subpoena had exceeded the authority granted to it by Congress, so Tobin's conviction was reversed.

Assuming that the "alter, amend, or repeal" clause is constitutional, its effect would be limited. Congress has not reserved the right to alter the compacts themselves; it has reserved only the right to alter its consent. As a practical matter, if consent were modified or withdrawn, a compact would cease to be effective. The states would have to find some other means of allocating water, such as by a new compact or by litigation to establish an equitable apportionment.

Congress could not directly change a compact. A compact is a contract between states, and like all contracts requires that the parties agree to its terms. Congress may want to change the terms of the compact, but if the states have not agreed to that change, there is no contract, and hence no compact. Congress might, however, be able to make its desired changes indirectly by legislation overriding the state allocations (if the legislation is within the scope of Commerce Clause or other constitutional authority), or by repealing its consent and requiring that a new compact with specific terms be made before consent will be restored.

Of course, if the reservation is *unconstitutional*, then Congress could not exercise the power at all. The Tobin decision indicates some sympathy for a finding

of unconstitutionality, but there is no way of knowing until the Supreme Court some day decides the issue.

Based on general rules of law applicable to the federal government, Congress probably has the power to repeal its consent even without the express reservation. The legislative power includes the power to repeal laws as well as enact them, absent some constitutional prohibition<sup>53</sup>. As the Fifth Circuit Court of Appeals noted in 1987, "Congress may repeal, amend, or ignore any statute it has enacted<sup>54</sup>."

Why, then, would Congress ever bother about including the reservation in a consent to a compact? The answer may lie in the fact that while Congress has the right to change its mind, it may have to pay for the privilege. When the United States is a party to a contract and Congress subsequently repudiates the federal government's obligations under that contract, the repudiation stands, but the government is liable for damages for breach of contract<sup>55</sup>. Even if a contract is not involved, Congressional action which results in a destruction of property rights may amount to a "taking" and subject the government to liability for just compensation under the Fifth Amendment<sup>56</sup>.

One way for Congress to avoid such potential liability is to include in any law which may create contract or property rights a clause reserving the right to alter, amend, or repeal the statute. If that is done, then anyone who takes a property right created by the statute does so with the imputed knowledge of the possibility of repeal, and has no claim for compensation if Congress does in fact exercise its option to do so<sup>57</sup>.

The presence of the reservation in only half of the compacts raises another question: does this mean that Congress has abandoned the right to alter, amend, or repeal its consent to the others? It is an argument which could certainly be expected in any litigation concerning a repeal of consent. Similarly, in the case of the three compacts where the right to repeal is retained, but vesting is not to be affected, the reservation would not prevent claims for damages by water rights holders who are affected by any repeal of consent. The lack of such language in the other eight compacts with the reservation might then be construed to implicitly bar any claims for damages stemming from repeal of one of those eight agreements.

Once the threshold issue of whether there has been a taking or breach of contract is resolved, further complications would be faced with respect to compensation. If Congress simply withdrew its consent, water rights might not be lost; subsequent events, including probably litigation, would establish a new allocation regime for the river. If individual holders were affected, the next issues would be the amount of damages and to whom they should be paid. Individual water rights holders might be the ultimate injured parties, but the former compact at the center of such a controversy would have been an agreement between states. If the federal government had to pay for property rights lost as a result of invalidating a compact, would the states be compensated or would individuals get the money? In the Canadian and Pecos lawsuits, discussed in Chapters 7 and 4, the compensation went to the injured states, but individual users might also make claims.

The reservation of the right to alter, amend, or repeal the consent of Congress

in eleven of the compacts raises a host of questions as to what would actually happen if Congress attempted to exercise that right. The court noted in Tobin that it had "no way of knowing what ramifications would result from a holding that Congress has the implied constitutional power to 'alter, amend, or repeal' an interstate compact<sup>58</sup>." Congress may have intended to keep its options open with respect to at least half of the water allocation compacts, but the lack of uniformity in doing so could create more legal disputes and challenges than would have been the case if Congress had just relied on an implied power of repeal.

Congress may not have had any actual intent one way or the other. The compacts reserving the right to alter, amend, or repeal begin to appear in 1946 with the Costilla Creek Compact, and appear in all subsequent compacts except the Animas-La Plata and the Red River Compact. It is not unusual for lawyers to copy the boilerplate provisions of one contract or statute into another, and that may be the explanation here: the reservation is included after Costilla Creek because subsequent draftsmen copied the boilerplate without being aware of the inconsistency between earlier and later compacts. The end result, however, remains the same. The inconsistency exists, and would be the focus of much argument in any subsequent dispute or litigation.

#### Disclaimers of Effect on Indian Rights

Nine of the compacts<sup>59</sup> expressly state that they are not intended to affect any rights of Indian tribes. The language used in the Yellowstone Compact is typical:



"Nothing in this Compact shall be so construed or interpreted as to effect adversely any rights to the use of the waters of the Yellowstone River and its tributaries owned by or for Indians, Indian tribes, or their reservations.<sup>60</sup>"

The inclusion of these disclaimers is probably unnecessary. Indian water rights were recognized by the Supreme Court in Winters v. United States (1908)<sup>61</sup>. Winters held that Indian tribes, when entering into treaties with the United States, reserved sufficient water to accomplish the purposes for which their reservations were established. The power to reserve the water could rest on either the treaty or property powers of the federal government, but in the case of compacts, that distinction would make no difference. Whether a treaty or a disposition of national property is involved, the Supremacy Clause makes that action superior to any state law and binding on the states.

These clauses may have been included to negate any inference that Congress in approving the compacts had somehow waived or repealed reservations of Indian water rights. If that is the reason for inclusion, it raises a problem with respect to the compacts which do *not* contain the disclaimer. Do these compacts (without the disclaimer) therefore contain some sort of implicit waiver of Indian water rights? The issue has not been litigated. It seems more likely that there was an abundance of caution in some compacts which was lacking in others, but the inconsistency could someday be the basis of dispute over the intentions of Congress.

The location of Indian reservations may also provide an explanation for the selective inclusion of the Indian rights reservation. The compacts with this language

affect rivers flowing through regions where Indian reservations are located. Most of the other compacts do not affect Indian lands, but the correlation is incomplete. The Pecos system, for example, includes part of the Mescalero Apache reservation, but the disclaimer does not appear in the Pecos compact. There are also Indian lands in the La Plata and Animas basins, but neither compact contains the disclaimer. In some areas, like Oklahoma, there may be no Indian reservations, but there are lands owned by Indians and there are Indian claims to water, but the Arkansas River Basin Compacts between Oklahoma and Arkansas and Oklahoma and Kansas do not include the disclaimer.

#### Disclaimers of Impairment of Federal Rights

Eleven of the compacts disclaim any intention of impairing rights of the United States<sup>62</sup>. The language of the Republican River Compact is typical:

Nothing in this compact shall be deemed . . . to impair or affect any rights, powers, or jurisdiction of the United States, or those acting by or under its authority, in, over, and to the waters of the Basin; nor to impair or affect the capacity of the United States, or those acting by or under its authority, to acquire rights in and to the use of waters of the basin.<sup>63</sup>

In one case, the Upper Niobrara, the disclaimer is not included in the body of the compact, but Congress added such a disclaimer to the statutes granting consent to

the agreement; it also added the disclaimer to its approval of the Arkansas River Compact (Colorado-Kansas)<sup>64</sup>.

These disclaimers of impairment of federal rights do not have the same chronological consistency found in the reservation of the right to alter, amend, or repeal. The clause first appears in 1943 in the Republican River Compact, but the Animas, Canadian, Sabine, and Amended Costilla Creek compacts, all of which were approved after 1943, do not contain the disclaimer.

As with the case of the Indian rights disclaimers, the federal rights disclaimers seem unnecessary, unless they were inserted out of an abundance of caution to avoid any implication of waiver. The same potential problem results: does the inclusion of the disclaimer in only half of the compacts imply that there *is* a waiver in the others? Again, the question has not yet been raised or answered.

#### Disclaimers of Intent to Tax Federal Property

A third common disclaimer included in the text of compacts is the recital found in ten of the agreements that there is no intention to subject any property of the United States or its agencies to state or local taxes, or payments in lieu of such taxes<sup>65</sup>.

It might seem strange that anyone thought to include such disclaimers. In McCullough v. Maryland (1819)<sup>66</sup>, Chief Justice Marshall ruled that a state could not levy a tax on a project established by the federal government in furtherance of its legitimate powers. The clauses affirming this principle were probably included in the compacts because of other provisions allowing projects to be built in one state for the

benefit of citizens of the other, but providing for payments in lieu of taxes on such projects. The disclaimers make it clear that those payments would not apply to federal interests. Those clauses were again probably included out of an abundance of caution, but the lack of such clauses in other compacts could lead to the sorts of problems described above.

#### Federal Property Not Subject to State Law

The last of the common provisions disclaiming any intent to adversely affect federal rights is aimed at negating any implication that federal property will somehow become subject to state law by virtue of Congressional consent to the compacts. The language of the Republican River Compact is typical:

Nothing in this compact shall be deemed . . . to subject any property of the United States, its agencies or instrumentalities, to the laws of any State to any extent other than the extent these laws would apply without regard to this compact<sup>67</sup>.

Eleven of the twenty-two allocation compacts contain similar language<sup>68</sup>.

Once again, the disclaimers seem unnecessary because the federal government has full power over federal property under the Property Clause<sup>69</sup>. As with the other disclaimers, this type of clause appears to have been inserted to allay any fears that a waiver of federal control over federal property was being implied by consent to the compact. Also, as is the case with the other disclaimers, the fact that it appears in

only half the compacts could lead to interesting legal arguments if the question ever arises with respect to one of the compacts which does not include that language.

### Protection of State Interests

Three basic methods have been employed in an effort to protect state interests established by compacts from subsequent federal action. These include obtaining specific acknowledgement by Congress that the federal government will be bound by the terms of the compact; inclusion of restrictive language in the compact without specific federal acquiescence; and waivers of sovereign immunity.

### Congressional Consent to be Bound

Congress must consent to compacts, but that consent does not necessarily bind Congress as a party to the underlying agreement<sup>70</sup>. The compact may or may not be a law (see Chapter 2). To the extent a compact is merely a contract, it would bind only those entities which are parties to the contract, namely the states. Congress may be an interested bystander, but it is not a party to the contract *per se*. If a compact is a law, then it is an act of Congress, and could be thought of as binding the federal government. This uncertainty over whether Congress is or is not bound by the terms of compacts may have led to the inclusion of the various disclaimers discussed above.

That same uncertainty has led the states in several instances to condition the effectiveness of compacts on the specific consent of Congress to be bound by the terms of those compacts. The Republican, Belle Fourche, and Klamath compacts each

contained such a condition, to which Congress acquiesced.

In the case of the Republican and Belle Fourche compacts, the language is essentially identical. In each, the federal government agreed to recognize the allocation between the states and to take that allocation into account in connection with any beneficial consumptive use by federal agencies. More significantly, these two compacts, while recognizing the supremacy of the federal government, provided that the United States or those acting for it would recognize that beneficial consumptive use (which does *not* include navigation or power generation) was of "paramount" importance to the development of the basin. Furthermore, before the federal government undertook any project which would interfere with the full beneficial consumptive use of water within the basin, it would do so only after full consultation with all interested state and federal officials. Congress also agreed to "recognize" any established uses for domestic or irrigation purposes which might be "impaired" by any federal project.<sup>71</sup>

The primary purpose of these conditions was to avoid federal projects for power generation or navigation improvement which might affect the primary use of the rivers, that is, irrigation. If the federal government persisted in non-beneficial uses, it would have to pay just compensation to water rights holders who were adversely affected. The president had vetoed the first Republican River Compact (see Chapter 8) because it had sought to limit such federal action, but the second effort by the states was successful. The impact on future federal projects did not go unnoticed, however. In signing the act consenting to the Republican Compact, the president

wrote that the procedures required for the exercise of federal powers were not entirely satisfactory, but the probabilities for the exercise of such powers on the Republican were not great anyway; the same was said with respect to the Belle Fourche<sup>72</sup>.

The agreement to limit federal consumptive use within the states to the water allocated to the state by compact raises the question of whether the federal government is also bound by those allocations in other compacts. In five compacts<sup>73</sup>, federal use of water is explicitly said to be charged against the state allocation, but that does not necessarily mean that the federal government is limited to that amount. If on the Pecos, for example, the federal government found some use for water that required more than New Mexico's entire share of the river, the result could be that New Mexico received no water and that Texas could face a shortfall because the federal project was unlimited in the total amount it could use. Such a scenario could give rise to suit by Texas against New Mexico for breach of the compact, and claims by New Mexico for excuse from the compact based on principles of impossibility of performance, impracticability, or frustration of purpose (discussed in Chapter 2).

The Klamath River Basin Compact does not contain the same language as the Belle Fourche and Republican compacts, but the general tenor is the same. Congress states that it will recognize the priorities set out in the compact, and will be bound by essentially all operative provisions of the compact. If federal action impairs existing water rights, just compensation will be paid<sup>74</sup>.

In the cases of the Republican, Belle Fourche, and Klamath compacts, Congressional consent to be bound was made a condition to effectiveness of the

compact. In three other cases, Congress has agreed to be bound by the terms of compacts, even though the compacts themselves were not expressly conditioned upon such acquiescence. The Boulder Canyon Act, which gave conditional consent to the Colorado River compact, also provided that the United States and its agents would observe and be controlled by the Colorado River Compact in the construction, management, and operation of the works authorized by that statute<sup>75</sup>. The Colorado River Storage Project Act of 1956<sup>76</sup> did the same for the Upper Colorado River Basin Compact. In consenting to the Arkansas River compact between Kansas and Colorado, Congress did not expressly state that the United States was bound by the terms of the compact, but the Chief of Engineers was instructed to operate the John Martin dam in accordance with the terms of the compact and the determinations of the compact commission<sup>77</sup>.

#### Restrictions in the Texts of Compacts

The Snake River Compact includes a proviso that while waters of the Snake may be impounded and used for the generation of electrical power, such use will be "subservient" to the use of the river for domestic, livestock, or irrigation purposes<sup>78</sup>. There is no separate Congressional agreement to be bound by that restriction, and the compact also contains savings clauses disclaiming any intent to inhibit the exercise of sovereign rights by the United States.

This ambiguity did not escape the attention of the Bureau of the Budget, which was reviewing compacts for the executive branch. In a memorandum to President



Truman, the director of the bureau pointed to this inconsistency and noted that it could lead to uncertainty in future development of projects on the river. Of perhaps more interest, however, is his statement that this confusion tended to defeat one of the basic purposes of the compact, which was "settling the respective rights and interests of the Federal and State Governments in, over and to the river<sup>79</sup>." That statement implies that the federal government is bound by the compact because otherwise it is difficult to see any way in which federal-state issues are resolved. Once more, the confusion as to the exact nature of compacts and the precise effect of Congressional approval is apparent.

The Snake River compact is not the only agreement containing such restrictions. The Republican, Belle Fourche, and Klamath compacts, discussed above, subordinate electric power generation to other uses, as does the Colorado River Compact<sup>80</sup>, but each of those is bolstered by a Congressional consent to be bound. The Rio Grande Compact of 1929 also contained a subordination provision, but it was not carried forward into the 1938 agreement.

#### Waivers of Sovereign Immunity

The effectiveness of four compacts — the Red River, Arkansas River Basin (both Kansas-Oklahoma and Oklahoma-Arkansas), and Big Blue — was made contingent upon a waiver of sovereign immunity by Congress. The United States may not be sued unless it consents to be sued<sup>81</sup>. Given the ubiquity of federal land interests and water projects, it is likely that any litigation concerning allocation of

water on a river will involve one or more of those federal interests, but the United States cannot be haled into Court and made to defend those interests without a waiver of immunity. In some cases, the absence of the United States as a party may require dismissal of the litigation, as happened when Texas sued New Mexico in the 1950s<sup>82</sup>.

To ensure that the federal government would be amenable to suit if the need arose, the negotiators of these four compacts conditioned the effectiveness of the compacts on a waiver being granted by Congress, and in all four cases, the waiver was given<sup>83</sup>. These waivers of immunity do not necessarily bind Congress to the terms of the compact; rather, they allow issues related to the compacts to be litigated more fully and completely should the need ever arise.

#### Federal-State Compacts: The Delaware Example

Another way in which to establish the relative rights of the states and federal governments to the water allocated by compact and bind the federal government to that division is to have the federal government join the agreement as a formal party. The Delaware River Basin Compact<sup>84</sup> is the classic example of such an agreement, and has been cited as a model for future interstate agreements<sup>85</sup>. This compact, which has been described as "an experiment in cooperative federalism<sup>86</sup>," created a regional authority with territorial jurisdiction over the entire area of the river basin, including territory within each of the individual signatory states.

The compacting parties are the United States and the states of Delaware, Pennsylvania, New Jersey, and New York. The Delaware forms the border between

New Jersey and Pennsylvania (see Figure 13), and the region is densely populated.

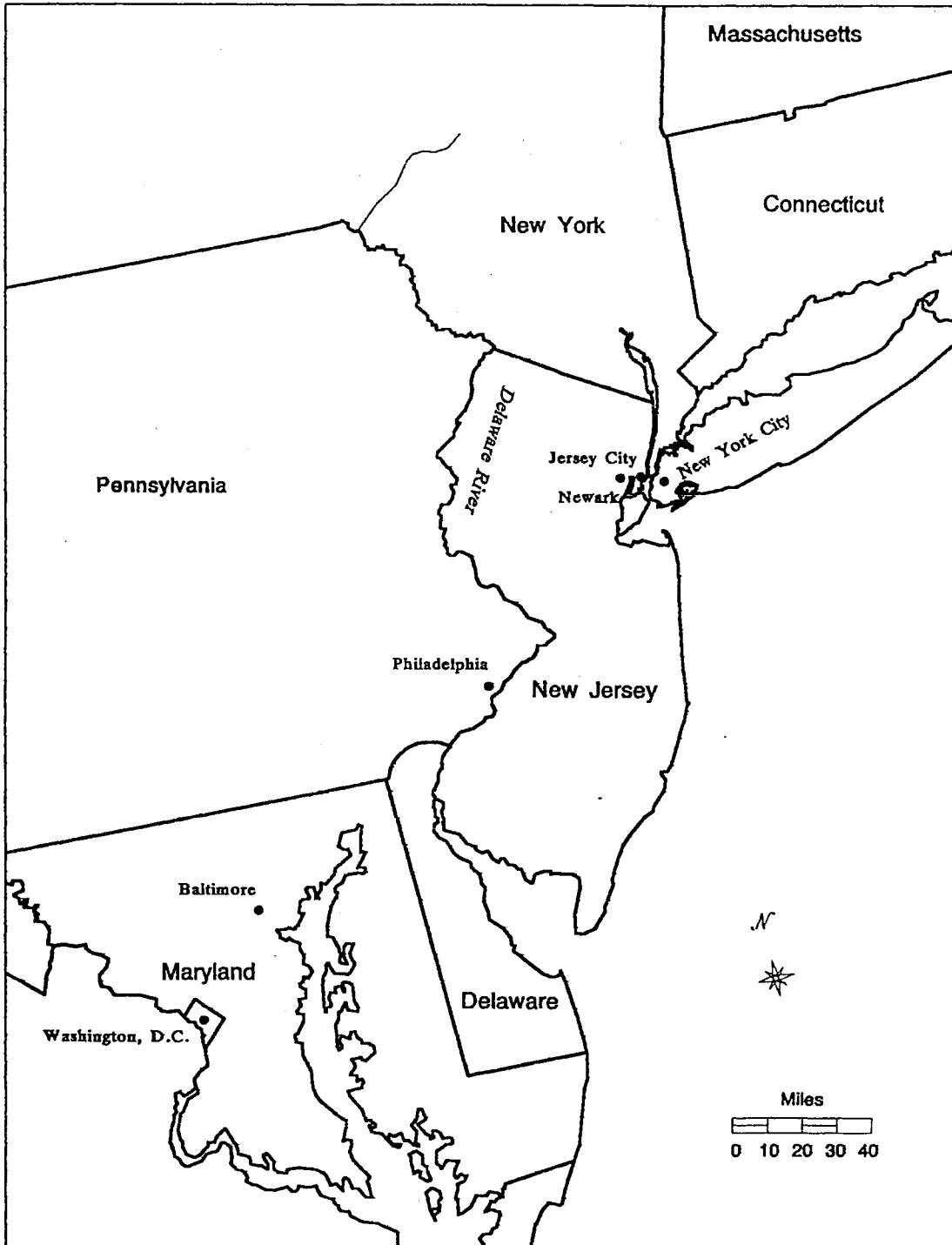


Figure 13: The Delaware River

The basin encompasses only 12,765 square miles, but the river system provides municipal and industrial water to over 20,000,000 people<sup>87</sup>. One-half of New York City's daily water supply comes from the basin<sup>88</sup> even though New York City is in the Hudson River Basin, not the Delaware. The Philadelphia metropolitan area is the largest within the Delaware basin. The large population and heavy industry of the area led to serious problems in water quality in addition to raising disputes over allocation<sup>89</sup>.

In the first half of this century, before the compact was signed in 1961, the Supreme Court had divided the water by decree. New York City was looking to the Delaware for a supply, and New Jersey and Pennsylvania objected. In 1931, the Supreme Court decreed that New York City was allowed to take 440 million gallons (1,350 acre feet) per day, with a requirement that minimum flows be maintained at specified points downstream<sup>90</sup>. The decree was modified by consent of the states in 1954 to allow New York City to increase diversions by stages to 800 million gallons (2,454 acre feet) per day, with New Jersey being allowed to divert an additional 100 million gallons (307 acre feet) per day out of the basin<sup>91</sup>.

The Supreme Court decree was not the only constraint on water use within the basin. At the time the compact was signed, forty-three state, fourteen interstate, and nineteen federal agencies all had some role in planning and administering the waters of the basin. To eliminate some of the administrative confusion which resulted, the compact established the Delaware River Commission<sup>92</sup>.

The commission has five voting members, one from each state and one

representing the federal government. A simple majority vote is required for commission action, except as to matters affecting the Supreme Court decrees, which require unanimity among the states which were parties to that litigation<sup>93</sup>. This arrangement can be contrasted to the western compacts discussed in Chapters 3 through 12, where unanimity is generally required for any action.

The commission has enormous power. It is declared to be "an agency and instrumentality of the governments of the parties,"<sup>94</sup> and is given the authority to develop and carry out "plans, policies, and projects" relating to the water resources of the basin<sup>95</sup>. That authority includes the power to allocate water among the states, within the limits of the Supreme Court decree<sup>96</sup>. In contrast to the western compacts, where the allocations were negotiated as core elements of the compacts, the Delaware compact leaves that matter to the commission. The commission's power is further enhanced by the requirement that no projects affecting water resources within the basin can be constructed or operated without the approval of the commission; even the states themselves cannot undertake projects within their own boundaries without that approval<sup>97</sup>. In simplest terms, the states have ceded their authority over Delaware Basin water to the commission.

The federal government, although also a party to the compact, has not ceded *its* power over the river, or at least has not ceded it in the same way as have the states. The commission cannot, for example, undertake any project which would require the expenditure of federal funds without advance approval of Congress. Even more significant, however, is the inclusion of a reservation of right of withdrawal

which makes the reservation in the western compacts pale by comparison:

Nothing in this compact shall be construed to relinquish the functions, powers, or duties of the Congress of the United States with respect to the control of any navigable waters within the basin, nor shall any provision hereof be construed in derogation of any of the constitutional powers of the Congress to regulate commerce among the states and with foreign nations. The power and right of Congress to withdraw the federal government as a party to this compact or to revise or modify the terms, conditions and provisions under which it may remain a party by amendment, repeal, or modification of any federal statute applicable thereto is recognized by the signatory parties<sup>98</sup>.

This disclaimer casts some doubt on just how well the compact resolves and settles federal-state differences because the federal government has basically reserved the right to continue to do whatever it thinks is appropriate. The states are bound by the compact; the federal government is not. If it disagrees with actions of the commission, the federal government can simply withdraw.

The status of the federal government as *primus inter pares* (in addition to weakening idea that the federal government is bound by the compact) fits in well with the concept of cooperative federalism. Cooperative federalism, popular from the

1930s into the 1960s, posited that the divisions between state and federal power were no longer significant; instead, government was viewed as more of a marble-cake of jurisdictions, with the focus on administrative methods of achieving goals rather than the question of just which government level had the power to determine those goals<sup>99</sup>. Proponents of cooperative federalism, such as Grad (1963)<sup>100</sup>, argued that it was futile to think in terms of divisions of power; the issues to be addressed involved the methods to be used to accomplish governmental goals.

This "cooperative" approach used in the Delaware Basin represents a radical departure from the approach used in most western allocation compacts. The western compacts involve the states as central players, and where commissions are created, their authority is generally limited so that no state can be compelled to take action or be barred from action against its will (at least by the commissions; the Supreme Court may be called upon to resolve disputes.) In most cases, if there is a federal representative, he has no vote. The greatest divergence is in control of water within the states. Where the Delaware compact gives the Commission the power to regulate water use without regard to state boundaries, the western compacts are focussed on the interstate relations, with the states being given full authority within their own boundaries, subject to the compact allocations. The Upper Colorado River Basin Compact succinctly expresses the basic idea:

The provisions of this compact shall not apply to or interfere with the right of any signatory State to regulate within its boundaries the appropriation, use and control

of water, the consumptive use of which is apportioned  
and available to such State by this compact.<sup>101</sup>

The contrasts between the Delaware compact and the western compacts may be due in part to the contrast in geographic settings. The western states at the time of compacting were (and in many cases still are) sparsely populated, and the primary use of water is for irrigation. The Delaware, on the other hand, flows near or through "Megalopolis", a highly urbanized region where the primary uses of the river are navigation and municipal-industrial supply. Metropolitan areas cross state lines in the Delaware basin; transboundary urban areas are rare in the west. As Professor Trelease noted in 1974, there are historic and hydrologic differences between eastern and western states<sup>102</sup>, and water institutions suitable for one may not always fit well in the other without some alteration.

The Delaware model may be suitable for use in river basins where state boundaries have been largely erased by development and urbanization is dominant. The model may meet with more resistance in the west where states have a long history of defending their rights to water and maintaining control of water within their borders.

### Coerced Compacts

One final way of "reconciling" divergent state and federal interests in water resources is what Heron (1985) has called "Congressionally coerced agreements<sup>103</sup>." He focussed on the Pacific Northwest Electric Power Planning and Conservation Act



(NPPA)<sup>104</sup>, by which Congress authorized the states of Washington, Oregon, Idaho, and Montana to establish a regional agency known as the Pacific Northwest Electric Power and Conservation Planning Council. The four states subsequently enacted legislation authorizing their governors to appoint representatives, and the council came into being<sup>105</sup>.

The council was created in part to counterbalance the authority of the Bonneville Power Administration (BPA), which is charged with production, marketing, and distribution of power in the Pacific Northwest, including the power from numerous dams on the Columbia River system. The Planning Council's mandate is to prepare a conservation and electricity usage plan for the region served by BPA and to develop a program for energy planning consistent with regional environmental and ecological concerns<sup>106</sup>.

This interstate agency was found by the Ninth Circuit Court of Appeals to be the product of an interstate compact in Seattle Master Builders Association v. Pacific Northwest Electric Power and Conservation Planning Council (1968)<sup>107</sup>. That litigation challenged the authority of the planning council on the grounds that the council was actually a federal agency, not a state or interstate agency, and that therefore the members had to be appointed by the president rather than the governors of the states. The challenge to the compact status of the council stemmed from the fact that it was not created by an agreement among the states which was then taken to Congress for approval; rather, Congress wrote a detailed compact (about 40 pages worth), and then invited the states to sign it. If the states had not done so, a federal

agency would have been established to perform the same functions. It is this "or else" alternative which led Heron to refer to the council as being the result of congressional coercion.

The end result of the NPPA was the delegation to the compact agency of powers which could have been exercised directly by federal officials. Use of the compact mechanism allowed the members of the council to be appointed by the states, thus providing for local control. The compact may not have been created in the traditional manner, but according to the Ninth Circuit that made it no less a compact. The NPPA is said, by those who favored creation of the council, to represent a new innovation in the use of compacts to allow for regional control of regional problems, but with strong federal influence from the outset in the form of compact terms and powers<sup>108</sup>.

While the NPPA focussed on the Columbia River system in terms of environmental and energy demands, the same process could be applied to water allocation. If Congress decided that it wanted to apportion the water of a river between two states, but for political reasons wanted to have the allocation take the form of an agreement between states rather than a mandate from Washington, it could write a compact with the allocation built in. It then could tell the affected states that they could either sign on as compacting parties and retain some influence over river management or else have a federal river master appointed. Such a procedure would allocate the water by compact, but it would not necessarily reflect the same solution which might have been reached through negotiations between the states involved.

The "meeting of the minds" which underlies the law of contracts exists only in a highly attenuated form in such compacts. Future years could see problems develop if the arrangements fail to reflect what would have been agreed upon absent the Congressionally imposed constraints.

### Federal Regulation

Aside from federal interests in water based on reserved rights or federal water projects, federal authority also affects compact allocations through federal environmental laws and regulations. These effects are fairly new, and many of the laws did not exist at the time most of the compacts were made. Application of those laws and regulations today can result in additional strain being placed on compact allocations. Water which would have been used for irrigation or other beneficial consumptive use is now required to be left in streams to maintain environmental quality or preserve some endangered species of fish or other wildlife.

The earliest federal regulations were grounded in the commerce clause, and were based on the need to maintain free navigation on the nation's waterways. The use of navigation as a justification for river regulation was stretched over time to include rivers which were clearly non-navigable, such as the Rio Grande and Colorado. Much of the work of the Corps of Engineers is still focussed on this navigation function, but current federal regulations extend far beyond anything connected to navigation or commerce. Included among these are various environmental protection statutes.

The catalogue of federal environmental laws continues to grow, and any of these laws could conceivably generate rules or regulations affecting the ability of states to use water allocated by compact. Three such laws — the Multiple-Use Sustained-Yield Act of 1960<sup>109</sup>, the Endangered Species Act<sup>110</sup>, and the Federal Water Pollution Control Act<sup>111</sup> — can be used to illustrate the potential conflict between federal statutes and regulations and compact allocations.

Much of the difficulty posed by the federal environmental regulation stems from the fact that the environmental laws generally call for instream use of the water, either as habitat for endangered species, or for recreational or aesthetic purposes. The compacts, on the other hand, are focussed on beneficial consumptive use, which implies withdrawal and depletion of the water. While return flows from some diversions may help maintain in-stream flows, the focus on withdrawal for beneficial use which is at the heart of western appropriation law and compact allocations is often incompatible with demands for instream flow maintenance.

#### Multiple-Use Sustained-Yield Act

The Multiple-Use Sustained-Yield Act of 1960 states that it is the policy of Congress that national forests were established and are to be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes<sup>112</sup>. The reference to recreation, wildlife, and fish presents a conflict with interstate allocation compacts. To the extent that the federal government is able to establish a reserved right to instream flows, the amount available to citizens of the state for off-stream

consumptive use is limited.

The scope of federal claims to instream flow was narrowed by the Supreme Court in its 1978 decision in United States v. New Mexico<sup>113</sup>. That case involved a claim by the federal government to water allegedly "reserved" for all these purposes with the creation of the Gila National Forest. The Court disagreed, finding that the forest had originally been created for timber and watershed management, not for recreation and wildlife. The federal government could acquire water rights for those additional purposes, but these rights would not be reserved rights and would be subject to the basic priority rules found in western water law. The Secretary of the Interior in response to the Court's rejection of the reserved rights claim tried to claim non-reserved water rights appurtenant to federal lands to meet these other needs; that action was rescinded in 1981<sup>114</sup>.

This statute nevertheless remains a potential problem for those compacts which allocate water based on beneficial consumptive use. Instream flow maintenance and beneficial consumptive use are not always compatible, and a statute such as this which calls, explicitly or implicitly, for maintenance of such flows poses a threat to the allocations established by compact. Even in the absence of this statute, the federal claims on streams and rivers flowing through national forests are the focus of controversy. The Organic Act of 1897<sup>115</sup> provided that one reason for creating national forests was to secure "favorable water flows." The Forest Service has

pursued that mandate by claiming rights to up to half of normal stream flows for purposes of channel maintenance to promote these "favorable" flows. The issue is before the courts<sup>116</sup>.

### Endangered Species

The Endangered Species Act is designed to protect and preserve ecosystems on which endangered and threatened species depend<sup>117</sup>. To the extent that rivers comprise part of the habitat for these endangered species, the use of those rivers can be controlled by the Secretary of the Interior to protect that habitat, even if the means of control results in upsetting the allocation system under a compact. The problem here is not merely hypothetical. The Navajo Dam on the San Juan River is operating in accordance with a recovery plan aimed at protecting endangered species of fish<sup>118</sup>, and in the Klamath Basin, irrigation interests were faced with a challenge to their compact priorities when it was felt necessary to maintain lake levels at a higher level to protect endangered species<sup>119</sup>. On the Rio Grande, there is serious concern that a protection plan for the silvery minnow will prevent use of the low-flow channel. Without use of that channel, New Mexico may not be able to meet her obligations for delivery of water into Elephant Butte.

Other cases have also arisen, or are looming on the horizon. On the Klamath, downstream interests want river flows maintained for the benefit of salmon. The same is true on the Snake. There have been rumors of endangered fish on the Pecos, which already has more than its share of problems. The Platte in Nebraska provides habitat

for a number of endangered waterfowl, including the whooping crane.

If the presence of one of these endangered species makes it impossible for a state to comply with a compact or renders the river useless to one of the states because it cannot withdraw its share of the water, what will happen? The Rio Grande may provide a test case. One possibility is that the states could argue that in essence, the federal government has taken the water from the users within that state for the benefit of the fish. This taking could be compensable under the Fifth Amendment. The compacts would have to yield to the subsequent federal law (the Endangered Species Act), but the federal government might have to pay for the resulting losses.

Alternatively, one or the other of the states involved might claim impossibility of further performance, or excuse by impracticability, and so claim that the compact obligations are at an end. If the compact is indeed voided in such a case, confusion can be expected until a court decides on equitable apportionment or the states reach a new agreement on division of the river.

#### Federal Water Pollution Control Act

While the Clean Water Act is generally thought of as relating to quality rather than quantity of water, it also refers to quantity. The amount of water in a river or stream can have a direct bearing on the quality of that water. Section 1252(b) of the act, for example, states that regulation of streamflow as it relates to water quality should be considered as a factor in planning federal water projects<sup>120</sup>. Again, there is a potential conflict where the compacts are based on beneficial consumptive use, off

stream, and the statutes require that water be left *in* stream for quality maintenance. Some of the compacts make some reference to pollution and the need to maintain flow for water quality standards, but in general, the idea of instream flow maintenance for quality purposes runs counter to the general allocations, which are based on off-stream use.

### Compacts and Commerce

Interstate compacts allocate water by negotiation and politics rather than through market forces. To the extent water is considered just a resource and an article of commerce, allocation by compact is contrary to the Supreme Court's recognition of a nation-wide free market based in the Commerce Clause of the Constitution<sup>121</sup>.

Under the Constitution, the power to regulate interstate commerce resides with Congress<sup>122</sup>, and a long line of Supreme Court cases has emphasized that states are not to erect any sort of barriers to free commerce across state lines. As the Court put it in H. P. Hood and Sons Co. v. DuMond, the intent of the Constitution is to avoid the "economic Balkanization" of the country<sup>123</sup>.

This principle, however, was not thought to apply to water (at least, not by the states). As discussed at the beginning of this chapter, the states believed that they owned the water and could regulate it as they saw fit. Anti-water-export statutes<sup>124</sup> were common prior to Sporhase<sup>125</sup>, and since Sporhase, state legislatures have worked to amend their statutes to bring them into compliance<sup>126</sup>. There was strong precedent for such anti-export laws. In 1908, Justice Holmes in Hudson County Water



Co. v. McCarter had written for the Court that states could bar exports because state water allocation was exempt from the limitations of the "dormant" commerce clause.

Seventy-four years later, the Court decided it had been wrong. In Sporhase it held that water was an article of commerce. States are not allowed to discriminate against commerce, so the anti-export laws became immediately suspect. Sporhase did not, however, put an end to all state export restrictions. The Court also held that a state under certain limited circumstances *could* limit water exports. States are recognized as having the power to regulate the use of water in times and places of shortage for the purpose of protecting the health (but not the economy) of its citizens. The Court noted that the water as a resource "has some indicia of a good publicly produced and owned in which a state may favor its own citizens in times of shortage<sup>127</sup>." Conservation and preservation may also be acceptable state purposes justifying an anti-export rule. The Court also noted that a "demonstrably arid state conceivably might be able to marshal evidence to establish a close means-end relationship between even a total ban on the exportation of water and a purpose to preserve and conserve water<sup>128</sup>."

Although Sporhase may have weakened some statutory barriers to interstate marketing, others remain; among these are the interstate compacts. States cannot discriminate against interstate commerce, but Congress can. When a compact allocating interstate stream flow has been approved by Congress, it may be argued that Congress has in effect approved restrictions on transboundary marketing<sup>129</sup>. The Supreme Court alluded to compacts in Sporhase in language which could be construed

to hold that Congressional approval of compacts does not indicate Congressional intent to remove commerce clause constraints from the states<sup>130</sup>, but there is no clear holding to that effect.

The division of water by compacts is among the states, not among private rights holders. The states normally retain the power to control the allocation and use of that water within their own borders. The converse is also true: if a state gives up some claim to water through a compact, private rights holders cannot claim a right greater than that of the state<sup>131</sup>. If the state is barred from selling or transferring water out of the basin, a private rights holder would be similarly prohibited.

The effect of these compacts as barriers to interstate water marketing can be shown by actual examples, using the Colorado, Yellowstone, and Rio Grande rivers.

In the Colorado basin, the lower states, especially Arizona and California, grew more rapidly than those of the upper basin, and the lower basin states are now faced with water shortages. Los Angeles and San Diego, for example, are continually looking for increased supplies<sup>132</sup>. At the same time, the Upper Basin has not made full use of its allocation. It seems to be a situation ideally suited to water marketing: the upstream states have excess water, the downstream states want to buy more water, and the "plumbing" to transport the water is already in place. The possibility has not been lost on entrepreneurs, who have developed at least two large-scale schemes to make such transfers. In the early 1980s the Galloway Group, a Colorado corporation, proposed to spend \$230,000,000 in private capital to create new reservoir storage and supply several hundred thousand acre feet of water per year to Southern California,

and even signed an option agreement with San Diego. The project never got off the ground, in part because of hostility from the Upper Basin states<sup>133</sup>. A more recent proposal, by Resource Conservation Group, Inc., has been designed to overcome some of the bases for that hostility, but even if the politics of the matter are improved, the Colorado River Compact itself may make any such transfer illegal<sup>134</sup>.

The Colorado River Compact provides that each basin is to be allocated 7.5 million acre feet per year for "exclusive beneficial consumptive use" within that basin. The negotiating history seems to make clear that the intent of the states at the time of the compact was to prevent transfers between the upper and lower basins<sup>135</sup>. Even if one of the upper basin states wanted to approve a transfer of a water right by a private holder to someone in the lower basin, legally it might not be able to do so.

The effectiveness of compacts as barriers to commerce in water has been litigated on both the Yellowstone and the Rio Grande. In the case of the Yellowstone, the courts found that the compact barred exports, absent approval of the states. In the case of the Rio Grande, the court found that the compact was inapplicable to the facts of the case, and so did not provide a barrier.

The Yellowstone suit grew out of the coal mining boom in the Powder River Basin of Wyoming and Montana. "Powder River Basin" was in some cases a misnomer, because many coal mines were actually situated in the Belle Fourche Basin<sup>136</sup>. The Yellowstone Compact forbids exports of water out of the basin absent unanimous consent by the three states, and that consent was not given. The company which sought to export the water filed suit, claiming among other things that the

export ban amounted to an unconstitutional restraint on interstate commerce.

Both the District Court and the Ninth Circuit Court of Appeals rejected the argument<sup>137</sup>. The judges found that while the bar might be unconstitutional if done by a state acting on its own, this case was different because Congress, in approving the compact, had authorized the states to act this way. The underlying principle, which has been recognized by the Supreme Court in other cases, is that Congress may use its commerce power to confer upon states the ability to restrict the flow of interstate commerce which the states would not otherwise enjoy. The key issue is determining whether Congress intended to grant such dispensation<sup>138</sup>.

The importance of determining whether Congress did so intend was illustrated on the Rio Grande. The city of El Paso, Texas, has for years been attempting to drill wells in New Mexico (between Elephant Butte Dam and the state border) and transport the water from New Mexico into Texas to augment the El Paso water supply. New Mexico has resisted vigorously, and the case was argued in federal district court. Among other things, New Mexico argued that the Rio Grande Compact made a complete allocation of all water of the Rio Grande, including the groundwater which El Paso sought to take from the Rio Grande valley, and that El Paso had no right to water beyond that which the compact required to be sent downstream from Elephant Butte.

In this case, the argument was rejected<sup>139</sup>. The court found that the compact neither apportioned the water between New Mexico and Texas (as noted in Chapter 5, the division is at Elephant Butte for benefit of all users below the dam whether in

Texas or New Mexico) nor did it apportion groundwater, even hydrologically connected groundwater. The compact simply did not address the issues being litigated, and so provided no relief from a claim of interference with interstate commerce. Whether and to what extent a compact will allow interstate commerce to be burdened will depend on the particular language of the compact.

It ought to be recognized that compacts may aid commerce as well as hinder it. Water rights held by individuals have no greater certainty than the rights of the state which granted the rights. If the state's position is uncertain or is threatened by the possibility of loss through a new equitable apportionment, the value of those rights is lessened. As Tietenberg (1992)<sup>140</sup> notes, an efficient market requires a well-established system of property rights, and compacts can be a major factor in establishing those rights to western water. Trelease urged this idea in 1974, certainty of property rights in water is a key to providing for flexibility in use and allocation of water because as property rights, water rights can be sold or otherwise transferred to more economically efficient uses. If rights are uncertain, these transfers are less likely to take place<sup>141</sup>.

Where there is no formal compact, the doctrine of equitable apportionment, articulated by the Supreme Court in 1907 in Kansas v. Colorado<sup>142</sup>, supplies the rule for allocation, and "equity" can change with time. Rights which may appear to be secure now may not be so if a later apportionment awards that particular water to the other state. The possibility that the equities, and therefore the apportionment, may change was made clear by the Supreme Court in litigation between Colorado and New

Mexico over rights to the Vermejo River. The Court held that it was proper to weigh the harms and benefits to the competing states, and noted that this balance might change with time<sup>143</sup>. The net result is an additional uncertainty as to the permanence of the water right, which adds an additional element of risk to the purchase of any such right.

Water rights can be no more valid than the title of the entity which granted the right in the first place, and western water rights are generally granted, or recognized and enforced, by state governments. To the extent those states did not have the rights to the water *ab initio*, however, or the right of the state is lost through a subsequent equitable reapportionment, the "property" right embodied in the water right is not as unassailable as might be hoped for an efficient market.

The compacts provide a way of knowing which state has the authority to grant rights to use a particular body of water. That authority is the basis for creating a property right with sufficient definition to support a market, either in-state or out of state. Interstate compacts may be barriers to interstate commerce, but they may also be a necessary predicate to the functioning of any market, since they provide the certainty needed to know what is actually being bought and sold.

### Summary

While the bulk of interstate water allocation questions involve horizontal issues between states, the federal dimension cannot be ignored. Because of their concurrent jurisdiction, neither the states nor the federal government has a free hand in

determining how the water of a river is to be allocated, and a comprehensive allocation is not possible without taking both state and federal claims into account.

From a practical standpoint, the key difficulty is binding the federal government to any allocation. Under the Supremacy clause, Congress can legislate to do what it wants with water so long as the goal is somehow related to commerce or another constitutional power, and it is hard to imagine any matter dealing with an interstate stream which could not be brought under one of the constitutional categories. Various methods have been tried, but none seems entirely satisfactory, particularly where Congress has reserved its right to change its mind. Perhaps the best that can be hoped for is something similar to the provisions in the Klamath, Belle Fourche, and Republican compacts, which recognize that Congress will always have the power to modify its former legislation but which also require just compensation for any water rights holder who is injured as a result.

## Chapter Notes

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3. 53 U.S. (12 How.) 299 (1851).
4. A. Hostyk, "Who Controls the Water? The Emerging Balance Among Federal, State, and Indian Jurisdictional Claims and Its Impact on Energy Development in the Upper Colorado and Upper Missouri River Basins," *Tulsa Law Journal* 18 (1982): 1-78. See also Frank J. Trelease, "A Fable", in *Cases and Materials on Water Law; Resource Use and Environmental Protection* (St. Paul: West Publishing Co., 1974), 815-816.
5. Hinderlider v. La Plata and Cherry Creek Ditch Co., 304 U.S. 92 (1938).
6. A. Dan Tarlock, *Law of Water Rights and Resources* (New York: Clark Boardman Company, Ltd., 1990), Chapter 5. In some states, such as California and Oklahoma, riparian and appropriative rights co-exist, though not without some confusion. See Franco-American Charolaise, Ltd. v. Water Resources Board, 855 P.2d 568 (Okla. 1990).
7. 22 U.S. 1 (1824).
8. Arizona v. California, 298 U.S. 555, 569 (1936).
9. 209 U.S. 349 (1908).
10. 458 U.S. 941 (1982).
11. 295 U.S. 142 (1935).
12. 14 Stat. 251 (1866).
13. 16 Stat. 217 (1870).
14. 19 Stat. 377 (1877).
15. A. Dan Tarlock, *supra*, n. 6, § 5.03[5].
16. California v. United States, 438 U.S. 645, 653 (1978).



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27. Raymond A. Hill, "Development of the Rio Grande Compact of 1938," *Natural Resources Journal* 14, no. 2 (1974): 163-99.
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30. Ibid., at 70.
31. 63 Stat. 145, 152, § 2 (1949).
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35. Texas v. New Mexico, 352 U.S. 991 (1957); Texas et al. v. Colorado, 386 U.S. 901 (1966).
36. Arizona v. California, 283 U.S. 541 (1931); 373 U.S. 546 (1963); 439 U.S. 419 (1979); 460 U.S. 605 (1983).
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41. Marion Clawson, *New Deal Planning: The National Resources Planning Board* (Baltimore: Resources for the Future, 1981).
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50. Consent to Sabine River Compact, 68 Stat. 690, 697, § 2. The language in the other two compacts, while not identical, is not materially different.
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52. 306 F.2d 273.
53. See generally 73 *Am. Jur.* 2d, Statutes, § 378.
54. Sierra Club v. Froehlke, 816 F.2d 205 (5th Cir. 1987).
55. Bowen v. Public Agencies Opposed to Social Security Entrapment, 477 U.S. 41 (1986); Perry v. United States, 294 U.S. 330 (1935); Security Federal Savings and Loan v. Federal Savings and Loan Insurance Corp., 796 F.Supp. 1435 (D.N.M. 1992).
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59. Amended Bear River Compact (Article XIII); Canadian River Compact (Article X); Colorado River Compact (Article VII); Klamath River Basin Compact (Article IX); Rio Grande Compact (Article XVI); Snake River Compact (Article XIV); Upper Colorado River Basin Compact (Article VII); Upper Niobrara River Compact (Article IX); and Yellowstone River Compact (Article VI).
60. Yellowstone River Compact, Article VI.

61. 207 U.S. 564 (1908).
62. The eleven are the Arkansas River Compact (Colorado-Kansas) (Article IX); Arkansas River Basin Compact (Kansas-Oklahoma)(Article XIII); Arkansas River Basin Compact (Oklahoma-Arkansas) (Article XI); Bear River Compact (Article XIII); Belle Fourche River Compact (Article XIII); Kansas-Nebraska Big Blue River Compact (Article 7.2); Klamath River Compact (Article XI); Pecos River Compact (Article XI); Republican River Compact (Article X); Snake River Compact (Article XIV); Upper Colorado River Basin Compact (Article XIX); Yellowstone River Compact (Article XVI).
63. Republican River Compact, Article X (a). The language is not identical in all compacts, but the general tenor effect is the same.
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65. Amended Bear River Compact (Article XIII); Belle Fourche River Compact (Article XIII); Canadian River Compact (Article X); Klamath River Compact (Article XI); Pecos River Compact (Article XI); Republican River Compact (Article X); Snake River Compact (Article XIV); Upper Colorado River Basin Compact (Article XIX); Upper Niobrara Compact (Article IX); Yellowstone River Compact (Article XVI).
66. 4 Wheat. 316, 4 L.Ed. 579 (1819).
67. Republican River Compact, Article X (c).
68. Amended Bear River Compact (Article XIII); Belle Fourche River Compact (Article XIII); Canadian River Compact (Article X); Kansas-Nebraska Big Blue River Compact (Article 7.2); Klamath River Compact (Article XI); Pecos River Compact (Article XI); Republican River Compact (Article X); Snake River Compact (Article XIV); Upper Colorado River Basin Compact (Article XIX); Upper Niobrara River Compact (Article IX); Yellowstone River Compact (Article XVI).
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71. Republican River Compact, Article XI; consent by Congress found in Act of May 26, 1943, 57 Stat. 86, § 2; Belle Fourche River Compact, Article XIV; Congressional consent found in Act of February 26, 1944, 58 Stat. 94, §2.

72. T. Richard Witmer, *supra*, n. 46, p. 39.
73. Arkansas River Basin Compact (Kansas-Oklahoma), Article VII (b); Arkansas River Basin Compact (Oklahoma-Arkansas), Article VI (b); Pecos River Compact, Article XII; Red River Compact, Article 2.02; Upper Colorado River Compact, Article VII.
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75. Boulder Canyon Project Act, 45 Stat. 1057, 1062, § 8 (1928).
76. 70 Stat. 110, 43 U.S.C. § 620m (1957).
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92. Frank P. Grad, *supra*, n. 86.
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124. See, e.g., §37-81-101(3)(a), Colo. Rev. Stat. (1984 Cum. Supp.); §72-12-19, NMSA 1978; §46-613.01 Nebr.Rev. Stat. (the law overturned in Sporhase).
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128. 458 U.S. at 958.
129. Intake Water Co. v. Yellowstone River Compact Commission, 590 F.Supp. 293 (D.Mont. 1983), aff'd 795 F.2d 586 (9th Cir. 1985).
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## CHAPTER 14

### CONCLUSIONS AND RECOMMENDATIONS

Rivers and river basins are unique. Geographic settings vary from river basin to river basin. As the Appendix shows, the discharge of the twenty-two compact rivers ranges from a few thousand to many millions of acre feet per year. A compact which is successful in one basin may be inappropriate in another. Nevertheless, some lessons may be learned by reviewing the operation of the twenty-two western water allocation compacts.

#### Administration

Variation in historical and geographical context requires variation in compact administration. The Upper Colorado River Basin Compact, for example, requires more monitoring and active administration than does the Upper Niobrara Compact. No particular form of administration appears superior to others. A formal administrative agency may not be needed if only two states are involved and the stream is small. The La Plata is an example of a compact which has functioned well without an active commission.

On the other hand, as more states are involved and the quantities of water become greater, a more structured administration may be an advantage. The Colorado

River Compact has survived without a formal administrative agency, but representatives of the affected states still meet frequently to discuss matters of mutual concern, such as shortages faced by lower basin states. A commission would be useful if for no other purpose than to function as an information clearing-house. It might also serve as an effective lobbying device, allowing the compact states to speak with a unified voice, rather than as seven separate entities.

In drafting compacts, attention should be paid to the functions a commission would serve based on the obligations of the states under the compact. If the sole purpose of the compact is a simple division of a small stream between two states, the need for a commission is minimal; the states can obtain the needed information from the USGS, and use the telephone on an *ad hoc* basis to deal with issues which arise. If the compact involves a larger stream or more than two states or requires action on matters beyond simple division of water (such as water quality maintenance), a commission with defined operating functions may be more necessary. The more states which are involved, the more useful a commission is likely to be in providing a central forum for consideration of compact-related issues.

#### Dispute Resolution

In any contract, including interstate compacts, the possibility of disagreement over contractual rights and obligations must be considered. If there is a commission, it is the logical first forum to be used in resolving disputes. If there is no commission, disagreements may still be discussed, but without the same formal

structure.

The parties may not always be able to resolve their differences by agreement or compromise. In those cases, some other dispute resolution mechanism is needed, and four basic options are available: non-unanimous vote; a casting vote by a commission member who normally does not vote; arbitration; or litigation. Each has advantages and disadvantages, and the choice is as much a matter of political philosophy as of contract draftsmanship. The first three require a surrender of state power to some compact authority or third person. In matters affecting so vital a resource as water, states may be loathe to cede control, and the scarcer the water, the more difficult it may be to obtain such a concession. Water users who lose water as a result of such a third-party decision are likely to feel sold out by their state government.

#### Non-unanimous Vote

Using a majority or non-unanimous vote among parties to the compact has a major drawback in many compacts: it requires that there be more than two parties. It is not an option in an agreement between only two states, unless each state has more than one vote and those who cast the vote are permitted to cast them independently.

If more than two states are involved, the compact can be drafted to permit a majority or less than unanimous vote to prevail to resolve any disagreement. Several of the compacts incorporate this procedure, but its scope is limited by the powers granted to the commissions, and the commissions have no power to change the basic allocations of water.

The Upper Colorado Basin Compact allows action to be taken on the vote of four of the six members of the commission, but any change in the way of measuring the amount of water available to the states under the apportionment provisions of the compact requires a unanimous vote<sup>1</sup>.

The Bear River Compact requires a two-thirds vote of those commissioners present to take action<sup>2</sup>. Since each state has three commissioners, three states are parties to the compact, and a quorum consists of at least two commissioners from each state, different combinations of votes could result in one state "losing" in the commission. The initial compact allowed for adjustment of storage rights in the upper basin upon agreement of the commissioners for Utah and Wyoming and ratification by those state legislatures, but Congress added a requirement that Congressional consent also be obtained for such modification<sup>3</sup>. The powers of the commission do not include any modification of flow allocations.

The Red River Compact also allows for less than unanimous action, but again, the scope of authority is limited. Vested water rights cannot be impaired without a unanimous vote<sup>4</sup>.

In each of these compacts, the states have given up some authority to the commission, but on the central issues of the compacts, the allocation of the water, the states have maintained a veto. Only in the Delaware River Basin Compact have the states given *carte blanche* to the compact commission. That ceding of authority is contrary to the positions taken by the western states in their compacts.

The difference is political and philosophical. States which have agreed to

divide water in the west have retained control of that water within their boundaries, and have limited the scope of compact commission authority to peripheral matters. Whether this policy of retaining control is viewed in terms of federalism, states rights, or suspicion of other states does not really matter; the policy exists, and it makes the "non-unanimous" option ineffective for resolution of major disputes.

### Casting Vote

Several compacts have non-voting federal representatives. In two of those, the Yellowstone and Snake River Compacts, that representative can vote if necessary to break a tie. As noted in the discussion of those compacts, the federal representative on the Yellowstone, representing the USGS, has indicated that he will not do so because he does not wish to take sides with one state against another. The same response could be anticipated on the Snake should the issue ever arise.

The USGS concerns go to the heart of the problem of endowing a federal representative with a casting vote. That vote will have political ramifications as one state wins and one loses. A non-political agency such as the USGS would prefer to avoid that political entanglement. The situation would only be marginally different if the casting vote resided with a presidential appointee. The political fallout would still be present but would then reside in a more politically oriented segment of the government. The president must make political choices often, but making a choice of one state over another on an issue such as water could create political resentment, and lobbying to one degree or another could be expected in efforts to sway that vote. The

result could be a decision based upon political expediency rather than law or hydrology. Although the dispute may be resolved, a political resolution to a contract disagreement is inappropriate.

Even if the decision is not politically motivated, it has the effect of transferring allocation decisions from the states to the executive branch of the federal government<sup>5</sup>. This transfer raises the same sort of state sovereignty issues as are found in non-unanimous vote requirements. Because of the possibility of political motivation and the cession of allocation authority to the executive branch, the use of a casting vote as a dispute resolution mechanism should be avoided.

### Arbitration

Arbitration is similar to litigation in that a neutral decision-maker decides the case based on law and evidence. The process is therefore likely to be less offensive to states' rights adherents than the previous two options. A state is not ceding authority to a third party so much as it is placing the matter before an impartial tribunal which will proceed quasi-judicially to allow the states to present their cases.

Arbitration has gained in popularity in recent years as an alternative to litigation. It is believed by some to be more rapid and less expensive than litigation<sup>6</sup>, but in a dispute over a water compact, it could be expected that similar sums would be spent on lawyers and experts regardless of the forum. Arbitration is also preferred by some who feel that arbitrators will be selected based on knowledge of the subject in dispute and therefore will render a better decision than a judge with no experience in

the particular field.

Arbitration has its critics. It has been said by some that if King Solomon had been an arbitrator, he would have cut the baby in half. Arbitrators are sometimes perceived, rightly or wrongly, to be more interested in obtaining a settlement than in enforcing the legal rights of the parties. Some consider this ability to "split the difference" a significant advantage to arbitration.

One advantage often cited for the use of arbitration is that experts on the subject can be chosen as the arbitrators. That may or may not be the case, since the appointment of arbitrators is normally governed by the arbitration agreement, and there may or may not be a requirement of expertise set out in the agreement. Although arbitrators may be chosen based on experience in the issues at hand, that does not mean that litigation is always decided by a novice. In the compact litigation discussed above, the special masters appointed by the Supreme Court to try the cases have been experts in water law and related matters. It may be possible to argue with the conclusions reached by the special masters but not with their ability.

A further drawback to arbitration is that an arbitration award must be enforced, and that requires resort to the courts. While enforcement is nearly automatic, this is nevertheless an additional step which may be required if one state or another does not agree with the arbitrator's decision. In the case of arbitration between states, the Supreme Court would probably be called upon to enter a decree enforcing the award, since no other court would have jurisdiction over the dispute (absent a special Congressional grant of jurisdiction to the district courts, as was done with the Red



River Compact.)

Taken as a whole, arbitration may provide an acceptable means of dispute resolution. It avoids some of the political concerns found in the earlier options, while providing an impartial forum. Of the four alternatives, it is one of the two best.

### Litigation

Litigation may be politically the most acceptable of the options. One of the elements of statehood is that a state is subject to the jurisdiction of the Supreme Court, so there is no additional cession of sovereignty by litigating in that forum. In addition, the Court is clothed with a perception of wisdom and impartiality, so its decisions are more likely to be accepted. The Supreme Court may make a mistake, but it is not "wrong": the law is what the Court says, and no other court can overturn that decision. So long as the Court is perceived to be an impartial judicial body, acceptance of its decisions is more likely, but as the Court comes to be perceived as more of a political, rather than legal, institution, that legitimacy declines and the advantage of resorting to litigation will diminish.

Litigation has drawbacks. Time and money are the two biggest. Litigation before the Supreme Court can take years. The Pecos lawsuit was filed in 1974, and the "final" decision (an amended decree) was handed down in 1988<sup>7</sup>. The current case between Colorado and Kansas on the Arkansas began with a motion for leave to file a complaint filed by Kansas in December, 1985. The Canadian river litigation was initiated in April, 1987, and concluded six years later with the entry of a decree

in December, 1993. On the Colorado River, Arizona filed suit in 1952, the Supreme Court issued its primary decision in 1963<sup>8</sup>, but supplemental opinions were still being issued as late as 1983<sup>9</sup>. The Supreme Court is not the forum in which to seek snap judgements, but the contentiousness underlying water disputes may be such that time is not as important a factor as it might be in other contexts.

In addition to time, litigating in the Supreme Court is expensive. New Mexico was required to pay Oklahoma and Texas \$200,000 each as partial reimbursement for attorneys fees in that lawsuit. Observers familiar with the Arkansas River litigation between Kansas and Colorado speak in terms of millions of dollars spent on lawyers and experts. The figure may be exaggerated, but it provides an indication of the sort of costs people think about in connection with Supreme Court litigation. Much of this expense would, however, also be incurred in arbitration.

Litigation in the Supreme Court will involve the appointment of a special master to take evidence, hear arguments, and present a report to the Court<sup>10</sup>. The Court's rules for dealing with an original, as opposed to appellate, proceeding are limited, being basically confined to stating that the rules of procedure for the district courts should be taken as a guide.<sup>11</sup> Beyond that the procedures are not well defined. The Court itself will not hear testimony in the case. Instead, the Court hears arguments about whether or not to adopt the report of the special master. The Court may or may not adopt the report, and often adopts part and rejects part. That procedure might make the Court's decision seem less authoritative to the public, were the public aware of it, but the end result is still a decision of the Supreme Court. The

use of special masters is probably an advantage. The Court itself has noted that the courts may be at a disadvantage in analyzing complex factual situations with many competing interests<sup>12</sup>. The justices on the Court may be completely unfamiliar with water law or water disputes, but the special masters are experts. The Court does not always avail itself fully of that expertise, however.

One potential difference between litigation and arbitration is the possibility that one state suing another state for breach of a compact could demand a trial by jury before the Supreme Court. So long as the action is legal, as opposed to equitable, the Seventh Amendment would appear to guarantee the right to trial by jury, and under current jurisdictional statutes, the only court with power to preside over the case would be the Supreme Court. Depending on one's viewpoint, the prospect of nine justices of the Supreme Court presiding over a months-long jury trial could be greeted with horror or with laughter. To date, no state in such a case has demanded a jury, but the possibility remains.

Supreme Court decrees are final, in that they are not appealable to any other court, but the Court retains jurisdiction in the case to reconsider or adjust its decree in light of future changes. The Canadian River decree entered in December 1993 is the most recent example, but the Colorado River litigation provides the longest-running demonstration of continuing jurisdiction over a dispute. If conditions change, the Court has the authority to modify its decree to meet those changed conditions. In that sense, the litigation is open-ended. As a practical matter, the initial decree usually answers the immediate question raised by the states, and lets the parties know where

they stand for purposes of future use and development of the water.

The Supreme Court is not the only court in the federal system. District courts may also provide fora for dispute resolution, provided that Congress has granted jurisdiction to hear interstate cases involving compacts. The Red River Compact was conditioned upon such a grant of jurisdiction. If the district court does have jurisdiction, it must hear the case, unlike the Supreme Court which can decline permission to file a suit, even a suit between states<sup>13</sup>.

Litigation in a district court could perhaps be less expensive, but there would probably be no special master. This could be a disadvantage if the judge were not well-versed in water matters. In addition, the perception of impartiality and fairness surrounding the Supreme Court might not be present, particularly if the judge deciding the case is a resident of one of the litigant states. Also, district court decisions are subject to appeal through the circuit courts before reaching the Supreme Court, and the Supreme Court may decline to hear an appeal. The opinion of a lower court, though legally binding, is not as authoritative as a Supreme Court opinion.

One facet of litigation which should not be overlooked during the drafting of a compact is the need for a waiver of sovereign immunity by the federal government in any case arising out of the compact. The ubiquity of federal interests in western water and the vast scope of federal land holdings in the west virtually guarantees that some federal interest will be affected by any suit between the states. A waiver of immunity will allow the courts to consider those interests in conjunction with state claims and so provide a more complete resolution of any dispute.

## Conclusions on Dispute Resolution

While it can be hoped that serious disputes will never arise out of a compact, problems have arisen from the existing compacts, and they may be expected to appear in future agreements. Drafters need to consider the manner in which they wish those disputes to be resolved. In the final analysis, litigation in the Supreme Court or arbitration present the best options. Arbitration may be cheaper and faster, but may not have the same aura of legitimacy as a Supreme Court opinion. It may also represent a forced compromise rather than a vindication of rights. Litigation in the Supreme Court is time-consuming and expensive, but the decision is final (subject to being re-opened, but only by the Court itself) and is clothed in the mantle of due process and constitutional authority.

Because disputes, if they arise, will probably arise many years after the compact is signed, it is not possible to say which route will be best at the time of the dispute. To retain the flexibility to choose either method, the states should include a non-mandatory arbitration clause in the compact. This will allow them to arbitrate, if that seems appropriate, or to go ahead and litigate. Of the four options available, arbitration and litigation are the most likely to produce a solution accepted by (if not agreed to) by water users in a state. To facilitate resolution of disputes, a waiver of federal sovereign immunity should be sought concurrently with Congressional consent to the compact.

## Method of Allocation

The specific manner of allocating water varies from compact to compact, but most can be classified as either flow or storage allocations. (The Kansas-Colorado Arkansas River allocation, based on release from a particular storage reservoir, is *sui generis*, as is the Klamath system of priorities of use.) Choice of allocation method turns on what the states want to accomplish and how they want to divide the risk of shortage.

### Storage Allocation

Storage allocation is the simpler method. Each state is limited to the amount of water which can be stored. This allows more efficient use of water because it can be conserved during flood season. The downstream state assumes the risk of water supply because it will receive only what is in excess of the upstream storage allowance, plus water originating between upstream dams and the state boundary.

The basic problem with storage compacts seems to be in drafting. The Canadian River Compact litigation centered on interpretation of compact language. The basic concept, however, is simple and easily monitored and enforced — either a dam is there or it is not, and the level of water is openly visible. Storage compacts can be used where the flow regime does not match the timing of use, so that storage is necessary for the upstream state to be able to make use of its share of the water. At the same time, the downstream state wants some assurance that at least a part of the flow will proceed downstream, either to be used directly from the stream or stored in

turn in the downstream state.

On a practical level, storage compacts require building of storage capacity, which in turn generally requires federal dollars. If there is no storage capacity available, either because of lack of storage sites or lack of funds to exploit those sites, a storage allocation compact is unlikely to be of much use.

### Flow Allocation

Not all allocation issues can be resolved by storage limitations. Simply limiting storage does not limit use of water from the river itself, and the key concern of downstream states is the amount of wet water available. Assuring a supply generally requires that the actual flow of the river be divided between the states, to account for use from either storage or direct flow.

Several methods of dividing flow have been used in the compacts, reflecting the varied contexts in which the agreements were made. These methods can be classified as proportions based on hydrologic models, percentages, guaranteed flows, and others. Implicit in the selection of a method is an allocation of risk of shortage.

### Models

In two cases, the Rio Grande and Pecos compacts, a hydrologic model was used as the basis of allocation. The hydrology of the rivers was studied to determine how much water should flow past some measuring point given a certain quantity of water flowing past some other point upstream. The model would take into account

the variability of precipitation in the river basins and the use and hydrologic condition of the rivers at the time of the compact, and divide the risk of dry years between the states. The effect is similar to a percentage allocation, but is based on a schedule which varies by total flow rather than being a straight percentage regardless of how wet or dry a year is. The states share the risk of a dry year in accordance with the schedules called for in the model.

Using a model rather than a simple percentage has the appeal of appearing to be more scientific and more attuned to actual hydrologic conditions. If the models used were completely accurate and comprehensive, the hydrology of the river were accurately described, and that hydrologic condition did not change as a result of natural causes, the use of a model might be advantageous. Unfortunately, as demonstrated on the Pecos, even the most painstakingly constructed model may later prove to be woefully inadequate. On the Rio Grande, flooding in the middle valley changed the hydrologic conditions. The presence of the silvery minnow may further affect the use of the model; the model assumes a low-flow channel, but protecting the minnow may make that assumption incorrect.

Basing the allocation on proportions established by a hydrologic model sounds like a fair and scientifically impartial method of dividing water, but the method is no better than the models used. Until comprehensive and accurate hydrologic models of river systems are developed, one of the other methods described below may be more practical.



### Percentage of Flow

Allocating the water between states based on percentage of flow appears to be a fair method. Once the states have agreed on the percentages, the risk of a dry year is borne proportionately. For example, if the allocation is 60/40 and the water supply in a dry year is only one-half of normal, the first state still receives 60 percent of the flow and the second 40 percent, even though the total quantity of water to each is reduced by one-half. The states share the risk of dry years in proportion to their allocated percentage.

One problem which may arise in this method is recognizing priorities across state lines. It could be, for example, that most of the appropriators in one of the states have priority dates well ahead of the users in the other. In a wet year, all users in both states might be able to divert water. In a dry year, however, the earlier appropriators could have had prior claim to the water absent the compact; the later appropriators in the second state might get nothing. Using a percentage distribution means that those earlier appropriators might lose water if their state's percentage is not large enough. Before, the senior appropriators in the first state might have taken 100 percent of the flow in a dry year; under the compact, they can take less. This could lead to a claim of taking of water rights for public use and demands for compensation. As the Supreme Court held in Hinderlider v. La Plata River and Cherry Creek Ditch Company (1938)<sup>14</sup>, a compact overrides state water rights and may impose a limit on the exercise of those water rights.

If the compact is negotiated before a crisis in water supply is at hand, this

result may be avoided by having the compact apply to only post-compact diversions and use. This is the approach taken by compacts such as the Belle Fourche, Yellowstone, and Snake River compacts. Pre-compact water rights are preserved as if there were no compact; post-compact appropriators take their water rights with the imputed knowledge of compact limitations and so cannot complain if those rights are affected by compact restrictions.

If it is necessary to include pre-compact rights within the compact allocations, disputes of the sort noted above might be lessened if interstate administration is provided for in the event water supplies drop below some specified level. Interstate administration in essence means ignoring the state borders and administering water rights on the basis of priority dates regardless of the state in which the appropriator diverts. Such interstate administration, however, defeats the risk allocation of the percentage division, and so it might be difficult to incorporate in a compact based upon a simple percentage allocation.

The percentage method is relatively easy to monitor, and provides a proportionate sharing of risk between the two states. It is most practical when applied only to post-allocation users, but it might be used in other circumstances. On the Bear River, for example, percentage allocations come into play *only* when there is a water emergency.

#### Guaranteed Quantities

The Colorado River Compact is the prime example of an agreement requiring

that a fixed minimum quantity of water be delivered by the upstream states. This allocation formula places the risk of natural variation in supply on the upstream states. If it does not rain, they must let the water run past their own users to reach the compact measuring station. Lower state users with late priorities may receive water ahead of upstream users with earlier priorities because the compact requires that the water go downstream.

Monitoring compliance with such a compact is simple, but the results may appear unjust, particularly to upstream users with older priorities who must watch the water go by unused. Compliance with the compact could prove to be physically impossible under extreme conditions. A series of severe drought years, for example, could mean that the upper state or states could not meet their obligations even if they did not use a drop of the river's water.

This problem might be avoided by a limited guarantee. Instead of promising that a given quantity of water will pass some particular point, the upstream state could promise to take specified actions to reduce its consumption *if* sufficient water does not pass the compact point. The South Platte Compact provides an example. Colorado is required to deliver a minimum quantity of water to Nebraska, but the requirement is not unlimited. If sufficient water is not available, Colorado agrees to take certain steps to reduce Colorado consumption in certain reaches of the river. The obligation to deliver is not absolute; instead, the risk is divided. Colorado takes the initial risk of low runoff, and must reduce her use to a point, but beyond that point, the risk is on Nebraska. This avoids making either state a guarantor of nature; both share some

of the risk of drought.

#### Other Methods

Compacts are not limited to the type of allocation described above. Specific geographic settings and historic contexts may give rise to other methods. On Costilla Creek, the allocation is essentially an interstate priority administration of diversions into irrigation ditches. The Kansas-Colorado approach to dividing Arkansas River water is unique, based on rights to water released from storage, but without a division of the stored water itself. The Klamath compact focusses on prioritizing use and preventing exports.

#### Conclusions on Allocation Methods

There is no right or wrong way to allocate water. The method used should depend on the geographic setting, the historic context, and the allocation of risk. If a compact is made before there is a water crisis and before a stream is over-appropriated, a simple percentage of flow, applicable to only post-compact users, appears to provide the best blend of risk allocation and ease of administration. If the river is over-appropriated, some form of interstate administration may be used to recognize priorities, as on Costilla Creek. Alternatively, one state may agree to deliver a specified amount of water to the other, as on the South Platte. If this latter course is chosen, the guarantee should be limited; the state undertaking the delivery obligation should not be required to guarantee against the vagaries of precipitation, but

should instead undertake to perform specific duties in a best effort to supply the guaranteed minimum. A combination of these two might also be possible, with the upstream state agreeing to take certain actions to maintain flow and then, if flow falls below the specified level, the available supply could be administered on the basis of interstate priority.

Two methods which are not recommended are the use of a schedule of proportional rights based on a hydrologic model or the unconditional guarantee of a certain quantity of water. The former is rendered suspect by the uncertainty of models; the latter imposes the risk of drought on one party in too unbalanced a fashion.

#### Comprehensive Scope

The underlying purpose of compacts is to establish rights to water on an intergovernmental level. Once that is done, use and development of the water resource is more likely because property interests in water rights are more secure. To achieve these ends, the compact should be comprehensive in scope; that is, it should encompass all the water resources of the river basin and all claims to that water. In practical terms, this means that groundwater use should be incorporated into the allocation formula, that federal claims should be quantified, and that provision should be made for dealing with export of water from the basin.

## Groundwater

Most compacts focus on diversion and use of surface flow of rivers. The Big Blue Compact is an exception, in that it requires limitations on groundwater pumping if surface flow is affected<sup>15</sup>. The Republican River Compact was probably intended to encompass groundwater withdrawal as well as surface flow<sup>16</sup>, and the Upper Niobrara provided for possible future modification to take groundwater into account<sup>17</sup>. The amended Bear River Compact also directs some attention to groundwater<sup>18</sup>. Beyond those, however, groundwater is largely ignored in the compacts.

Ignoring groundwater can pose a problem because groundwater is hydrologically connected to surface flow. In much of the west there is a net overdraft of groundwater and reduction in groundwater levels may eventually manifest itself in reduction of surface flow. The result can be a distortion of compact allocations. If, for example, a compact divides the surface flow on a percentage basis, and users in the upstream state begin to sink wells into an aquifer connected to the river, the overall surface flow may decline, and both the upstream and downstream states will share proportionately in that decline. The upstream state, however, actually could be getting more usable water than before. It gets 100 per cent of the groundwater it pumps, but bears only a part of the loss from the resulting decline in surface flow. Such a situation may be more than hypothetical; part of Kansas' claim against Colorado on the Arkansas is based on the assertion that Colorado is pumping too much groundwater and so is depleting the supply available at John Martin Dam<sup>19</sup>.

To maintain the proportions and risk allocations called for in most compacts, groundwater withdrawals must be included in the apportionment. This may not be an easy technical matter because not all groundwater withdrawals may have the same effect on the surface flow, and the timing of that effect may be difficult to determine.

If the compact allocates an absolute quantity of water, the groundwater problem is not present — the upstream state bears the entire risk whether the water is withdrawn from ground- or surface-water sources.

### Quantifying Federal Claims

Federal claims and regulations affecting water resources can take one of three general forms: navigation and commerce servitudes; environmental regulation; and reserved rights. Failure to account for these federal claims in negotiating the allocation of water could result in the allocation failing to achieve its intended purpose if the federal claims result in a state being unable to use its share of compact water. Avoiding future conflicts between compact allocations and federal claims requires that the federal claims be definitively quantified before the compact allocations are finalized. If that is done, then the compact negotiators will know how much water remains available to the states and can negotiate accordingly.

Obtaining such quantification will be difficult. Litigation has served as the mechanism for determining some of these claims. On the Colorado River, for example, a series of decrees arising out of the initial 1963 Supreme Court opinion have quantified the water rights reserved to various tribes<sup>20</sup>. State courts may also

adjudicate the scope of reserved claims. Claims of the Mescalero Apache Tribe to the Rio Hondo were recently adjudicated in New Mexico<sup>21</sup>. Such litigation, however, is time-consuming, expensive, and more importantly, is limited in scope. Only when an actual controversy reaches a court are rights to a specific river litigated. Declaratory judgement actions or suits for basin-wide adjudication may bring the matter before a court, but these actions would in turn involve other users, expanding the scope of the case beyond a determination of federal interests.

Some federal claims may not be amenable to litigation. The environmental laws present such a case. Until a law is passed, there is no way of knowing what effect, if any, it will have on pre-existing water rights. It is unlikely that any court could grant an injunction against future, unknown legislation, let alone try to determine what effect that legislation would have on water resources. Claims for federal water rights to support navigation or other commerce purposes (such as power generation) would be similarly difficult to litigate. Until there is actually a proposal for some project, there is no concrete dispute which could be litigated.

Negotiation would be more a more productive means of establishing federal claims. In Montana, as part of a state-wide effort to determine water rights, agreements were being negotiated with Indian tribes and federal agencies to quantify tribal water rights<sup>22</sup>. Congress in 1992 approved and ratified a water rights compact between the Northern Cheyenne Tribe and the State of Montana<sup>23</sup>. Similar agreements could be made with other federal agencies in other states or on other rivers.



If compacts are to be free from the potential of future disruption by federal proprietary claims and regulatory requirements, the federal claims must be quantified. This requires quantification of all three types of federal claims: reserved rights; navigation servitudes; and water for other regulatory needs, such as environmental quality. The latter two categories may be particularly difficult to negotiate because they require federal agencies to guess at how much water might be required for those purposes in the future, and it may not even be known what those purposes will be. As an example, the Endangered Species Act did not exist when the water allocation compacts were negotiated. Quantifying all federal claims, including those for regulatory compliance, would require that the federal government specify how much water it was claiming for offstream or instream use and would limit the federal government to those amounts, even if new programs might conceivably give rise to additional federal claims in the future. It is unrealistic to believe that Congress would, or could, do so.

Negotiation to settle federal rights has two main problems. The first is convincing the agencies involved to negotiate. Federal agencies have little incentive to reduce their flexibility in future projects by committing to a reservation of a specific amount of water. Federal concern over being limited in future actions was illustrated by the presidential statements about the Belle Fourche and Republican River compacts: even though there were no plans for federal projects, and no real possibility for such projects, the president was concerned that the scope of future federal action was restricted<sup>24</sup>.

One way in which such negotiations would be promoted would be through enactment of a law requiring this to be done. Bloom (1986)<sup>25</sup> proposed that Congress order compilation of a list of rivers whose development is being delayed by failure to resolve state-federal issues. Federal-state compacts would then be negotiated for those rivers within a fairly tight time frame. A key element of the proposal would require that within a limited period of time, the president would complete a quantification of *all* federal proprietary claims on those rivers, including those for Indian tribes. To provide some protection against inflated claims, Congress would have oversight power to review and modify the claims.

This approach has the great advantage of compelling federal negotiation, but it goes further than it needs to in requiring state-federal compacts. The federal government can be bound to compact allocations in other ways without being made a party to the compact itself. Nevertheless, the general thrust of the proposal is sound.

Even if the federal government can be persuaded to quantify its claims, there still remains the problem of binding the federal government to those quantities in the future. As noted in Chapter 13, Congress can always change its mind. This ability to rescind or ignore prior actions would also apply to agreements with Indian tribes because Congress has plenary power to legislate for the tribes. Rather than attempt to limit the power of Congress in the future, the approach of the Belle Fourche, Republican, and Klamath compacts could be employed<sup>26</sup>. The federal government may in the future change its mind or make a new claim or demand on the river, but Congress specifically agrees that if it does, any impairment of existing water rights

will be considered a Fifth Amendment taking requiring payment of just compensation. In that way, the possibility of later federal action disrupting compact allocations poses less of an inhibition to investment. To make this type of provision meaningful, however, it should also include a requirement that the federal government pay the attorneys fees of any prevailing party in eminent domain actions which arise from such takings. The cost of such litigation can be very high and might defeat the underlying purpose of promising compensation if the attorneys fee provision is not added.

### Export Controls

The potential for interstate marketing of water was increased by the Sporhase decision<sup>27</sup>. Although marketing may promote efficiency in use of water, it could present serious problems in the context of compact allocations. If a compact was written on the assumption that some of the water diverted by the upstream state would return to the river and the water is instead diverted out of the basin, there will be less available downstream.

To prevent any disruption in allocation because of such exports, either of two approaches is recommended. The first, incorporated in the Yellowstone Compact, is a ban on exports outside the basin unless the parties to the compact unanimously agree. Exports may still be possible, but states could protect their interests in the process of granting consent.

The second method is to draft the allocation to the states in terms of depletion.

If depletion, rather than withdrawal, is the basis of measurement, then the downstream state has no anticipation that that water will be returned to the system, and exports would make no difference.

### Periodic Modification

Some compacts, such as that for the Bear River, call for periodic re-evaluation of the compact to determine if amendment is appropriate. Muys in his 1971 study urged that provisions for periodic review be included in compacts<sup>28</sup>. Such reviews would aid in promoting efficient use of the water resources because compact allocations could be changed to match changing demands.

The difficulty in doing this is that it defeats the initial purpose of the compacts, which is to provide some sort of settlement of competing claims among states and so form the basis for stability of rights in the water. The possibility of modification of the compact by state action is no less detrimental to that purpose than the possibility of modification by federal action. It can be dealt with in the same way. If the compact calls for review or allows for future amendment, it should condition such changes on payment of just compensation to any users whose vested rights are impaired.

### When to Negotiate

A compact is more likely to be successful if it is negotiated before there is a water crisis on a river. If the compact precedes overuse or over-appropriation, it may

be limited to new users and so avoid impairing any existing water rights. More flexibility may be possible in negotiation when only future rights are concerned than when existing rights are to be modified.

It may not always be possible to negotiate in advance. If the river is already in a crisis condition, a compact may not be able to resolve the problem. This is particularly true if the solution to the problem involves a compact tied to a particular technical fix, such as a single dam or reservoir. As noted in Chapter 13, compacts made under those conditions, even if they are not modified by the courts, tend to be the focus of protracted Supreme Court litigation. If a compact is negotiated under those circumstances, effort should be made to resist the pressure to come to a quick agreement, and the compact should focus on the needs of the river basin as a whole, not on simply implementing or promoting one project which will affect only part of the river.

#### Future Utility of These Recommendations

Although many rivers in the west are now allocated by interstate compact, there is still room for application of the lessons learned from these twenty-two agreements. Not all interstate rivers in the west are subject to compacts — the Missouri and Columbia stand out as notable examples.

The Columbia has an enormous discharge, and a compact allocating its water is unlikely to be needed except as a defensive move to block exports of water or if demands for instream use for wildlife, recreation, and power generation conflict with

offstream demands for irrigation water. If that conflict breaks along state lines (that is, one state needs irrigation, the others want instream flow) a compact might present an appropriate solution.

The Missouri has been the subject of compact negotiations in the past, but no agreement has been reached. In some ways, the Missouri is similar to the Red River. Upstream, the primary use is for irrigation. Downstream, the river is important to navigation. Upstream states observe the appropriation doctrine, while downstream states follow riparian theory. The problem is compounded, though, by the number of states in the basin. A Missouri Basin Compact could include Wyoming, Montana, North Dakota, South Dakota, Colorado, Nebraska, Kansas, Iowa, and Missouri. The number of states and the varying geographic settings could make negotiations difficult, but a compact may someday be sought to reconcile the varying demands and uses.

The most recent crisis concerning allocation of Missouri River water involved the proposed Energy Transportation Systems, Inc. (ETSI) coal slurry pipeline which would have used water from Wyoming or South Dakota to transport coal to Texas<sup>29</sup>. Downstream states complained strongly about such use of Missouri water, but in the absence of a compact, Congressional action or an equitable apportionment by the Supreme Court would have been necessary to resolve the issue. The pipeline was cancelled and the issue became moot, at least for now.

A number of smaller western rivers are shared by states without any compact being in place. The North Platte and Laramie Rivers are among the most litigated<sup>30</sup>, but the Vermejo River between Colorado and New Mexico has also been before the

Supreme Court<sup>31</sup>. California and Nevada negotiated for years to resolve issues relating to Lake Tahoe and the Truckee River, but Congress finally passed its own solution<sup>32</sup>. The Lower Niobrara is still without a compact, as is the Cheyenne, although negotiations were approved by Congress years ago<sup>33</sup>. The same is true for the Cimarron between New Mexico and Oklahoma<sup>34</sup>. On some of these rivers, the level of demand or of conflict may be so low that no compact will ever be needed, but on others, a compact could be useful.

Allocation compacts have been more important in the western United States than in the east, but that may be changing. As municipal and industrial demands grow in eastern cities, more pressure is placed on the available water resources. In the southeast, for example, Alabama, Georgia, and Florida compete for water from the Appalachian-Chattahoochee-Flint and Alabama-Coosa-Tallapoosa Basins, and the Corps of Engineers is facing disputes between Alabama and Georgia over to how to allocate the available water<sup>35</sup>. Compacts could be used to resolve these competing demands.

On an international level, some of the lessons of the twenty-two compacts may be useful in negotiating international agreements, but such use is subject to a major *caveat*. These compacts are the product of a federal system in which there is concurrent jurisdiction residing in both paramount and subordinate governmental units. The additional dimension added by that higher layer of sovereignty complicates the compacts in some ways, but it also makes them possible by providing a means of enforcing agreements once made and promotes the making of the agreements by the

implicit threat or suggestion that if the states do not reach an agreement, the federal government will do it for them.

The horizontal aspects of the compacts may be of value as patterns to follow or avoid in international agreements. The methods of allocation should produce the same results in a federal system or between independent states, but the question of enforcement will always be in the background.

### Conclusion

The possibility of drafting a successful future compact can be enhanced by observing the lessons of past agreements. Allocation is the core purpose of these compacts, but allocation of water would not be viewed merely as a division of water. It is, in fact, an allocation of the risk of shortage, and those negotiating allocations should view the results in terms of risks avoided and obligations undertaken and be satisfied that no promises have been made which cannot be kept. Scientific models may appear to provide solutions, but the inaccuracy of models makes excess reliance upon them unwise. The most satisfactory approach would be either a percentage of flow to each state (but groundwater must be included if the allocation is to be maintained) or a minimum flow, assured to the extent that the upstream state agrees to take certain steps in attempts to maintain that flow.

Although the drafters of these agreements hope to avoid disputes, the potential for future disagreements always exists, and the drafters should pay heed to the need to select a dispute resolution mechanism. If issues of sovereignty can be overcome,



some form of majority vote might be used, but generally it will be necessary to resort to arbitration or litigation in the event of a serious dispute. If it is thought that arbitration might be desirable, provision should be made in the compact. If no arbitration clause is included, litigation will be the default option. Litigation in the Supreme Court carries with it a sense of legitimacy and finality which may not be found if the litigation occurs in some other forum.

Compacts should, if possible, be prospective in operation, affecting only future rights. This avoids valuation questions which might arise if vested rights are somehow impaired by the operation of the compact and avoids raising ill feelings among those whose water rights would be threatened by a retroactive agreement.

Finally, the compact cannot ignore the federal government. It is not possible to bar the federal government from making future claims or taking water, even if the result is a disruption of compact allocations and expectations. Some protection is available, however, if the compact is conditioned upon an agreement by the federal government that any future federal actions having an adverse impact on water rights or uses vested in reliance on the compact will be deemed a taking of property rights and so be subject to Fifth Amendment requirements of just compensation. In that way, those who rely on compact allocations for their rights to water can feel justified in investing time and money to develop those water rights in a time of uncertainty over changing priorities for the use of those resources.

Of the three ways of allocating a transboundary resource such as water — litigation (war), negotiation, and legislation — the negotiated solution provides the

best way of assuring that local concerns and needs are met. Although not all compacts have been successful, most have, and compacts are a viable way of avoiding future disputes. At the same time, they provide a basis for establishing property rights in water which are necessary for the efficient use and development of the resource. Litigation and legislation may accomplish the same ends, but a compact, by its voluntary nature, may be perceived as a more legitimate and therefore fairer division of the water.

## Chapter Notes

1. Upper Colorado River Basin Compact, Article VI.
2. Amended Bear River Compact, Article III (A).
3. Bear River Compact (1958), Article VI (A); 72 Stat. 48, § 2 (1958).
4. Red River Compact, Article 9.03.
5. Joseph W. Girardot, "Toward a Rational Scheme of Interstate Compact Adjudication," *Journal of Law Reform* 23 (1989): 151-78.
6. Ibid.
7. Texas v. New Mexico, 485 U.S. 388 (1988).
8. Arizona v. California, 373 U.S. 546 (1963).
9. Arizona v. California, 439 U.S. 419 (1979); Arizona v. California, 460 U.S. 605 (1983)
10. Charles A. Wright, Arthur R. Miller and Edward H. Cooper, *Federal Practice and Procedure* (St. Paul: West Publishing Co., 1969), § 4054.
11. Supreme Court Rule 17.2.
12. United States v. Topco Associates, 405 U.S. 596, 611-612 (1972).
13. Supreme Court Rule 17.
14. 304 U.S. 92 (1938).
15. Kansas-Nebraska Big Blue River Compact, Article 5.2 (b).
16. See page 270.
17. Upper Niobrara River Compact, Article VI.
18. Amended Bear River Compact, Article VI (B).
19. See Chapter 6.
20. See, e.g., Arizona v. California, 439 U.S. 995 (1979).
21. State of New Mexico ex re. Martinez, et al. v. Lewis, et al., No. 11,718 (Ct. App., filed May 12, 1993).

22. John E. Thorson and Sarah A. Bond, "Prior Appropriation Under Stress: The Montana Case Study," in *Water Resources Law: Proceedings of the Nation Symposium on Water Resources Law, December 15-16, 1986*. (St. Joseph, MI: American Society of Agricultural Engineers, 1986), 50-58.
23. Northern Cheyenne Indian Reserved Water Rights Settlement Act of 1992, 106 Stat. 1186 (1992)
24. See Chapters 8 and 10.
25. Paul L. Bloom, "Law of the River: A Critique of an Extraordinary Legal System," in *New Courses for the Colorado River*, ed. Gary D. Weatherford and F. Lee Brown (Albuquerque: University of New Mexico Press, 1986), 139-54.
26. See page 422.
27. Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941 (1982).
28. Jerome C. Muys, *Interstate Water Compacts* (Washington, D. C.: National Water Commission, 1971).
29. Note, "Interstate Transfers of Water: South Dakota's Decision to Market Water for Coal Slurry Operations," *University of Tulsa Law Journal* 18 (1983), 515-527.
30. Nebraska v. Wyoming, 325 U.S. 589 (1945); No. 108, Original, pending; Wyoming v. Colorado, 259 U.S. 419 (1922); 286 U.S. 494 (1932); 309 U.S. 572 (1940).
31. Colorado v. New Mexico, 459 U.S. 178 (1982); 467 U.S. 310 (1984).
32. Truckee-Carson-Pyramid Lake Water Rights Settlement Act, 104 Stat. 3294 (1990).
33. The Lower Niobrara negotiations were authorized at the same time as were negotiations for the Upper Niobrara; the Cheyenne negotiations were authorized along with those for the Belle Fourche.
34. 45 Stat. 1503 (1929).
35. N. D. McClure and Col. Robert H. Griffin, "A Partnership Approach to Address and Resolve Water Resource Conflicts," Proceedings of Conserv 93, in *The New Water Agenda* (Las Vegas: American Society of Civil Engineers, 1993), 1153-61.

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Belle Fourche River Compact, 58 Stat. 94 (1944)

Bear River Compact, 72 Stat. 38 (1955), *amended* 94 Stat. 4 (1980)

Canadian River Compact, 66 Stat. 74 (1952)

Colorado River Compact, approved 45 Stat. 1057 (1928); text found in *Congressional Record*, 10 December 1928, 324-325

Costilla Creek Compact, 60 Stat. 246 (1946); *amended* 77 Stat. 350 (1963)

Kansas-Nebraska Big Blue River Compact, 86 Stat. 193 (1972)

Klamath River Basin Compact, 71 Stat. 497 (1957)

La Plata River Compact, 43 Stat. 796 (1925)

Pecos River Compact, 63 Stat. 159 (1948)

Red River Compact, 94 Stat. 3305 (1978)

Republican River Compact, 57 Stat. 86 (1943)

Rio Grande Compact of 1929, 45 Stat. 767 (1929)

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Sabine River Compact, 68 Stat. 690 (1953); *amended* 76 Stat. 34 (1962); 91 Stat. 281 (1977); and 106 Stat. 4661 (1992)

Snake River Compact, 64 Stat. 29 (1949)

South Platte River Compact, 44 Stat. 195 (1923)

Upper Colorado River Basin Compact, 63 Stat. 31 (1948)

Upper Niobrara River Compact, 83 Stat. 86 (1969)

Yellowstone River Compact, 65 Stat. 663 (1950).

### United States Constitution

Article I, § 3

Article I, § 7, cl. 3

Article I, § 8, cl. 3

Article IV, § 3, cl. 2

Article VI, § 2

### Statutes (Other than Allocation Compacts)

Act of July 26, 1866, 14 Stat. 251 (1866)

Act of July 9, 1870, 16 Stat. 217 (1870)

Atlantic States Marine Fisheries Compact, 56 Stat. 267 (1942)

Boulder Canyon Act of 1928, 43 U.S.C. §§ 617 et seq.

Colorado River Storage Project Act of 1956, 70 Stat. 110, 43 U.S.C. § 620m (1956)

Delaware River Basin Compact, 75 Stat. 688 (1961)

Desert Lands Act of 1877, 19 Stat. 377 (1877)

Endangered Species Act, 16 U.S.C. §§ 1531-1544

Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387

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Niobrara Scenic River Designation Act of 1989, 105 Stat. 254 (1989)

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## APPENDIX

### Average Annual Discharge of Compact Rivers at Selected Locations

River	Location	acre feet
Animas	Farmington, NM	665,100
Arkansas	Lamar, CO (downstream of John Martin Dam)	81,400
	Arkansas City, Kansas	1,326,000
	Tulsa, OK	5,701,000
	Van Buren, AR (near Oklahoma-Arkansas border)	23,600,000
Bear	Wyoming-Idaho border	337,000
	Rainbow Inlet Canal (to Bear Lake)	265,200
	Oneida, Idaho	646,300
	Idaho-Utah border	
Belle Fourche	Wyoming-South Dakota border	62,450
Big Blue	Beatrice, NE	537,600
	Manhattan, KS	1,679,000
S. Canadian	Above Conchas Reservoir	157,890
	Below Lake Meredith	210,000
	Calvin, OK	1,235,000
N. Canadian	El Reno, OK	151,400
	Wetumka, OK	541,900
Colorado	Est'd virgin flow at Lee Ferry	14,900,000
	Approx. release from Glen Canyon Dam	8,250,000
Costilla Creek	Costilla, NM (above diversion dam)	32,170



River	Location	acre feet
Klamath	Keno, OR	1,207,000
	Klamath, CA (near mouth)	12,690,000
La Plata	Colorado-New Mexico Boundary	25,940
Niobrara	Wyoming-Nebraska Border	2,670
Pecos	Artesia, NM	172,400
	Red Bluff, NM	115,200
Red	Prairie Dog Town Fork, Childress, TX	81,870
	Salt Fork, Mangum, OK	61,780
	North Fork, Carter, OK	87,610
	Gainesville, TX	2,296,000
	Index, AR	9,035,000
Republican	N. Fork, Colorado-Nebraska border	34,050
	McCook, NB	119,000
Rio Grande	Lobatos, CO	612,900
	Otowi, NM	1,108,000
	Below Elephant Butte, NM	718,000
Sabine	Logansport, LA	2,324,000
	Ruliff, TX	6,750,000
Snake	Above Palisades Dam	3,293,000
	Anatone, WA	25,940,000
S. Platte	Denver, CO	318,000
	Julesburg, CO	392,700
Yellowstone	Clark's Fork, Edgar, MT	745,000
	Big Horn River, Bighorn, MT	2,770,000
	Tongue River, Miles City, MT	304,000
	Powder River, Locate, MT	420,200
	Mainstem, Sydney, MT	9,266,000

VITA 2

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Professional Memberships: Association of American Geographers; American Society for Photogrammetry and Remote Sensing; State Bar of New Mexico; admitted to practice before United States District Court, District of New Mexico; Tenth Circuit Court of Appeals; United States Tax Court; Court of Federal Claims.