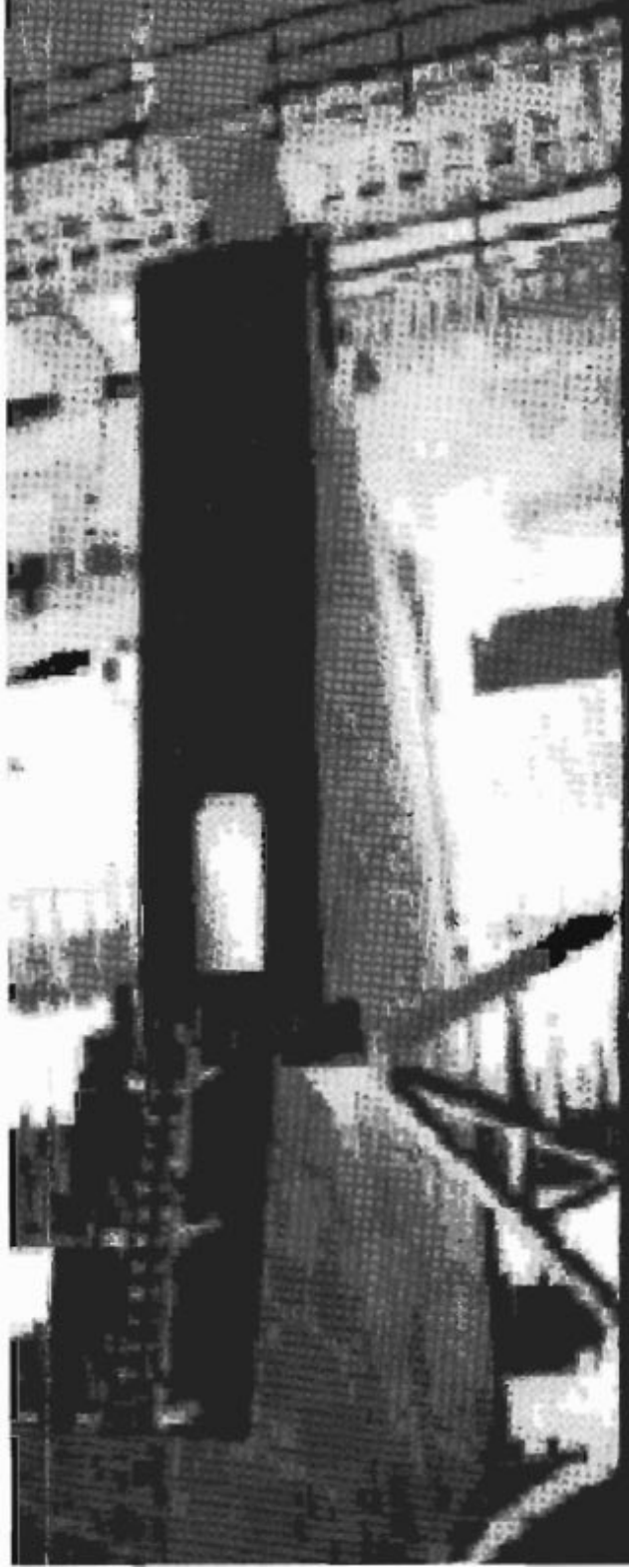


Big Dam Era

BIG DAM ERA

A Legislative and Institutional History of the Pick-Sloan Missouri Basin Program.

by

JOHN R. FERRELL

MISSOURI RIVER DIVISION
U.S. ARMY CORPS OF ENGINEERS
OMAHA, NEBRASKA
1993

BIG DAM ERA

To

GILBERT C. FITE

Teacher & Great Plains soulmate.

Contents

BIG DAM ERA

Forward

This is the story of the Missouri River Division's sixty year relationship with one of America's greatest rivers — the wide Missouri. The story begins in 1933 with the construction of Fort Peck Dam in Montana and the establishment of the Missouri River Division in Kansas City. It concludes with the complex management challenges the Division faces today as it celebrates sixty years of dedicated service to the Nation and the people of America's Heartland. The focus of the narrative is on the six main stem dams that were built between 1933 and 1964 that today are managed as a single system.

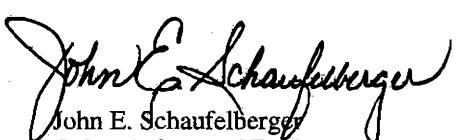
In order to address problems and opportunities associated with management of the reservoir system, it is important to look back in time and account for changes and events that have taken place since the system was authorized. Except for the Fort Peck project, the dams and reservoirs in this system were authorized by the Flood Control Act of 1944 which implemented the Pick-Sloan plan. Big Dam Era synthesizes this important legislative history.

This book demonstrates how the regional political culture has shaped the development and management of the main stem system. Water resources development and management are not left to just the technical solutions or solely to experts. Interest groups, elected officials, and the public are rightfully involved. The Missouri

basin states have continued to be active participants in the decision making process.

Central to the challenge of providing improved water resources management is developing institutions through which the complex, conflicting issues of water management can be examined in an impartial, objective way. This book details the institutional history of the Missouri River main stem system and highlights the contributions personnel of the Missouri River Division have made to the successful management of the system.

Big Dam Era contributes to our understanding of the legislative and institutional history of the Missouri River main stem system. This understanding helps us meet our stewardship responsibilities regarding wise management of this great natural resource for the benefit of the American people. This book clearly illustrates the need for our engineers and scientists to be concerned with more than the technical aspects of projects. They must consider the social, economic, environmental, and political aspects of each undertaking. This is the great lesson to be learned from this examination of the U. S. Army Corps of Engineers' involvement in the planning, development, and operation of the Missouri River main stem reservoir system.



John E. Schaufelberger
Colonel, Corps of Engineers
Commander, Missouri River Division

Bald Eagle by Sallie Zydek

Preface

The drainage basin of the Missouri River provided an ideal setting in which to undertake a massive river development effort. The potential benefits were high. Recurring floods throughout the basin had caused extensive destruction. Periods of severe and widespread drought caused enormous suffering and economic loss.

The watershed region is characterized by extremes. From an elevation of 380 feet above sea level at the mouth, the river winds 2,300 miles to its

headwaters elevation of 4,050 feet above the sea. The basin lays over more than half a million square miles, encompassing all of one state, portions of nine more and extending across the international boundary into Canada. Precipitation varies widely in this vast watershed, from an annual mean of 40 inches in the southeast interior highlands, to a scant 10 inches in areas of the dry upland plains, rising again to 40 inches in the mountains. Precipitation deviates widely from the mean in each of these physiographic divisions.

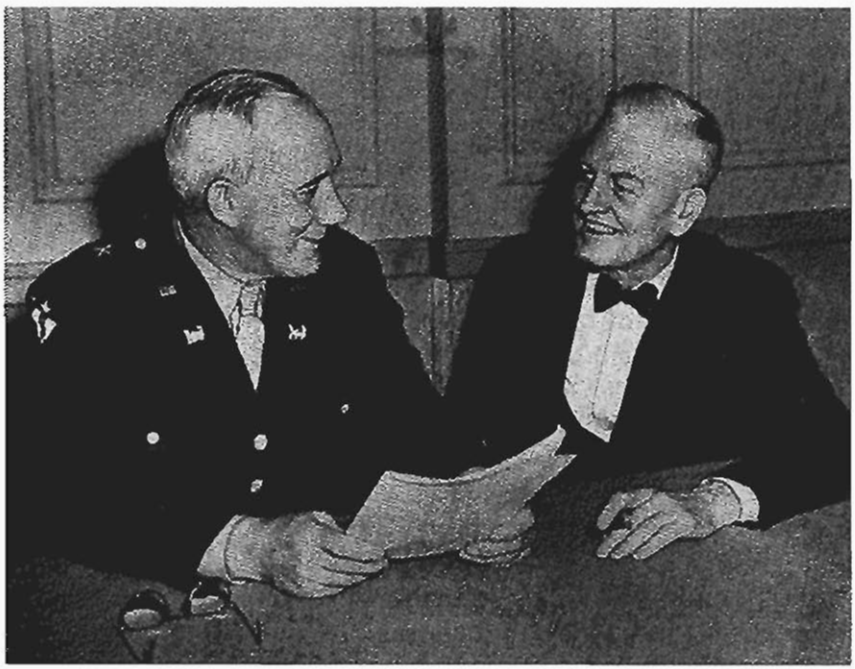
Flow characteristics of the unregulated Missouri River manifested these extremes. Calendar year natural runoff above Sioux City has fluctuated from a low of 10.7 million acre-feet in 1931 to a high of 40.6 million acre-feet in 1978. Natural runoff for a one-month period has ranged from

180 thousand acre-feet in August 1988 to 13.2 million acre-feet in April of 1952.

The river's potential yield of benefits was evident in this pattern of excesses and deficiencies. The long term mean natural flow exceeded 24 million acre-feet a year at Sioux City. It was a water supply sufficient to satisfy the desires of the upper western semi-arid sections for an array of consumptive uses. The lower and eastern sections of the basin wanted to store high river stages upstream to reduce damages from flooding and regulate low flows for navigation and municipal and industrial supplies.

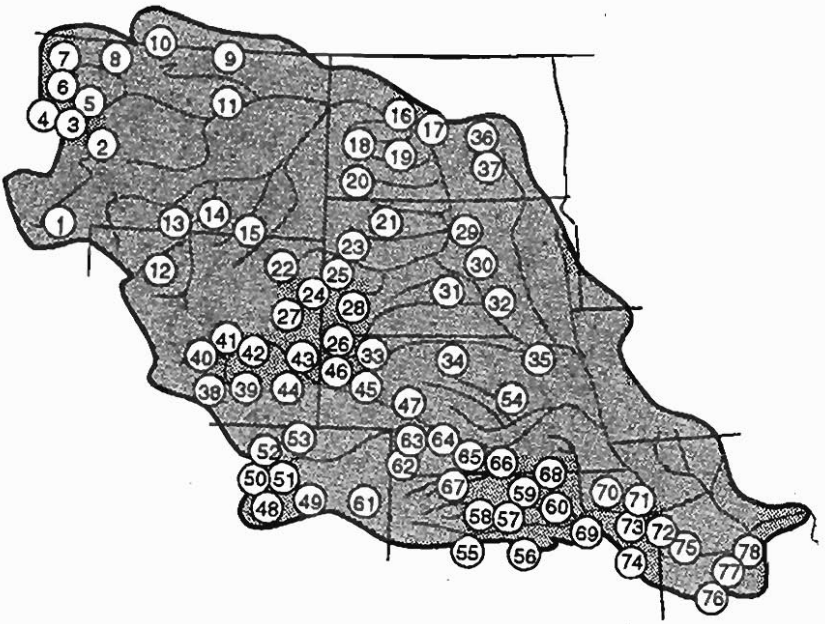
Geographic conditions in the upper main stem river above Sioux City were ideal to serve these needs. In this area of the Dakotas and Montana, draining some 280,000 square miles, a number of sites were suitable for building big dams capable of creating reservoirs with large storage areas. The first step toward harnessing the runoff in the upper basin was in 1933 with construction by the Corps of Engineers of Fort Peck in eastern Montana.

Plans for further control of the Missouri River were developed by the



General Lewis A. Pick and William Glenn Sloan.

Missouri River Basin
Bureau of Reclamation Subbasins
In Sloan Plan



NO	DEVELOPMENT	AGENCY
1	HAP HAWKINS	BR
2	CANYON FERRY	BR
3	WILLOW CREEK	BR
4	GIBSON	BR
5	PISHKUN	BR
6	FOUR HORNS	BIA
7	TWO MEDICINE	BIA
8	TIBER	BR
9	NELSON	BR
10	FRESNO	BR
11	FORT PECK	CE
12	BUFFALO BILL	BR
13	BIGHORN	BR
14	WILLOW CREEK	BIA
15	TONGUE RIVER	O
16	SAKAKAWEA	CE
17	AUDUBON	CE
18	E. A. PATTERSON	BR
19	TSCHIDA	BR
20	BOWMAN-HALEY	CE
21	SHADE HILL	BR
22	KEYHOLE	BR
23	BELLE FOURCHE	BR
24	DEERFIELD	BR
25	PACTOLA	BR
26	ANGOSTURA	BR
27	COTTONWOOD SPRINGS	CE
28	COLDBROOK	CE
29	OAHE	CE
30	BLUNT	BR
31	SHARPE	CE
32	FRANCIS CASE	CE
33	BOX BUTTE	BR
34	MERRITT	BR
35	LEWIS & CLARK	CE
36	JAMESTOWN	BR
37	PIPESTEM	CE
38	SEMINOE	BR
39	KORTES	BR
40	PATHFINDER	BR
41	GRAY REEF	BR
42	ALCOVA	BR
43	GLENDO	BR
44	GUERNSEY	BR
45	MINATARE	BR
46	ALICE	BR
47	LAKE MCCONAUGHY	O
48	CHATFIELD	CE
49	CHERRY CREEK	CE
50	ESTES	BR
51	RATTLESNAKE	BR
52	CARTER	BR
53	HORSETOOTH	BR
54	SHERMAN	BR
55	CEDAR BLUFF	BR
56	KANOPOLIS	CE
57	WILSON	CE
58	WEBSTER	BR
59	KIRWIN	BR
60	WAGONOA	BR
61	BONNY BR	BR
62	SWANSON	BR
63	ENDERS	BR
64	HUGH BUTLER	BR
65	HARRY STRUNK	BR
66	HARLAN COUNTY	CE
67	NORTON	BR
68	LOVEWELL	BR
69	MILFORD	CE
70	TUTTLE CREEK	CE
71	PERRY	CE
72	CLINTON	CE
73	POMONA	CE
74	MELVERN	CE
75	HARRY S. TRUMAN	CE
76	STOCKTON	CE
77	POMME DE TERRE	CE
78	LAKE OF OZARKS	O

Corps and the Bureau of Reclamation. Known as the Pick Plan after the head of the Corps' Missouri River Division and the Sloan Plan for the Assistant Regional Director of the Bureau of Reclamation's Region 6, the two programs were coordinated and then included in the Flood Control Act of 1944. Chapters One, Two, and Three detail the legislative history of the Pick-Sloan plan. More than 100 reservoirs throughout the Missouri basin were authorized by this legislation, but its cardinal feature was the integrated multiple-purpose plan for five additional main stem dams to be built by the Corps of Engineers.

These giant mounds of compacted earth form a series of reservoirs with a storage capacity of more than 74 million acre-feet and a surface area of over one million acres. This is the largest system of reservoirs in the United States. The ratio of reservoir storage to annual runoff in this drainage area is 3.1 acre-feet of storage for each acre-foot of natural runoff. It is this magnitude, combined with the techniques of operating the six main stem dams as an entity, which provides the flexibility and sustained delivery of service characteristic of this system.

Legal responsibility for operating the main stem reservoirs within the scope of the enacting legislation was delegated by Congress to the Chief of Engineers and to his representative, the Division Engineer of the Missouri River Division. Within these legislated responsibilities lay considerable areas of choice, the exercise of which might reconcile or further estrange the diverse interests of the watershed region.

The Corps and other interests have sought a range of alternative institutional devices and arrangements to manage the Missouri River. The authority model in lieu of the traditional agency model is examined in Chapter Four. Chapters Five and Six trace the institutional history of water resources development and management in the Missouri basin since the Pick-Sloan plan.

Integrated system operation is described in Chapter Seven. Diverse interests throughout the vast area of the basin provide advice and recommendations to ensure that multiple-purpose operations provide benefits to the sub-areas they represent. Unfortunately, some sub-areas receive more benefits than others. Sharply divergent views have existed over the distribution of benefits and upon how the main system should be managed. Management challenges are examined in Chapter Eight. Operation of the Missouri River main stem reservoirs involves the integration of many diverse factors in order to obtain optimum benefits to the region

from this major water resources development.

I am grateful to a number of people who worked with me on this legislative, institutional, and operational history of the main stem Pick-Sloan Missouri River basin program. Lloyd Jackson managed the manuscript production and typesetting with an even temperament and professional skills. Tom Hudson and Dave Boganowski display their creative graphics skills throughout this publication. Sallie Zydek contributed her beautiful artwork of Missouri basin creatures.

This manuscript was greatly improved by the thorough reading and editing of Dr. Martin Reuss and Kathy Richardson. My special thanks to Marilyn Hunter who graciously shared her knowledge and facilitated many necessary details involved with this publication. I thank my friend Larry Crump for a wealth of thoughtful suggestions and advice. Without the help of these colleagues, often given at personal sacrifice in time and effort, I could not have accomplished my assignment.

John Ferrell

Missouri River Basin

I.
Flood Control Plans

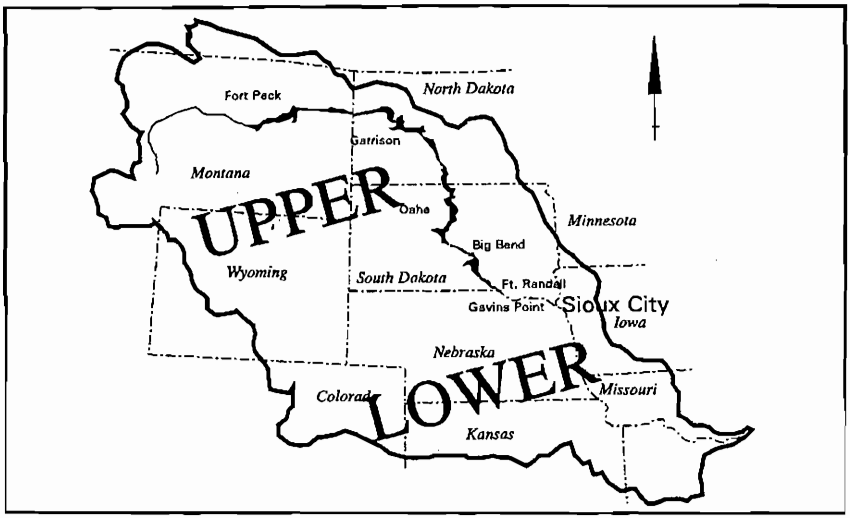
Unlikely cooperative partnerships were formed in the vast drainage area of the Missouri River in 1943. Past ordeals, which threatened to continue, solidified these partnerships. Despite diverse objectives, special-interest groups where united by their common fear of a depression. The result was a regional coalition sufficient to secure U.S. government approval for an extensive river basin development program.

Concerns about a postwar depression were based on history. After World War I, cash crop and livestock prices fell below production costs. Agriculture markets were weak and demand for basin products low. The

Drought-caused Erosion on Great Plains, 1938.

basin's people and its predominantly agricultural economy faced a long period of economic hardship. Ironically, this fiscal distress coincided with severe drought conditions that further desiccated much of the region.

The drought and depression had two major negative effects. Between 1930 and 1940, the average value of land and buildings per farm acre declined. Second, the basin farm population decreased because of migration out of the region. During the 1930s, four basin states (North Dakota, South Dakota, Nebraska, and Kansas) lost total population but gained urban population. Two states (Iowa and Montana) gained total population



Upper and Lower Missouri River Basin.

but lost rural population. Three states (Missouri, Wyoming, and Colorado) gained both rural and urban population.[1]

Negative demographic trends were accelerated by World War II. Approximately 300,000 civilians left the Great Plains states of Montana, Wyoming, North Dakota, South Dakota, Nebraska, and Kansas, presumably for employment in war industries outside those basin states. An additional 322,200 residents of the Plains states were in the armed forces. After analyzing this data, demographers concluded in 1943 that about 600,000 persons would be seeking work or government assistance during the postwar period in those six Missouri River basin states.

Special interests advocated federally funded public-works to solve the anticipated problems of a postwar economy. Widespread belief was that without such projects the basin's economy would suffer. Government planners saw a need for action to forestall high unemployment, low production, and high prices. Public-works construction would provide employment for returning servicemen and demobilized industrial workers, stimulate the few industrial centers in the region to diversify from agricultural processing, and attract new business and manufacturing activity.

In the upper basin north of Sioux City, Iowa, and west of the Missouri main stem in the tributary stream areas, some interests advocated irrigation projects to stimulate the postwar economy. Secretary of the Interior Harold L. Ickes addressed the National Reclamation Association in the upper basin city of Denver, Colorado, in September 1943. He told the irrigation interests that the Bureau of Reclamation was prepared to neu-

tralize demobilization's negative effect on the West. Ickes said that the people then serving in the war effort "Must be made to turn the wheels of industries that will maintain peacetime payrolls and afford increased markets for the products of irrigated land."[2]

The upper basin states set up planning councils to create jobs for the day "when Johnny comes marching home."[3] Wyoming's Governor Lester C. Hunt believed this could best be accomplished through public-sector irrigation developments. Irrigation advocates argued that federally funded reclamation projects would prompt veterans and former war-industry workers to return to the region to take construction jobs, to farm the irrigated land, or to work in the support communities. Irrigated agriculture would shelter the region from drought cycles and provide single-family farms. The basin's agricultural economy would prosper and service communities would thrive, according to this regional development concept.[4]

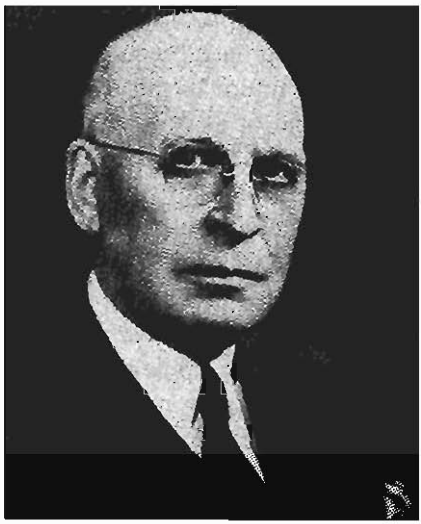
In the U.S. Senate, Wyoming Senator Joseph C. O'Mahoney chaired a subcommittee to advance national economic planning in the postwar period. "America is determined," he said, "that our returning soldiers must not face the 'apple economy' that greeted them after the last war." O'Mahoney was a prominent New Deal Democrat and a strong leader. He also had considerable seniority in the majority party. He was one of several congressmen from the West who spoke force fully for irrigation interests. The senator was among a political elite who aided the upper basin by fostering legislation related to the Missouri River basin water resources development plan.[5]

In the basin south of Sioux City, special interests also wanted public-works to provide jobs in the period of transition to a peacetime economy. As Mayor John B. Gage of Kansas City, Missouri, stated: "We are going to enter a very critical period in our part of the country just as soon as the war is won and these people begin to return and war workers are discharged."[6] Public-works projects for flood control and navigation would help sustain the economy in the critical transition period. In addition, a controlled and navigable river would supposedly strengthen the agricultural economy and help provide an urban-based means to diversify and expand.

Special interests in the Missouri basin had a long history of advocacy of water resources development. In both the lower and upper basins, they had kept the vast region's water problems on the congressional agenda for over 100 years. Congress had appropriated money in 1832 for lower Missouri River navigation improvements; in 1903, the Secretary of the Interior had approved major federal irrigation projects in the upper basin.

When the United States went to war in 1941, the federal government

had authorized or approved a large number of projects for navigation, flood control, irrigation, and hydropower purposes. The War Production Board suspended work on those projects unless they were deemed essential to the war effort. Public-works advocates urged Congress to fund the previously authorized projects as soon as the war ended. They wanted to expand the development programs to provide needed jobs immediately throughout the vast basin.[7]

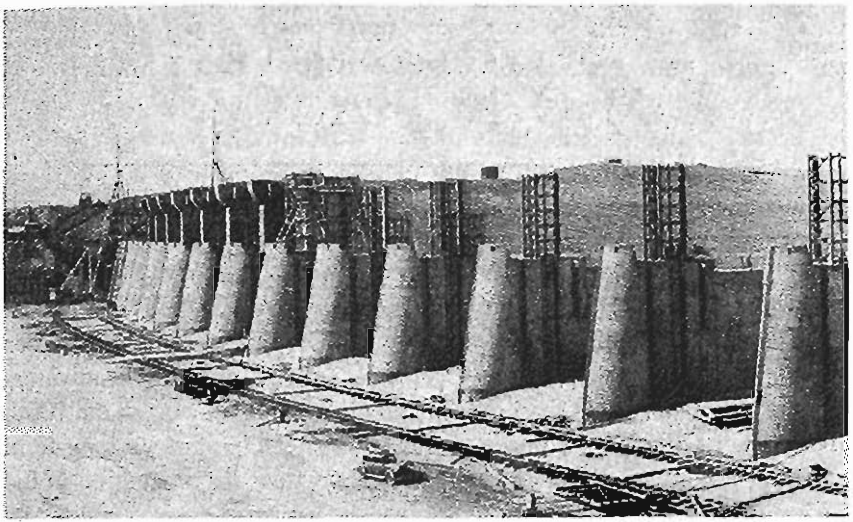


O. S. Warden of Great Falls, Montana.

Delegates attending the Upper Missouri Drainage Basin Committee meeting in December 1941 formulated an agenda to encourage efforts toward a basinwide plan of comprehensive development.[8] At a second meeting in July 1942 at Billings, Montana, delegates from Montana, Wyoming, North Dakota, South Dakota, and Nebraska drafted an invitation to the states of Iowa, Kansas, and Missouri to meet to form a regional watershed organization.[9] O.S. Warden of Great Falls, Montana, chairman of the upper states committee and president of the National Reclamation Association, explained the need for co-operation: "We would like to irrigate as much land in our country as we fairly and consistently can. . . . In reclamation we are in a transition period which concerns the question of the storage of water all the way from downstream to upstream." Warden thought that pursuing these upstream area objectives was a "marvelous opportunity for cooperation between the people of the basin states."[10]

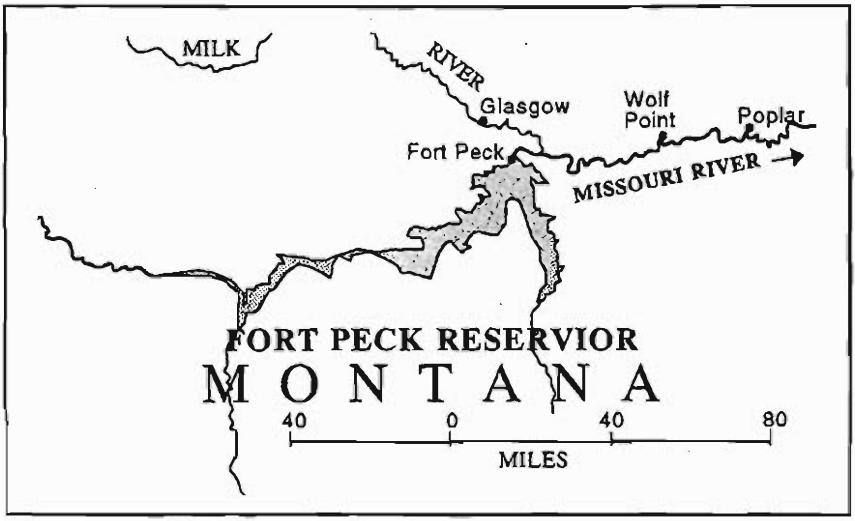
The upper basin states water development advocates had heard William Glenn Sloan, a regional official of the Bureau of Reclamation, describe a planning effort under way to expand irrigation developments in the Missouri basin. But this expansion required that the Secretary of the Interior secure water rights for reclamation projects in compliance with state laws. Western states would resist a federal claim to ownership of the unappropriated water in nonnavigable streams.[11] However, at Fort Peck Reservoir in Montana the federal government had impounded 19.5 million acre-feet of unappropriated water that might be used for irrigation if released from its navigation, hydropower, and flood control purposes under the federal powers contained in the commerce clause of the Constitution.[12]

Irrigation advocates pointed out that the first three Public Works Administration allocations of money for the Fort Peck project were "for the construction of a dam at Fort Peck for water conservation and control of flow of navigation." Upper basin interests contended that the money would not have been allocated at that time had the words "for water conservation" not been included. However, the phrase was dropped when legislation for the Fort Peck Dam finally was submitted to Congress.[13]



Ft. Peck Dam Under Construction.

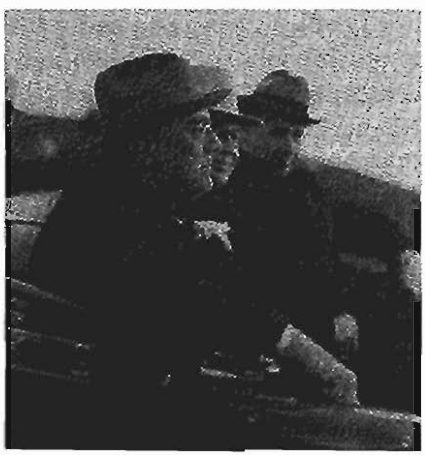
The Fort Peck project was unique. It was begun in the Depression year 1933 by authority of President Franklin D. Roosevelt rather than through the normal congressional authorization process. The project was to provide jobs in an area of high unemployment and severe economic depression. Roosevelt's authority to order the dam built was vested in the National Industrial Recovery Act of 16 June 1933. Title II authorized the President to create a Federal Emergency Administration of Public Works and, "with a view to increasing employment quickly," gave the President the power to construct public-works projects. In section 202(b), the President was constrained by the proviso "That no river or harbor improvements shall be carried out unless they shall have heretofore or hereafter been adopted by the Congress or are recommended by the Chief of Engineers of the United States Army." The Chief had recommended on 30 September 1933 that a dam be built across the Missouri at the Fort Peck project site. On 14 October, Roosevelt approved Public Works Project No. 30.



Ft. Peck Location Map.

The massive public-works project was to be the first big dam across the main-stem Missouri. It was located far up-stream in the headwaters state of Montana, 1,878 river miles from the mouth and west of the 106th meridian. Its immediate purpose was to create jobs, but its long-term function was to assure an adequate minimum flow for navigation in the 795 miles of river channel below Sioux City. Irrigation was not among its purposes, despite its western location and although the area was suffering from an extended drought. Conceived at the very time that the administration was touting multi-purpose river development projects, Fort Peck was more a single-purpose project.

The long-time chairman of the House Committee on Rivers and Harbors, Representative Joseph Jefferson Mansfield of Texas, made the purpose manifestly clear in a colloquy during hearings on a hydropower bill in March 1938. Oregon Representative Nan Wood Honeyman, a member of the committee, had asked if Fort Peck would "really be operated for reclamation purposes rather than power." Chairman Mansfield's reply and the colloquy follows.[14]



F.D.R. at Ft. Peck.

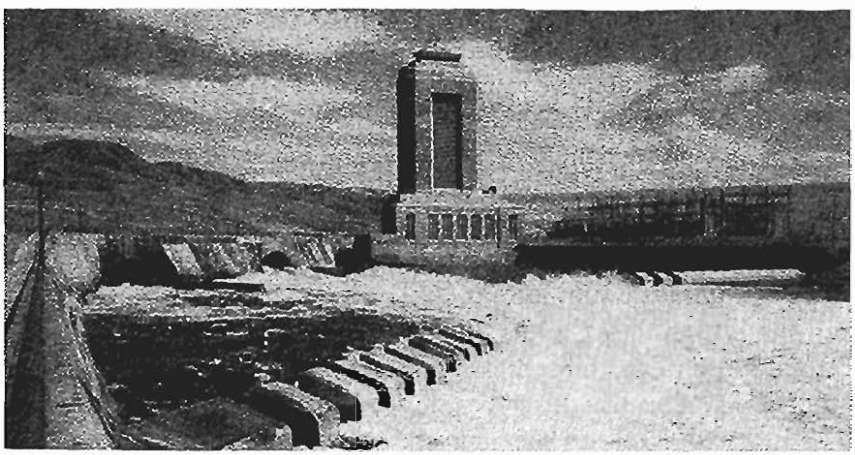
The Chairman. The primary purpose of Fort Peck is supposed to be navigation, to afford a flow of water. . . .

Mr. Culkin [Francis D., a committee member from New York]. Flood control, too, Judge. The Chairman. There is not much flood control involved in it. It was principally for navigation. You see, they cannot install locks and dams in the Missouri River successfully, and they do not have sufficient flow for the 6-foot navigation project that has been authorized.

Mr. Culkin. As I recall it, there was not very much reclamation at Fort Peck. It was a minor factor. It was limited, as I recall it [sic] to about 50,000 acres. The Chairman. Mr. Page can tell us about that when he makes his statement.

> Statement of John C. Page, Commissioner, Bureau of Reclamation, Department of the Interior

The Chairman. Mr. Page, can you tell us about this matter of reclamation at Fort Peck? Mr. Page. As far as I know, there was no irrigation concerned at the time Fort Peck was authorized. It was primarily in aid of navigation on the Missouri River and, incidentally, the generation of a small amount of power. The only interest of the Bureau of Reclamation in this is that any irrigation there is so badly needed to hold the population of that territory.



Ft. Peck.

Five years after that colloquy, the Bureau of Reclamation was vitally interested in Fort Peck. At the basinwide meeting in Omaha on 21 May 1943, Colonel Malcolm Elliot, the Division Engineer of the Upper Mississippi River Division, addressed the bureau's plan to use water from Fort Peck for irrigation. Elliot displayed his knowledge of and appreciation for the beneficial-use concept when he said: "We want to get away from this business of wasting water in times of drought." The primary civil works mission of the Corps of Engineers, Elliot explained, was providing water for navigation and flood control. But he thought "even the most ardent proponent of inland navigation would be loath to have us put out a scheme which would leave us without water to grow the crops." The Corps' position was that if Congress were to change the Fort Peck project purposes to use its water for irrigation, a "suitable substitute" would need to be developed.[15]

General Lewis A. Pick.

The Missouri River Division (MRD) Division Engineer, Colonel Lewis A. Pick, also spoke at this first basinwide meeting. He explained that three procedural matters had caused him to give close attention to Missouri River development. Pick told the delegates to the Omaha meeting that he had been assigned to the basin a year earlier and "found a number of congressional resolutions for studies on the river" that required reconciling previously authorized projects in the basin with new mission assignments.[16] Second, he referred to a March directive from the Office of the Chief of Engineers (OCE) asking him to prepare schedules of "worthy construction projects" for prompt initiation at the end of the war.[17] Pick immediately asked the four District Engineers under his command to prepare scheduling and programming reports on projects in progress and to determine allocations necessary to begin work on selected authorized new projects.[18]

Shortly after Pick's action, floods occurred in the basin. The floods created the third and most pressing need for Pick to direct attention to Missouri River matters. Just before his comments at the Omaha meeting, Pick had testified at a House Flood Control Committee hearing. The committee, chaired by William Madison Whittington of Mississippi, had

1943 Flood at Bismarck, North Dakota.

scheduled hearings in June for two primary yet somewhat disparate purposes. One was to provide for a "backlog of flood control projects for use following the war" (for which the Chief of Engineers was preparing when he sent the directive to Pick in March). This was public-works planning to bolster the postwar economy.[19]

The second purpose for the hearings was to begin deliberations on resolutions from congressmen whose districts had experienced flooding in 1942 and 1943. Congressmen from the Missouri basin had submitted at least six requests for review of the previously authorized flood control program. The congressmen were requesting the studies to ascertain if new or revised projects were needed in light of the 1942 and 1943 flooding. Because Pick was available in Washington, Whittington agreed to hold a one-day hearing on 13 May 1943, before the regularly scheduled hearings began in June.[20]

The House Flood Control Committee reacted immediately to Pick's statement. It passed a resolution requesting that the Board of Engineers for Rivers and Harbors, an adjunct of the Army Corps of Engineers, review previous reports to determine "whether any modification should be made therein at this time with respect to flood control along the main stem of the Missouri River from Sioux City, Iowa, to its mouth." According to normal procedure, the Board of Engineers assigned the MRD Division Engineer to perform the first phase of the review and report.[21]

At the Washington hearings and at the basinwide meeting in Omaha the following week, Pick asserted that the program authorized in the prewar period could not provide necessary protection. He stressed "comprehensive ultimate development," by which he meant storing behind big dams similar to Fort Peck as much water as possible flowing instream. Pick rejected any emphasis on traditional flood control measures, such as cutoffs and levees, until a comprehensive plan for dams was in place. He stressed to the Flood Control Committee that he did know what levees were required.[22] And he stated boldly to the state delegates in Omaha that "we must consider other water uses in connection with flood control."[23]

Pick intended to use his authority (granted by Congress through the Secretary of War and Chief of Engineers) to perform investigations and report "a comprehensive plan of development for the Missouri River valley that every interested group of people can support."[24] Clearly, he was seeking basinwide support for the plan he had in mind. Pick's proposal for postwar Missouri basin development would be based, therefore, on engineering practicality as well as on special-interest politics.

Glenn Sloan endorsed Pick's broad conceptual ideas. He told the Omaha delegates that the Bureau of Reclamation studies had been directed toward what could be done in the upper basin "to continue the conditions desired by the people of the lower basin." Referring to the plans of the Army Engineers, Sloan said that he was "absolutely sure that before the final plan is developed, our work will have been coordinated entirely with theirs."[25]

The delegates at Omaha heard the representatives of the two federal dam-building agencies affirm that they were advocating major public-works projects. Based on flood control legislation dating back to 1936, Corps-built projects for flood control and navigation were funded in full by the federal government.[26] Project costs would be borne by taxpayers throughout the nation. Although benefits would be mostly to the region, they theoretically would redound to the nation. The advocates for Missouri River development were aware that their costs would be low in relation to the anticipated multiple benefits, both short and long term. They readily endorsed what they heard from the federal agency officials because they wanted the federal government to underwrite a secure future for the basin.

Recognizing the perceived urgency and the "joint community interest" throughout the basin, South Dakota Governor Merrill Q. Sharpe pointed out that the special interests would "have a much better opportunity to obtain development for their mutual benefit if they all acted together under the direction of some kind of steering or executive or

liaison committee."[27] These development advocates foresaw the political advantages of pooling efforts to request plan authorization and appropriations from Congress.

On 21 May 1943, eight basin states formed the Missouri River States Committee (MRSC) to institute this basinwide political action group. Subsequently, Colorado and Minnesota joined with Iowa, Kansas, Missouri, Montana, Nebraska, South Dakota, North Dakota, and Wyoming to form a ten-state coalition group to lobby Congress for the extensive water resources development programs Pick and Sloan had outlined. Although the states had varying interests in the basin's water resources, they constituted a powerful political network.

The MRSC, functioning as a quasi-official governors' committee, acted as a link between the basin states and the federal government, assuming an official public status that private-interest organizations lacked. Through its membership, the committee ostensibly represented the interests of the basin's population. The governors and states' representatives frequently spoke for the MRSC before congressional committees, drafted resolutions, and made appeals to the President and Congress.

The emphasis on cooperation continued at the June hearings of the House Flood Control Committee. Each congressman and special-interest representative appearing before the committee advocated an expanded flood control program for the basin, endorsed the recently approved study resolution, and praised the Army Engineers. Most of the witnesses advocated Pick's big dam concept. South Dakota Representative Francis Higbee Case summarized the anticipated benefits of a system of mainstem dams and reservoirs through North and South Dakota. He said he hoped the Flood Control Committee would provide "for a comprehensive long-range Missouri River program with the four great benefits" of flood control, navigation, irrigation, and hydropower.[28]

Nebraska Senator Kenneth S. Wherry pursued the multiple-purpose, cooperative development theme. He thought it unfortunate that the spring floodwaters had been drained off without being captured and put to use for beneficial purposes. Wherry envisaged that flood control reservoirs on the Missouri would save lives, minimize damage to urban areas, and help control erosion. He said that "the maximum interests of our american civilization" would be served by combining flood control with the benefits of navigation, irrigation, municipal water supplies, hydropower, recreation, and wildlife and fish propagation. Wherry was "exceedingly pleased by the splendid manner" in which the Corps of Engineers and the Bureau of Reclamation were cooperating to "insure the maximum gainful use" of flood waters.[29]

Assistant Commissioner of the Bureau of Reclamation Harry W. Bashore stated that his agency was "not in competition with the Army Engineers." He said the President had "laid down a formula to be followed and we are perfectly satisfied with it."[30] Bashore was referring to the "dominant agency" formula enunciated by Franklin Roosevelt. The President had written a letter to Whittington in May 1941, in which he stated:

> A good rule for the Congress to apply in considering these water projects, in my opinion, would be that the dominant interest should determine which agency should build and which should operate the project. Projects in which flood control or navigation clearly dominates are those in which the interest of the Corps of Engineers is superior and projects in which irrigation and related conservation uses dominate fall into the legitimate field of the Bureau of Reclamation.[31]

Missouri River basin political leaders urged the Bureau of Reclamation and Corps representatives to cooperate in developing a basinwide plan. Pick and Sloan met jointly with basin development advocates to promote coordinated planning by the two water resources construction agencies. Representative Case testified that "a special effort was made to arrange for integration of these plans" at a Denver meeting of the National Reclamation Association on 29 October 1943. Both the Bureau of Reclamation and the Army Engineers took part in the discussions.[32]

Colonel Miles Reber, who relieved Colonel Pick in September 1943 as MRD Division Engineer, corroborated Case's testimony. Reber testified that the agencies in the field coordinated their reports to the fullest extent possible prior to drafting of official" reports. Reber said that in his capacity as MRD commander he sent Corps reports to the Denver office of the Bureau of Reclamation for comment prior to submitting the reports to the Board of Engineers for Rivers and Harbors. MRD and Bureau of Reclamation engineers met in Omaha and Denver; the Deputy Chief of Engineers for Civil Works had, according to Reber, "numerous conferences" in Washington with the Commissioner of Reclamation.[33]

Despite these multiple efforts and because the agencies' plans had not been integrated by December, according to Representative Case, "the Chief of Engineers agreed that he would make his recommendation on the Pick plan broad and flexible." The Chief wanted to accomplish integration as the various plans were implemented. Subsequent actions of the Army Engineers substantiated Case's analysis of the early policy evolution.

Although not required by statute, the Chief of Engineers submitted the report of the MRD Division Engineer and the endorsement of the Board of Rivers and Harbors to the Bureau of Reclamation, the Federal Power Commission, and the Department of Agriculture for comment. The Chief affirmed that representatives of these agencies and of the Corps had held several conferences both in Washington and in the field. In addition, public hearings were held in the basin.[34]

The Corps plan was in accordance with the views expressed by the basin's political leaders and special-interest representatives at public meetings and hearings in the basin and in Washington. It was evolutionary, rooted in the mission Congress assigned to the Corps in 1927 of formulating plans that provided for the multiple use of water, based on expanding the system of dams and local protection works authorized in previous legislation, and tied into the discussions of basinwide cooperative planning and programming for the Missouri watershed as a unit. The plan, which was in accord with prevailing values, was incremental and required no fundamental public-policy changes.

Pick's plan, the endorsing board's comments, and the Chief of Engineers' approval letter to the House Flood Control Committee stressed the flexible "framework" in the Army Engineers' proposal for Missouri River development. Pick wrote that "To provide for the maximum utilization of the waters stored in multiple-purpose reservoirs, a plan would be worked out for each structure in collaboration with the various water-use agencies involved."[35] The Board of Engineers for Rivers and Harbors said that "Such an extensive program would necessarily be carried out step by step with the details formulated progressively in cooperation with other federal agencies and local interests."[36]

Chief of Engineers Major General Eugene Reybold believed that the recommended plan established "a broad framework for comprehensive basinwide improvements." If the proposed expanded plan were adopted, it would in his opinion "derive the maximum benefits from the multiple-purpose use of the water resources of that basin." The plan was flexible in that it proposed "sufficient latitude" to permit modifications "as may be found advisable, and it should be augmented by appropriate work of other agencies." The Chief concluded that all problems of water control and use in the Missouri basin could be solved "with the full cooperation of all water-use agencies" as the multiple-purpose development plan was in process.[37]

The Chief of Engineers was firm, however, in adherence to the dominant agency position endorsed earlier by President Roosevelt. It was essential, General Reybold wrote in his transmittal letter to Chairman

Projects Proposed By Pick*

Area	Project	Approximate Gross Storage Capacity (Acre Ft.)	Estimated Total Const. Cost
Missouri River	Garrison, ND	17,000,000	$130,000,000[1]
Main Stem:	Oak Creek, SD	6,000,000	60,000,000
Ft. Peck to	Oahe, SD	6,000,000	50,000,000
Sioux City	Ft. Randall, SD	6,000,000	75,000,000
	Gavins Point, SD	200,000	15,000,000
Yellowstone River	Lower Canyon, MT	2,250,000	35,000,000
Watershed	Boysen, WY	3,500,000	20,000,000
Republican River	Medicine Creek	(Not Given)	2,400,000
Watershed	Hale	"	7,200,000
	Red Willow	"	2,100,000
	Enders	"	2,100,000
	Becher Island	"	6,600,000
Levee System			80,000,000

[1]Includes diversion into the Dakotas.

Projects Authorized, Pre-Pick*

	Project	Location	Total Estimated Cost
1.	Kanopolis Reservoir	Ellsworth River, KS	$ 9,000,000
2.	Harlan County Reservoir	Republican River, NE	20,000,000
3.	Osceola Reservoir	Osage River, MO	28,500,000
4.	Tuttle Creek Reservoir	Big Blue River, KS	28,000,000
5.	Chillicothe Reservoir	Grand River, MO	28,500,000
6.	Arlington Reservoir	Gasconade River, MO	7,300,000
7.	South Grande Reservoir	South Grand River, MO	10,400,000
8.	Pomme de Terre Reservoir	Pomme de Terre River, MO	6,200,000
9.	Richland Reservoir	Gasconade River, MO	6,900,000
10.	Cherry Creek Reservoir	Cherry Creek, CO	8,200,000
11.	The Kansas Cities' Local Flood Control Works	Missouri and Kansas	18,000,000
			$171,000,000

*Derived from U.S. Congress, House Document No. 475, 78th Cong., 2nd Sess., 1944

Whittington, that the main-stem dams proposed by Pick "be built, operated, and maintained by the Corps of Engineers." He also cited the need for unified control through coordinated reservoir operations. This procedure would result in maximum efficiency of water flows not only in the Missouri but the entire Mississippi Valley drainage area. Tributary reservoirs should, Reybold believed, be constructed, operated, and maintained by the agency with the dominant interest.

The Chief of Engineers was willing to concede adjustments in water control and use to meet changing needs. He said the Pick plan contemplated "that the uses of presently authorized and existing multiple-purpose reservoirs" would be "progressively broadened and reapportioned" as additional water was stored by the dams proposed in the expanded storage plan. In this way, preference could be assigned at any given time to the functions that contributed most to the welfare and livelihood of the people of the vast and diverse watershed basin.

The Army Engineers also acquiesced to the desires of local interests for an extensive system of levees. Colonel Pick recommended their construction to protect the farmlands, cities, and smaller communities along the Missouri River between Sioux City and the river's confluence with the Mississippi above St. Louis. According to the Corps, local interests wanted the levee system to be authorized as a federal project because of the magnitude of the problem and the number of separate interests involved. The Army Engineers did not want to alienate this important special-interest group in the predominantly agricultural region.

Department of Agriculture Land Use Coordinator E. H. Wiecking endorsed the Pick plan and assured the Chief of his department's cooperation. "The damage done by floods on the Missouri and its tributaries is largely agricultural," he said. The benefits from the multiple-purpose developments would, in his opinion, "accrue in no small measure to farm people and rural interests" and would have a "direct bearing on the use of the rural resources of the basin." Wiecking understood that the proposed plan was "but a framework" for the ultimate basinwide plan, with the details formulated progressively in cooperation with other federal agencies and basin interests.[38]

Leland Olds, chairman of the Federal Power Commission, wrote General Reybold that his staff had reviewed the Army Engineers' plan and "was in general accord with the recommendations." He declared, however, that "the details must, of necessity, be worked out step by step and the authorizing legislation should, therefore, permit wide latitude in the selection and modification of projects." Olds believed that "The proposed comprehensive plan should go far toward resolving present

conflicts of interest in the use of the water resources of the basin." Water was limited in some areas of the basin, he said, and "proposed improvements must be carefully evaluated in advance in terms of land as well as water problems, to produce the greatest combined social and economic benefits to the region." Olds concluded that the Federal Power Commission, which was assigned to recommend hydropower projects, would "be pleased to have its staff continue to work" with the Army Engineers "in the necessary further studies required for the development of the water resources of this basin."[39]

Bureau of Reclamation Commissioner Harry W. Bashore wrote a detailed response to the plan proposed by the Corps. He said certain "governing principles" prevailed in water management.[40] A major premise of these principles centered on the concept that the agency with the dominant interest in a multi-purpose project should have control over the project after appropriate consultation with other affected agencies. Bashore recommended that all reservoirs, including Fort Peck, should be operated to obtain maximum benefit from all water uses, with preference being given to functions that contributed most to the welfare and livelihood of the greatest number of people. He was convinced that Missouri main-stem and tributaries' water west of or entering above Sioux City was "more useful to more people if utilized for domestic, agricultural, and industrial purposes than for navigation-improvement purposes." He said that to the extent that these uses were competitive, beneficial consumptive uses should have preference.

Bashore said that his agency's contemplated recommendations for upstream tributary reservoirs might profoundly affect the storage capacity needed for the main-stem projects planned by the Army Engineers. One of the big dams proposed by the Corps, such as Garrison in North Dakota, might even be eliminated according to Bashore. For these reasons, he lauded the Corps' acknowledging that changes might be required.

The Chief of Engineers responded directly to the comments of Commissioner Bashore. He said the Corps recognized the "broad and important interests and responsibilities of the Bureau of Reclamation in the Missouri River basin." General Reybold committed the Corps to continue to plan its work in the basin "so as to coordinate fully the activities of both agencies." He was convinced that, with the information then available, the Corps plan provided "a flexible basis" for securing the necessary storage and obtaining the full multiple-purpose use of the basin's water.[41]

While advocating a comprehensive plan of multiple-purpose regulation and development of the Missouri River, the Corps emphasized the

Army Engineers' flood control mission. The Corps plan addressed foremost an engineering solution to protect the urban areas in the lower basin. And, as General Reybold put it, the plan contemplated "further expansion with a view to solving the flood and other problems in the upper tributary basins."

Bureau of the Budget Director Harold D. Smith preferred an alternative approach. (Note: By executive order in 1970, the Bureau of the Budget became the Office of Management and Budget.) In February 1944, Smith responded to a letter from Secretary of War Henry L. Stimson requesting the budget director's advice as to the relationship between the Army Engineers' proposal and the program of President Roosevelt. Smith said he had informed Roosevelt of the Corps proposal and it was not what the President wanted, "at least at the present." The budget director proposed, therefore, to delay any further consideration of the Corps plan until the Executive Office had more information on Missouri River development plans.[42]

Smith was specific in what he wanted, namely details on proposed benefits and costs. The Corps plan recommended projects that would cost the federal government more than $658 million. Smith said that along with the Department of Agriculture's estimated outlays of $350 million, the total costs of carrying out Missouri basin water control and use plans would exceed $1 billion. No detailed analysis existed, he said, of the tangible benefits that would justify the proposed federal expenditures.

The Budget Bureau head asked that the Chief of Engineers submit additional details on aspects of the proposed Corps plan for the Missouri River basin. Smith said the Chief had not made clear what his views were "as to the ultimate relationship that should prevail" among (1) flood control plans proposed by the MRD Division Engineer and the Board of Engineers; (2) the proposed nine-foot-channel project for the Missouri River between Sioux City and the river's mouth, then being considered by Congress in a separate bill; and (3) up stream uses of the basin's water.

Smith wanted the Army Engineers and Congress to defer further action on the Missouri River development proposals until the Bureau of Reclamation submitted a pending report. It was his understanding that this five-year study on conservation, control, and use of the basin's water was to be available on 1 May 1944. Without this report and the supplementary materials and data, the Executive Office could not ascertain the differences in the federal agencies' proposals and determine a realistic federal expenditure level for water and land resources improvements in the basin.

Many issues were involved in the Budget Bureau's response to the

Secretary of War's request for advice on the Corps development plan for the Missouri River and its tributaries. Clearly, the "flood control plan" the Corps proposed would not be complete without supplementary action by other federal departments, which had not completed their plans. The details of planning and programming had to be worked out in a progressive manner through the coordinated efforts of all agencies, federal and nonfederal, concerned with water and related land resources. And, as to the federal expenditures, General Reybold stated that he did "not consider it practicable to make final allocation of proportionate costs in advance of construction." He pointed out that costs and benefits would be distributed over the entire basin, and that other political entities would be proposing a number of projects.[43]

Both the Chief of Engineers and the budget director were hedging on the substantive issues involved in Missouri basin resources developments. Only the most rudimentary engineering planning had been done on the newly recommended projects. Inflation was expected to drive construction costs upward in the postwar era and no one knew how much cost control the Roosevelt administration could exercise. The budget director understood the speculative and preliminary nature of any estimates of costs and benefits on such a vast and long-term development program proposed by the Corps for the Missouri basin.

The real issue was not federal expenditures but control. The Executive Office had no authority to prevent the federal agencies from submitting to Congress reports authorized by Congress. Corps officials wanted to get on with their traditional role of improving the nation's rivers. From the Corps' perspective, the issue of public-works engineering and control was clear in the wartime arena in which the Pick plan was proposed; Army Engineers used their civilian experience to prepare for defense. As General Reybold explained it: "We have at all times kept our military work uppermost and we shall again divert those people to military activities if the need comes." The Chief of Engineers said that keeping personnel in the Corps who were trained and ready for any contingency was essential.

The timing of the Missouri River development report was propitious. In the immediate aftermath of World War II, the Army Engineers could gain support readily for their civil works assignments to keep them prepared for military missions. Having achieved 120 years of success with Congress in linking military and civil roles, the Corps wanted to preserve its close working relationship with the authorizing and appropriating branch of government. So the major issue involved at this report stage of Missouri River development was that federal agencies were

presenting alternative basinwide plans and the Executive Office wanted to wrest control from Congress over project planning, budgeting, and programming.

Powerful congressmen were unwilling in 1944 to relinquish any control over such distribution issues. Congress, the federal agencies, the lawmakers' constituents, and the agencies' client groups were willing to coalesce to pursue their broad policy goals. No policy conflict existed among any of these groups and institutional actors, including the Executive Office. All entities wanted multiple-purpose federally funded river basin projects, and they were willing to cooperate to advance the traditional authorizing process. The only discord in the cooperative stance was over where control ultimately would be vested. Senior congressmen were confident they enjoyed that power.

Two congressmen from the lower Mississippi Valley states of Mississippi and Louisiana would direct the legislative effort for passage of Missouri River development bills. Mississippi Representative William Whittington and Louisiana Senator John Holmes Overton were legislative specialists in flood control and rivers and harbors legislation. As a result, other congressmen deferred to the two on these issues. They had limited knowledge of and exposure to elements in the Bureau of Reclamation plans at the onset of the postwar legislative process.

In his capacity as chairman of the House Flood Control Committee, Whittington would emphasize the flood control aspects of the Corps plan. The Mississippi congressman called flood control the "dominant interest" in the Missouri basin. The reservoirs in the Corps plan for the Missouri would contribute to flood control, navigation, and low-flow stream regulation in Whittington's Mississippi and Overton's home state of Louisiana.

Overton's legislative role was manifold and virtually controlling. He chaired the hearings of the Senate subcommittees of both the Commerce and Irrigation and Reclamation committees. Western senators on these subcommittees provided Overton with a voting bloc in regard to water development issues. With a broadened interpretation of traditional water resources policy, Senator Overton would guide the complex Missouri River development plan through the legislative process.

Overton and Whittington encouraged cooperation by all interests in order to advance the legislation leading to comprehensive basinwide development. They endorsed the big dam engineering concept of storing all the water possible for multiple beneficial uses; however, that was yet to be defined. They would wrestle with the thorny political and policy issues of (1) protecting congressional vested interests in determining

basinwide development against the threat of presidential interference; (2) promoting shared policy determination and governmental powers among the federal government, the states, and local governments; and (3) arbitrating between those who maintained that plenary control over water in headwater streams should rest exclusively with the states and those who claimed that the federal government had a proprietary right to such water under the broad interpretation of the navigation power vested in the commerce clause of the U.S. Constitution.

The multiple interests involved in Missouri River basin development were willing to negotiate and arbitrate their vested-interest positions so that Congress could make progress in legislating a comprehensive basinwide program. Hence, the legislative history of the Missouri River development bills from 1943 to 1945 reflected much more cooperation than conflict. A ten-state consensus made the vast basinwide development program politically feasible and led Congress to enact two major legislative bills: the Flood Control Act of 1944 (Public Law 78-534) and the Rivers and Harbors Act of 1945 (Public Law 79-14).

II.
Upper Basin Concerns

Despite the cooperation of diverse special interests, some upper basin leaders expressed concerns over the Corps' ambitious plans to construct big dams in the upper basin above Sioux City and to enlarge the navigation channel below the city. Water rights had to be secured in order to expand irrigation. Irrigation interests feared that if the proposed multipurpose projects were built without legal protection of consumptive uses, insufficient water would be available for downstream low-flow regulation. Commerce-clause provisions would dominate to the detriment of upstream interests. Consumptive-use advocates wanted to protect against any federal intrusion in the prevailing water laws in the headwater areas and where water was scarce.

In 1944 upper basin interests were justifiably concerned that the "navigation powers" might be used to the detriment of consumptive uses. The Corps program was based on sound constitutional support. From early in the nation's history the power to regulate commerce necessarily included power over navigation. The Constitution empowers Congress to regulate commerce among the several states. To this end, Congress may keep the "navigable waters of the United States open and free." Congress implemented this power by authorizing the Corps to improve watercourses through which commerce may travel. This included protecting navigation projects and facilities from damage by floods, and building dams for water flow augmentation and other beneficial purposes. Thus, navigation powers were broadly construed and by 1944 had been extended into headwater areas.[1]

U.S. Supreme Court decisions in 1940 and 1941 were especially troubling to upper basin interests. No new basic principles of national water law had been announced by the Court's majority opinions in New River *(United States v. Appalachian Electric Power Company)* and Red River *(Oklahoma v. Atkinson)*. In these decisions, however, the Court asserted that whenever the constitutional powers of the federal government and those of a state conflicted, the latter must yield. "As repeatedly recognized by this Court from *McCulloch v. Maryland* . . . to *United States v. Darby,*" from 1819 to 1941 respectively, the majority declared, "the exercise of the granted power of Congress to regulate interstate waters may be aided by appropriate and needful control of activities and

agencies which, though intrastate, affect that commerce."[2]

Upper Missouri basin interests feared that the federal government might use this broad activist interpretation of the commerce clause to impair rights acquired under state laws. With discussions of an expanded federal program of water developments in the postwar period, westerners were concerned that the federal government might claim unappropriated water under the navigation powers. It might also use its property rights as owner of public lands. If a portion of the public domain had been withdrawn or reserved by the federal government for any purpose, government might be vested with the right to use all water necessary to carry out the purpose of the land withdrawal. These views, supported by federal legal opinions, caused serious concern about the security of upper basin water rights and the potential for irrigation expansion.

Vast property rights had accrued through the beneficial consumptive use of headwaters, which were appropriated and regulated under state laws. These developments had been amplified since 1902 by the federal reclamation program that had been advanced under a policy of appropriating and using water for irrigation in compliance with state water laws.[3] Most western interests had not comprehended before the 1940s that the Bureau of Reclamation acted by direction, rather than mandate. The Secretary of the Interior might determine whether water for irrigation projects would be appropriated in accordance with state laws or would be reserved for a project under the theory of government ownership of all unappropriated water. Prior to the New and Red rivers decisions, according to Wyoming Senator Joseph C. O'Mahoney, "nobody in these arid-land states entertained the slightest fear that the federal government, through the Army engineers or otherwise, would do anything that might . . . interfere with the right to use of water within the boundaries of a state."[4]

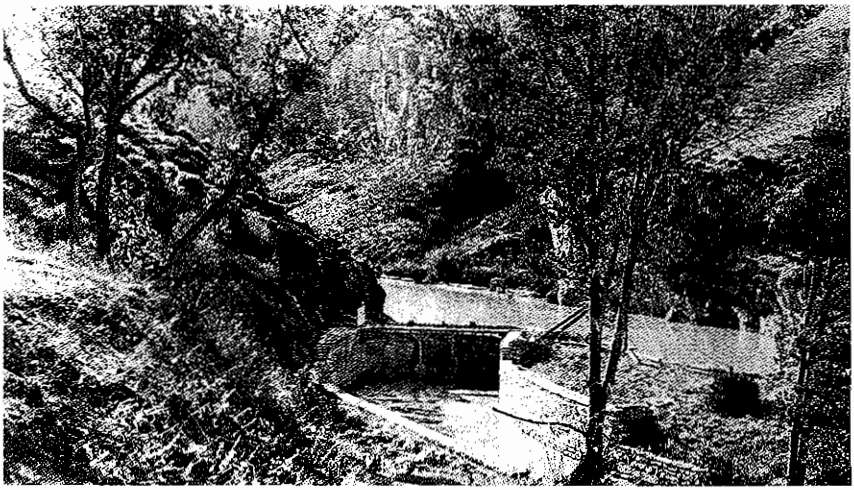
The consternation among upper basin interests was obvious in a resolution passed in 1943 by the Western Governors Conference. The arid-states governors said that while many economic development programs were pending on the securing of water rights from the states, they were threatened by the conflict over the rights and powers of the federal and state governments to control and administer water use. The governors wanted to avoid litigation, "insure interstate comity in the use of water," and maintain and protect "rights to the beneficial use of water within the states as against threatened uses by the federal agencies."[5]

The National Reclamation Association amplified the views of the western states governors. It appointed a committee that reported on the "preservation of integrity of state water laws," declaring that

> "The application and construction of the commerce clause, not for the protection of the substantial interests of commerce but in order to obtain an unassailable federal control of a limited and vital Western resource, would constitute a threat to state control of water for irrigation and other beneficial consumptive use purposes."

Irrigation interests claimed that as interpreted and applied in federal court decisions, the power of the federal government under the commerce clause transcended the use of water under state laws for reclamation purposes.[6]

Consumptive-use advocates were concerned about future implications of this unfettered power. The solution to the problem lay, according to the National Reclamation Association committee, in preserving the integrity of state water laws largely by integrating facilities for multiple water uses and coordinating conflicting federal and state jurisdictions so that state laws might be undisturbed with respect to the beneficial con-



Irrigation Project on Big Horn River near St. Xavier, Montana, 1931.

sumptive uses. The committee saw no reason why the flood control program could not be combined with projects for irrigation "to obtain the highest beneficial use of the limited water supply for crop production." According to the Committee, this principle of capturing all water possible for beneficial consumptive-use purposes should also be recognized in "the maintenance of navigable capacities in lower reaches of river systems which have their sources in the Western area."[7]

In the Missouri basin, irrigation advocates were especially concerned

with the enlarged navigation channel proviso in the rivers and harbors bill pending in the House. Deepening the Missouri River channel from the authorized 6 feet to 9 feet, and widening it from 200 to 300 feet, was an improvement included in the rivers and harbors bill of 1941 and earlier in the bill of 1939.[8] Neither of those bills had been enacted and the project was reintroduced by the House Rivers and Harbors Committee.

Wyoming Governor Lester C. Hunt protested to Senator O'Mahoney "the allocation of any water to maintain a nine-foot channel, or any other depth of channel." Allocations for navigation were "an inferior use," according to Hunt, and might preclude upstream water uses. The Wyoming governor wanted O'Mahoney to use his influence to prevent the bill's passage until the Bureau of Reclamation and the involved state engineers' offices approved an amended rivers and harbors bill.[9]

F.O. Hagie, secretary-manager of the National Reclamation Association, amplified Hunt's position. Hagie informed Senator O'Mahoney that Bureau of Reclamation engineer Glenn Sloan had been quoted as saying that if a nine-foot channel were authorized, adequate water would not be left for the irrigation projects the bureau had planned. Hagie, too, concluded that if the rivers and harbors bill passed without amendment it would "dedicate for all-time a large portion of the Missouri River to an inferior use" and foreclose the possibility of full upstream reclamation development.[10]

Other action was also occurring. Upper basin states' representatives appealed to Congress while western state legislators caucused with their congressional delegations at a meeting presided over by Utah Representative James W. Robinson. At the same time, Congressman James F. O'Connor of Montana persuaded House Rivers and Harbors Committee Chairman Joseph J. Mansfield of Texas to reopen the hearings on the Missouri channel provision.[11]

Mansfield had received a letter from President Roosevelt requesting that the Rivers and Harbors Committee consider reclamation provisions in the Missouri River part of the bill. Roosevelt said the existing nine-foot-channel authorization did not "adequately recognize the legitimate needs of the states in the upper Missouri River basin for water essential to the continued development of their agricultural economy." The President thought that the reclamation of sub-humid lands presented the most promising opportunities for reestablishing veterans and war workers as independent farm owners. Where those values existed, Roosevelt wanted Congress to provide legislation for their eventual realization through the construction of irrigation works complementing the navigation works constructed by the Corps of Engineers.[12]

Roosevelt pointed out that the Missouri River could be made to serve the interests of both water transportation in the lower basin and irrigation and other consumptive uses in the upper basin. As he told Mansfield:

> In order to make it clear that the Congress intends to safeguard the upstream states against unreasonable withdrawals of water for downstream developments, I believe the bill should contain a definite declaration that the beneficial use of water in the upper basin shall not be affected by the proposed lower basin improvements.

Roosevelt reiterated what the western states' representatives had concluded in their strategy caucus. They knew that the previously authorized six-foot navigation channel already had its water rights protected by the commerce clause of the Constitution, although the amount of water reserved for navigation use was not clearly defined. The irrigation advocates decided to take a moderate practical approach before the House Rivers and Harbors Committee. Rather than overtly resist the nine-foot-deep channel, they pushed for an amendment to protect an amount of water for irrigation.[13]

At the reconvened Rivers and Harbors Committee hearings, the upper basin states were represented by Wyoming Governor Hunt, Montana Governor Sam C. Ford, and North Dakota Governor John Moses. The governors' joint statement included the relatively "soft" language requesting an amendment to the rivers and harbors bill that guaranteed "a certain fair and equitable portion of Missouri River water for upstream consumptive use;" an amount that might be mutually agreed upon. They asked Congress to consider a program for ultimately installing locks and dams so that navigation service could be provided with less water as upstream demands increased.[14]

The lock and dam provision had not been reflected in any pending legislation. Navigation on the Missouri was open channel with regulated flows controlled through operation of the Fort Peck project. The Pick plan would provide water downstream for the open channel and make flow regulation more flexible through a system of dams and reservoirs. The Army Engineers maintained that water would be sufficient for irrigation.

Bureau of Reclamation Commissioner Bashore told the Rivers and Harbors Committee that the requirements of a nine-foot-deep channel would "permit no additional irrigation development at all" in the upper basin. The Corps reports referenced in the rivers and harbors acts failed to clarify just what demand on the Missouri's water was authorized by existing law. The upper basin governors' statement did not oppose the

use of a "reasonable" amount of water for navigation below Sioux City but emphasized that "the use in perpetuity of 32,000 or 35,000 cubic feet per second out of an average flow of 37,600" was neither the most economic nor the most beneficial use of water.[15]

Western interests urged that the beleaguered Rivers and Harbors Committee adopt protective legislation. South Dakota Representative Francis H. Case framed the amendment. He took a conciliatory stance, stating his "hope" that the committee would "take affirmative action" to protect the upper basin interests and "set up a priority for consumptive

"F.D. Roosevelt" on Missouri River, 1939.

uses of water above Sioux City." If such a proviso were unacceptable, Case requested that at a minimum the committee accept that when improvements were completed they "shall not create or place any additional demands upon the water resources of the Missouri River basin over that authorized by existing law."[16] The committee adopted the Case amendment with the nine-foot-channel project and advanced the bill to the House floor.[17]

Some western water development advocates felt that the Case amendment failed to protect their area's interests because it applied only to the Missouri basin. The amendment had accepted that the demand for water for navigation under "existing law" was founded in the commerce clause of the Constitution and superseded the states' laws under which irrigation rights were acquired in the West. As one respected authority on water law analyzed the Case amendment, it protected navigation uses.[18]

A bloc of western congressmen pressed the House for additional

protective legislation. They supported an amendment by Utah Representative James William Robinson that stated:

> In connection with dams or works authorized by this Act, any use of the waters of any stream or tributary thereof having its source west of the ninety-seventh meridian shall be subordinate to and shall not interfere with any use west of the ninety-seventh meridian of such waters for domestic, irrigation, mining or industrial purposes whenever established under state law.[19]

Robinson's proposed amendment and a similar one presented on the House floor by Representative Frank A. Barrett of Wyoming on behalf of Representative James F. O'Connor of Montana were too much for Mansfield to tolerate. He responded that "The Constitution places interstate commerce and improvements for that purpose under the jurisdiction of the federal government."[20] According to Mansfield, the navigation powers were not to be subordinated "to an act of a state legislature." Robinson's amendment was defeated by a vote of 77 to 48 and O'Connor's, applying to the Missouri only, by a slightly smaller margin. The House passed the rivers and harbors bill with the Case proviso that no new water rights were created by the nine-foot navigation project. It was sent to the Commerce Committee of the Senate where a subcommittee, with Senator John H. Overton of Louisiana as chair, would conduct hearings.[21]

As House Rivers and Harbors Committee Chairman Mansfield reopened hearings on the Missouri navigation channel project, the House Flood Control Committee was concluding its hearings.[22] The flood control bill was generally framed by February 1944 with the Army Engineers' Missouri River development proposal incorporated. Upper basin governors requested that Committee Chairman William M. Whittington of Mississippi delay legislative action on the omnibus bill until the Bureau of the Budget provided comments and the appropriate congressional committees could analyze the Bureau of Reclamation's plan. Then, the governors stated, it might be propitious to coordinate the proposals of the Army Engineers and the Bureau of Reclamation.[23]

The upper basin consumptive-use advocates fused the flood control bill with the navigation channel provision in the rivers and harbors bill and emphasized the integrated multiple-purpose development concept. Wyoming State Engineer Loran C. Bishop expressed the fear of the upper basin interests. He stated that even with the big flood control reservoirs, if a navigation channel 9 feet deep and 300 feet wide having a demand for 32,000 cubic feet per second (cfs) of flow were to be constructed from Sioux City to the river's mouth, the lower basin would eventually need

that amount of water. This situation would prevent complete development of the irrigable areas in the upper reaches of the stream. As Montana's Governor Sam Ford put it, "The issues which disturb the upper Missouri River basin states are so interwoven in the two bills that they cannot be understood or solved without consideration of some of the features of both bills."[24]

Whittington encouraged this dialogue and endorsed combining flood control and irrigation projects. In an agriculture-based economy, navigation improvements brought about through extensive flood control projects, without regard for unrestricted water supplies for irrigation and municipal and industrial uses, would defeat the ultimate purposes by limiting the production of commodities to be transported. In order to develop the Missouri basin to its maximum potential, the most practicable amount of main-stem conservation storage was needed.

The Corps' development plan was a responsible engineering program and appropriate public-policy proposal. It was based simply and narrowly on the avowed need to protect the urban areas in the lower basin against floods. It was based firmly on statutory law and the Constitution. Colonel Pick broadened both the development concept and the perceived need for additional law by recommending that the nation build enough water storage space in the main-stem reservoirs to provide for flood control and other purposes, including consumptive uses in the upper basin.

Whittington asked Colonel Miles Reber, who had succeeded Pick as MRD Division Engineer, if constructing the proposed reservoirs would "in any way" interfere with the vested rights of the water users above Sioux City, in the main-stem or tributary areas. Reber responded that he did not see how they could because they were "below the general region in which water rights exist" and, furthermore, the Army Engineers' report stipulated "absolutely no priority of water use." Whittington pressed the point: "And no vested rights would be obtained for navigation?" Again, Reber declared there was "no priority of use established by the reservoirs in this report."[25]

Obviously, the Corps of Engineers' long-time clients in the lower basin supported Reber's conclusions. Kansas City, Missouri, Mayor John B. Gage informed the Flood Control Committee that the ultimate economic development of the entire basin would be limited immeasurably if the lower river interests insisted on parching the upper areas. Gage said that lower basin urban interests wanted a regulated low-flow channel in the Missouri River for sanitation and domestic needs, as well as for navigation. He believed that the areas of need for additional water were

equal in importance. Gage understood that the Corps plan proposed not to take water from the upper basin, but "to give a very substantial additional supply to irrigation and reclamation uses, and to conserve what had formerly been waste for multiple purposes; that is, namely, the extent of the flood run-off."[26]

Kansas City, Missouri, Mayor John B. Gage.

Upper basin interests had to weigh the reassuring position of Mayor Gage and Colonel Reber against testimony of Bureau of Reclamation Commissioner Bashore. Bashore testified that in his judgment the requirements of the authorized six-foot channel would greatly "deplete the amount of water that would otherwise be available for additional upstream irrigation development; and that the requirements of the nine-foot channel would permit no additional irrigation development at all in the upper basin." Bashore wanted Congress to "safeguard upstream developments" through a proviso that the construction and operation of any authorized in-the-stream works would "not in any way curtail beneficial consumptive use of the waters of the Missouri River and its tributaries."[27] President of the major upper Missouri sub-basin Yellowstone Basin Association, H.W. Bunston of Hardin, Montana, responded to Bashore's testimony with an especially impassioned statement requesting the committee members to "Protect us, gentlemen, in our right to the first use of our water to the extent of our needs."[28]

Whittington recognized that the exercise of the broad commerce-clause power should be tempered with reserve, reason, and justice, especially because the welfare of a large part of the nation was involved in the Missouri basin development plan before this committee. His predominant interest was clearly flood control in his home state of Mississippi, which the Missouri River at times exacerbated. But the united action of the upper basin interests impressed him. These well-organized legislators might provide trade-off support for postwar projects in the lower Mississippi region. Whittington was, therefore, willing to include a protective proviso in the flood control bill similar to the Case amendment to the rivers and harbors bill. That proviso stated that "noth-

ing in this act shall be construed as creating below Sioux City [water rights] in excess of that now authorized by existing law."

However, Whittington was unwilling to acquiesce to the upper basin consumptive-use advocates' request that the committee delay the flood control bill. Delay might jeopardize the excellent legislative positions of the Missouri River development plans, and conflict within the basin might cause congressmen to pass over the basinwide plans until another legislative session. The risk was that the basin might not receive the federal dollars expected to be expended in the immediate postwar period to stave off an anticipated depression. The Missouri basin projects of either the Corps of Engineers or the Bureau of Reclamation might never be funded if the ephemeral legislative opportunity were lost.

The Missouri River States Committee, functioning as a quasi-official state governors' committee, wanted these measures integrated and advanced as rapidly as possible. The group met in Omaha on 13 and 14 March and acted on a motion by O.S. Warden of Montana that the MRSC exert "all possible influence upon all agencies having interest in the Missouri River development to proceed with all possible speed in preparing and coordinating their plans."[29]

Warden's motion carried unanimously. Thus, state officials were lobbying Congress to advance the Army Engineers' plans, even before the Bureau of Reclamation's plans could be presented officially to the responsible congressional committees. In fact, the House and Senate both had irrigation and reclamation committees, but they would not consider the Bureau of Reclamation's Missouri basin plan because of the swift pace of legislation through the other committees. The MRSC urged, therefore, that all interests involved in this policy issue combine forces; a lesson learned from the National Resources Planning Board and the National Reclamation Association.

Yet the overriding concern of all the basin development advocates was the issue of the amount of water available for all the proposed purposes. Nebraska Governor Dwight Griswold proposed that the MRSC address this critical issue; Clifford Stone had made this suggestion as a necessary "first move" at the July 1942 Billings meeting. Based on Griswold's motion at the March 1944 meeting, the MRSC established an engineering subcommittee to consult with the Corps of Engineers and the Bureau of Reclamation to determine the amount of water needed for the various proposed purposes.

The primary function the MRSC performed at the critical time in the policy formulation process was to avert confrontation among competing interests by supplying objective information to its members. The commit-

tee also tried to perform a traditional role of special-interest organizations by responding to the informational needs of congressional decisionmakers. Capturing and applying objective information was difficult. As to how much water might be available for what purposes, the governors' committee engineers report would not confirm the water rights upper basin interests needed before irrigation projects could be financed.

The policy dilemma was related to federalism: The flood control plan and the navigation channel project involved control of water under federal jurisdiction. The irrigation interests feared that these proposals might subject water in the upper basin for consumptive uses to the federal jurisdiction. This perception had been reinforced by recent Supreme Court decisions. Upper basin interests saw encroaching federal power as rendering ineffective the state laws under which water had long been appropriated and used for beneficial consumptive purposes. For irrigation agriculture to succeed under the traditional practice and law, the farmer's water rights could not be subject to federal jurisdiction. The problem over policy was compounded by the fact that the navigation powers were rooted in the nation's commerce history and law.

Whittington's Flood Control Committee rested its case on the supremacy of the navigation powers, from which the federal flood control program derived its constitutional authority. Rather than establishing a preference for the upstream states, the committee would consent only to limiting water rights for navigation to the ambiguous "existing law." The omnibus bill advanced to the House floor on 29 March with the Army Engineers' Missouri River development plan incorporated into House Report 4485 (H.R. 4485).[30]

The committee had acted favorably on the Missouri River provisions of the bill after carefully considering the testimony at the hearings and with due regard to the Bureau of the Budget's comments on the report of the Chief of Engineers. The committee members concluded that the works recommended by the Chief of Engineers would

> . . . form a broad framework for the comprehensive development of the entire Missouri River basin in the interest of flood control, irrigation, power development, navigation, and other purposes, and that the adjustment of the water use to meet the changing needs of the Missouri River basin as a whole can and will be made if the comprehensive development proceeds step by step toward ultimate accomplishment.

This wording was taken directly from the Chief of Engineers' report printed as House Document 475, which was now incorporated into

H.R. 4485.

H.W. Bunston reported optimistically to the Yellowstone Basin Association membership on the outlook for the upper basin in the pending legislation.[31] He believed that the flood control bill would be reported out promptly for consideration on the House floor as had been the case with the rivers and harbors bill, and that "the door will be open for the Bureau and our arid West to enter." Bunston thought the extent to which the upper basin would benefit depended upon the early availability of the bureau report setting forth the needs of the upper basin and "on the unified, intelligent, and persistent effort we at home exert in injecting our needs into the Missouri River development program." His latter point was related to the fact that if the Bureau of Reclamation program was going to be authorized for the immediate postwar period, it would have to be melded into the Army Engineers' flood control and navigation plans. To achieve integrated development of water resources in the Missouri basin, the Corps plan had to be not only accepted but expanded.

Consumptive-use interests wanted to clarify the relationship between the proposed uses and potential supplies of basin water before the federal agency plans advanced further through Congress. Technical and legal issues associated with water flow in the navigation channel also needed to be resolved. The existing rivers and harbors acts authorized a minimum amount of water to be used for navigation in terms of a six-foot channel and 32,000 cubic feet per second of flow at Kansas City. While determining the amount of water required from the Missouri watershed to provide the 32,000 cfs at Kansas City was difficult, Corps officials indicated that a low-water flow of 20,000 to 22,000 cfs just above Sioux City would be sufficient to provide a six-foot navigation channel at Kansas City.

Consumptive-use advocates needed to ascertain how much water remained for irrigation purposes under the six-foot authorization, assuming a demand for 20,000 to 22,000 cfs from above Sioux City. Stephen Raushenbush, the chief of the Economics and Statistics Branch, Division of Power, Department of the Interior, addressed this subject in an April 1944 internal memorandum to the Bureau of Reclamation Commissioner.[32] He said that any wet cycle would provide "adequate water to allow provision from Fort Peck or the downstream tributaries of more than the required amounts at Sioux City or at Kansas City, and to allow 6,340,000 acre-feet of water for upstream irrigation purposes." This was the net requirement to irrigate the 3,836,840 acres upstream from Sioux City, as planned by the Bureau of Reclamation.[33]

The problem would occur during recurrent dry cycles in the Missouri basin. Raushenbush told Bashore that

During a fourteen-year dry cycle such as that from 1929 to 1942, the Fort Peck Reservoir could, if operated exclusively for navigation purposes, and not at all for flood control or irrigation purposes, aid in supplementing the flow of the river sufficiently to provide a little more than navigation only.

NAVIGATION ONLY

	Army Engineers Figures (cfs)	Geological Survey Figures (cfs)
At Sioux City	**27,100**	**29,000**
At Kansas City	**35,900**	**38,400**

Raushenbush stated that whether navigation interests could absorb all of the water from Fort Peck had not been established. Consequently, the question remained of how much water was available without additional storage for irrigation purposes during a dry cycle, when Fort Peck additions and the natural flow above Sioux City supplied only 20,000 to 22,000 cfs above Sioux City to meet the combined requirements of the authorized six-foot channel and 32,000 cfs at Kansas City.

Raushenbush used another table to address the question of water availability:

WATER REMAINING FOR IRRIGATION (Fort Peck Only)

	Army Figures (Acre-Feet)	Percent of Total Upstream Irrigation Requirements	Geological Survey Figures (Acre-Feet)	Percent of Total Upstream Irrigation Requirements
20,000 cfs at SiouxCity	**2,800,000**	**44.1**	**3,400,000**	**53.6**
20,000 cfs at SiouxCity	**2,800,000**	**33.1**	**3,000,000**	**47.3**

Raushenbush informed Bashore that irrigation could claim between 33.1 and 53.6 percent of the water available in a dry cycle without any additional storage. The six-foot channel and the 32,000 cfs requirement at Kansas City had, therefore, "not disturbed rights to such amounts of water," according to Raushenbush. Of course, any additional require-

ments for irrigation in a dry cycle would need to be supplied through additional storage.

Raushenbush then addressed the question of how a dry cycle would affect the additional storage called for in the Army Engineers' flood control plan. He assumed that the projects would be located so as to allow irrigation benefits as well as navigation and flood control benefits; that Fort Peck was operated for multiple purposes instead of solely for navigation; and that the reservoirs would be full at the beginning of a dry cycle except for an exclusive flood pool storage area that would hold eight million acre-feet of the worst month's runoff and that would average 4.5 million acre-feet of capture annually based on the wettest year of record (1880). Using discharge figures of the Geological Survey and the Corps of Engineers, Raushenbush concluded that 60 million acre-feet of gross storage would provide maximum flood control and the 20,500 to 23,000 cfs navigation flow requirements at Kansas City, plus 5.7 million acre-feet for irrigation.

Raushenbush next took up the critical question of the effects of a nine-foot channel on irrigation if the requirements were 25,000 cfs at Sioux City and 35,000 cfs at Kansas City. During a dry cycle, Raushenbush concluded, "a serious impingement upon irrigation would result." The water remaining for upper basin irrigation under full storage conditions would be as follows:

WATER REMAINING FOR IRRIGATION (Full Storage)

	Corps Figures (Acre-Feet)	Geological Survey Figures (Acre-Feet)
Irrigation supply	**3,700,000**	**4,600,000**
Irrigation deficiency	**2,640,000**	**1,740,000**

Another problem was that the location of additional storage proposed by the Army Engineers' plan was such that it would not provide adequate storage for desirable areas identified by the Bureau of Reclamation. Raushenbush reported that 35.3 percent of the upper basin acreage would not be covered by reservoirs located where the Army Engineers had proposed them. He said that insufficient data was available on the amount of acreage to be supplied in North and South Dakota from the Corps-proposed main-stem reservoirs to allow a comparison with the more than 1.4 million acres in the Missouri-Souris area of North Dakota and 750,000 acres in the James River area of South Dakota (contemplated in the Bureau of Reclamation's plans).

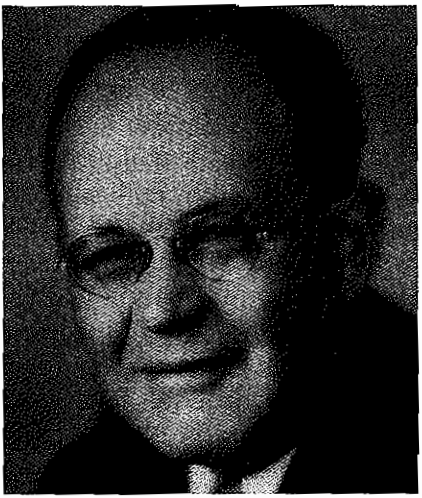
Raushenbush concluded, therefore, that if Fort Peck was "not used for multiple purposes, the Bureau program to divert sufficient water to cover the 1,403,500 acres in the Missouri-Souris area would become impossible." The use of Fort Peck water for irrigation was essential.

The interests of those who wanted additional irrigation in the basin would be served by promoting additional storage reservoirs, including those in the Army Engineers' flood control plan. Another solution would be to change the law by providing that Fort Peck would become part of the integrated multiple-purpose system and its stored water would no longer be used exclusively for navigation purposes. Barring these actions, according to Raushenbush, "full" upper basin irrigation development potential would be restricted by from 46 to 67 percent.

Some special interests opposed a change in the law. A 13 April 1944 letter from Lachlan Macleay, president of the Mississippi Valley Association, a group that advocated navigation development, instructed the recipients to write their congressmen urging them to "follow the recommendations of the Army Engineers and to aggressively oppose any amendment to divert water now authorized for navigation to irrigation purposes."[34] In a transmittal letter to Don Opie McBride, Director, Division of Water Resources, Oklahoma Planning and Resources Board, Macleay wrote that "The irrigationists are after the waters of Fort Peck most aggressively. They want to put it on about two million acres of land that cannot bear the cost of irrigation unless they receive water from a free-of-cost reservoir."[35]

As an advocate of western water development and control, McBride asserted that "the state in which the stream originates should have first right, especially when the proposed use is consumptive."[36] He could not "conceive of Congress jeopardizing large potential agricultural development in order to provide limited navigational improvements." It seemed to him that if the proponents of the Missouri basin bills were "sincere in not wanting to interfere with the development of the West that they would be willing to adopt such an amendment as was appended to the Denison Reservoir Authorizing Act," for the Red River in Texas and Oklahoma in the Flood Control Act of 28 June 1938.[37] The U.S. government had recognized the rights of the states to continue to exercise jurisdiction over the above-the-dam waters of all Red River tributaries that were within their borders, including diverting water for beneficial consumptive purposes. McBride saw this legal arrangement as "equitable and just."

The National Reclamation Association likewise was concerned about equity and justice in the 1944 flood control bill. It retained Clifford H. Stone, director of the Colorado Water Conservation Board, to prepare an



Clifford H. Stone.

analysis of the bill. In an association bulletin dated 3 May 1944, Stone wrote that authorization of the Missouri basin provisions in the pending bill would "subordinate the plan for irrigation development to flood control and navigation even though the dominant interest of the upper basin states in a basinwide plan of development is irrigation and beneficial consumptive use of water." As reported by the House Flood Control Committee, he said, the Corps of Engineers would be delegated the "primary function of designing the pattern for the Missouri basin development, including irrigation as well as flood control and navigation." Other agencies of the government and the states dealing with water development were required to correlate their activities with those of the Army Engineers, according to language in the bill. Stone interpreted this to mean that the conflicting interests and jurisdictions in the Missouri basin were to be resolved by "the simple expediency of recognizing only federal jurisdiction."[38]

The states' rights issues particularly disturbed Stone. He wrote:

> The states of the arid West assert and claim the right to control the use of water for beneficial consumption purposes. As between states and groups of states, the benefits of interstate waters have been held subject to equitable apportionment. Yet here, without any saving provisions in favor of reclamation projects, the adjustment between uses of water, and the apportionment between states and groups of states would seem to be subjected by the Congress to the federal control.

Stone contended that the Case amendment, which was intended to reassure residents of the upper basin, failed to "protect the existing and potential uses of water for irrigation" or "clearly state the intention of the Chief of Engineers." He pointed out that existing law did not define the quantitative demands that might be made upon water resources of the Missouri basin for present or future navigation projects. Stone wrote that in the case of a conflict between the Constitution and state laws, the term "existing law" offered "no protection to water rights for irrigation, do-

mestic and industrial purposes under state laws."

This point was central to the discussion on 8 May when the House took up the flood control bill. Representative William Lemke of South Dakota proposed an amendment that would "subordinate" navigation to the upper basin states and consumptive uses.[39] It was easily defeated as being unconstitutional. Whittington pointed out that similar legislation already had been rejected by the House when it considered the navigation channel provision for the Missouri. Anyway, Whittington argued, the envisioned water scarcity in the Missouri basin was not valid because the flood control bill authorizations would provide for sufficient water for every need.[40]

Because he was widely respected in the House for his knowledge of water law, Whittington's colleagues readily accepted the points he made. The committee's members were capable of advancing an omnibus flood control bill that would funnel federal public-works dollars to their districts. And they believed that these federal programs would serve to ward off depression in the postwar period.[41] Even more important, the bill protected distribution and control of the nation's streams — important powers continuing to vest in Congress and specifically in the key House committees. The House passed the flood control bill on 9 May 1944, after only one day of floor discussion, and sent it to the Senate.

The House sent to the Senate two evolutionary bills related to continuing development of the Missouri River. They would authorize extending work the Corps had been doing on the Missouri River since the first channel-improvement work began in 1879 and the first main-stem dam construction began in 1933. The Missouri portion of the bill was firmly rooted in the Corps' extensive 1933 survey report, which addressed multiple-purpose development and use of the basin's water. The Army Engineers determined then that "neither existing nor potential irrigation developments would have any significant influence on flood conditions," but "would be directly in conflict with the interests of navigation during certain periods of low water flow." The plan for "ultimate development" was intended to offset this deficiency.

The two House committees accepted the Corps' conclusions but chose not to delay the functional measures until the issue of irrigation was analyzed fully. The committee members' predominant interests related to the functional roles of their committees — flood control and in-the-channel river improvements. Their committees maintained power by limiting options and by expeditiously advancing their constituents' interests. By limiting the decisionmaking process within their committees, the chairmen zealously guarded their political power centered in water re-

sources developmental matters.[42]

Whittington and Mansfield had afforded upper basin consumptive-use advocates considerable opportunity to air their positions before both committees. Both chairmen were willing to consider unified, comprehensive planning and programming issues for Missouri River water. They were less willing to broaden resource authorizations and to merge two previously disparate development programs. The issues involved fundamental principles of law, not merely correlation of federal agency plans. As expressed by a consumptive-use advocate:

> "water rights and the local control and jurisdiction over these rights represent a sacred heritage which has been handed down to us by our emigrant forefathers. . . . We of the present generation in the [West] do not propose to give up these rights nor the local control and jurisdiction over them to a federal bureaucracy without a fight."[43]

In previous litigation, the federal jurisdiction had prevailed. A Montana lawyer termed the result "the creeping commerce clause."[44]

Clifford Stone explained the debate in a National Reclamation Association bulletin describing the House committee action on the Missouri development legislation:

> "Where waters of a river system are needed to maintain navigable capacities under a federally authorized system of navigation works, there results the imposition of complete centralized federal control. In such a situation the state laws are not questioned, but they are effectively rendered impotent.[45]

In 1944, consumptive-use development advocates continued to seek relief through congressional action.

III.
The Sloan and Pick Plans

Because federal court rulings had favored lower basin interests, Missouri River basin consumptive-use advocates believed that legal reform was needed to protect the upstream area from the "creeping commerce clause." Furthermore, the House committees dealing with rivers and harbors and flood control had advanced development bills without adequately protecting perceived vital upper basin interests and without waiting for the Bureau of Reclamation's basin development plan to be submitted.

Uncertainty existed as to how much water would be available and for what purposes. In the Senate committees, the political balance was more favorable to upstream interests; senators from the western states traditionally voted as a bloc on water matters. The window of opportunity, referred to by Yellowstone Basin Association President H.W. Bunston, was open in May 1944 for the upper basin interests to secure protective legislation through an integrated Missouri basin development plan that included expanding the region's irrigation.[1]

Wyoming Senator, Joseph C. O'Mahoney.

Opportunity for the upstream interests materialized with the Bureau of Reclamation report and the opening of Senate hearings on the water development plans. Wyoming Senator Joseph C. O'Mahoney became the lead policy maker for western states' irrigation interests in water resources matters. He chaired hearings, made statements to other committees, and drafted the major upper basin protective proviso to the Flood Control Act of 1944 and the Omnibus Rivers and Harbors Act of 1945. On 5 May 1944, four days before the House passed the Army Engineers' broad flood control plan for the Missouri, O'Mahoney presented to the Senate the Reclamation Bureau's plan for development of

Missouri basin surface water.

In the making since 1939, the bureau's report was prepared by the Region 6 office in Billings, Montana, as directed by William Glenn Sloan. Like Colonel Lewis A. Pick, Sloan served with the Corps of Engineers in World War I. Before the war he worked for the Department of Agriculture for six years directing drainage investigations in Wyoming and Montana. Sloan later worked as a private engineer at Boise, Idaho, and from 1932 to 1936 as special engineer for the Twin Falls Canal Company in Idaho. In 1936 he joined the Bureau of Reclamation.[2]

William Glenn Sloan.

Sloan was selected to head the Missouri River basin studies when the 1939 Reclamation Project Act broadened the scope of examinations and surveys undertaken in connection with irrigation projects.[3] Congress stipulated that the following was required before the Reclamation Bureau could submit estimates for any new projects: an engineering feasibility study; estimated cost of the proposed construction; and the portion of the costs that would be allocated to irrigation, hydroelectric power, municipal water supply, and other miscellaneous purposes likely to return revenues to the federal government. The 1939 law required that the Army Chief of Engineers had to be consulted if the bureau intended to make any allocation to flood control or navigation.

Sloan's assignment was to prepare a basin wide water resources development plan. All beneficial uses of water were to be considered in formulating a plan yielding "the greatest good to the greatest number of people" in the basin. Sloan's plan had been in the making approximately five years when the Army Engineers' plan for the Missouri River basin accelerated the bureau's work.[4]

The bureau's recommendations for basin water development were based on the premise that the watershed region's economy would be predominantly agricultural. Land-use adjustments were needed, the bureau's planners contended, "to stabilize the agriculture of the basin and mitigate the effects of future droughts." These adjustments could be best attained not through relocating farm families from marginal lands as the

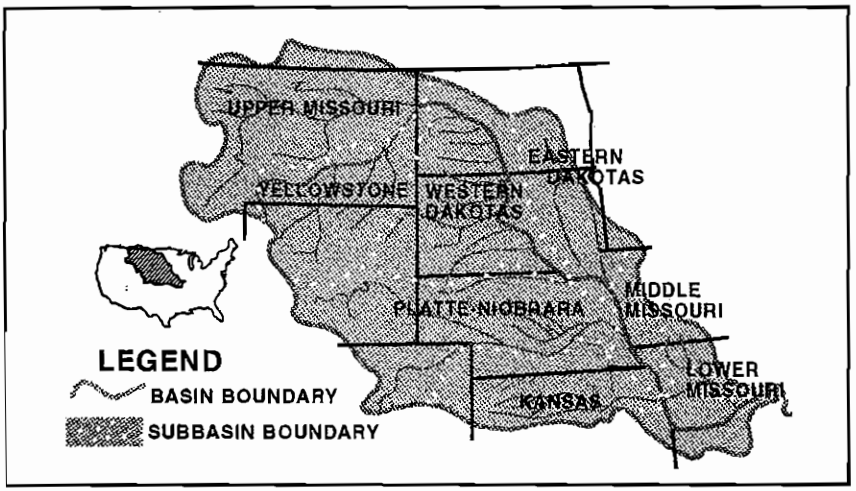
Projects Proposed By Sloan*

Area & Project	Approximate Gross Storage Capacity (Acre Feet)	Estimated Total Construction Cost
Missouri River Main Stem — Fort Peck to Sioux City:		
Oahe	19,600,000	$ 72,800,000
Ft. Randall	5,100,000	55,700,000
Big Bend	250,000	26,000,000
Smaller projects	_____	239,121,000
Yellowstone River Watershed:		
27 reservoirs and irrigation distribution	4,285,200	177,601,000
Niobrara, Platte and Kansas Rivers:		
22 reservoirs and irrigation distribution	5,650,400	273,025,500
Upper Missouri River Basin:		
19 reservoirs and irrigation distribution	3,359,950	103,614,000
Minor Western Tributaries:		
15 reservoirs and irrigation distribution	1,237,000	35,021,200
Lower Missouri River Basin:		
Pick plan approved		195,800,000
Fort Peck:		
Power system		10,963,000
Power transmission grid		68,000,000
Totals		$1,257,645,700

*Derived from U.S. Congress, Senate Document No. 191, 78th Cong., 2nd Sess., 1944.

Roosevelt administration had attempted in some areas, but by "progressive development of the irrigation potentialities of the area." The irrigation of tillable land would "add to [a] dry farming and grazing economy a dependable type of agriculture" and supplement the ranges in supporting a "larger, better, and less hazardous livestock industry." It would also have a "stabilizing effect" on support communities. Those who had left the basin because of World War II would be drawn back by "access to good land -- to well-watered land -- to agricultural units of sufficient capacity on which to rear families according to a decent standard of living."[5]

Because of these potential social and economic benefits, the Bureau of Reclamation planners recommended greatly expanded federal irrigation development. At the time of the study, which relied heavily on 1939 census data, the basin had more than five million irrigated acres, of which about 12.5 percent was in federal projects. The bureau's planners proposed doubling this amount.



Subbasins Sloan Plan.

If the plan were realized, about one out of eight tillable acres in the basin would benefit from irrigation. This excluded the lower Missouri watershed east of the main-stem river below Sioux City and east of the 98th meridian, where irrigation was simply not practicable.

The report described irrigation enhancements in five subdivisions. In the Yellowstone basin, draining portions of Montana, Wyoming, and North Dakota, 27.2 percent of the tillable land was irrigated at the time of the study.[6] The bureau wanted to add another 12 percent (728 million acres), or about four out of every ten acres of tillable land in that sub-

basin. In the upper Missouri sub-basin above Fort Peck (most of which was in Montana), 9.25 percent of the tillable land was irrigated.[7] The bureau planners proposed adding 4.25 percent, or 460,900 acres, in that watershed to the tillable land irrigated. Both of these sub-basins were suitable mostly for livestock grazing, but the year-round management of herds and flocks of cattle and sheep required reserves of feed other than pasture. The bureau planners viewed every added acre of irrigated alfalfa, cultivated grass mixtures, and by-products from sugar beets as feed insurance for the livestock feeders and ranchers.

Within the basins of the minor western tributaries, comprising the watersheds of nine streams that discharged into the Missouri River in South Dakota from the west, only 1.1 percent of the tillable land was irrigated. The bureau planners proposed irrigating another 3 percent, or 213,000 acres.[8] As in the Yellowstone and upper Missouri sub-basins, the watered land would grow forage crops to ensure reserve supplies of feed for livestock.

The bureau planners linked the three western tributaries (the Niobrara, Platte, and Kansas rivers) south of the minor western tributaries.[9] The states affected were Kansas, Nebraska, Colorado, and Wyoming. The plains areas of these states had suffered periodic droughts that forced farmers off the land. In 1939 the three sub-basins had about 7.5 percent of their total tillable land irrigated. The planners proposed to add another 3.5 percent or 1,284,060 acres. Most of this would extend east of the well-established irrigation areas of the North and South Platte in the western portion of the vast Missouri basin.

In the designated Fort Peck-to-Sioux City subdivision of the Missouri basin, less than one-fifth of one percent of the identified tillable land was irrigated in 1939.[10] This area, almost entirely in the Dakotas east of the Missouri River, contained nearly 21 million acres of tillable land. Dry-land farmers suffered from the variability in crop yields. The land that could be developed by irrigation was limited, the bureau planners stated, "only by the quantity of water that can be spared from the Missouri River without undue interference with the needs of the inhabitants of the lower portion of the river basin." They proposed to irrigate 11 percent of the tillable acreage, or about 2.3 million acres, and thereby create "a new frontier in American irrigation history." Irrigation would be expanded toward the east and north from previous areas of development.

The huge Missouri-Souris unit was a part of this recommended subdivision development. From 1930 to 1940 the civil townships within the approximate boundaries of the proposed Missouri-Souris unit had lost 20.7 percent of their overall population and 28.7 percent of their rural

farm population. The planners recommended irrigating 1,403,400 acres in order to stabilize grain crop production and create a favorable ratio of rural farm and urban population.

Water from the Missouri River, stored in and regulated by the Fort Peck project, would be used for the irrigation. This plan depended on statutory reform, shifting the purpose of Fort Peck from navigation to irrigation. It required the sanction of thousands of private landowners whose farms would be irrigated, instead of public land that the Bureau of Reclamation traditionally developed. Water from the Missouri River would be diverted over long distances to create large blocks of irrigated areas. The visionary Missouri-Souris plan was a new frontier in irrigation history.

The Region 6 planners claimed that their plan would have significant effects on the watershed region in terms of additional homes and jobs and increased population on farms and in towns. The planners estimated that 53,000 farms of 90 acres each would be created through the irrigation of more than 4.7 million acres of new land. Assuming an average of four persons per farm, rural population would increase by 212,000. For every one person on an irrigated farm, two more persons would find employment in nearby communities, thus potentially increasing total population by 636,000 in the Missouri basin.[11]

The effects of construction would be far reaching. Approximately 250,000 man-years of employment would result from building the initial 30 projects alone. Aside from the workers employed on the various reclamation projects, many jobs would be created outside the basin in the factories producing the necessary equipment and materials and in their movement to the project areas under construction.[12]

Hence, the Bureau of Reclamation Region 6 planners envisioned agricultural and commercial growth in the basin that would redefine regional development. The project would provide permanent economic security to those who had suffered from drought. It would promote national expansion by developing the watershed region's most vital assets -- its land and water. Most important, it would enhance the welfare of the individual citizen.

Glenn Sloan transmitted the plan to the bureau's offices in Denver, where it was reviewed by a five-person board selected by the Commissioner of Reclamation. The board was chaired by E.B. Debler, director of the Project Planning Branch, who had been coordinating basin water development plans with the Missouri River Division Army Engineers. After meeting from 10 to 13 April 1944, the board recommended that the plan "be approved subject to such modifications and changes as may be

indicated, from time to time, as the plan is effectuated."[13]

The review board thought the Region 6 plan was technically and economically sound. It noted, however, that "The greatest benefits will be attained through coordination of the advice and work of all interested federal, state, and local agencies." As to conflicts related to water control and use in the vast Missouri basin, the board stated that "preference should be given to those which make the greatest contribution to the well-being of the people and to the areas of greatest need." The board added that "the use of water for domestic, agricultural, and industrial purposes should have preference." The review board concluded that the Region 6 plan would meet these primary objectives.

Albert M. Day, Acting Director, U.S. Fish and Wildlife Service, Department of the Interior, could make only "a casual examination of the report" before the deadline for its delivery to the Bureau of the Budget. He thought it was "well prepared" and gave "fair consideration to diverse interests." Day took exception to the review board's statement that the use of water for domestic, agricultural, and industrial purposes should have preference. In a precursory statement about future basin conflict, Day wrote that "we could not subscribe to the thought that any particular plot or block of agricultural land . . . should have prior use of water over an important muskrat marsh or other wildlife project. Likewise, every industrial use might not have so much value from the national standpoint as the wildlife benefits."[14]

Other Interior Department officials also took issue with parts of the Bureau of Reclamation report and predicted future areas of conflict. William Zimmerman, Jr., Assistant Commissioner, Office of Indian Affairs, wrote to Commissioner Bashore on 26 April that he agreed with most of the recommendations in the report. However, he disagreed with the board's suggestion that all authorized works "be constructed, operated, and maintained by the Bureau of Reclamation under the direction of the Secretary of the Interior wherever the dominant function of such works is other than navigation and flood control."[15]

The Office of Indian Affairs exercised the same functions on Indian lands as did the Bureau of Reclamation on non-Indian property, and Indian Service lands and irrigation projects existed throughout the Missouri basin. Many of the features of the proposed plan were wholly or partially on Indian lands, and thus affected Indian water rights and existing Indian irrigation projects.

Zimmerman wanted the bureau to revise its recommendation so that his agency could help plan, construct, and operate those irrigation and power features affecting Indian interests. He cited the need to protect

Indian interests in compliance with the Winters decision and the terms of the Leavitt act. Not only had the court recognized Indian "reserved" water rights in the landmark case of *Winters v. United States,* but federal policy was to reduce tribal dependency on the federal government. According to the Winters doctrine, which related to the Milk River on the Fort Belknap Reservation in Montana, water was reserved for the benefit of the reservations. Only Zimmermann addressed this important issue, which had been ignored in the deliberations over the Missouri River development plans.

The report was sent for review to an inter-agency river basin committee. The Chief of Engineers, a member of the committee, responded on 25 April that "the upstream tributary reservoirs" proposed in the report would fit into the Army Engineers' "expanded comprehensive plan for flood control and other purposes, provided main-stem storage is not substantially reduced." He believed that further studies prior to construction could resolve differences in most of the sub-basins. With regard to any proposed main-stem reservoirs, Reybold stressed the "essential" need that they "be built, operated, and maintained by the Corps of Engineers."[16]

Reybold questioned the feasibility of the bureau's proposed huge Missouri-Souris project. He agreed that "the best overall use" of the reservoirs in the Missouri River basin was to divert water out of the basin into the Dakotas for "urgently needed . . . domestic use and for other purposes." He objected, however, to "developing a large-scale irrigation project outside" the basin that would diminish its natural water supply "until the existing and foreseeable needs for the conservation and use of water within" the basin had been satisfied. Reybold advised further study and consideration. The Chief of Engineers raised other concerns about the Missouri River development program. He said that the costs allocated to flood control and navigation were "very large compared to costs allocated to irrigation." General Reybold noted that the benefits of irrigation were "represented as several times the combined benefits to flood control and navigation." The methods for reporting benefits and the manner of accounting for basin receipts were to be ongoing issues.

Reybold sent a copy of the bureau report, marked "confidential," to the Department of Agriculture. The response from the department's Land Use Coordinator, E.W. Wiecking, was brief. He informed Bashore that his department was not responsible for the "design or construction of major engineering works for irrigation, flood control, power, and other purposes." While the Department of Agriculture recognized the potential basinwide effects of water resources development, it offered no more

than its cooperation.[17]

In his transmittal letter accompanying the Region 6 report to Secretary of the Interior Harold L. Ickes, Commissioner Bashore focused on the comments of the Chief of Engineers. Bashore expressed his agreement with Reybold that the two agencies coordinate their plans. The Reclamation commissioner noted a major difference in the big dams the two agencies had proposed for the main-stem river. The Oahe Dam, as proposed by the bureau, would provide a reservoir with a capacity of 19.6 million acre-feet; the Garrison Dam proposed by the Army Engineers would provide a reservoir of 17 million acre-feet. Bashore said that one of these dams "would constitute the initial flood control facility." He favored the Oahe project for both flood control and irrigation. Of course, realization of this project would require both congressional legislation releasing the Fort Peck project from its navigation purposes and acceptance of most of the other provisions contained in the bureau's Region 6 report.[18]

Bashore recommended the approval and authorization of the construction, cost-share, operation, and maintenance of the projects in accordance with the Region 6 report. He approved the findings, comments, and recommendations made in the review board's report. He cited the need for development of the Missouri River basin "as conclusively shown in the report." Secretary Ickes concurred with the findings and endorsed the program.[19]

Bureau of the Budget Director Harold D. Smith withheld substantive comment on the report and recommendations, but endorsed the Secretary of the Interior's sending the report to the congressional committees for their consideration.[20] Smith's letter was dated 4 May 1944, one day before Senator O'Mahoney introduced the bureau's report for basin development.

As S. 1915, the Bureau of Reclamation plan was referred on 12 May to the Senate Committee on Irrigation and Reclamation. Before action was taken there, however, the Senate Commerce Committee considered the plan with the rivers and harbors and flood control bills (H.R. 3961 and H.R. 4485). Unlike the House, which had separate committees for each of those measures, the Senate had a single committee to consider both rivers and harbors and flood control legislation. The Commerce Committee, under the chairmanship of Senator Josiah W. Bailey of North Carolina, dealt separately with House rivers and harbors and flood control bills in subcommittee. Both subcommittees were chaired in 1944 by Louisiana Senator John Overton.

Overton first conducted hearings on the nine-foot navigation channel

bill (H.R. 3961). Initially, those speaking before the subcommittee repeated positions expressed in the House hearings. Overton resisted several attempts by consumptive-use advocates to link the navigation provision to the Army Engineers' Missouri River plan (H.D. 475) in the flood control bill (H.R. 4485) and to subordinate navigation to irrigation.

The fragmented subcommittee approach to Missouri River legislation was explored in a revealing colloquy between Senator Overton and Clifford H. Stone, director of the Colorado Water Conservation Board.[21] Stone espoused the integrated network of projects as proposed, but called for legal safeguards related to irrigation. His "judgment" was that the subcommittee was not only considering the nine-foot navigation channel, but the broader plans for river development contained in H.D. 475 and S. 191.

> Senator Overton. This subcommittee has no jurisdiction over any project unless it deals with navigation.
>
> Stone. That is right. But it would seem that it does have power to correlate a navigation project with other developments in a basin or provide the procedures to do it.
>
> Overton. None at all, and it cannot go into those other questions that you raise with respect to the authorization of the project. . . . It is written into the law. It is the declared policy of the United States. Now, what is wrong with that, and how can we depart from this statutory requirement as to its authority?

Stone thought that Congress, when dealing with an entire river basin and a framework for wide-ranging future development, should include in "that framework protective measures for various uses of water." Stone said that this policy was especially critical when considering two integrated bills and when the measures involved "conflict between state water laws and federal jurisdiction." Authorizing the navigation channel without protective measures for a fully coordinated plan would, according to Stone, endanger the integration of all the water uses. Stone contended that if Congress had the power under the commerce clause to authorize a project in aid of navigation, it also had the power to insert limitations on the use of water for navigation purposes.

Senator Edward Vivian Robertson of Wyoming, the only upper basin state member of the Commerce Committee, added his views and support for Stone's position. He said he had been made aware throughout the hearings that the two bills were "very much mixed up one with the other." He viewed irrigation as the central issue and pointed out that the Missouri

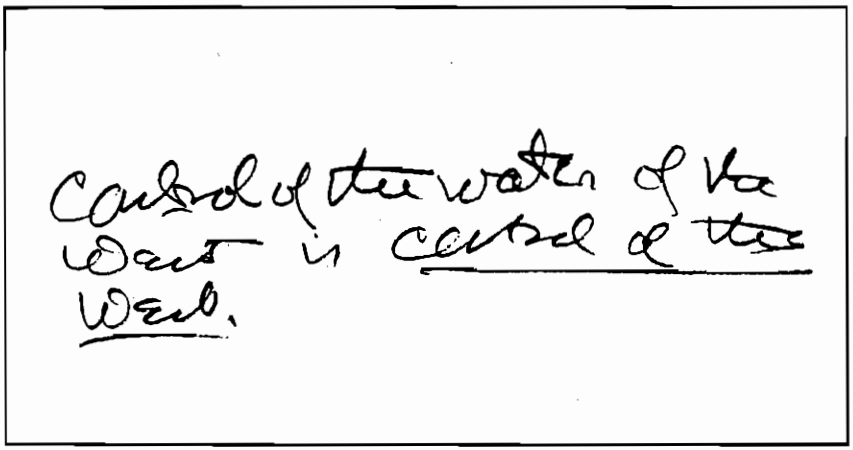
River project was "a multiple-purpose project."[22]

The subcommittee chairman rebutted Robertson's position:

> Overton. With all due deference, I beg to differ with you. It has nothing to do with irrigation or the generation of power.
>
> Robertson. But the river on which it is constructed is a navigable river.
>
> Overton. That is a different proposition. The project itself has to do solely with navigation.
>
> Stone. But has it not been demonstrated that the authorization of the project may interfere with irrigation uses, and that in the flood control bill in the Pick plan there is a framework for all of these uses, including irrigation?
>
> Overton. Judge, please do not go into the flood control bill. I have troubles enough. I know that the Missouri River basin has an interrelated system of projects, some for irrigation, some for navigation, and some for flood control, multiple-purpose projects, but so far as this bill is concerned we are considering only one project, and that is a navigation channel on the lower Missouri River.

At that point in the hearings on the navigation channel provision, Overton was unwilling to consider unified, comprehensive planning and programming issues for Missouri River water.

Senator O'Mahoney deplored the subcommittee's fragmented ap-



This illustration shows the words Senator O'Mahoney wrote on his note pad to express what he believed was just.[23]
["Control of the water of the West in control of the West."]

proach. He declared that the time had come to legislate "by river basins, not by projects." Yet he vowed to continue seeking protective legislation and specified that if water began flowing in their area, then the people west of the 98th meridian had first rights to its use. O'Mahoney and his supporters insisted on isolating the scarce water area of the upper basin for special legislative consideration.

O'Mahoney proposed amendments to the Missouri River legislation. The original undated draft in the senator's files and a draft dated 17 June 1944, with additional proposed amendments to the flood control bill, contained a preamble regarding purpose. Paragraph (a) stipulated state participation in proposed Corps of Engineers projects; paragraph (b) addressed procedures for dealing with written objections to project authorizations; paragraph (c) established a preference for upstream consumptive uses of water over downstream uses; and paragraph (d) imposed on the Bureau of Reclamation similar state participatory procedures as those imposed on the Corps of Engineers, including the states' rights to veto measures prior to congressional action.[24]

Overton submitted to Senators O'Mahoney, Robertson, and Eugene Donald Millikin of Colorado a suggested counter amendment to H.R. 3961. Overton deleted provisions of the bill relating to the Missouri River and substitute the following:[25]

> Missouri River. All dams and reservoirs needed on the main stem of the Missouri River above Fort Peck, or on the tributaries of the Missouri River, for the beneficial consumptive use of water for domestic, irrigation, mining, or industrial purposes, shall be operated primarily for such purposes. . . . All dams and reservoirs herein or hereafter authorized on the main stem of the river below Fort Peck shall be operated primarily in the interest of navigation and flood control. . . . Upon completion of the Garrison Dam, the Fort Peck Reservoir shall be operated primarily for the needs of irrigation. The existing project between Sioux City, Iowa, and the mouth of the Missouri River is hereby modified to include such additional . . . [works] as the Chief of Engineers may deem necessary to provide such navigable depths in excess of six feet as may be practicable with the flows which may from time to time be available, without impairment of the primary purposes of the use of waters in the tributaries of the Missouri River and in the main stem thereof above Fort Peck, and out of Fort Peck after the comple-

> tion of the Garrison Dam, for domestic, irrigation, and any beneficial consumptive use.

Overton considered this proposed amendment "generous to the western area, fair, and practical," whereas O'Mahoney's was impractical and unacceptable. If his own amendment proved agreeable to the sponsors of the O'Mahoney amendments, Overton would "request a meeting of the Commerce Committee to authorize me to present it on the floor."[26]

In the meantime, Overton's subcommittee on 25 May had reported favorably on the channel-improvement project without reference to the O'Mahoney amendments. Robertson was the sole dissenter. In a minority report, he pressed for stronger protection for upper basin consumptive uses than was included in the House version of the bill. Reflecting the western states' viewpoint, Robertson stated his concern that the federal government under the expanded navigation channel provision would be asserting rights to water in the upper basin states for downstream purposes without having established those rights under state laws.[27]

Even the federal reclamation program would be threatened without protection such as that provided in the O'Mahoney amendment, according to Robertson. In his minority statement, he explained that future federal reclamation projects could not be authorized if water supplies were subject to preferential use to maintain navigable capacities. The law required that all water projects had to pass feasibility tests, which meant that irrigation projects were subject to assurance of a sufficient water supply. Robertson pointed out that "The result of such a situation where improvements authorized by Congress impose a first call on water for navigation would be to relegate for all time to come large, irrigable areas to the status of desert wastes."[28]

Hearings on H.R. 4485, the flood control bill embodying H.D. 475 for Missouri River development (as introduced by MRD Division Engineer Colonel Lewis A. Pick), were held in June by a second subcommittee of the Senate Commerce Committee. John Overton again acted as chairman. O'Mahoney led western senators in again pressing for amendments to the navigation powers that would protect consumptive uses. On behalf of Senators O'Mahoney, Robertson, and Edwin Carl Johnson of Colorado, Senator Millikin on 9 June proffered amendments similar to the earlier ones.[29]

Consumptive-use advocates continued to emphasize that without the O'Mahoney-Millikin amendments, authorization of H.D. 475 would subordinate the plan for irrigation development to flood control and navigation. They wanted the reverse because they saw threats in several sections of the flood control bill. For example, section 3 referred to "dam and

reservoir areas" and appeared to authorize the Chief of Engineers to construct and operate reclamation facilities because of the "conservation" capacities of flood control reservoirs. Section 4 provided that the Secretary of War (who would delegate to the Chief of Engineers) was authorized to sell to states, municipalities, and private concerns or individuals "surplus water" from any reservoir under War Department control. Section 5 specified that the Army Engineers should regulate the use of storage available for flood control or navigation at all reservoirs constructed wholly or in part with federal funds by any agency of the government. And section 6 provided that whenever in the opinion of the Secretary of War and the Chief of Engineers, any dam and reservoir operated by the Corps could be used for reclamation of arid lands, the Secretary of the Interior should prescribe regulations for the available storage.[30]

The reclamation advocates had pushed for the multiple-use developments provided for in the bill. But if the Army Engineers, acting as agents of the federal government, were authorized to construct conservation facilities, then consumptive-use advocates wanted the states to have legal protection in the control of water. Section 8 and other provisions of the 1902 Reclamation Act afforded a degree of protection to the states where projects were constructed and operated by the Bureau of Reclamation.

Irrigation interests interpreted section 4 of H.R. 4485 as a radical departure from the adopted reclamation law. Under the 1902 act and its amendments, the Secretary of the Interior was directed to acquire water for reclamation projects in conformity with state laws. As the upper basin interests interpreted H.R. 4485, Congress was about to reverse this policy in the case of multiple-purpose projects constructed by the Army Engineers. The result would be a new policy whereby the federal government would sell to the states the benefits of water captured from streams flowing through the states. The threat in section 6 was that it applied in those cases where reclamation was deemed essential to agricultural development and where water for federal reclamation projects was appropriated and distributed in conformance with state laws. The upper basin interests wanted legislation that would subject the Corps of Engineers to the established principles of reclamation law.

Senator O'Mahoney's 17 June draft of amendments related to sections 4 and 6 of the flood control bill. As amended, section 4 would read as follows:[31]

> That the Secretary of War is authorized to sell to states, municipalities, private concerns, or individuals, at such

> prices and on such terms as he may deem reasonable, for domestic and industrial uses surplus water that may be available at any reservoir under the control of the War Department, but only to the extent that the right to the use of waters for those purposes has been established by proceeding in conformity with whatever state laws are applicable at the place of use.

O'Mahoney wanted to strike out all of section 6 and substitute the following:

> Hereafter, whenever the Secretary of War determines, upon recommendation of the Secretary of the Interior, that any dam and reservoir project operated under the direction of the Secretary of War can be consistently utilized for irrigation purposes, the Secretary of the Interior is authorized to construct, operate, and maintain, under the provisions of the Federal Reclamation laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), or under the provisions of other applicable laws, such additional works in connection therewith as he may deem necessary for irrigation purposes. Such irrigation works may be undertaken only after a report and findings thereon have been made by the Secretary of the Interior as provided in said federal reclamation laws or other applicable laws; and, within the limits of the water users' repayment ability, such report may be predicated on the allocation to irrigation of an appropriate portion of the cost of structures and facilities used for irrigation and other purposes. Dams and reservoirs operated under the direction of the Secretary of War may be utilized hereafter for irrigation purposes only in conformity with the provisions of this section, but the foregoing requirement shall not prejudice lawful uses now existing, nor shall this section apply to any dam or reservoir heretofore constructed, in whole or in part, which provides conservation storage of water for irrigation purposes.

This language and that in the original O'Mahoney amendment, especially in subparagraph (1)(c), were too radical a departure for Senator Overton. He was concerned with the erosion of cooperation. Overton could relate the latest position to that of subset (c) in the 17 June version.

As Senator O'Mahoney had noted, the "president has indicated his position":

> The use of navigation, in connection with the operation and maintenance of such works here in or hereafter authorized for construction, of waters arising west of the ninety-seventh meridian shall be subordinate to and shall not adversely affect at any time the beneficial consumptive use, west of the ninety-seventh meridian, of such waters for domestic, irrigation, mining, or industrial purposes.

President Roosevelt did seem to endorse the O'Mahoney position. In a letter to Overton dated 13 June, Roosevelt referred to the Missouri River legislation. He thought that

> . . . when considering that part of the country in which the laws of nature inexorably accord to the beneficial consumptive use of water a primary role, we must bow to those laws in our plans and legislation to the fullest extent compatible with full comprehensive development of our streams for the good of the Nation as a whole.

Roosevelt noted that the suggested amendments had "merit in firmly establishing the primary importance of the beneficial consumptive use of water without requiring any cession of federal jurisdiction under the commerce clause of the Constitution." He recognized the "immense complexity of the problem," but hoped that Overton and his colleagues could draft acceptable legislation.[32]

Overton's subcommittee reported on the flood control bill on 22 June. It explained why the O'Mahoney-Millikin amendments were not acceptable. The subcommittee questioned the constitutionality of the consumptive-use advocates' amendments, provided parallel measures, and proposed changes in water-use policy beyond the committee's jurisdiction. Overton's subcommittee affirmed the House version with the Case provision that no new water rights would be vested in the flood control bill.[33]

The Senate calendar was crowded with wartime matters. Floor consideration of Missouri River legislation would have to wait until Congress returned from recess. In the interim, despite focus on the war and on fall elections, advocates in Washington and in the Missouri basin sustained interest in the pending bills.

The President continued to exert pressure on Senator Overton. On 7 August he again wrote to the senator regarding the Missouri River legislation. Roosevelt said that he still hoped a way could be found to

settle "differences between the proponents of irrigation and of navigation so that the needed overall development of the basin can proceed expeditiously." He made no substantive suggestions to Overton, other than to state his conviction that the amendment was

> . . . designed to assure that the respective states have opportunity to have their views formally recorded in reports on proposed projects of interest to them. . . . This amendment seems to me to be no less constitutional than other limitations written by the Congress from time to time on the extent and manner of the execution of powers vested in the federal government by the commerce clause of the Constitution.[34]

The Missouri River States Committee wanted more clarification of substantive rights than the President provided. The basin governors met in Omaha on 5 and 6 August to discuss the Missouri basin water development issues. A first order of business was to address the MRSC's engineering subcommittee report on the quantity of water that might be available for the various purposes proposed.

The governors were told of the difficulty in getting objective information on the adequacy of water flows in the basin's streams. The engineering subcommittee reported that "While there are short records at various points prior to 1929, no general program of stream gaging along the main river below the mouth of the Yellowstone was started until that year." The hydrologic data base was scant.

The governors' subcommittee found a discrepancy in how the federal agencies computed the Missouri's flow at Yankton, South Dakota. The Corps of Engineers computed average annual runoff at there as 23,050,000 acre-feet, which was equivalent to 31,800 cfs for the period 1898 to 1943. The Bureau of Reclamation, however, used only a 12-year period (1931 to 1942) to compute an average annual runoff at Yankton of 14,935,000 acre-feet or 20,600 cfs. For this period, the Corps showed an average of 15,536,000 acre-feet per year, equivalent to 21,440 cfs. The latter period included the drought period of the 1930s or 11 successive years of unprecedented low water supply at Sioux City, just below Yankton, (and the considered head of navigation under the proposed development plans), and was computed at 22,473,000 acre-feet per year. The subcommittee concluded with the belief that reservoir storage in the basin could provide "reasonable regulation between wet and dry periods."[35]

The MRSC engineering subcommittee recommended procedural policies the federal agencies might follow:

> If . . . under certain circumstances there might be possible conflict in use of water, . . . both agencies [must] recognize that their plans constitute a broad framework, and that details are to be worked out during the years of the development period through the coordinated and cooperative efforts of federal [agencies], state agencies and local agencies.

The MRSC engineers said that the Bureau of Reclamation could not determine the acres to be irrigated, nor what consumptive use would develop. The Corps of Engineers could not determine the amount of water required to maintain a 9-foot navigation channel 300 feet wide. The subcommittee concluded that "quantities of water required for the various uses in the basin" would have to be determined at a later date. Although the engineering subcommittee was unable to determine water needs for purposes proposed in the federal agencies' plans, the basin-state governors endorsed the project plans of the Bureau of Reclamation and the Corps of Engineers. The MRSC adopted a resolution petitioning the President and Congress to direct the federal agencies to coordinate their plans based on the proposed legislation. The governors' committee believed a coordinated plan would prompt Congress to expedite authorization of the Missouri River basin development program "in its entirety." Seven of eight states' representatives met in executive session (with Missouri abstaining), then voted for a proviso in the resolution that "nothing done in the interests of flood control or navigation shall adversely affect the use of water from irrigation west of the ninety-seventh meridian."[36]

The MRSC meeting at Omaha had addressed two issues critical to consumptive-use advocates. Clifford Stone told Wyoming State Engineer Loran C. Bishop that the MRSC report on the availability of water for proposed developments in the Missouri basin and the congressional hearings failed to allay concerns in the upper basin about available water for navigation and for present and future irrigation uses west of the 97th meridian. The record was just too full of conflicting testimony on the subject. Stone reminded Bishop that because of doubt about adequate water supply to carry out the Corps plans and in the absence of the protection of the O'Mahoney amendment, the Bureau of Reclamation could not deem the irrigation project feasible as required by reclamation laws.[37]

Stone urged irrigation interests to aggressively support the O'Mahoney amendment to secure irrigation development for the Missouri and all rivers west of the 97th meridian:

> If there is an adequate water supply for all purposes, then the O'Mahoney amendment injures no one. If it should turn out that those who do not believe there is sufficient water for all purposes are right, then our future irrigation development will be adequately protected.

In Stone's opinion, the O'Mahoney amendment was compatible with the legislation being considered. It would protect existing water rights and future developments for consumptive purposes in the upper basin, and guarantee rights more far reaching than the in-the-channel allocation purposes in the lower reaches of the river.

Stone transmitted his views to O'Mahoney. The senator responded promptly, citing the importance of his amendment being written into any legislation for Missouri River development.[38] These two advocates began preparing for a meeting of various water organizations for the purpose of bringing together water experts from 29 states that had expressed a desire to forge amendments to the rivers and harbors and flood control bills pending before the Senate.

The delegates to the Water Conservation Conference had yet to convene in Chicago when Montana Senator James Edward Murray laid a Missouri Valley Authority (MVA) bill on the Senate table. The bill, dated 18 August 1944, would establish a regional administrative authority similar to that formed earlier in the Tennessee River basin. Murray said his bill was intended to implement "unified water control and resources development" in the Missouri basin.[39] (Note: The MVA legislative history is detailed in the following chapter.)

Iowa Senator Guy Mark Gillette introduced a second MVA bill five days after Murray's action.[40] It too was patterned on the Tennessee Valley Authority (TVA) act. The bill provided more local control and empowered the authority to issue bonds. Both bills were referred to the Senate Committee on Agriculture and Forestry, which had passed on the TVA bills. In the House, they were referred to the Rivers and Harbors Committee.

The MVA bills and one from Mississippi Representative John Elliot Rankin encompassing the nation's major river systems may have further stimulated delegates to the Water Conservation Conference. The National Reclamation Association's *Bulletin* of 23 August opposed a regional administrative authority. The association's secretary-manager, F.O. Hagie, stated that the "regional authority procedure for stream basin development has never been as dead as it is today." He believed August 1944 was the time "for bringing existing or competing agencies with the know-how together and requiring them to work in double harness for the

benefit of the Nation." While the agenda for the Chicago meeting did not touch on the regional authority bill, it included much discussion of "the so-called O'Mahoney amendments" to the Omnibus Rivers and Harbors bill and the Omnibus Flood Control bill.[41]

The principal objectives of the Chicago Water Conservation Conference were to analyze and study the proposed O'Mahoney-Millikin amendments and then draft suggested changes. The amendments applied to nationwide legislative policy and attracted various interests who wanted to assure nonfederal participation in resources development, to preserve the integrity of state water laws, and to refine amendments to H.R. 3961 and H.R. 4485 and lobby for their adoption. Along with Millikin and O'Mahoney, Representative Francis H. Case of South Dakota and Senator Hugh Alfred Butler of Nebraska took part in the conference. Senator Clifford Stone chaired the resolutions drafting committee.

The amendments were redrafted and endorsed in a resolution to all congressmen and governors.[42] The second draft retained the original principles that Congress must recognize the interests and rights of the states in water use and in determining the development of the watersheds within their borders. Provisos in the redrafted amendments were intended to enforce the states' position relative to water rights, to placate Congress, and to make the demands of those in scarce water areas more acceptable.

The preamble in Senator O'Mahoney's 17 June draft was unchanged in the 8 September Chicago conference draft. It charged Congress with recognizing the "interests and rights of the states in determining the development of the watersheds within their borders and likewise their interests and rights in water utilization and control." O'Mahoney's amendment would limit navigation works to those providing "a substantial benefit to navigation" and that could be "operated consistently with appropriate and economic uses of the waters of such rivers by other uses."

O'Mahoney's controversial preference provision in subparagraph (1)(c) was changed by the Chicago conferees. They deleted the word "subordinate" and redrafted the critical phrases to read as follows:

> The use for navigation, in connection with the operation and maintenance of such works herein or hereafter authorized for construction, of waters arising in states lying wholly or partly west of the 98th meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in states lying wholly or partly west of the 98th meridian, of such waters for

> domestic, municipal, stock-water, irrigation, mining, or industrial purposes.

The delegates amended section 4 of the flood control bill, which had been passed by the House and referred to the Senate out of Overton's Commerce Committee subcommittee. Rather than authorizing the Secretary of War/Corps of Engineers to "sell" available "surplus water," the redrafted amendment stated that the Corps could contract with nonfederal public entities for water storage for any beneficial uses. The Chicago conferees added a restriction "that the right to the use of water for such purposes shall have been established by . . . state laws; and . . . no such water storage shall be in conflict with or adversely affect then existing lawful uses of water."

The conferees directed their attention to the controversial section 6 of the flood control bill. They deleted it in accordance with the O'Mahoney draft suggestion of 17 June and recommended to Congress the amendment as stated in O'Mahoney's draft. The consumptive-use advocates at Chicago agreed that the beneficiaries of the conservation should ultimately pay for the construction, operation, and maintenance costs for that part of the works devoted to conservation. (This was in accordance with existing law.) They believed that consumptive users should be exempt from payment for the right to use water. This objection was intended to be resolved in the amended section 6.

O'Mahoney's handwritten notes attached to the corrected copy of these redrafted amendments from the Chicago conference anticipated further conflicts before an acceptable Missouri River development plan could be formulated. He noted that the revised section 8, which had been section 6 in the flood control bill, would not be "wholly satisfactory" to the Department of the Interior or Bureau of Reclamation. The revised section 6, which had been section 4 in the original bill, authorizing the Corps of Engineers to "contract for water storage for any beneficial uses" also would be "objectionable" to the bureau. These were major issues to be addressed on the floor of the Senate.

Before the floor debate, several concerned interests took action to influence the legislators. On 1 September, Representative Case of South Dakota on the House floor cited the MRSC resolution requesting Congress and the President to call for a written coordination of reports of the Chief of Engineers and the Bureau of Reclamation. Case urged positive action on the states' resolution.[43]

President Roosevelt concurred, although he was pursuing objectives other than those of the South Dakota congressman or the governors. Roosevelt favored the postwar projects, but he also was pressing for

greater control over river basin development. He attached the MRSC resolution to a 21 September message to Congress and inferred that it advocated creating a Missouri Valley Authority. The resolution in fact made no reference to a regional administrative authority. Instead, the governors urged that the basin's water resources be developed by the Corps and the Bureau of Reclamation based on congressional approval of a coordinated plan.[44]

Senator O'Mahoney understood far better than did President Roosevelt the concerns regarding Missouri basin water resources development. The week after Roosevelt's MVA message, O'Mahoney opened hearings as chairman of a subcommittee of the Committee on Irrigation and Reclamation. The Bureau of Reclamation's plan for Missouri basin development, or S. 1915, was the subject of discussion.[45] The hearings were dominated by consumptive-use advocates representing mostly federal and state entities.

Secretary of the Interior Harold L. Ickes urged that the plan be adopted without reservations. He also endorsed the O'Mahoney-Millikin amendment. While Ickes aggressively promoted the proposed Bureau of Reclamation program, his involvement did little to further coordination.[46]

Coordination was in fact the major concern of a number of senators who questioned the bureau officials appearing before the subcommittee. For example, South Dakota Senator John Chandler (Chan) Gurney reminded Bureau of Reclamation planner William Sloan that much time had passed since the two agencies had drafted plans: "Why you couldn't get together before this is beyond me." Sloan replied that his agency had shown "no lack of willingness."[47] Then O'Mahoney asked Sloan if any obstacle existed to correlation of the two plans and congressional authorization. Sloan said this "could be done very easily" with "mere instruction" from Congress.

Soon after the Senate Irrigation and Reclamation subcommittee hearings, the two agencies coordinated their plans. This followed instruction from the agency heads and encouragement from the Missouri River States Committee. On 16 and 17 October, the bureau's William Sloan and John R. Riter met in Omaha with MRD Division Engineer Brigadier General Roscoe C. Crawford and Gail A. Hathaway, Senior Engineer, Office of the Chief of Engineers. The conferees reconciled engineering differences in the two agencies' proposals for Missouri River basin development and jointly endorsed a combined plan.[48]

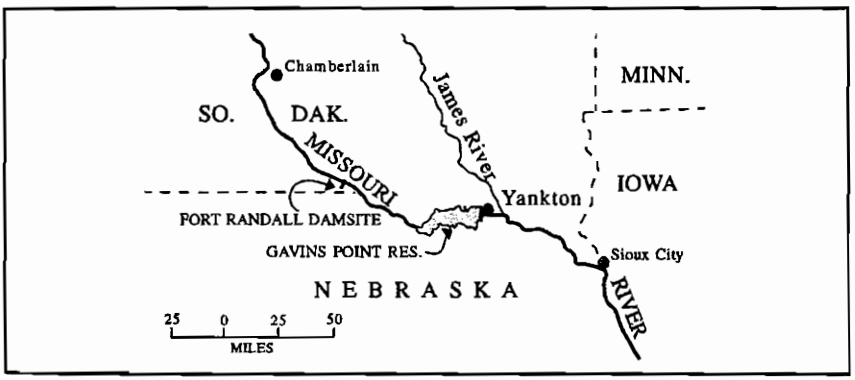
According to the testimony of George S. Knapp, Chief Engineer, Kansas Division of Water Resources, and secretary of the MRSC, the basin states' governors and other states' representatives participated

actively in the coordination meeting. He told Senator Overton during congressional hearings in September 1945 that the MRSC had "very carefully questioned" the federal agency representatives as to "why they could not get together and they showed evidence of an earnest endeavor to cooperate with the states . . . to coordinate those programs."[49] The Corps and bureau thus developed the framework for joining the plans with the participation of the basin state delegates at the Omaha meeting.

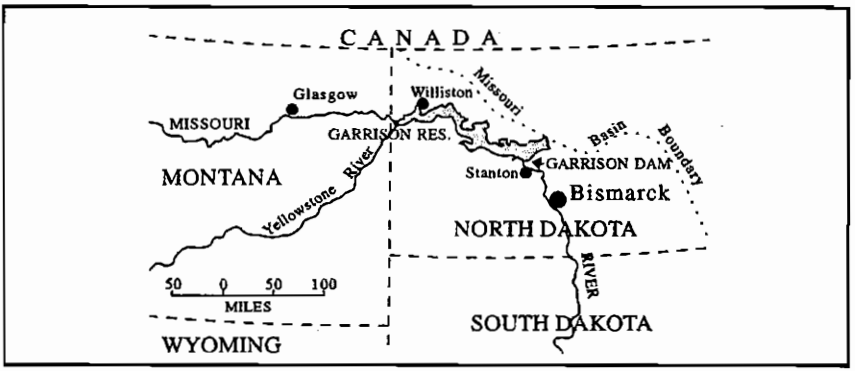
The two original plans submitted to Congress by the Corps and the bureau differed in purpose and details. They did agree on project concept to store and control the river's flows for multiple beneficial uses. Both proposed a series of big dams and large reservoirs on the main stem above Sioux City. The difference in total reservoir storage capacity of the two plans was less than five million acre-feet. Both would develop hydropower wherever feasible, after primary demands (for irrigation, navigation, and flood control) were met.

The conferees in Omaha reconciled the two plans by allocating jurisdiction of the proposed development.[50] The Corps would determine main-stem and tributary reservoir capacities for flood control and navigation; the bureau would determine these capacities for irrigation purposes.

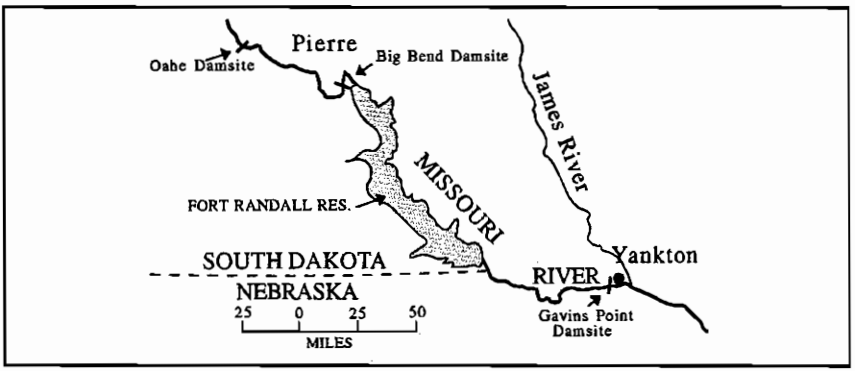
Discussions were aided by working with the bureau's subdivisional areas. No conflict existed in the upper Missouri, lower Missouri, and minor western tributaries. The Yellowstone basin, a major western tributary, was to be developed according to the bureau's plan. The Niobrara, Platte, and Kansas river systems required three adjustments. The conferees made major compromises in the original proposals for the main-stem area from Fort Peck to Sioux City. Dams in North and South Dakota would impound 72 percent of the new water storage in the entire basin. The conferees agreed on five dams:



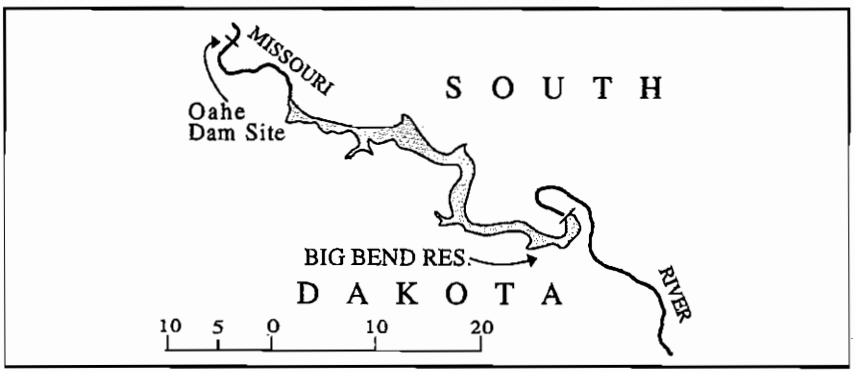
1. **Gavins Point**, recommended by the Corps, with a 200,000-acre-foot reservoir extending from Yankton to Running Water, South Dakota.



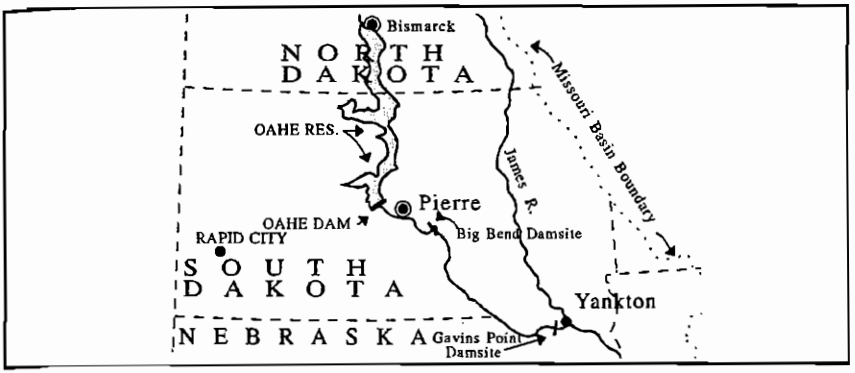
2. **Garrison**, recommended in the original Corps plan, located just above Stanton, North Dakota, and impounding a 17-million-acre-foot reservoir extending beyond Williston almost to the Montana line.



3. **Fort Randall**, smaller than the Corps originally planned, located at the South Dakota-Nebraska boundary and backing water to above Chamberlain, with five million acre-feet of storage capacity.



4. **Big Bend**, proposed in the original Bureau of Reclamation plan as a 250,000-acre-foot reservoir below Pierre, South Dakota.



5. **Oahe**, proposed by both agencies and the largest of the main-stem reservoirs in storing 19.5 million acre-feet of water, just above Pierre and extending to Bismarck, North Dakota.

These five projects, complemented by Fort Peck with about 20 million acre-feet of storage, were expected to provide 68 million acre-feet on the Missouri River for flood control and navigation releases, to supply irrigation and hydropower, and to meet municipal and industrial needs in the main river valley and James River basin.

The Corps of Engineers had no plans for the Missouri and its tributaries above Fort Peck. The Bureau of Reclamation originally proposed 19 reservoirs in Montana with a combined storage capacity of 4,237,000 acre-feet. These projects would irrigate 460,900 additional acres and provide supplemental water for 208,700 acres. One of the dams was to have a hydroelectric power plant.

The Corps made no recommendations for projects on the small streams flowing eastward through the western Dakotas. The bureau proposed 15 reservoirs with a total storage capacity of 1,237,000 acre-feet. About 213,000 acres could be irrigated. Two dams included power developments. The conferees recommended developing these western tributary projects.

In the Yellowstone basin, two large reservoirs were eliminated from original Corps plans. The joint report proposed 27 bureau projects in Montana and Wyoming. Storage capacity would exceed four million acre-feet. Power plants were included with eight dams. Irrigation would be provided for 509,560 additional acres and supplemental water for 204,500 acres.

The conferees amended the original plan for the Niobrara, Platte, and Kansas river systems. Congress previously had authorized projects on the streams and the Corps of plan called for five more reservoirs. The bureau had originally proposed 22. The joint recommendation was for 25 dams.

Water would be made available to irrigate 1,284,000 additional acres. Power would be developed at two of the dams. The projects would provide flood abatement and silt storage.

Developments in the lower Missouri basin, presented only in the original Corps plan, were retained in the joint report. Six flood control dams on tributaries in Missouri, Kansas City metropolitan area flood protection works, and a levee system below Sioux City had been authorized previously. The Corps plan recommended expansion of these projects complementing the main-stem dams.

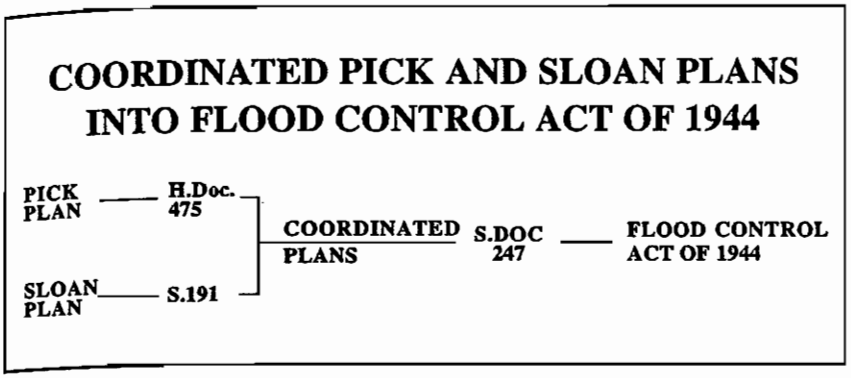
These agreements reflected the agencies' roles as mandated in national legislation. The Corps' mission for flood damage abatement throughout the nation, especially in the urban areas, and the Bureau of Reclamation's role of providing irrigation water in areas west of the 98th meridian both were addressed. The joint report specified the agencies' dominant interests in the Missouri basin.

The two agencies resolved differences in their original proposals with minor concessions, and without loss of principle or mission objectives. Client groups wanted the agencies to settle their differences so that the groups could benefit from federal programs and avoid postwar delays. The joint report would aid agency advocates in Congress in securing authorizations.

Specifically, the Omaha discussions resulted in an agreement among engineers. The accord did not purport to deal with the policy issues that arose as project development proceeded. It did not even include some important public-works engineering projects such as the nine-foot-deep navigation channel and the diversion from the Colorado River of over 300,00 acre-feet of water into the Missouri basin under the Bureau of Reclamation's Big Thompson project. The conferees had not considered interdependence of hydropower, irrigation, navigation, and municipal and industrial water supply; nor the effects on water and related land and fish and wildlife. The report said nothing about the Indians' sovereignty, their vested water rights, or the important issue of water allocations to the states.

As manager of the legislation in the Senate, Overton could choose which bill to bring up and then guide the flood control debate. He chose the flood control bill and on 21 November the deliberations began. O'Mahoney introduced into the record the Army Engineers and Bureau of Reclamation agreement for Missouri River development and it was printed as Senate Document 247, supplemental to the original agency plans contained in S. 191 and H.D. 475.[51]

On 27 November, the President transmitted his agreement to Con-



Evolution of two plans into one.

gress.[52] The same day, he sent a message to Speaker of the House Sam Rayburn of Texas; copies went to Whittington and Overton.[53] The letter was drafted by Budget Director Harold D. Smith. Roosevelt said the "joint plan represents a beginning in the solution of the problems of the Missouri Valley. But it is only a beginning, for other matters not within the scope of this joint report bear very materially upon the entire region." Roosevelt believed the policy issues confronting water resources development in the Missouri basin needed to be administered by a Missouri Valley Authority.

The senators were unwilling to relinquish their legislative prerogatives. The flood control debate revealed that the consumptive-use advocates generally opposed a regional authority for the Missouri basin. But they hesitated to vote for a development bill without at least the preference provision in the O'Mahoney amendment. Fortunately for proponents of the bill, on 27 November Senator O'Mahoney reassured the consumptive-use advocates from the Senate floor that no agreement had been made sacrificing the rights of the arid-land states and that Overton was "not asking [for] any such sacrifices."[54]

The amendments were reformulated in conference between Overton and O'Mahoney and their supporters.[55] A minor issue related to the reworded language was the apparent power of a governor to veto federal actions. Overton was unwilling to allow any such dilution of federal authority. The O'Mahoney supporters yielded, and the veto provision in paragraph (b) of the original proposal was deleted. The conferees agreed to retain consultation among the involved federal and state entities. O'Mahoney maintained that although the governors would not have veto powers, federal-state cooperation would protect the states' interests.

The conferees readily dispensed with other less thorny issues. With

minor modifications, the O'Mahoney amendment was retained as redrafted at the Chicago Water Conservation Conference. The slightly revised amendment referred only to works "herein" authorized and deleted reference to projects "hereafter" authorized. As Senator O'Mahoney stated, the language of the preference provision made no attempt to prejudice a future Congress. The preference provision negated the need for the Case amendment in the House version of the bill, and it was deleted. Senator Clark's amendment for a Missouri River commission also was taken out of the bill.

O'Mahoney and Overton thus brokered the deal that became law. The initial conferences at Omaha involving the Corps of Engineers, the Bureau of Reclamation, and state officials led to section 9 of the flood control bill. No hearings were held on the engineering agreement after it was consummated. The subsequent agreement in Washington between Overton and O'Mahoney related to policy. It allowed for implementation of the "ultimate development" concept without concessions on either the engineering or policy issues.

The Senate approved the omnibus flood control bill on 1 December by a voice vote. The anticipated floor fight had been averted. Senator Murray even refrained from proffering an amendment related to establishing an MVA. (Congressional leadership promised that the next Congress would conduct hearings on his measure.) Overton requested a conference with the House. On 9 December, the conference committee accepted all the Senate amendments. The Senate and House both approved the conference committee report on 13 December, sending the final bill to the President.[56]

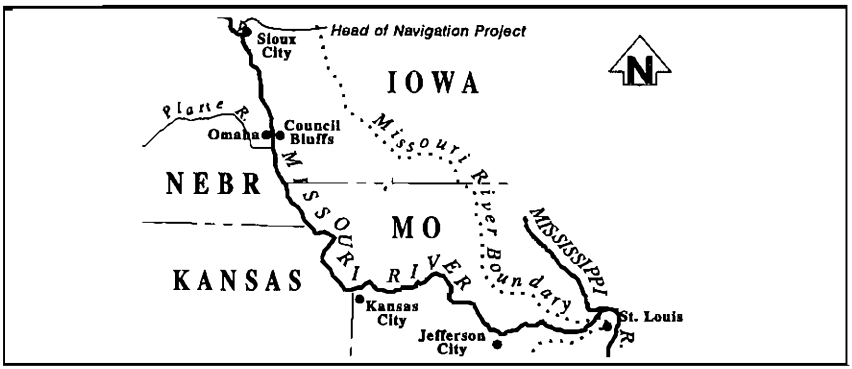
On 22 December, Roosevelt signed the flood control bill.[57] He referred to the legislation as "a step forward in the development of our national water policies." He lauded the plan for calling on states affected by proposed projects to express their positions. But he added that "of course, the establishment of such a procedure should not be interpreted by anyone as an abrogation by the federal government of any part of its powers over navigable waters."

Roosevelt addressed the issue of authorization-appropriation. The tenuous nature of dam-building legislation at the authorization stage was evidenced in the President's remarks. He stated that authorized projects listed in the bill would "augment the backlog of public works available for prompt initiation, *if necessary*, in the postwar period." He intended to submit estimates of appropriations or approve allocations of funds only for those projects having "important and direct value to the winning of the war." And Roosevelt stipulated that his approval of Missouri River

basin projects in the flood control bill was "not to be interpreted as jeopardizing in any way the creation of a Missouri Valley Authority."

The MVA supporters had settled for a promise rather than disrupting the legislative process leading to the flood control bill. Because of issues other than those involving the Missouri basin, the rivers and harbors bill had to be put aside until the next Congress convened. The Senate adopted the preference provision without debate, as did the House.[58]

When the rivers and harbors bill reached the conference stage, conflict arose over issues involving other basins.[59] Positions put forth showed the strength of western bloc senators regarding reclamation matters and illustrated the significance of the coordination by O'Mahoney and Overton. The House conference committee refused to strike an amendment in the House bill exempting the Central Valley, California, land from reclamation water limitations. Western senators opposed the amendment and the two groups became deadlocked. When the bill was sent back to the Senate, New Mexico Senator Carl A. Hatch, chairman of the Public Lands Committee, and Wisconsin Senator Robert Marion LaFollette, Jr., threatened to strike the amendment if Chairman Bailey sought its approval. Bailey decided to lay the bill over until the next Congress.



Missouri River Navigation Channel.

When Congress reconvened in January 1945, it dealt with a revised omnibus rivers and harbors bill printed as S. 35. Some provisions of the original legislation dealing with the Missouri River were omitted by the Commerce Committee because they were part of the Flood Control Act of 1944. The O'Mahoney-Millikin amendment, with the preference provision, was retained. Also retained was the provision authorizing construction of a nine-foot navigation channel from Sioux City to the Missouri's confluence with the Mississippi River just above St. Louis. No additional hearings were held on the provisions. The bill passed the

Senate on 1 February and the House on 22 February.

President Roosevelt signed the rivers and harbors bill into law on 2 March 1945.[60] Shortly thereafter he requested a $4.4 million appropriation to be applied to the approved Missouri River basin water resources development program.[61] Funding remained separate for the authorized Bureau of Reclamation and Corps of Engineers programs, but irrigation, hydroelectric, navigation, and flood control developments were combined for planning and programming purposes. Multi-purpose development for the Missouri became a reality.

Chronological Summary of Reports, Conferences, and Congressional Action on the Pick-Sloan Plan

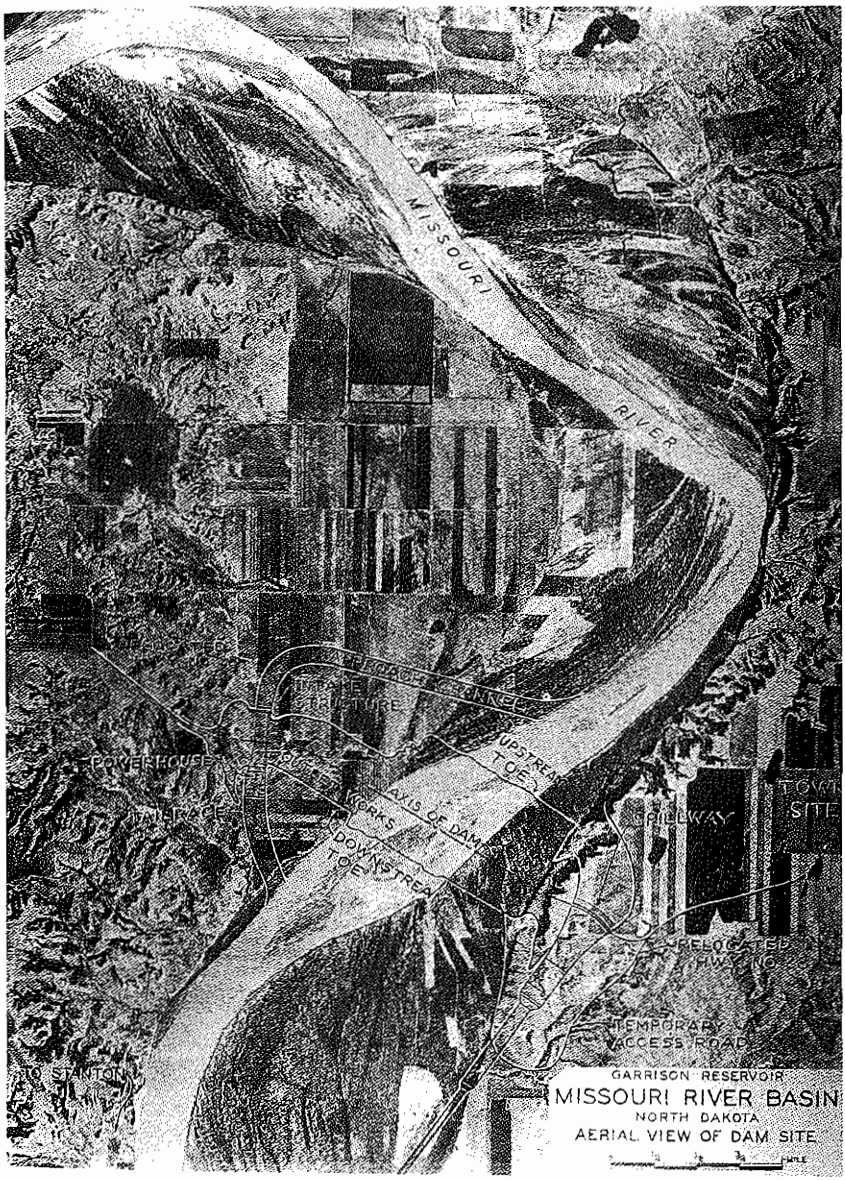
5/13/43	The Flood Control Committee of the House of Representatives, by resolution, directed the Corps of Engineers to study the flood problem from Sioux City to the mouth along the main stem. (House Document 475.)
8/10/43	Missouri River Division Engineer's report sent to the Chief of Engineers. (House Document 475.)
8/23/43	Division Engineer's report approved by the Board of Engineers for Rivers and Harbors.
8/28/43	Reports of Division Engineer and Board of Engineers sent to Bureau of Reclamation.
10/14/43	Conference between field representatives of Corps of Engineers and Bureau of Reclamation in Omaha to discuss coordinating their respective plans. (Hearings on S. 555 before Subcommittee of the Committee on Commerce, 20 April 1945.)
12/31/43	Reports of Division Engineer and Board of Engineers, with comments of the Bureau of Reclamation, Federal Power Commission, and Department of Agriculture, sent to the Chairman, Committee on Flood Control, by the Chief of Engineers. (House Document 475.)
1/7/44	Report sent to the Bureau of Budget by the Secretary of War. (Letter from Bureau of Budget to Secretary of War, 2/16/44.)
2/16, 17, and 23/44	Hearings on "Pick Plan" before the House Committee on Flood Control.
2/28/44	The Secretary of War transmitted the Chief of Engineer's report, together with accompanying papers, to the Speaker of the House. (House Document 475.)

3/21/44	Senate 1812 introduced in Senate by Senator Clark of Missouri. Contained features of Pick report and included provision for creating "Missouri River Commission." Referred to Committee on Commerce. (Congressional Record, 51-61.)
3/27/44	H.R. 4485 introduced in the House by Congressman Whittington. Included provisions of the Pick report. (Congressional Record, 3330.)
3/29/44	H.R. 4485 committee to Committee of the whole house.
4/14/44	Bureau of Reclamation Plan for Conservation, Control and Use of Water Resources of the Missouri River Basin (Sloan plan) sent from Bureau's Board of Review to the Commissioner. (Senate Document 191.)
4/20/44	Sloan plan sent to the Chief of Engineers for comment.
4/25/44	Chief of Engineers comments on the Sloan plan sent to the Bureau of Reclamation.
4/28/44	Sloan plan together with comments of interested federal agencies transmitted to the Secretary of the Interior. (Senate Document 191.)
5/1/44	Sloan plan sent to the President through the Bureau of the Budget by the Interior Secretary.
5/5/44	Senator O'Mahoney introduces Sloan plan and report was printed as Senate Document 191. (Congressional Record, 4124.)
5/9/44	H.R. 4485 (including Pick plan) passed by the House. (Congressional Record, 4314.)
5/10/44	H.R. 4485 introduced in the Senate.
5/29 to 6/15/44	Hearings on H.R. 4485 before Subcommittee of Committee on Commerce in the Senate.
6/22/44	H.R. 4485 reported by Senate Commerce Committee chairman with amendments.
9/1/44	Congressman Case of South Dakota referred to resolution of Missouri River States Committee and asked Congress and the President to call for coordination of the reports of the Chief of Engineers and the Bureau of Reclamation. (Congressional Record, A 1498.)

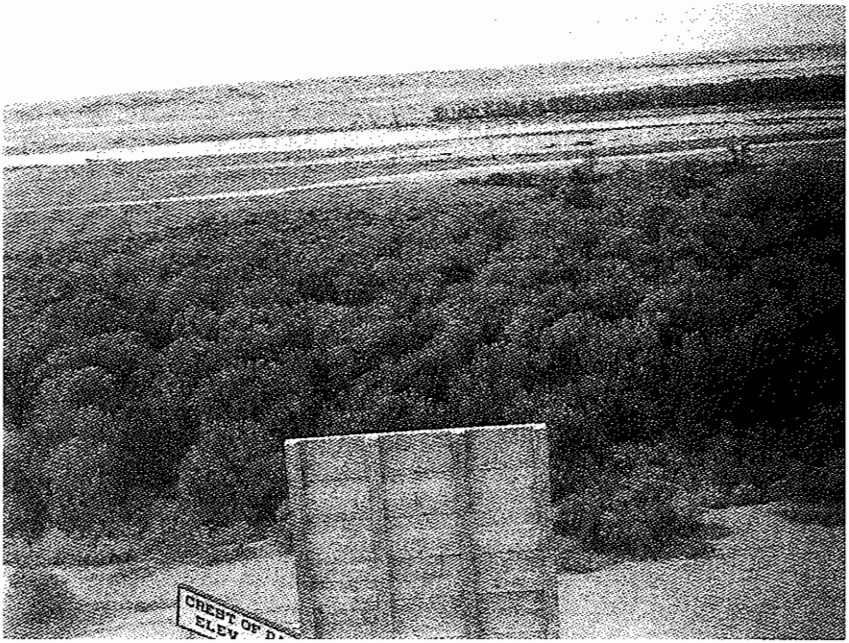
10/16 and 17/44	Committee composed of two representatives each from the Corps of Engineers and the Bureau of Reclamation met in Omaha to review the engineering features of the two plans. The plans were coordinated. (Senate Document 247.)
10/17/44	Report of the Committee Action was sent to the Chief of Engineers and the Commissioner of the Bureau of Reclamation.
10/25/44	The Committee report, together with recommendations of the Commissioner of the Bureau and the Chief of Engineers, was forwarded to the Secretary of War and the Secretary of the Interior.
11/21/44	Committee report, which coordinated Pick and Sloan plans (Senate Document 247), was introduced by Senator O'Mahoney. (Congressional Record, 8343.)
11/21 thru 12/1/1944	H.R. 4485 with amendments proposed by Senate Commerce Committee debated in Senate. (Congressional Record, 160-167.)
12/1/44	H.R. 4485 passed by Senate. (Congressional Record, 8794.)
12/1/44	House agreed to conference with Senate on Senate amendments to H.R. 4485. (Congressional Record, 8834.)
12/12/44	Conference report presented in House and Senate. (Congressional Record, 9409.
12/12/44	House agreed to Conference report. (Congressional Record, 9419.)
12/18/44	H.R. 4485 signed by Speaker of House and presented to the President. (Congressional Record, 9807.)
12/22/44	Coordinated plan (H.R. 4485), as incorporated in the Omnibus Flood Control Act of 1944, approved by the President. (Congressional Record, A 5279.)

Buffalo by Sallie Zydek

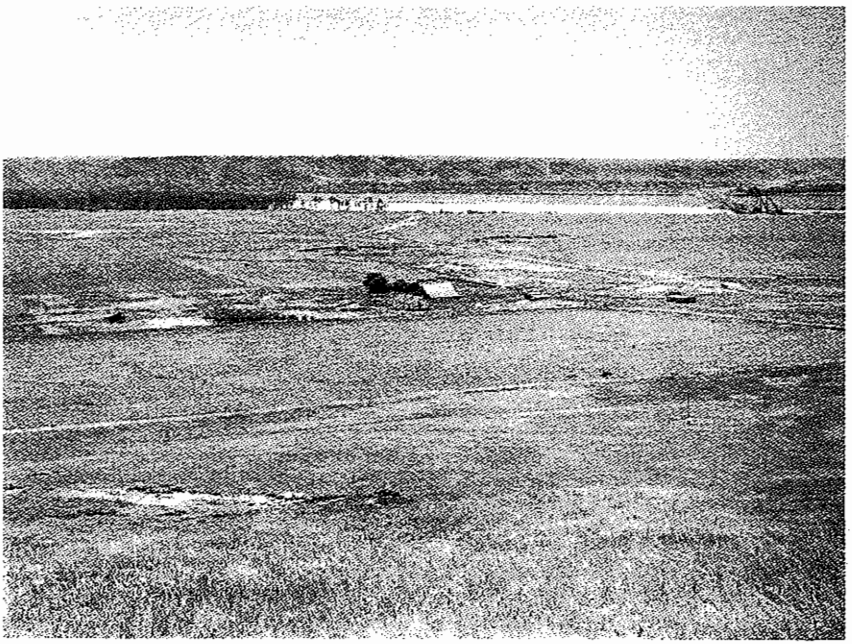
Constructing a Big Dam on The Missouri River



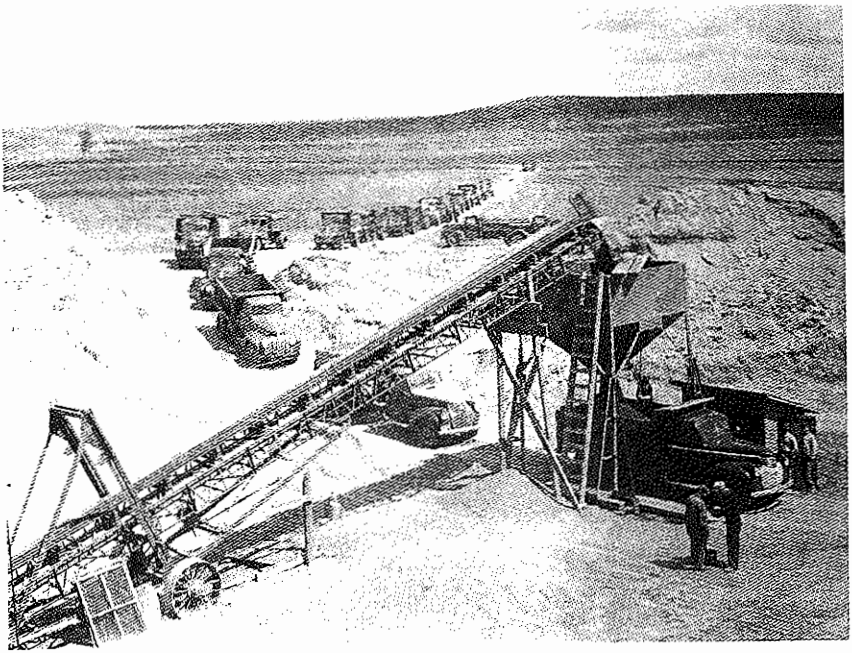
Aerial View of Dam Site.



View of Dam Site at East Abutment Looking West Along Axis of Dam. August 1946.

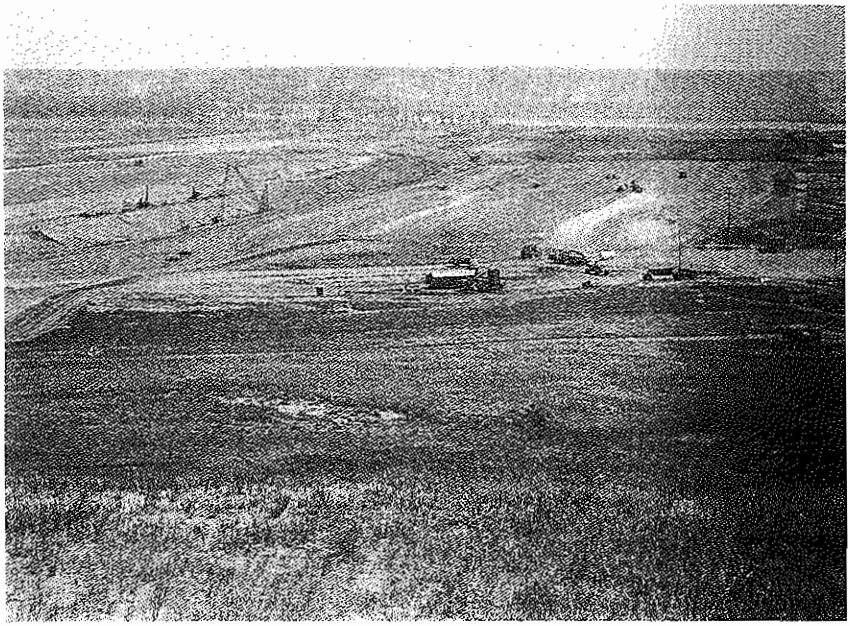


On Centerline of Dam Looking Southeast. July 1947.

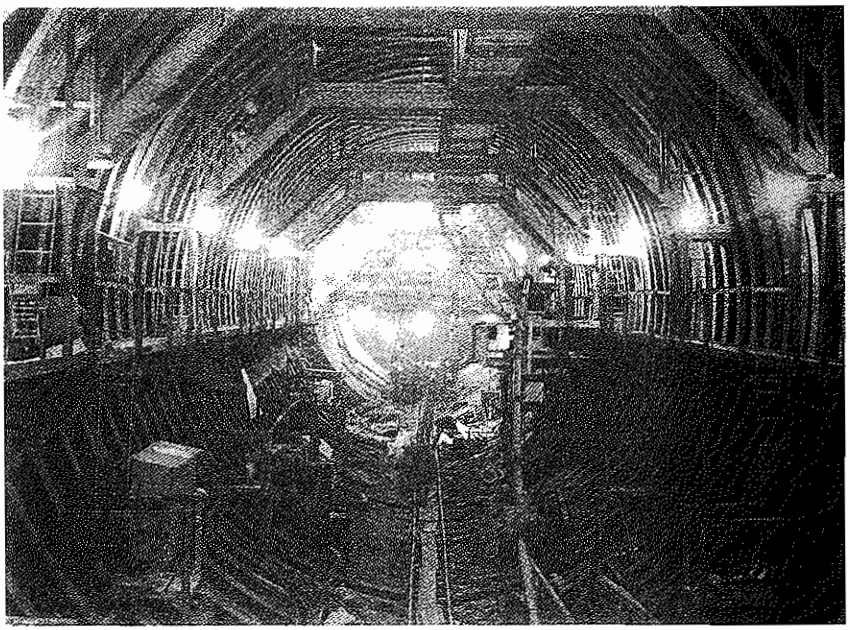


Loading Trucks for Stabilized Base from Pervious Borrow Area, Looking Northeast. May 1947.

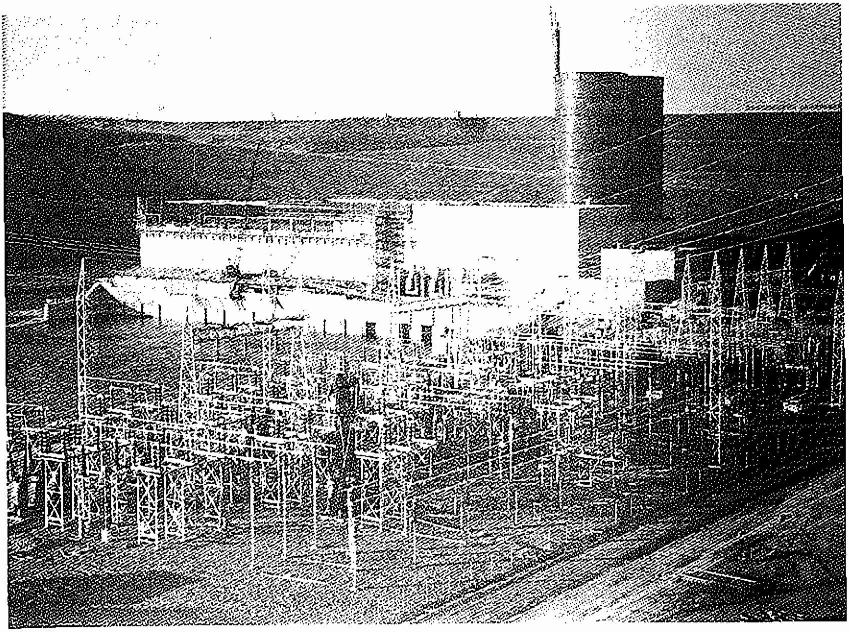
Power Shovel and Euclid Wagons Used in Excavation Operations for Powerhouse Area. December 1947.



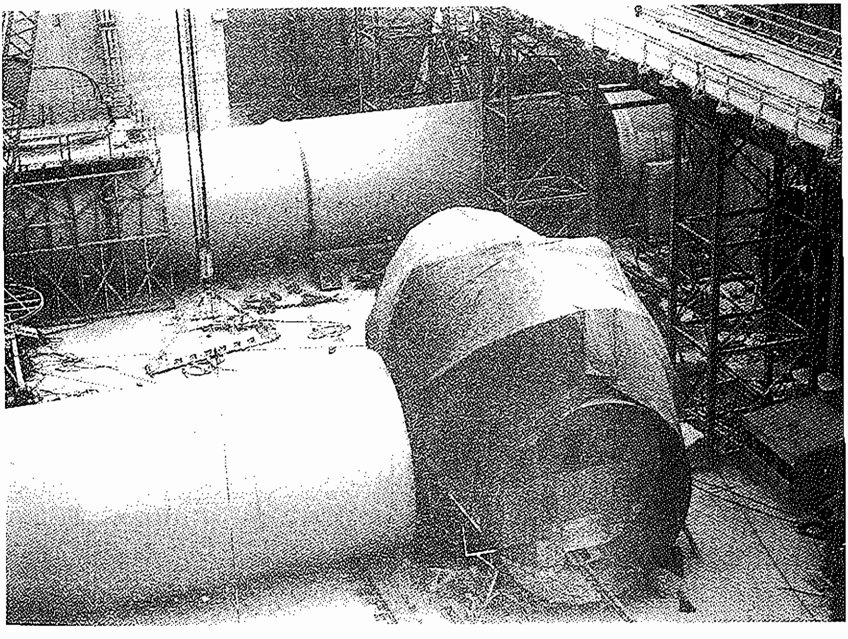
Embankment Operations, Downstream Toe, Right Center, and Upstream Toe, Left Center, July 1948.



Invert and Spring Line Concrete Tunnel Lining Section Completed; Jumbo in Position for Placing Forms for Arch Pour in Background, December 1948.

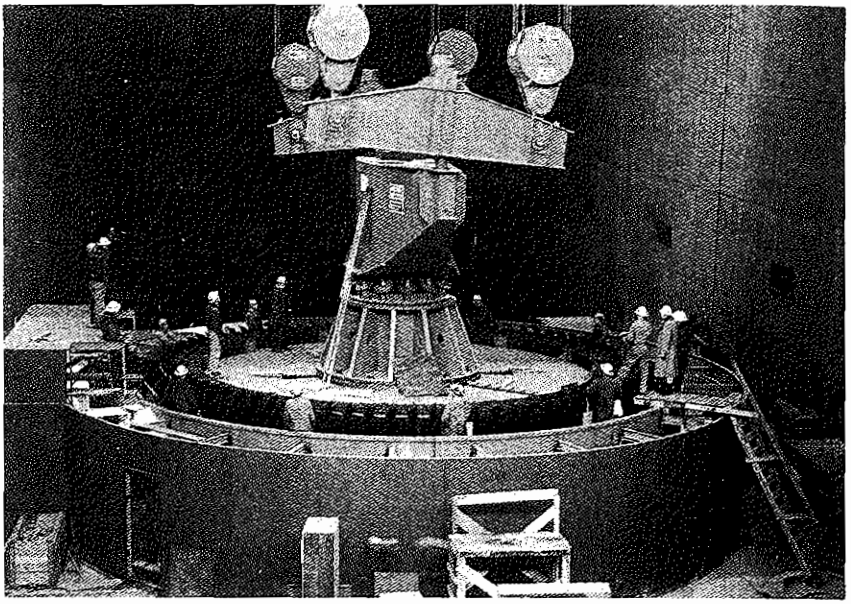


*Construction of Powerhouse and Surge Tanks Underway at Center with **Switchyard in** Foregound: West Abutment of Main Embankment is in Background. **December 1954.***

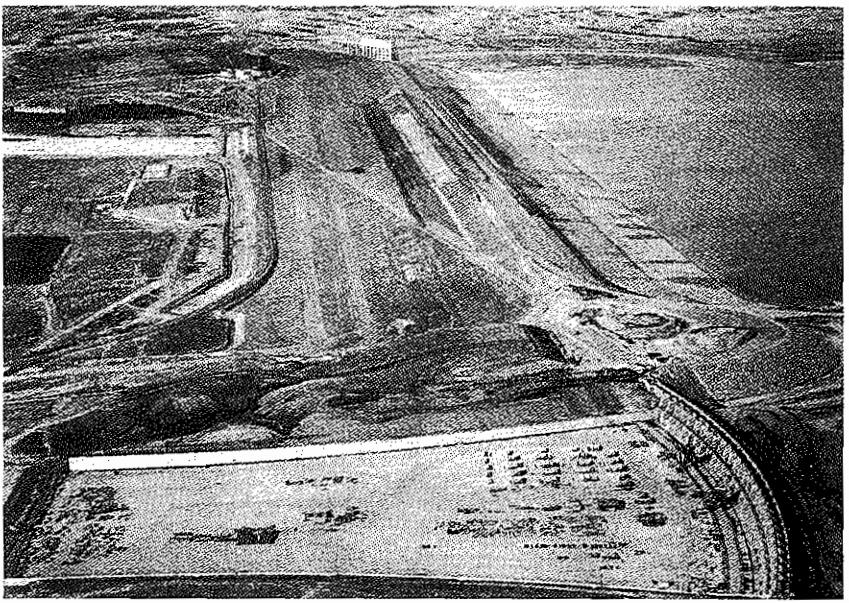


Penstock Area [illegible] Number One

[illegible]

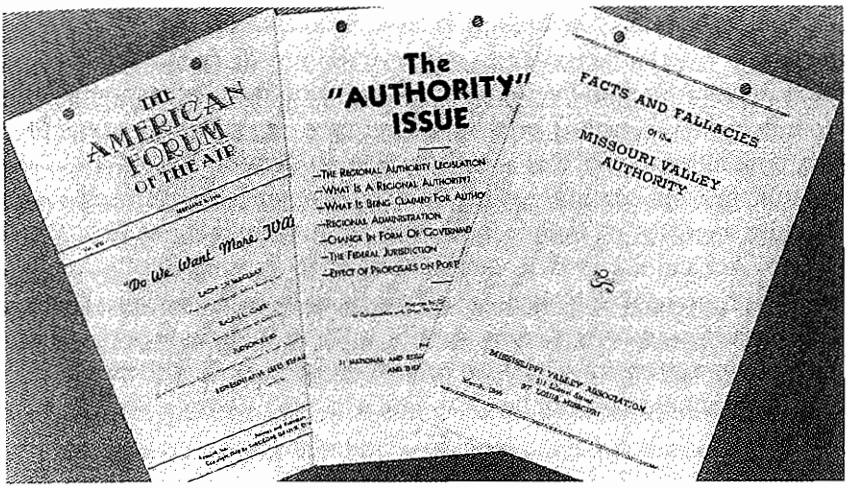


Powerhouse View Showing Rotor for Generator Unit Being Lowered Into Place Inside Stator. March 1955.



View From Southeast of Damsite Looking Northwest Showing Spillway Structure in Foreground and Main Embankment at Center: Powerhouse and Intake Structure Appear in Far Center: Reservoir Pool is at Right and in the Background. November 1954.

IV.
Missouri Valley Authority



Missouri Valley Authority Literature.

As floor manager of the Flood Control Act of 1944 and the Rivers and Harbors Act of 1945, Senator Overton had successfully steered the Missouri River basin development legislation through the Senate. He had acceded to the demands of the upper basin interests for protective legislation as embodied in Senator O'Mahoney's amendments. In the fall of 1945, Overton reminded his colleague that early in the two bills' legislative history Overton had advocated navigation, had recognized the "thinking of the lower Mississippi and Missouri" area residents, and had opposed the upper basin interests. But the efforts of western senators had caused both men to conclude that the legislation for the Missouri basin "was a proper [and] final settlement." Overton was "very much surprised" that some people seemed to want "to undo all that had been done after so much work, worry, and study."[1]

Final settlement was threatened by a regional authority bill that challenged the departmental model of development in the authorizing legislation. Under the auspices of the Committee on Irrigation and Reclamation, Overton conducted hearings in September 1945 on a bill introduced by Montana Senator James E. Murray to establish a Missouri Valley Authority.[2] Overton earlier had chaired a subcommittee of the

Commerce Committee that was considering the MVA legislation with respect to navigation and flood control. That subcommittee issued a report dated 7 May, however, on the whole bill and recommended that the water in Missouri basin streams be controlled by projects developed under auspices of existing federal agencies.[3]

The Commerce Committee struck from Senator Murray's bill (S. 555) all provisions affecting navigation, flood control, and any ancillary matters. It inserted language to preserve the jurisdiction and control of those functions within the War Department with the explanation that for more than 120 years the Corps had been improving rivers for navigation. The committee noted that since the Flood Control Act of 1936 the construction and operation of all flood control projects had been supervised by the Chief of Engineers. And it pointed out that the 1944 Flood Control Act and the 1945 Rivers and Harbors Act authorized a comprehensive program of flood control and navigation on the Missouri River to be constructed and operated by the Corps.[4] The committee declared that control over navigation and flood control should remain with the Chief of Engineers rather than with the proposed Missouri Valley Authority.

The Commerce Committee described the Corps of Engineers as responsive and effective in planning, constructing, and operating works of improvement. By 1945 the Corps had completed more than $340 million in improvements within the Missouri basin and had been charged by Congress with executing an estimated additional $576 million in improvements.[5] Murray's bill would transfer to the proposed MVA the construction, use, control, and operation of existing and future works. The committee rejected Murray's proposal.

The issues concerned with the departmental and regional authority models were not resolved by the Commerce Committee's action. By Senate Resolution 97, adopted 15 March 1945, the Committee on Irrigation and Reclamation was directed to consider those specific functional aspects of Senator Murray's bill. Again, Senator Overton chaired the subcommittee and conducted ten days of hearings that opened on 18 September. Three basin senators joined Overton to form the subcommittee: O'Mahoney of Wyoming, Chan Gurney of South Dakota, and Hugh Alfred Butler of Nebraska.

Again, a Senate subcommittee struck the MVA proposal. It too concluded that the adopted plan, existing agencies, and policies and procedures were sufficient for the development of the basin's water resources. The subcommittee's emphasis on irrigation and reclamation showed in its conclusion that

> Under S. 555, policies and laws respecting the use and control of water, heretofore established by the Congress, are in a large measure destroyed, and the state water laws and states' rights and interests in water and its utilization and control are not adequately preserved and protected.

The subcommittee concluded that provisions of S. 555 were "wholly inadequate." It deleted from Murray's bill all provisions affecting irrigation and reclamation, power development, and "all matters incidental thereto." The Committee on Irrigation and Reclamation reported unfavorably on the entire MVA bill and recommended that it not pass.[6]

Senator Murray persisted. He redrafted and resubmitted legislation for a regional authority in a series of five bills, keeping the MVA issue in Congress for about eight years.[7] None was reported out of any congressional committee.[8]

The issue of shifting from the long-established policy of water resources development to a regional authority related essentially to management. MVA proponents were not opposed to any of the projects authorized in the basin, had no specific proposals as to additional projects, and had no complaints about the existing federal agencies. Their assertions centered on a perceived need for a corporation functioning under a regional authority.

Senator Murray and other advocates of regional authorities had a problem in that no clear organizational or operational guidelines existed for regional planning or watershed management. Some who were concerned with this issue saw in the TVA a model for resolving the fragmented responsibilities resulting from a multiple-agency mode of activities. Proponents of this single regional authority model felt that it could be transferred to other river basin regions.

The TVA project was, however, unique. First, when legislation was finally passed to create TVA in 1933, the nation was open to innovation. Second, the Tennessee basin was economically depressed and its people were open to a program that promised relief. Third, TVA offered the opportunity to break a stalemate over the disposition of Wilson Dam and the nitrate plants built during and just after World War I. At issue, respectively, were available power at reasonable rates and the use of the nitrate plants for the improvement of agriculture. A U.S. senator from the Missouri basin — Nebraska's George William Norris — was vocal in exploiting these facilities in order to mobilize a development program for the Tennessee basin.[9]

The timeliness and unusual combination of circumstances led Congress and the President to agree on launching the Tennessee Valley

Authority experiment. These unique factors also affected the general approach and policies for the broad development program. The TVA act provided for a regional agency in cooperation with federal and state governments to plan and carry out the multi-purpose development of an entire river system. TVA also would administer the use of all the basin's resources.[10]

TVA was concerned with more than water. In his message on the subject shortly after his inauguration, President Roosevelt said the proposed development led "logically to national planning for a complete river watershed involving many states and the future lives and welfare of millions. It touches and gives life to all forms of human concern." He requested that Congress create a Tennessee Valley Authority: "a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise." Roosevelt wanted Congress to vest the authority with broad power over "the proper use, conservation, and development" of the watershed region's natural resources for "the general social and economic welfare of the nation."[11]

Congress provided TVA with an unusual combination of legal powers.[12] It was made independent of all other federal departments and reported directly to the President and Congress. It was managed by a three-person board appointed by the President for overlapping terms. TVA was to work within the framework of national policies that were determined at a higher level. TVA benefited from substantial independence and initiative, subject only to general and oversight control of the President and Congress. The central concept of the authority model was to decentralize federal control by moving it into the region for intensive application.

TVA's enabling legislation contained general authorization for the entire program. Unlike the Corps of Engineers, which was guided by multiple laws covering its various missions, TVA was guided by one set of laws. If the nation were blanketed with such regional authorities, the American system of government could be altered to create a more unified system.

TVA opponents were unsuccessful in attacking the authority's constitutionality. In 1936, the U.S. Supreme Court held that TVA-built dams were covered by the war and commerce powers of the Constitution. The Court also ruled that TVA could sell electrical energy generated at the dams. These decisions sustained the legal basis for the vast TVA complex and its multi-purpose regional improvement program.[13]

Although interest in creating other river basin regional administrative authorities heightened after TVA survived its first court tests, no other

such authorities were established. This was because of the contention over transferability of the TVA experiment.

Arthur Morgan, the first chairman of TVA, analyzed the Tennessee and Missouri River drainage areas. He said the Tennessee area constituted "a natural unit" for flood control, navigation, and hydropower development, but that there was "no common interest" unifying the Missouri watershed region, "except the relatively minor issue of common storage and of apportioning water between irrigation and navigation." Morgan said there was "much confusion" about regional government and he concluded that the authority model was "a current delusion in the American mind" posing the threat of "irresponsible bureaucracy."[14]

The Missouri Valley Authority bills were highly controversial. Some held that the original bills, however, served a useful purpose even though unacceptable to any congressional committee. Both proponents and opponents erroneously concluded that the threat of an MVA prompted the Corps of Engineers and Bureau of Reclamation representatives to coordinate their plans.[15] More compelling reasons for this cooperation were congressional impatience, the urging of basin-state officials, and the desire of the agencies and their clients to secure project authorizations without further delay. The legislative history reveals how multiple groups pressed to achieve coordination before Senator Murray introduced his first MVA bill on 18 August 1944.

In explaining why the agencies coordinated their plans, Bureau of Reclamation Commissioner Bashore told a subcommittee of the Senate Committee on Irrigation and Reclamation that the principal issue was protecting the consumptive use of water for irrigation west of the 97th meridian. The bureau felt that Congress should resolve the "perplexing question of priorities"; that is, whether navigation use was to take priority over the beneficial use for consumptive irrigation:

> When the Bureau of Reclamation and the Army understood the principle that the Congress was going to lay down — that irrigation priority was to be recognized — it was not difficult then to reconcile the two plans, because we of the Bureau, representing irrigation, felt that no navigation improvement would jeopardize irrigation projects upstream to the extent of 4,760,000 acres.

Bashore concluded that "it was not possible to resolve that question until Congress spoke, and then when Congress spoke it was comparatively easy."[16]

Congress accepted the two agencies' coordinated engineering plan, thus enabling construction to begin. MVA proponents, therefore, could

no longer justify the need to create a new agency and give it two years in which to formulate a plan. Nor was there need to give any agency the broad powers contemplated in Senator Murray's bill. Montana Governor Sam C. Ford of the senator's home state expressed the opposition position: "It is clear that the MVA is not needed, and there are many reasons why it is undesirable."[17]

Other basin governors agreed with Ford. The Missouri River States Committee, or "Governors' Committee," which had been instrumental in getting the Missouri basin legislation passed, adamantly opposed the MVA bill and affirmed its support for the Flood Control Act of 1944. On 15 August 1945, the MRSC adopted a statement proposed by Colorado Governor John L. Vivian opposing "the delegation of authority to any commission, board, agency, or authority, by whatever name that would function with unchecked powers in the control of natural resources." The committee endorsed the adverse report of the Senate Commerce Committee on Senator Murray's proposal to create an MVA and urged each basin state to continue vigorous representation before all congressional committees considering the matter.[18]

The MRSC adopted a two-page statement of policy in which the basin governors stated that the interests of their constituents throughout the watershed region would "be best advanced by supporting the coordinated plan of the Bureau of Reclamation and the Corps of Army Engineers." The committee recommended the following:[19]

> 1. That Congress appropriate money to get construction under way and in sufficient amount to contribute to postwar employment.
>
> 2. That each project's engineering specification be evaluated and adjusted to make the greatest possible contribution to the comprehensive basin-wide development.
>
> 3. That continuing efforts be made through existing agencies cooperating with the states, for water and related land use policies that would bring developments advantageous to the various diverse areas of the watershed region.
>
> 4. That Congress respect the lawful rights of the states as well as safeguard their economic interests and the general welfare of the basin's people.

The policy statement and recommendations prepared by O.S. Warden of Montana, Clifford Stone of Colorado, and South Dakota Representative Francis Case concluded with the strong endorsement that "this

committee of governors and their advisers, with constantly increasing interest, pledges state cooperation at all times in making and executing programs for the development of the land and water resources of the ten states." This position was approved by the governors or their representatives from eight of the ten basin states, with no opposing vote from those present.

South Dakota Governor Merrill Q. Sharpe, chairman of the MRSC, reinforced the states' committee position in a statement before the Senate's Irrigation and Reclamation subcommittee. Sharpe said the authorized plan was "a more practicable, beneficial, and acceptable plan for Missouri River development in South Dakota than the method provided by S. 555." He emphasized that "As chairman of the Missouri River States Committee, I hereby submit the same general opinion and conclusion as to the entire Missouri River basin."[20]

South Dakota Governor, Merrill Q. Sharpe.

Clearly, basin residents who favored retaining the departmental model outnumbered those who wanted a regional authority. J. Howard Toelle, professor of mining and irrigation law at Montana State University, expressed the majority opinion: ". . . it is unthinkable that [the policy established by Congress within the last year] should be changed and the future formulation of policy on these vital matters be left to a federal corporation." He held that the federal agencies' action was in accord with the Constitution, in harmony with state and local governments, and consistent with the American tradition of free enterprise. For these reasons, Toelle argued for rejecting the MVA and proceeding with the departmental model and adopted plan.[21]

In his statement to the Senate Irrigation and Reclamation subcommittee, Toelle emphasized western water law in testifying on behalf of the Montana Reclamation Association. He focused on which aspect of the regional authority model troubled irrigation interests the most. He, like most reclamation advocates, believed Senator Murray's MVA bill:

> . . . would work a revolution in our western system of water rights so vital to our area. We in the West have

> developed a natural regionalism in our irrigation laws. S. 555 would force us into an artificial and unnatural centralization or "basinization" contrary to our interests.

Toelle effectively expressed the position of upper basin resource development advocates. He said that water was "the lifeblood of Montana" and that dryland areas were declining while irrigated areas were expanding. Most future growth in the upper area, he believed, would come through an increase in irrigated agriculture:

> While we hope and believe that ordinarily the Missouri will be found ample for all proper uses, we believe, in case of scarcity, agriculture in the upper basin should come first. . . . So it is that Montana views with favor the 1944 omnibus flood control measure and the 1945 rivers and harbors bill giving preference for irrigated agriculture to water rising in states wholly or partly west of the 98th meridian.

Clifford Stone's statement to the committee stressed how state laws were "legally and from a practical point of view, interfered with by the powers delegated" to the authority by S. 555.[22] He read from section 10 of the bill, which provided that

> Nothing in this Act shall be construed as affecting or intended to affect or in any way to interfere with any right acquired under the laws of any state or territory relating to the control, appropriation, use or distribution of water used in irrigation, and nothing herein shall in any way affect any right of any state or of the federal government or of any landowner, appropriator, or user of water, in, to or from any interstate stream, or the waters thereof: Provided, that nothing in this section shall limit the authority of the Corporation to acquire by purchase, lease, condemnation or donation, real or personal property, or any interest therein.

Stone attacked this section on three points. The provision designed to protect present vested rights was limited to use "in irrigation." Vested rights in the upper Missouri basin and west of the 98th meridian might be acquired for water under state laws for municipal, domestic, mining, livestock, and industrial purposes, as well as for irrigation.

Stone claimed that under section 10, federal water rights on any interstate stream equated to the right of any state or individual appropriator. He did acknowledge that the federal government's right to appropri-

ate water under state law had been established. But section 10 "did not go to that point." Stone concluded that section 10 was set out to "appease those who wish to have their rights in water under state law protected." He said that it would provide no protection whatsoever because where the use of water under state law for irrigation and other beneficial consumptive uses conflicted with federal powers, the bill's intent was that "federal control must prevail."

Stone denounced what he foresaw as "ultimate federal control for all purposes" and said that state laws would "be evaded." The proponents of Senator Murray's bill were, Stone contended, asking Congress to delegate to an MVA the power that had been reserved to the states by the Tenth Amendment to the Constitution. Stone said that if such an authority were granted powers of government over water as contained in S. 555, "it would be impossible to incorporate . . . protection of rights in interstate waters under state laws."

Stone added that section 10 would enable the MVA to take away any vested water rights through condemnation. He explained that substantial water rights had been acquired by various interests in the upper basin and throughout the West. Condemnation of water rights, Stone said, might be "exercised arbitrarily, and the people will have no security in these rights." Stone contended that S. 555 granted power to control a right that was basic to agricultural development. He said the bill was "dangerous in the extreme" to the "security [of] the property rights of western farmers."

Senator Overton interjected that "To file condemnation of water rights seems to be one of the main purposes of the authors of this bill." Stone responded that the MVA "would claim the water under their general powers given to them under the federal jurisdiction. So they get it both ways. We have no protection as to the vested rights, and we have no protection as to the ability of the people to acquire future rights."

These were reasons enough for western water users and developers to oppose the MVA; but they found others as well. At a meeting held at Salt Lake City, Utah, on 16 and 17 April 1945, the powerful legislative committee of the National Reclamation Association opposed S. 555 and all other regional authority bills.[23] The full association, along with 19 other special-interest organizations, endorsed a joint letter to Congress emphasizing the appropriateness of the traditional departmental model of federal land and water resources development and management. These 20 groups feared that basin authorities would result in "discharge of the old federal agencies, the Army Engineers, the Bureau of Reclamation and many agencies within the Department of Agriculture, in favor of new federally financed corporations."[24]

These western-state interests supported the Flood Control Act of 1944 as constituting a water "bill of rights" under the auspices of the existing federal agencies. The provisions of the water bill of rights act included the following:

1. The rights and interests of the States in determining the development of watersheds within their borders shall be recognized.
2. Affected states shall participate with the federal agencies in charge of planning studies and with Congress in resolving disputes.
3. Federal agencies shall be required to cooperate with investigations concerning waters arising in the arid West.
4. The use of water for navigation in states lying wholly or partly west of the 98th meridian shall be only such as does not conflict with the beneficial consumptive use of water for domestic, municipal, stock water, irrigation, mining or industrial purposes.
5. Investigations and projects for runoff and water flow retardation and soil erosion prevention on watersheds shall be under the jurisdiction of the Department of Agriculture.
6. The Corps of Engineers shall be authorized to construct, maintain, and operate public park and recreational facilities in reservoir areas.
7. Electric power generated at reservoir projects under control of the War Department, and not needed in operation of the projects, shall be transmitted by authority of the Secretary of Interior at the lowest possible rates approved by the Federal Power Commission.
8. The Secretary of War shall be authorized to make contracts with states, municipalities, private concerns or individuals for domestic and industrial uses of surplus water available at any reservoir under the control of the War Department.
9. The Army Engineers shall prescribe regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed with federal funds.
10. The Secretary of the Interior shall be authorized to build reclamation works to utilize surplus water of flood control reservoirs after making a report and findings as

provided in federal reclamation laws and authorization by the Congress.

Under this bill of rights, the western interest groups held that "the old established and experienced federal agencies of the government" had "coordinated and integrated their plans for the development of the Missouri River basin into one overall comprehensive multiple purpose plan." Under congressional guidance, that plan united the federal agencies "into an effective team" in close coordination with the states.

The 20 organizations then stated their reasons for opposing the creation of any regional authorities. Those affected had "full confidence" in the federal agencies that would be relegated to minor roles. An authority in the form of a federal corporation would be free of many legal and congressional restraints, and states would be cast as "archaic political units." Economic development and individual enterprise would be subject to domination by "a corporation clothed with the power of government." And in the arid states, where state law provided irrigation water users property rights in water, they would under an authority become water tenants of a corporation that made and enforced the rules and regulations.

These were potent inducements for congressional committees to reject proposed regional authority bills. On 27 September 1945, Senator Overton in a colloquy with Senator O'Mahoney summarized what became the "final" word on serious congressional consideration of an MVA.[25] Overton said that Senator Murray's bill exercised "supreme and autocratic power" with respect to water and "totalitarian power over the economic development of the West." He believed a regional authority could ignore state and federal laws that applied to irrigation. If its authority were established, it could "sweep through the West like a prairie fire." Overton asserted that a regional authority would subvert traditional water resources development and management in the Missouri basin. Powers proposed to be delegated to the MVA would be so broad as to leave Congress with little leeway for conflict resolution through trade-offs and compromise.

Mississippi Representative Will M. Whittington, who had managed the House flood control bill in 1943 and 1944, added that flood control policy provided that it "should be authorized and appropriated for by the elected representatives of the people." He said that taxpayers did not want an "experimental agency telling them what to build, without scrutiny of appropriations and without general supervision" by Congress.[26] In rejecting the regional authority model, Whittington vowed ongoing support for the idea that the Corps continue to be the "chief administrative agency of

the Missouri and of all other river basins in the United States." Essentially, this was the decentralized administration model that had been in place for over 150 years.

Senator Overton and the Commerce Committee recommended that the Corps of Engineers continue to direct Missouri River navigation and flood control work. The report stated that the entire Mississippi drainage basin, in which the Missouri River was only a tributary, was affected by the issues. Overton's committee held that the Corps was "the agency best qualified" to deal with those issues.

C. Herman Pritchett, a regional authority scholar, took issue with Overton's conclusion. Pritchett believed that the backgrounds and special responsibilities of the Bureau of Reclamation and the Corps of Engineers precluded them from administering a basin wide plan for the Missouri. As he put it, "a single organization responsible to both ends of the valley would more likely get a proper view of the needs of both ends of the valley." Overton retorted: "There is one agency." Pritchett countered with, "You have the Reclamation Bureau *and* the Army Engineers." Overton responded, "Yes, but the overall agency is the government of the United States. That is where difficulties are brought and settled." Overton maintained that Congress was the coordinating agency for the federal government.[27]

While Overton and most of Congress were unwilling to relinquish control of the traditional departmental model of river development and management, President Roosevelt long had championed the regional authority model. He died on 12 April 1945 and was succeeded by Harry S. Truman.

As President, Truman was ambivalent about regional authorities and did not press for their establishment. At a dedication ceremony of the Tennessee Valley Authority's Kentucky Dam at Gilbertsville on 10 October 1945, he said:

> State and local agencies, public and private, have joined with TVA in a two-way partnership. This was a natural result of the policy of regional decentralization. That same policy ought to be followed in the other river valleys as regional agencies are created by the Congress and set to work.

But Truman added: "Let me emphasize that in the last analysis such development is a matter for the people in each basin to decide."[28]

As a senator, Truman had been a "strong supporter" of the TVA and "the idea it represents."[29] As Vice President, while presiding over the Senate, Truman referred Murray's authority bill to three committees. In

the first two, he surely knew it would not survive. He understood the strong opposition in Congress to regional authorities and did not want to jeopardize such a political base. On 24 April 1945, Senator Murray asked Truman for a letter endorsing passage of the MVA bill. Matthew J. Connelly, secretary to the President, responded on 2 May that Truman had the "request under consideration."[30] As President, Truman was a practical politician making no real effort to win congressional backing for his program in the face of congressional resistance.

President Harry S. Truman and General Lewis A. Pick, at Ft. Peck.

A conservative coalition of southern Democrats frequently teamed with Republicans in opposing the President's programs. Progressive New Dealism was losing its leaders and spokespersons. Truman needed the support of the southern Democrats, who in turn wanted distributive-policy public works projects. The President could publicize the need for an enlarged water resources program, objectives both he and southern Democrats desired.[31]

Throughout his presidency, Truman was temperate in promoting land and water resources development under the traditional departmental model. He made his strongest statement on the subject to Congress on 16 July 1947, when he asked that a comprehensive development plan be funded for the drainage basin of the Mississippi River and its tributaries, including the Missouri. He sounded like FDR when he asserted: "We must never forget that the conservation of our natural resources and their wise use are essential to our very existence as a nation." Truman wanted Congress to adopt an "orderly program of appropriations" totaling $250 billion over 10 years, in addition to $66 billion for that fiscal year.[32]

Truman's proposal for such public-works spending came at a critical time for the proposed Missouri basin development plan. It abrogated any realistic discussion of an MVA.

The pragmatic Truman stressed that his proposal did "not change the desirability of the ultimate establishment of valley authorities." He explained that the urgency of the flood problem compelled the federal government to "take the necessary steps to expedite this problem without awaiting determination of the administrative pattern for the various regional valley development programs." Truman called for a prompt start of the ten-year program "consistent with whatever type of administrative authority may be determined to be best suited to meet regional and national needs." He added that the already authorized program must be accelerated and money put in the hands of the traditional agencies — the Bureau of Reclamation, the Soil Conservation Service, and the Corps of Engineers — as quickly as the economy would permit: "In that way we shall save ourselves untold billions and pave the way for the wealth production that surely will flow from the integrated development of our valleys."

Congress did appropriate the money necessary to proceed with the authorized Missouri basin water resources development plan. It also continued to control natural resources matters through fragmented congressional committees and a widely distributive national public-works funding policy. The legislators did not surrender administrative control to any regional authority.

Starting Construction on the Pick-Sloan Plan, 21 March 1946.

V.
Missouri Basin Inter-Agency Committee

Federal agencies responsible for developing projects and managing the Pick-Sloan plan had adapted the departmental model in the Missouri River basin even before Congress rejected the regional authority model. Federal Inter-Agency River Basin Committee (FIARBC) members, based in Washington, D.C., recognized that coordinated planning and conflict resolution should occur in the field. Each water-shed had different political and developmental problems. FIARBC decided to form committees in major river basins and it created the first in the Missouri basin in March 1945.[1]

FIARBC established a Missouri River Basin Inter-Agency Committee (MBIAC) "to facilitate progress" on the Pick-Sloan plan and the nine-foot-deep river channel project. The committee would provide a forum for discussion and clarification of concerns in order to facilitate exchange of information, promote authorized projects, and coordinate the complex technical aspects of the vast watershed program.

MBIAC consisted originally of representatives of the Corps of Engineers, Bureau of Reclamation, Department of Agriculture, and the Fed-

eral Power Commission. In addition, the Missouri River States Committee, representing the governors of the ten basin states, was invited to provide four representatives.[2] When the Department of Commerce was added to the federal membership in May 1947, the states were again given equal representation. Committee membership was expanded again in March 1952 to include representatives from the Departments of Labor and Health, Education, and Welfare. In addition, all ten governors were invited to represent their states.

Although FIARBC did not include state representatives, the states participated in virtually all activities and meetings of MBIAC. They were given all membership privileges except that of chairing the committee. Initially, only the views of the federal members were considered in the regional committee's deliberations. Soon thereafter, the states became a part of MBIAC's unanimous-agreement concept.

B.G. Roscoe Crawford, first chairman of MBIAC.

In the critical formative years, the MRD Division Engineers served as chairmen of MBIAC. MRD even hosted the first meeting on 19 July 1945 in the Division's office in Omaha. Four federal agency representatives, four state representatives, and a few staff people attended. Before the general meeting, the federal members met to elect Brigadier General Roscoe C. Crawford, MRD Division Engineer, as the first chairman. When Brigadier General Lewis A. Pick returned from World War II to his former position in the Omaha Division office, he completed General Crawford's unexpired term and was elected to two subsequent terms as chairman. The inter-agency committee had no permanent staff. The chairman assigned agency personnel from his staff to the demanding responsibilities of committee secretary and other support staff to carry out the organization's duties.[3]

Initially, the committee concentrated on exchange and dissemination of information. But conflicts arose and the committee undertook, with no direct authority, to work out solutions to various problems. In many cases, the agencies and states involved were asked to resolve the conflict and report back to the committee. Committee members realized that by

working together and communicating about one another's operations and difficulties, they could achieve coordination. If a problem could not be resolved by the members, it could be referred to an ad hoc subcommittee or to the Washington-based FIARBC.

MBIAC Meeting.

Most policy issues addressed by MBIAC had implications beyond the Missouri basin. Federal agency representatives had no authority to revise established policy in the interest of solving regional or local differences. Policy and budget considerations required that federal representatives maintain a national as well as a local perspective. They had to refrain from activities that promoted regional interests over those of the nation. The Missouri River States Committee could promote the basin's interests and engage in legislative activity whereas MBIAC could not.

MBIAC was never granted the power to make policy decisions. It was a voluntary confederation of federal agencies and states, constrained by conflicting laws and policies and practices of the members. The committee had no statutory basis, authority, budget, or staff. Its conclusions and recommendations could be implemented only by the agencies or states responsible for the issue considered.

Those who rejoiced in MBIAC's achievements were tolerant of its limitations. Supporters realized that the inter-agency committee could not resolve all significant policy issues. But some deplored MBIAC's limited role. These critics wanted the committee to have the power to act as an administrative agency with authority to resolve issues and deal with program projects and budgets. If the committee's role could not be

strengthened, they wanted it replaced by a more powerful basin entity.

The inter-agency approach and the Pick-Sloan plan have been analyzed and criticized by a diversity of interests. An Engineers Joint Council, representing the nation's engineering societies, wrote a critical report in June 1950 that concluded: "From an engineering standpoint the planning and execution of the Missouri basin program is almost entirely backward." The report charged that "A detailed and systematic inventory of the resources of the basin was not available in the planning stages" and was still lacking in 1950, six years after the plan was first presented.[4]

To these critics, the dearth of data resulted in a lack of integration: "Very serious conflicts [existed in the] jurisdiction of overlapping geographic provinces, in the allocation of available waters for various functional uses, and even in the allocation of portions of reservoirs' capacities for functional uses." The Joint Council concluded:[5]

> The engineering features contained in the program were planned by various agencies restricted by law to limited objectives . . . and the needs of the basin were ignored in determining which agency would develop the water resources in a particular part of the basin.

The Engineers Joint Council echoed the statements of the Task Force on Natural Resources, appointed by the first Hoover Commission on Organization of the Executive Branch of the Government. The commission was chaired by former governor of Wyoming, Leslie A. Miller. It contracted with University of Chicago geography professor Edward A. Ackerman to prepare a study of the Missouri basin development program. Ackerman wrote in a 1949 report that the program had been "planned very nearly backward." He charged that planning for construction of big dams was done without adequate hydrologic data, that agencies engaged in little exchange of plans, and that MBIAC had no means of formulating a suitable comprehensive program.[6]

Ackerman described the committee as ineffectual and having "no authority" except for separate delegations made to agencies and states on the committee. He said that it had "no capacity of decision" within the basin because decisions related to controversial issues were referred to Washington. MBIAC had, Ackerman contended, "no staff for the study of problems concerning two or more of the programs" and it was therefore not "an agency for anticipating general problems" but only "a forum for harmonizing established programs."[7]

Ackerman's analysis of MBIAC was essentially correct. It was not conceived to regulate or mediate, nor was it established to resolve federal

jurisdictional or policy problems in the basin. MBIAC itself had no mandate to implement and enforce policies. The committee resolved inter-agency conflicts by achieving consensus through negotiation and arbitration. It served as a forum for expressing views, refining concepts, raising the consciousness of members to each others' programs, and diminishing differences and rivalries.

In 1948 and 1949, MBIAC's inter-agency role was not well understood. Agency leaders were concerned that field committees would give priority to statutory responsibilities and legislative mandates. State members were equally obligated to uphold the statutes and policies of their state governments. Clearly, federal-state relationships constrained and weakened MBIAC in achieving the degree of coordination Washington-based agency heads, field-level members, and critics desired.

The Flood Control Act of 1944 provided basin states with limited and poorly defined participation in planning and programming. Federal agencies were not compelled to modify their plans to comply with the states' recommendations. The states could take their cases before MBIAC and achieve some voluntary concessions. Otherwise, states could appeal to the congressional committees responsible for authorizations and appropriations for the protested project.

In most instances, reversing this federal-state relationship was not practicable. Most basin issues affected several states or even the entire region, and federal policy predominated. As interstate streams, the Missouri and its tributaries are of national importance. Those problems the basin committee could not solve were mostly those not affected by clearly mandated national policy.

Federal courts, upholding constitutional powers, established the supremacy of the federal government in regard to the Missouri River and its tributaries. Politically and practically, laws for the basin's water had been approved by congressmen responsible to state and local constituencies. Basin states' representatives, through the Missouri River States Committee, were active in determining the application of national policy in the region; and, through MBIAC, in coordinating and helping administer the regional Missouri basin development program. Difficulties arose when national resources policies conflicted with diverse state policies.[8]

The justifications for change put forth within MBIAC in 1949 and 1950 do not stand up to critical analysis. They actually were more a call for clarification of national water policy. In order to reform the inter-agency committee, Congress had to make some hard policy choices. At that time, no suitable and politically feasible alternatives to the inter-agency approach existed. While most of Congress understood and appre-

ciated the tasks being performed by the resources agencies, the White House wanted to assume the role.

The inter-agency approach to coordination of river basin development was scrutinized repeatedly by presidential commissions. One of these was the President's Water Resources Policy Commission established by President Truman on 3 January 1950.[9] The commission was to deal with significant problems of national water resources policy that numerous public and private entities had been studying. But no one group had been charged with analyzing federal-state relationships, examining budgetary considerations, appraising the priority of programs from the perspective of economic and social need, or evaluating issues involving the President and Congress relative to national water resources policies.

As the commission's chairman, Truman selected Morris L. Cooke, former chairman of the Mississippi Valley Committee of the Public Works Administration and first administrator of the Rural Electrification Administration. He was an avowed advocate of regional authorities for river basin management. While the commission was empowered to examine policy issues rather than administration, it concluded that administrative changes were needed in order to deal with increasingly complex management of the nation's water resources.[10]

On 18 March 1950, Leland Olds, former Federal Power Commission head, serving as commissioner-in-charge of studies for the President's Policy Commission, requested that Secretary of the Army Gordon Gray prepare reports on several river basins including the Missouri. The Missouri River Division responded through OCE that the program for development of the Missouri basin presented "a minimum of major policy problems." This was due in part, according to the Corps, "to the early recognition and resolution of potential basic conflicts of interests through the voluntary activities of the Missouri Basin Inter-Agency Committee."[11]

Even Professor Ackerman softened his criticism of the basin's resources organizations with conclusions similar to OCE's. In 1950, Ackerman was geographer-in-charge of the commission's Ten Rivers In America's Future volume. Referring to the Missouri basin, he acknowledged the coordination and cooperation among the agencies and the states. Yet the commission's report called for more and cited the problem as lack of funds rather than poor management: "In many instances, the necessary authority exists for further coordination, if budgetary needs for such work could be met and forthcoming appropriations were adequate."[12]

The commission concluded that the basin states' inability to finance their own resources agencies had hindered the development of full coor-

dination. Some of the states had failed to take advantage of opportunities created by the 1944 Flood Control Act. The states had influenced basin planning in MBIAC in direct proportion to the initiative exercised by the states' representatives on the committee.[13]

Some basin states governors gave scant attention to the multifaceted details of basin planning and programming. Nebraska Governor Val Peterson, appearing before the President's commission at its regional hearing in Sioux City, Iowa, questioned whether it was "reasonable to expect a governor to spend the time required in relationship to his other duties" on basinwide resources problems. Although Peterson believed MBIAC and the states' members were doing an adequate job during the construction stage, he was apprehensive about their effectiveness in the operational phase.[14]

Nebraska Governor, Val Peterson.

The 1950 commission concluded that certain changes were necessary to make inter-agency committees effective in river basin control. Truman's Policy Commission suggested that each basin committee be "presided over by an independent chairman appointed by and responsible to the President" with an Executive Office board of review with "a broad understanding of the economic and social as well as the technical aspects of regional development." It recommended that congressional authorizations and appropriations for river basin planning and development should be revised to "fit the new approach."[15]

The President's commission asserted that establishing a river basin commission could be "considered an essential first step toward efficient further progress in Missouri water resources improvement." Such an organization could help integrate "federal, state, and local activities in programs of the size and complexity of those going forward in the basin."[16]

The President did not formally submit the Water Resources Policy Commission's report until 19 January 1953, the day before he left office. Truman's congressional and public support had eroded, and Congress would be reluctant to give any additional power to an unpopular President. Yet, Truman believed that the nation needed to reform its water

resources policy. Two presidential commissions in two years recommended administrative reorganization to provide coordinated nationwide planning, programming, and budgeting with Executive Office oversight. Truman's Water Resources Policy Commission drew up detailed recommendations for national water policies.

Truman was determined to expand the President's ability to manage the nation's resources development. The problem was in convincing Congress to accept reform that would reduce congressional power. Possibly, limiting the effort to achieve reform in a single watershed would result in congressional acceptance. Truman directed his attention to the Missouri basin.

While the President recognized the value of previous Missouri basin plans and program recommendations, he called for "a thorough reevaluation of the whole problem." Truman cited the lack of "thorough reconsideration of the plans for flood control, irrigation, navigation, and hydroelectric power development in the basin since the Congress authorized the so-called 'Pick-Sloan' plan in 1944." He said that the 1951 floods had indicated "the need for an up-to-date survey of the situation in the basin and of the present plans for the development of its land and water resources."[17]

On 3 January 1952, two years to the day after creation of his Water Resources Policy Commission, President Truman appointed an 11-member Missouri Basin Survey Commission (MBSC) "to study the land and water resources of the Missouri River basin, and to make recommendations for the better protection, development and use of those resources." Truman wanted the commissioners to advise the country as to the best way "to achieve an orderly, business-like development of the resources of the basin." To chair the commission, he appointed James E. Lawrence, a newspaper publisher from Lincoln, Nebraska. Lawrence was a long-time supporter of fellow Nebraskan, former U.S. Senator George Norris, chief advocate of the Tennessee Valley Authority. Members included MVA champions Fred

James E. Lawrence, Chairman, President's Water Resources Policy Commission.

V. Heinkel, a leader of the Missouri Farmers Association and critic of the Corps' basin development plan; and U.S. Senators James E. Murray and Milton R. Young.

Truman wanted "all [those] concerned with the basin — federal, state, and local governments, and private groups and individuals" to have an opportunity to review along with the commissioners the current land and water resources program. The commissioners then would provide "an expert and authoritative judgment" on the most important steps for the future, and on which "should be taken first." The resulting commission held 17 public hearings throughout the basin, sought the counsel of the states' governors and federal officials, and listened to the views of more than 400 official and unofficial witnesses.

Truman's creation of the commission was met with criticism. Nebraska Governor Val Peterson, at the time chairman of the Missouri River States Committee, was exceedingly caustic. He said that the President's order creating the survey commission constituted "a repudiation of his own agencies working in the field and is a slap at the Missouri basin's governors who have labored tirelessly and productively." Peterson saw the threat of an administrative authority in the commission's work. "Unable to get a Missouri Valley Authority through the front door," he charged Truman was "trying it by the rear entrance."[18]

Others, too, saw the commission as a pretense to get a regional administrative authority established in the Missouri basin. Brigadier General Donald G. Shingler, the MRD Division Engineer, wrote to General Pick, then Chief of Engineers, on 6 June 1952 stating: "There can be little doubt the whole setup is an MVA affair." The commission had functioned for two months when Shingler charged that it was "very evident that the commission is mostly interested in the administration of the basin plan rather than the plan itself."[19]

Testifying before the Survey Commission, General Shingler took the offensive in defending the basin program and the Missouri Basin Inter-Agency Committee. The development program was proceeding, Shingler declared, largely "due to the effective assistance provided by the regional committee." He described MBIAC as "close to the people, nonpartisan, dominated by no special interest but concerned solely with carrying out its basic functions." He said the committee's strength was in working as it did without legal authority and relying solely on voluntary cooperation. General Shingler added that legal authority could not "decree cooperation nor compel unanimity of purpose nor tolerance of divergent viewpoints." Shingler believed in the importance of federal-state relationships functioning voluntarily and democratically in the inter-agency commit-

tee. He was concerned that MBIAC might be empowered to engage in arbitrary decisions resulting in unenforceable policies.[20]

Governor Sigurd Anderson of South Dakota, agreed in principle with Shingler's position. Anderson called the regional inter-agency committee "the best example between levels of government" and noted that diverse and opposite interests had been represented in the committee according to the democratic process. Anderson saw no added benefits in MBIAC being "legitimized." He regretted the committee's inability to appear before Congress to present its own case.[21]

Montana Governor John W. Bonner disagreed with Governor Anderson. Bonner told the Survey Commission that the Missouri Basin Inter-Agency Committee had "no authority to say anything" and had failed to coordinate the federal agencies' plans. Bonner characterized MBIAC as "a group of governors meeting voluntarily, listening to construction reports of the federal agencies." The Montana governor told the Survey Commission that "the basin states governors had no say as to what dams [would] be built." Bonner thought MBIAC could be effective if the states were given some legal authority.[22]

Gladwin E. Young, a field representative for the U.S. Department of Agriculture, told Truman's Survey Commission that a complex, comprehensive program such as that under way in the Missouri basin required "a great deal more than [could] be done by the Inter-Agency effort." Young contended that resources management and development involved legislative, budget, and appropriation coordination before field work in planning, development, and operation could be effective.[23]

Most officials appearing before the President's Survey Commission agreed with Val Peterson. He maintained that the regional committee had conducted itself in a "thoroughly democratic manner" and that the members had dealt satisfactorily with problems brought before the committee. Peterson saw no sharp difference of opinion between the interests of the federal government and the states, because their goals were the same: to develop and use resources to the maximum benefit of the people.[24]

However, Governor Peterson, like so many others who came before the President's commission at that time, was concerned about the operational stage of Missouri basin development. During the development phases, MBIAC was serving the diverse needs and interests of its members. But after the project was constructed, Peterson wanted some legally constituted body to control the developed resources in the Missouri basin.

Peterson and others closely associated with MBIAC had to consider the historic issue of federal-state relations, including the primary question of how to balance federal and state control. The federal-state issues were

especially complex because of the size and diversity of the development program, the fact that numerous states were affected, and the effects of the basin's water flowing into the lower Mississippi Valley.

Truman's Missouri Basin Survey Commission staff concurred with Governor Peterson's position that MBIAC was effective "in attempting to coordinate the respective activities of the development agencies" and in resolving disagreements and problems during the construction phase. "Something more" was required, however, "to assure full participation of all concerned in the vitally important task of deciding the direction of future basin development."[25]

The staff was troubled by the voluntary nature of MBIAC and the seeming dominance of federal representatives. The MBSC's report also expressed concern about federal-state relationships in the basin. The staff contended that neither federal nor state representatives were in any way "bound to modify their respective program plans or to accede to [one another's] expressed desires"; the extent to which planning changes could be made depended essentially on the willingness of the federal agencies to adjust proposed developments to the states' desires. Unfortunately, the commission staff concluded, MBIAC provided "no absolute guarantee" that the states would be included in the planning and programming processes.[26]

The commission staff optimistically reasoned that as the original Pick-Sloan plan was amended to meet more fully the needs of the basin, the states might be more likely to participate earlier in the planning process. In contrast to the situation in 1945 when the Missouri Basin Inter-Agency Committee was formed, "the states should not again be presented with a previously drawn plan for their approval or modification." Rather, by reason of representation on the committee, the states should possess the means to be "informed of proposed new developments, and thereby to inject themselves in the planning process." The President's Missouri Basin Survey Commission concluded that this would "depend on state initiative, the willingness of the federal agencies to bring the states into the planning process, and the extent that planning is actually done through the inter-agency committee."[27]

The 11-member presidential commission agreed unanimously that a new agency was needed in the basin to direct, supervise, and coordinate land and water resources development. The commissioners put forth a plan for administration that "best fits the particular requirements of the Missouri basin and takes into account the requirements of resources planning, program execution, and operational management of facilities."[28] The commissioners could not agree, however, on an institutional

arrangement to best meet the basin's needs. Eight members pushed for a commission to be appointed by the President with broad powers to plan and implement a basinwide resources program. A three-member minority argued for a commission created under a state-federal compact. Under this arrangement, principal authority over federal programs would be vested in a commission controlled by the states.[29]

Either approach would substantially reorder the Missouri basin's resources development and management. To be successful, either organization would need to exercise certain basic powers including direction over the federal agencies operating in the basin. The involvement of both the executive and congressional branches would be shifted drastically. In effect, state officers serving on the basin agency would exercise administrative supervision over agencies and officers appointed by and responsible to the federal government. The commission would prepare and submit budgets for the basinwide program. Management of costs and accounts, planning and programming, and river control operations were proposed as functions of a new basin agency. Thus, President Truman's Missouri Basin Survey Commission was proposing major revisions in national policy.

As a practical matter, any new administrative entity would have to maintain the integrity of the federal natural resources program. Administration of federal programs would have to be entrusted to federal officials — representatives of the people who provide most of the funding. The main-stem projects would have to be controlled by federal agencies responsible for ascertaining that the system-wide program was administered in the national as well as the regional interest.

Federal activity in the basin would have to be coordinated with an array of interests with diverse needs and desires. From the outset of the development plan, these diverse interests expressed a desire for state and local representation in decisionmaking that affected their land and water resources. At the time of the program's inception, no mandate dictated that those affected by a federal program must participate in its creation.

Public hearings were held in the basin and in Washington, but basin interests wanted more than the right to be heard. Under MBIAC, resources development decisionmaking seemed to be after the fact, to be more of a federal function, and offered the states and localities only advisory roles.

While Truman's Survey Commission succeeded in identifying organizational problems and principles as perceived by basin officials and the people affected, it failed to develop acceptable recommendations for a basin management organization. The report was released 12 January

1953, just eight days before President Truman was replaced by a Republican President who would be working with many new legislators in Congress. The 1952 election temporarily ended hopes for a Missouri basin organization such as proposed by Truman's Survey Commission or any acceptable alternative.

Falcon by Sallie Zydek.

VI.
A Model River Basin Organization

As he left office, President Truman, like Roosevelt before him, was concerned about the lack of coordination in planning, programming, and budgeting for the nation's river basins. On 19 January 1953, his last day in office, Truman sent a message to the House of Representatives soliciting its attention to certain issues, particularly those highlighted by his 1950 Water Resources Policy Commission. Truman suggested legislation to organize more efficient regional river basin planning and management. He implored Congress to increase efforts to ensure that every affected state and community in a region be able to share in the planning and financial responsibilities for basin development.[1]

According to two political scientists analyzing basinwide organizational representation in 1954, "the region [has] to be more than a vocal spectator to its fate." They proposed an organization with elected state officials responding to "grass-roots voting power" and having decisionmaking authority from the start of project planning through the operational phase.[2]

The basin states were not capable in 1954 of assuming a much larger role in resources development. However, they were taking legislative measures to be better prepared to administer water and related land resources. The Council of State Governments reported that each basin state governor as early as 1950 had designated a single agency to review proposed federal projects and to draft the state's comments in accordance with provisions of the 1944 Flood Control Act. By 1954 all basin states had established agencies for water-policy administration and some planning. Federal-state coordination was achieved through various means such as inter-agency committees, informal consultation, memoranda of agreement, and formal conferences.[3]

The difficulty at the state level was not so much organizational as it was the lack of money and manpower. The basin states were unequal in wealth and varied in terms of enabling legislation related to water management. Funding for state resources programs was usually woefully inadequate. Overall, the problem was too many tasks, too few trained and experienced people, and too little money.[4]

Clifford H. Stone, director of the Colorado Water Conservation Board and a respected representative of the states, explained his view of the

situation in the early 1950s. He told the President's Missouri Basin Survey Commission that section 1 of the 1944 Flood Control Act placed "a real responsibility" on the states. He asserted that had the act "been sufficiently embraced and carried out in some states," much of the federal-nonfederal conflict in the basin "may well have been averted."[5]

Political scientist Albert Lepawsky charged that state officials had failed to seek additional responsibilities or funding. But state officials wanted something other than expanded state planning and programming. They sought a veto over any federal plans they found objectionable.[6] Their position was substantiated by MBIAC experience. If state officials were concerned primarily with power to negate federal plans, one thesis held that Congress was the only effective elected representation in the basin. As expressed by political scientist Charles Hardin, a joint committee of the basin's congressional delegation and federal agency representatives was a logical group for representing regional interests. He said this group would sponsor a regional program that included responsible financing and that protected the national interests.[7]

Hardin's basin committee was based on a "pure" American federal system. Its members were professional bureaucrats who were responsive to congressional direction and control and also sensitive to states' water laws and policies. Congressmen and agency representatives worked together to ascertain the desires of state, community, and special-interest groups; to determine what was in the national interest; and to recommend how to distribute the financial resources and benefits of the nation to basin projects. Through the regional committee, planning, programming, and budgeting would be achieved in the basin before recommendations were sent to Washington. Then members of Congress from the basin would lobby for the plan.

According to the Hardin model, the regional plan would have grass roots support. Those presenting the plan in Washington would have direct access to appropriate committees. It was a practical, evolutionary scheme and would not disrupt traditional distributive policies.

The academic theorists elucidated and the presidential appointees propounded while those closely associated with the Missouri Basin Inter-Agency Committee sought pragmatic ways to strengthen the organization. While prosecuting the Missouri River development program, MBIAC had succeeded in reconciling diverse and often conflicting views among federal and state representatives, sectional and special interests, and rural and urban groups. By taking advantage of increasing knowledge and information, committee members reformed the organization to meet their professional standards for coordinated planning and programming, and

for eventual operation of the main-stem dam and reservoir system.[8]

Generally, water resources professionals knew each other and worked well together. However, institutional discontent ran deep. State representatives wanted to protect the states' prerogative for water management and formalize their standing in MBIAC or some similar coordinating organization. In 1946, the year project construction began on the Pick-Sloan program, basin states' governors acting through the Missouri River States Committee unanimously passed a resolution requesting that Congress give statutory status to a state-federal committee. Congress took no action on the resolution.[9]

State representatives continued to seek some sort of regional administrative organization emanating from the states. The federal government was viewed as too remote and complex for effective oversight. State and local governments were seen as more accessible and participatory. State and local leaders were credited with better understanding of resources development and operational needs and greater interest in developing positive responses from those affected.

Strong sentiment in favor of decentralization existed in the basin. The need for federal funding of public works projects was juxtaposed with a desire for state control of water management. Emphasis shifted, as construction got under way on the big dams, from the reactive states' rights position of Senator O'Mahoney and his supporters to a more provincial participatory democracy involving state powers and personnel.

Missouri basin home rule sentiment was expressed in 1949 by C. Petrus Peterson, a Nebraska state senator and member of the board of directors of the National Reclamation Association. When addressing the Missouri River States Committee, Peterson referred to "momentous changes" that affected "all our institutions of government" and especially "a distribution of jurisdiction between the states and the federal government." Resources conservation and development were not national problems, he contended, but were local and regional problems. The national government had not found "an appropriate governmen-

C. Petrus Peterson, Nebraska State Senator and President, National Reclamation Association.

tal unit to discharge the responsibilities involved." Peterson said that therefore the residents of the basin were responsible for creating a model "with democratic control adequate to the task."[10]

Peterson proposed a basin organization designed to recognize their "special interest" and to "preserve democratic control in the hands of the people most vitally concerned." His organization would "maintain the integrity" of state statutes, especially property rights in water, while allowing the federal government to participate in selecting and managing projects, which the investment of federal funds made essential. The organization would be "established on the basis of area home rule," which would offset "needless centralization of power in the federal government."

Peterson cited the precedent "for such instrumentalities" as he proposed. He pointed out that the Constitution permits states to enter into compacts in order to deal with interstate matters on a cooperative basis. Furthermore, Congress is impelled to consent to compacts dealing with regional matters to protect the national interest, especially in matters relating to interstate streams.

Before 1920, only 36 compacts had been ratified by the states and Congress.[11] And not until the 1922 signing of the Colorado River compact was an interstate compact used for basinwide water management. Few compacts were executed thereafter. A public-works legislative specialist reported in 1954 that only 19 compacts still existed.[12]

The substantive issues related to compacts are difficult to resolve. The search for ways for the states and the federal government to coordinate and administer regional affairs is often unsuccessful. Frequently, compacting results in a "state gesture along the lines of self-protection rather than toward responsible and constructive achievement to eradicate the problems that created the need." Compacts are intended to create positive, constructive solutions to issues involving other states and the federal government, not to provide complexities.[13]

Advocates have contended that interstate compacts provide "a mechanism for the weighing of state and national interests." The logic of this position was that "Some interstate streams were proper subjects for integrated development." States alone could accept responsibility for modest-sized projects. Large-scale projects, where both the nation and states had interests, could be built through negotiated, shared financing. A compact agency, drawing its membership from both the federal and basin state governments "could insure the adequate presentation of these interests."[14]

Clifford Stone, a highly respected professional in Missouri basin

water resources matters and author of the Colorado River compact of 1922, shared his views on interstate compacts with MBIAC members. Stone believed that the compact method provided "a means for appropriate federal and state participation in river basin development and for legal adjustment of pertinent interstate water problems." He foresaw that where basinwide plans had been implemented, interstate conflicts and questions of project operations might be appropriately settled by compact. Stone urged that "the highest use of water, in accord with the rights and interests of the states, and of the federal government, as well as with the principles of our federal union of states, may be accomplished in this way."[15]

MRD Division Engineer, Brigadier General Samuel D. Sturgis, Jr., argued against decentralization. At MBIAC's January 1950 meeting, Sturgis reported that the Corps of Engineers and Bureau of Reclamation, working with the states through the inter-agency arrangement, could handle the operational phase of the basin program.[16] He told General Pick, then Chief of Engineers, that project operation had received considerable attention. Sturgis said that starting with Glenn Sloan's proposal of central operational control, others had suggested more state control. But Sturgis added that "The Bureau, at field level at least, agrees that each agency should operate its own projects, cooperating with other agencies and states."[17]

Brig. Gen. Samuel D. Sturgis, Jr.

Sturgis told Pick that his speech to MBIAC was intended to counter Petrus Peterson's "home rule" address. He stressed that it was "entirely feasible, without running into any adverse legal problems, for the federal agencies to continue to cooperate with the states and operate to everybody's satisfaction the completed projects." Sturgis cautioned that the Corps was confronting a "belief (in the absence of a true understanding of the problem)" that something other than the inter-agency committee was necessary in the operational phase.[18]

In the discussion following Sturgis's speech, Governor Val Peterson announced that, as chairman of the Missouri River States Committee, he had taken action on Petrus Peterson's home rule proposal. The Council of State Governments had been requested to make a study and recommend

guide-lines to the MRSC for operation of the basin's water resources facilities.[19]

Val Peterson said he preferred the federal agency management model, but the states ought to be ready with their own alternative should a Missouri Valley Authority be proposed. Governor Fred G. Aandahl of North Dakota said an interstate management model was necessary not as a negative reaction to a regional authority plan, but as a positive guide for state action.[20] He and Stone both testified before Truman's Policy Commission in support of the federal agency model and advocated a compact approach for dealing with water resources management issues in the Missouri basin.

Planning for a draft interstate compact proceeded in 1950 through the auspices of the Missouri River States Committee and the Council of State Governments. In February, Governor Peterson presented the issues to the Council of State Governments and follow-up meetings were held with council representatives and some basin state governors. By the end of the year, the council had identified "a multitude of potent factors" requiring "sober analysis." It forecast that as the basin's agricultural and industrial production grew, operational problems related to the Pick-Sloan projects would become harder to resolve and "the required administrative decisions increasingly difficult to make." The council noted that the direction and shape of the basin's future economic development would be influenced heavily by how the federal agencies exercised administrative discretion.[21]

The governors urged the council to proceed with the study and to prepare appropriate documents for a Missouri basin compact.[22] Drafting and redrafting of the compact report continued for several months. It was an arduous task, fraught with contention within the MRSC. The council added James M. Landis (dean of the Harvard Law School); Phil M. Donnelley (a former governor of Missouri); and Clifford Stone, Frederick L. Zimmermann, and Mitchell Wendell (interstate compact specialists), to the compact drafting team.[23]

Some MRSC members expressed concern about pressing for a basin compact at that time. Strong support existed for continuing with the existing inter-agency management. A portent of future resistance to a compact was revealed when the MRSC objected to a motion to "accept the report" of the Council of State Governments. An amended motion "to receive the report" finally passed. Major concerns were reconciling MRSC members' views of centralized versus decentralized control, and dealing with diverse interests in applying the complex criteria for water resources management.[24]

Division Engineers in the Missouri River Division expressed their views on compact deliberations during 1952. One told the Chief of Engineers he thought the deliberations favored an MVA because of the difficulty in imposing "any other form of administration in the Missouri basin" so long as the states were engaged in the compact study.[25] His immediate successor said the states could accomplish more through the MRSC and MBIAC than if they bound "themselves to an administrative combination with legal, enforceable provisions."[26]

The states opted to continue considering the compact alternative. According to an MRSC consensus reached in December 1953, the chairman was to contact basin state legislatures, Congress, and the White House to pursue the subject.[27] In the summer of 1954, MRSC members appeared before the Senate Committee on Interior and Insular Affairs, chaired by Senator Hugh Butler of Nebraska. The committee was considering a bill requesting that Congress arrange for compact negotiations. A companion House Resolution was introduced by William Henry Harrison of Wyoming.[28]

Senator Butler asked the American Law Division of the Legislative Reference Service of the Library of Congress to draft a brief of the legal problems related to the Missouri River basin compact. Butler sought to protect the rights of states to determine the use, control, and administration of water resources. He did not want states in the basin to surrender any powers they possessed.[29]

Senator Hugh Butler of Nebraska.

The Law Division responded that the draft compact did not meet the standards Butler had stated as requisite to "a proper compact arrangement." The compact was intended to secure effective coordination, cooperation, unified planning, development, and operation of the water resources of the basin. Because control was placed in the federal government, basic adjudications would be by federal rather than state courts. The Law Division concluded: "This may be what Congress and the core states want. If so, they should know what they are getting."[30]

The proposed compact would superimpose upon existing federal and state agencies a new agency: the Missouri Basin Commission. The com-

mission would be authorized to make integrated plans for the conservation, development, and use of the basin's water resources. Member governments would be required to submit to the commission all plans for projects for flood control, irrigation, or other use or management that might substantially affect interstate use of water. The commission would review and appraise member governments' plans and submit its findings to those governments. The findings would be binding on the member governments.

The process of exploring these policy issues was delayed by Senator Butler's death. In early August 1954, the Senate committee reported back favorably on the compact legislation. On the Senate floor, Francis Case of South Dakota and Frank A. Barrett of Wyoming spoke in favor of the bill, declaring that the ten basin states had unanimously endorsed the bill and that the Bureau of the Budget and interested federal departments had approved it.[31] A House Subcommittee on Irrigation and Reclamation considered companion consent bills for the compact on 4 March 1954, but took no action. The legislative proposal was held over.[32]

Opponents of the compact took advantage of the interim. On 7 September 1955, D.P. Fabrick of the Montana State Water Commission recommended that the MRSC give no further support to any legislation that might lead to a Missouri River compact. Fabrick said that while he agreed with conceptual provisions of the basin compact, he feared "methods of compact legislation involving lengthy and inexpedient methods of negotiation . . . and impractical provisions of amendment or repeal." He criticized the compact as unsuitable for resolving basin resources management issues.[33]

D.P. Fabrick, Montana State Water Commission.

Fabric proposed legal recognition of the MRSC as an alternative. A bill to establish a Missouri River states office in the executive branch — as an independent agency to be used as executive agent for the MRSC — did not get out of committee.[34] Fabrick believed the "Governors Committee" [MRSC] was "the only representative group of sufficient prestige" to be effective within the administration and Congress.[35]

Fabrick's anti-compact presentation was followed by several statements of assent from MRSC members. Robert Hipple of South Dakota said he believed the compact lacked popular support, without which it would not be successful. Governor Joe Foss of South Dakota moved that the MRSC withhold action on a Missouri River compact. Foss's motion carried unanimously. The pursuit of congressional legislation authorizing the MRSC ceased.[36]

The Missouri River States Committee's deliberations reinforced what many advocates of organizational reform for administration of water resources felt was needed: a reordering of federal-state relations. What was lacking in the early 1950s was adequate provision for federal and state collaboration, and sharing of responsibilities for determining specific objectives and for managing multi-purpose projects. The Commission on Organization of the Executive Branch of the Government reported in 1955 that the existing inter-agency organizations were "wholly incapable of providing the degree of coordination needed to protect the public interest."[37] Federal and nonfederal government entities needed an organizational model that would promote a coherent, financially prudent, and administratively effective water and related land resources program.

The MBIAC members envisioned a strengthened committee. The MRD Division Engineer, Brigadier General William E. Potter, took the lead in encouraging the committee to accept a larger role. He recommended a program committee that would create a permanent staff and that would, in effect, be an executive agent for MBIAC. Potter promoted the concept of an integrated budget for the basin, by which he meant "strong state participation in its formation."[38]

MBIAC accepted Potter's challenging proposal.[39] It established a standing program committee and committed considerable effort toward developing acceptable procedures for local, state, and federal coordinated planning and programming. Aside from providing program continuity, the program committee focused on problems and issues for MBIAC's attention. It prepared special reports, developed agendas for meetings, and reinforced procedures for coordinated and integrated water resources activities in the basin. It served for five years as the working staff of MBIAC.

MBIAC members continued to analyze their basin organization and make internal changes. At an August 1959 meeting, MRD Division Engineer, Major General Keith R. Barney, presented a paper on "future activities." He noted the committee's enhanced role that included coordinating plans for comprehensive projects, programming developments on an equitable and logical basis, and operating completed projects to ensure

optimum benefits. To achieve these objectives, Barney believed that MBIAC needed to change by determining the roles of the individual members and clarifying their dual responsibilities to their states or agencies and MBIAC.[40]

General Barney offered suggestions to strengthen committee activities. He called for "specific means" to coordinate issues confronting MBIAC. He suggested that the committee take more aggressive and earlier action in dealing with problems. He said that programs for investigations could be accelerated and better coordinated, and the governors' participation in committee activities could be increased. He also thought the program committee could meet more often, and its staffing could be strengthened. He recommended that a subcommittee be appointed to review the charter and propose changes to enhance the committee's effectiveness.

The membership acted on Barney's reform suggestions. It appointed an ad hoc subcommittee, with three federal and three state members, which reported in May 1960. The group thought the 17-member program committee was "too burdensome." The main problem was the basin's size: travel, time, and costs hindered committee members from completing their work. Decreasing its membership would facilitate the work of the program committee. This organizational and procedural ad hoc subcommittee recommended that most of MBIAC's work be done by ad hoc subcommittees with specific assignments.[41]

The organizational subcommittee examined the roles of the governors as members of MBIAC. Except for the provision that the chairman "shall be selected from and by the federal representatives," the MBIAC charter accorded governors equal status with federal representatives. Though governors had shown no interest in eligibility either for the chairmanship or for participation in selecting the chairman, the MBIAC task group wanted to resolve the matter. They reported that having a governor as chairman "could stimulate increased participation of governors in activities of the MBIAC." On the other hand, the task group thought it "unlikely a governor would be willing to commit his personal time to the extent required to carry out the responsibilities of the chairman."[42]

The ad hoc group considered the participation of the governors in selecting a nongovernor chairman. This charter revision would place governors on a more equal basis with federal members. The subcommittee recommended that the decision as to whether governors became eligible to serve as chairman and to participate in selecting the chairman should be made by the governors themselves.[43]

The MRSC members discussed more extensive participation in MBIAC management by the governors. Iowa Governor Herschel C. Loveless stated his belief that governors had a great many duties; brief tenures; and backgrounds, experience, and interests that were not commensurate with those of regional heads of federal agencies. Joseph W. Grimes of South Dakota asked the MRSC members to recall that MBIAC was "a child" of the Washington-based inter-agency committee and therefore a governor serving as chairman might feel obligated to follow federal dictums. The prevailing view was that governors should not serve as chairmen of MBIAC, but no vote was taken on the matter and it was tabled.[44]

The MRSC and MBIAC members were clearly assessing ways to increase their efficiency and effectiveness. They were amenable to establishing ways and means for MBIAC to function more effectively with substantial state participation. They believed that constructive leadership was vested where it mattered most — at the regional and field levels where people interacted, focused on common perceptions of problems, and cooperated on a positive course of action.

Those who were most involved in managing the basin's water resources held views similar to those in the executive and legislative branches of government. The staff director of the Senate Select Committee on National Water Resources told MBIAC in April 1960 that "more state and local participation in water resources planning" was needed.[45] He emphasized that increased participation was especially important with respect to "end-use projects, commensurate with the increased attention given by the federal agencies to river regulation and control." The Senate committee envisioned a broadened water policy to address the needs of urban America for municipal and industrial supplies, water quality, flood plain management, recreation, and greater efficiency in water use.[46]

President-elect John F. Kennedy also pushed for change in water policy. His electoral campaign Natural Resources Advisory Committee recommended that the "new resource challenges of urbanism be met by closely coordinated federal-state efforts."[47] After his election, President Kennedy pressed Congress to act, and the cooperation between the executive and legislative branches resulted in a new policy statement requiring that regional, state, and local objectives be considered and evaluated within a framework of national objectives.[48] Kennedy established a Water Resources Council (WRC) in the executive office to support the policy objectives.[49]

Despite assurances from the executive office that the WRC would not expand federal jurisdiction and control over the water resources of the states, nonfederal officials were concerned that their powers might be

diminished. State officials wanted recognition of state water laws and safeguards to allow them to manage their water resources.[50] The most objectionable features of the proposed legislation related to creation of basin commissions. According to some state officials, basin commissions should not be created unless both the federal and affected state governments concurred that they were needed. Some states in the Missouri basin were satisfied with the informal status of existing inter-agency committees.[51]

Differences between inter-agency committees and basin commissions were few but significant. Like inter-agency committees, commissions would serve as the principal organizational entities for the coordination of federal, state, and local representatives. Unlike inter-agency committees, commissions would have permanent chairmen, staffs, and greater responsibilities for formulating comprehensive, integrated basin plans. Some states held that basin commissions should not be created unless both the federal and affected state governments concurred that they were needed.[52]

Through the Council of State Governments, the states presented to Congress proposals for new relationships between the federal and state governments. Missouri basin state officials especially favored this partnership.[53] Following years of negotiations among the states and the legislative and executive branches of the federal government, the Water Resources Planning Act was finally passed on 22 July 1965.[54] The several water policies and programs of the federal agencies and state governments were to be coordinated in a more comprehensive manner than had occurred in the past. States were granted coequal status with federal agencies in the functioning of river basin commissions.

The framers of the 1965 legislation recognized that meaningful planning required consensus. Achieving consensus in turn required persuasive and tactful interchange. The act directed the presidentially appointed commission chairman to coordinate federal members and "to represent the federal government in federal-state relations on each commission." State representation was through the vice chairman, elected annually from among the state members. In the absence of consensus, the chairman was required to set forth the views of the federal members and the vice chairman those of the states. Neither the federal government nor the states could compel the other to act; they enjoyed coequal status.

The planning act assigned the river basin commissions four basic responsibilities. The commissions were to serve as the principal water planning agencies in their designated watershed regions. Each commission was to prepare a comprehensive coordinated joint plan (CCJP) for

the region. Each commission also was to develop a list of priorities for water resources planning and construction projects, both state and federal, and advise the governors and WRC. The commissions also had authority to conduct investigations and studies as necessary.

The WRC, made a statutory council in Title I of the act, was to coordinate all federal water resources planning and to review comprehensive inter-agency, inter-governmental river basin plans.[55] The President placed the field committees under the WRC. Pending establishment of a Missouri River basin commission, the WRC assigned MBIAC the task of completing a comprehensive basinwide study. Charles A. Cocks, chief of the Planning Division for the Missouri River Division, directed the study.[56]

While the federal and state participants prepared the basin study, the MRSC took up the issue of a basin commission. An informal poll was taken following a proposal at an April 1966 meeting that the governors request creation of a commission. Half the states opted to defer action and half favored a commission. North Dakota Governor William L. Guy's motion decided the issue, deferring action pending further study. The states were to reconsider and take up the matter again by 31 December 1966. No such formal meeting was held.[57]

South Dakota Chief Engineer Joseph Grimes wrote a revealing memorandum to Governor Nels Boe of South Dakota on 28 April 1966.[58] Grimes asserted that the "tremendous effectiveness" of MBIAC during the early years of basin development under the 1944 authorization had "degenerated into a routine, stereotyped, rut-like, discussion of nonessentials." Grimes marked MBIAC's decline from the time construction of main-stem dams, power systems, and navigation facilities was assured. He believed that the ineffectiveness of the inter-agency committee was inherent in "all voluntary organizations." Grimes contended that because the special interests had realized their objectives, the committee's function as a unified and effective body had diminished.

New constituencies, more narrowly focused than the broad coalition that brought about the enabling legislation for Missouri basin development, were attempting to reshape the law. Replacing the voluntary MBIAC with a statutory commission, some believed, would revitalize the basinwide constituency network and stimulate the states' interest. The number of competing policies and individual agencies could be cut, efficiency improved, and nonfederal interests empowered through a basin commission.

In January 1967, the WRC appointed a special task force to study institutional arrangements for river basin management. The task force

was unable to recommend a single most suitable institution. The task force did state that in some circumstances, federal-state compacts might be best suited for managing a comprehensive plan and program such as that under way in the Missouri basin.[59]

At the MBIAC meeting in June 1969, members expressed concern about the type of Missouri basin organization being considered in Washington.[60] They were unable to reach a consensus regarding a basin commission. Some members were unhappy with the performance of existing commissions; others wanted to end the inter-agency arrangement because they held states had inadequate powers. Other members restated their hope for a more formal arrangement within MBIAC.

A decision as to whether to form a commission was the prerogative of the states. In 1971, they finally reached a consensus. North Dakota Governor Guy called a special meeting in September at the National Governors Conference in San Juan, Puerto Rico. The governors were informed by the WRC executive director that seven basin states (Colorado, Minnesota, Missouri, Montana, Nebraska, North Dakota, and South Dakota) had indicated "solid support" for the commission. Two states (Iowa and Wyoming) had questions but indicated they would participate if a commission were established. Kansas was not opposed but required state legislation to become a member.[61]

On 15 October 1971, the WRC approved a resolution establishing a Missouri River Basin Commission (MRBC). A draft executive order was required to be cleared through the Office of Management and Budget. By 8 December 1971, nine of the ten basin states had commented on the draft

executive order and in March 1972 the President created the Missouri River Basin Commission.[62] Transfer from MBIAC to the MRBC was completed formally at a joint meeting on 14 June 1972.[63]

Planning studies dominated the MRBC agenda. These were essentially assessments, termed Level B studies, of areas smaller than the watershed region, or updates and expansions of the completed comprehensive coordinated joint plan that MBIAC had drawn up just prior to its demise. Most of these studies focused on sub-basins, which often were within a single state. State leadership directed the MRBC planning-oriented staff to conduct studies, and much of the region's planning responsibility shifted from federal agencies to the commission.

In 1977, the Missouri basin governors lobbied for development of a computerized hydrology study to monitor and determine water availability within the basin.[64] MRBC members intended to establish a methodology and data base for use by all water resources management agencies. The hydrology model, set up in 1979, produced a computerized water use-monitoring and accounting system.[65]

Collection and analysis of basic data were nonthreatening to individual members. Basin states derived substantial benefits from the neutral arena in which studies were coordinated. States took advantage of federal funding, expanded their data bases, and received assistance with assessments of water resources and developments at sub-basin level. The MRBC's planning activity was of less value to federal agencies because it did not comport with their mandated planning practices and budget requests to OMB. However, considerable value accrued to both federal and state professionals who were collaborating to advance the well being of the region.

The commission was a fact-finding and coordinating body for the basin and had no regulatory powers or binding authority. The Water Resources Planning Act of 1965 stipulated that existing laws and authorities were neither expanded nor diminished. Because the act required consensus, the members negotiated conflicts or deferred action on divisive issues. The MRBC reported that a majority vote by the federal and state membership was required for commission action if consensus could not be achieved. The consensus rule was intended to support coequality and facilitate negotiation of differences without centralizing authority. Although constraining, the consensus rule was necessary because centralizing authority within the MRBC would have compromised the sovereignty of the states and the responsibility of federal agencies.

Generally, the MRBC performed an informal "mediation" role in resolving water issues. At WRC request, the commission also had the

formal role of providing a forum for airing disputes and studying alternative solutions. Operating within the constraints of its statutory authority, the commission adopted a proactive approach that included planning, research, dissemination of information, and consensus building to address management issues before they became critical problems. Without such an organization, the vast Missouri basin would be an institutional morass because of governmental activities extending across political subdivisions and involving divided powers and fragmented policies.

Yet there was no hue and cry from the basin residents when President Ronald Reagan issued an executive order in 1981 terminating programs established under the Water Resources Planning Act of 1965: the federal coordinating council (the WRC), the state planning grants, and the regional basin commissions.[66] Incentives for participation in the federal-state organization had been tenuous. The MRBC was limited to planning and, from the commission's inception, Congress had been reluctant to fund planning for additional projects. Furthermore, escalating costs and tighter budget reviews threatened the project's feasibility.

The timing for the commission's beginning was unfortunate in other respects. As it began functioning, "attractive" and "necessary" Missouri basin projects were essentially completed, some projects were infeasible, and many of the emerging issues centered on operational aspects of the big dams and reservoirs that were beyond the purview of the MRBC. The commission also was created just as the Environmental Protection Agency was launched with its host of water quality regulatory functions, while the MRBC's mandate did not account for the emerging significance of environmental concerns.

Basin state leaders understood that the federal function was shifting to an expanded regulatory role and away from that of capital supplier for project planning and development. The institutional history of the basin shows that states consistently favored the additional government involvement necessary to obtain the federal development program. The common objective of state members was protection and advancement of state prerogatives. By 1981, the states had derived the maximum benefit from the MRBC, so they were indifferent to its continuation.

When arrangements were made with the Reagan administration to transfer the residue of MRBC funds to a successor organization, the basin state governors moved quickly to establish a states' association. The Missouri Basin States Association (MBSA) was incorporated in September 1981 as a nonprofit corporation. It subsequently received more than $1 million in operating money, carryover funding for two studies, and other assets from the MRBC.[67]

The states were ready to quit comprehensive regional planning, the impetus for which had come from the federal government. MBIAC's "framework" documents were sufficient for that purpose. The states wanted a basinwide organization to facilitate coordination of regional concerns and to address specific interstate water resources problems. They broadened their objectives in May 1982 to include "matters of interstate comity" and focus on conflict resolution as a function of the association.[68]

The states gave MBSA greater freedom of action than that afforded the MRBC. The bylaws specified "no members," but in reality states were dues-paying members and issues were decided by simple majority vote by representatives of each of the ten basin states. Federal "observers" attended association meetings.[69]

A board of directors defined the association's activities and managed its affairs. Initially, each of the ten basin states was represented by two persons nominated by their governor and then elected to the board by the association's directors. In 1987, the board of directors revised its bylaws and articles of incorporation to allow each state one director appointed by the governor, that person to be a senior water resources official. This was an attempt to strengthen MBSA through participation at board meetings by higher ranking decisionmakers.[70]

MBSA functioned by committee. The presiding officer had no authority except for the personal influence he might exert. Individual directors, serving at the pleasure of the appointing governor, were unequal in their authority to speak for the governor, and the director's influence could be handicapped or enhanced by the executive relationship. MBSA was essentially comprised of equal partners, each of whom sought to protect the state's interest in water.

The association accomplished a great deal in a relatively short time under this confederacy model. It was more innovative than predecessor organizations, despite the states' being constrained in formulating interstate policy that might interfere with federal authorities. MBSA served as an effective forum through which the ten basin states could identify, discuss, and resolve issues of common concern.

In 1982 the board of directors initiated a process to secure formal cooperation of state governments regarding use of Missouri River water. It appointed an ad hoc committee to explore the concept of a usage threshold that would aid in conflict resolution. The ad hoc committee reported to the board in May 1984, and its recommendations were tabled for further consideration. Both upper basin states and Colorado opposed the report (the latter because of recommended action that Colorado law

prevented the governor from taking).[71]

The association appointed a standing committee with a broadened assignment. It created the Water Resources Coordination Process with the charge to develop a negotiating procedure to be applied when the states disagreed over interstate waters. The directors retained a professional mediator and adopted a five-step process consisting of issue identification and analysis, guidelines for and conduct of negotiations, and implementation.[72]

The board asked the MBSA staff to analyze the Pick-Sloan Missouri basin program in order to provide coordinating support. The analysis would provide background information and help identify interstate issues that the states could address in conflict resolution. This approach was especially valuable because it concentrated on state concerns related to Pick-Sloan plan operational issues.

The board directed the staff to prepare the work plan for analysis of Pick-Sloan with the objective of accurately describing the program and its impact on the basin states.[73] Program components were to be assessed functionally in interim reports for the directors' review and comments. Upon receipt of each functional interim report, the association's executive director issued a memorandum identifying potential interstate water issues raised by the functional analysis and recommended MBSA board action.

MBSA had great difficulty achieving consensus among the states on the staff functional reports. In fact, the subject of municipal and industrial water supply was so controversial that the board decided not to release the report. The common objective of state representatives was protection and advancement of state prerogatives, but the integrative processes MBSA followed resulted in a cognitive development that clarified basin water management issues.

MBSA also led an effort to resolve the over-arching issue of each state's rights to withdraw water from the Missouri River main stem. When South Dakota threatened to sue for the right to market water, MBSA offered to negotiate the apportionment of Missouri River water.[74] If South Dakota had sought apportionment through court decree, all of the Missouri basin states could have been involved in extended litigation. (This type of litigation usually results in court appointment of a special master who recommends an apportionment that is backed by court decree.)

An interstate compact was an alternative to court-ordered apportionment. Kansas Governor John Carlin invited Missouri basin governors to appoint representatives to a negotiating team coordinated by MBSA to

pursue such an alternative.[75] He proposed a compact that would be limited to designating only a portion of Missouri River flows for the use of each state.

The governors agreed to negotiations during 1986. They set December as the deadline because it marked the end of the terms of five of the basin's governors. At the first substantive meeting in April, the North Dakota representative opposed an interstate compact. The state representatives agreed that allocation of water among the states was the main issue, but that the purpose, policies, and principles concerned with use and management of water first had to be outlined and agreed to.[76]

At follow-on meetings, the governors' representatives sought solutions to specific problems with the intent of addressing the instrument or mechanism for implementing solutions. The deliberations led to a draft "statement of principles" that had allowed each state to use its water resources independently but in harmony with the other basin states.[77]

The state representatives could not reach accord on the final principles. Areas of disagreement centered on out-of-basin water transfers and establishment of quantities of "reasonable" water use within each state. Some states already had enunciated positions on issues that contradicted the principles. Until those barriers were overcome, the full set of principles and implementing actions could not be agreed on.

Although failing to achieve the ultimate goal, the negotiations produced some benefits. The governors' representatives communicated among themselves the positions of the basin states on water resources issues and management concepts. They addressed a broad array of concerns and fostered a better understanding of water resources issues among basin states. The MBSA staff reports produced significant understanding of the Pick-Sloan plan and of each basin state's position on issues and principles. The basin was in a strengthened position to explore a management model.

The brief 1986 negotiating period became even more of a problem when the negotiators broadened the scope of issues to be addressed. Furthermore, representatives had rejected the idea of having a facilitator to help define the interests of each state and to seek negotiated solutions. Animosity developed between some negotiators, and those seeking specific water allocations were frustrated when they realized an agreement would not be achieved within the allotted time frame. In December 1986, the governors' representatives disbanded, or, as one participant described it, they "self-destructed."

The governors' representatives did recommend pursuing an interstate agreement on water management for the basin. The board of directors

acknowledged that because of the polarization created by lawsuits, MBSA could make no further progress until the litigation was concluded.[78] The association's role was diminished more by external factors than by its own initiatives for interstate reconciliation.

At this same time, some of the states were unwilling to financially support MBSA. The association's carryover funds from the basin commission were virtually depleted, even with the staff reduced to an executive director, two professionals, and an administrative secretary. On 26 August 1987, the board of directors voted to release the staff and close its Omaha office, effective April 1988.[79]

The Missouri basin was left with an institutional morass. Although MBSA existed, it had no administrator or office from which to coordinate the vast basin's water-management activities. In July 1990 the board decided to hire an executive director and to examine ways to strengthen the nonfederal basinwide institutional base. The association expanded its board to better represent the basin's Indian population. MBSA's board reinitiated regular meetings to evaluate and make recommendations on proposed federal policies affecting the Missouri basin, to formulate consensus positions for recommendations to the Corps of Engineers on operating plans, and to review technical information on the Corps' master water control manual.[80]

During 1990 MBSA began the difficult task of exploring alternative institutional arrangements for the Missouri River basin. Regional consciousness had evolved into disputes over the availability of Missouri River water to serve various private- and public-sector special interests that had formed contentious sub-regional blocks.

The institutional dilemma was exacerbated by the basin states' vastly different physical, legal, and economic relationships to the Pick-Sloan program and their unequal proximities to the main-stem river. Of the ten states bordering the Missouri basin, three do not touch the mainstem river at all (Colorado, Wyoming, and Minnesota), two provide 80 percent of the storage available to the main-stem system (Montana and Wyoming), and three contain the vast majority of Pick-Sloan storage (Montana, North Dakota, and South Dakota).

Forty-five years following the Pick-Sloan legislation, each state's perceptions as to benefits — actual or unrealized varied widely. These differences have mitigated stress against any basinwide organization's success in achieving consensus on water management issues.

The Corps' six main stem projects overshadow basin water management issues. But the attention each state gives to the main stem is determined by its location relative to the projects; South Dakota with four

of the projects has been most active in this regard. State water officials, however, probably devote much less time to Missouri River issues than to other water management concerns. Most concerns are more localized and the federal presence is less dominant in areas far from the main-stem.

MISSOURI RIVER BASIN AREA AND PERCENT OF STATES IN BASIN

State	Total Area (Square Miles)	Percent in Basin
Colorado	104,247	29
Iowa	56,290	30
Kansas	82,276	50
Minnesota	84,068	2
Missouri	69,674	52
Montana	147,138	82
Nebraska	77,227	100
North Dakota	70,665	59
South Dakota	77,047	97
Wyoming	97,914	75

Crane by Sallie Zydek.

VII.
System Operation

During the more than four decades of institutional change associated with the Pick-Sloan Missouri basin plan, the affected states and Indian tribes were frustrated by their lack of control over water-management issues. Section 1 of the 1944 Flood Control Act recognized rights and interests of states in water resources development, and required federal agencies to consult and coordinate with the states. In certain instances involving proposed developments, such as the Osage basin projects in Missouri, that legal requirement satisfied state demands and resulted in altered plans.[1] However, Indian rights regarding water management were not clarified nor considered in operational plans.[2] In other sections of the 1944 act, federal agency power dominated. Sections 6, 7, and 8 authorized the Corps of Engineers through the Secretary of the Army to prescribe operating regulations for use of storage allocated for flood control or navigation, to dispose of stored water not needed for authorized purposes, and to provide water for irrigation.[3] Despite this clear authority, operating principles for mainstem projects became controversial.

The Corps of Engineers and the Bureau of Reclamation discussed principles of operation for multiple purpose reservoirs early in the basin development program. Representatives of the two agencies met in Omaha in May 1949 and in Denver the following November to reach an agreement. It dictated that whichever agency constructed and maintained the dam would be primarily responsible for its functional operation for purposes other than irrigation and flood control. The agreement also stated that separate offices for scheduling storage and releases at reservoirs having both flood control and irrigation purposes would not be necessary. Methods of forecasting and agreements on details of operation were to be worked out for each reservoir.[4]

William Glenn Sloan of the Bureau of Reclamation reported on the agencies' preliminary discussions to the Missouri Basin Inter-Agency Committee at its meeting in September 1949.[5] Sloan, who was then chairman of MBIAC, suggested central operations control for all federal reservoirs in the basin. He raised some fundamental questions. The time had come for open and objective discussion.

Brigadier General Samuel D. Sturgis, Jr., MRD Division Engineer,

recorded in his notes that Sloan's suggestion could be "lethal in effect." He elaborated that MRD had been working out dam and reservoir control "by cooperation with the Bureau on the technical level."[6] Sturgis intended to oppose Sloan's initiative.

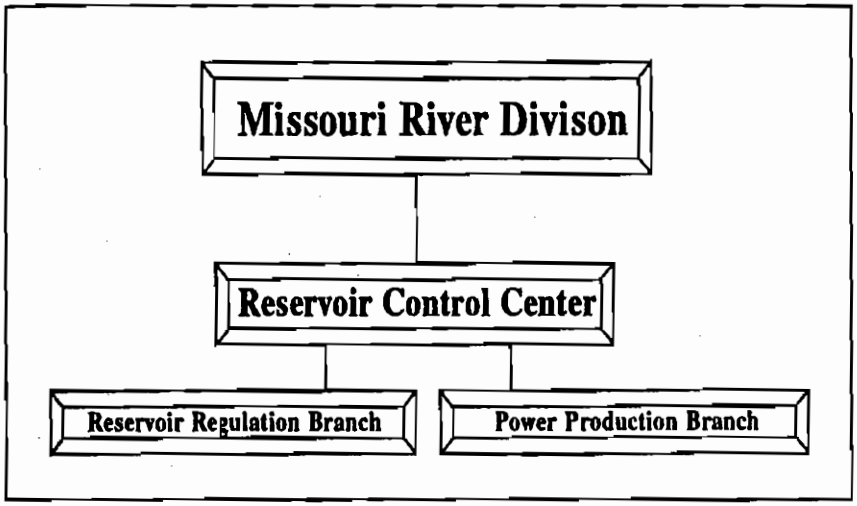
The Corps was pressed by some state officials who supported Sloan's proposal. At a 30 November 1949 meeting of the Missouri River States Committee, Nebraska State Senator C.P. Peterson proffered that when the operational stage was reached, "some morning a decision" would have to be made whether to release water in support of navigation or hold it to sustain irrigation.[7] He said that would not be the time for an interagency debate. Governors William Bonner of Montana and Forrest Smith of Missouri stressed the importance of involving the states. Nebraska Governor Val Peterson, in his capacity as chairman of the MRSC, requested that the Council of State Governments study operational phases of the Missouri River development program and submit recommendations.[8]

Corps leaders acted without waiting for the council's report. General Sturgis got on the agenda of the January 1950 MBIAC meeting to pursue the Corps' objectives to control reservoir operations. He explained some of the factors affecting plans for the operational phase and emphasized the need to collaborate with the states. Sturgis said problems could be solved "only through mutual and cooperative efforts, through give and take, through efficient operations, not by new organization charts."[9]

The Corps clearly intended to fulfill its legally mandated assignment and take the lead to control operations of the main-stem dams and reservoirs. It was amenable, however, to sharing water management on tributary streams west of the main stem. Meetings with the Bureau of Reclamation between 5 June 1951 and 15 February 1952 affirmed the Corps' position.[10]

The Corps and Reclamation Work Group on Coordination of Interests considered in detail the problems and basic requirements of operation of the main-stem dams and reservoirs for each individual function. It evaluated the system's capacities under historic extremes of drought and high-water runoff conditions. The work group examined items of mutual interest or potential conflict between the various functions to be served in multiple-purpose operations.

The work group reported in 1952. It concluded that on main-stem and some tributary projects, navigation and flood control operations related directly to irrigation and hydropower. Other multiple-purpose features that were to be served by the stored water had "practically no operating interrelation."[11]



The Corps would ascertain when water was to be released from the main-stem system to meet requirements. The work group affirmed that MRD's Reservoir Control Center (RCC) would coordinate the acquisition and analysis of all hydrologic data required by the Corps in the operation of the dams and reservoirs. The RCC also would study power production potentialities, prepare storage balance relationships among reservoirs, and make other studies for the purpose of developing multiple-purpose operations favorable for power.

MRD wanted some institutional arrangement whereby technical representatives of other federal agencies and the states could express their viewpoints on operations of the multiple-purpose projects. The coordination work group reported that the Corps would develop "channels for the expression of operational objectives by other agencies." MRD established a coordinating committee to ensure that all concerns were represented adequately in annual operating plans and then acted on if appropriate.[12]

Coordination as practiced by the Corps of Engineers went beyond the requirements of section I (a) of the 1944 Flood Control Act. The act provided that before any of the Chief of Engineers' plans, proposals, or reports for improvement works were submitted to Congress, the investigations were to be coordinated with each affected state and the reports submitted to such states for comment and recommendation. The Corps extended that policy concept to include participation in the formulation of operating plans for completed projects. Accordingly, the desires and views of the states were considered and complied with insofar as possible

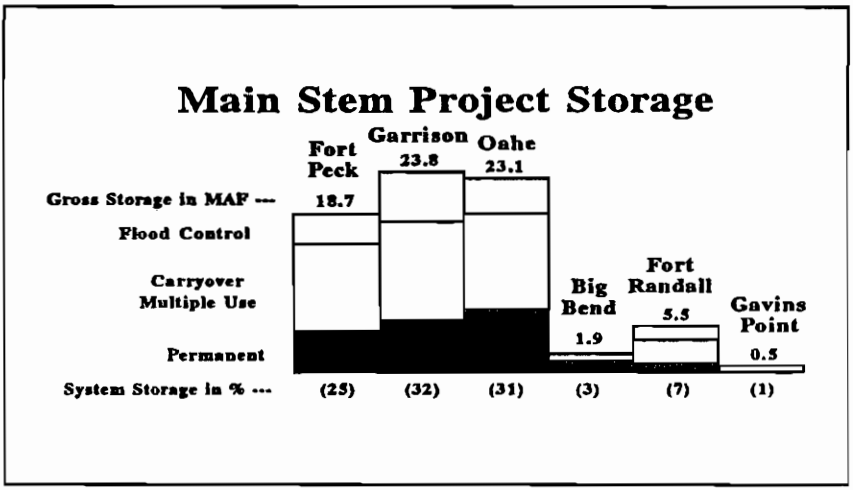
and consistent with project authorizations. This coordination was to be accomplished through the Coordinating Committee on Missouri River Main Stem Reservoir Operations.[13]

In December 1953, Sturgis's successor Brigadier General William E. Potter, explained MRD's functional operations control concept.[14] He cited a team game as an analogy. Like members of a team, he said, each of the six main-stem dams and reservoirs had certain important functions to perform: "But to provide a winning combination which will give the people victory over floods and maximum benefits from use of controlled water, their functions must be fully coordinated."

Brig. Gen. William E. Potter.

Potter explained how the operational team evaluated the work to be performed. With the six main-stem reservoirs filled, the team had under its control a total main-stem storage capacity of 76.8 million acre feet (MAF), the largest storage for any system of reservoirs in the nation. (As of spring 1992, storage capacity of the main-stem system had been reduced from 76.8 to 73.7 MAF, or a 3.0 percent storage loss in 39 years.)[15]

The Missouri River Pick-Sloan system is unique because the ratio of



1991 CALENDAR YEAR RUNOFF FOR SELECTED REACHES

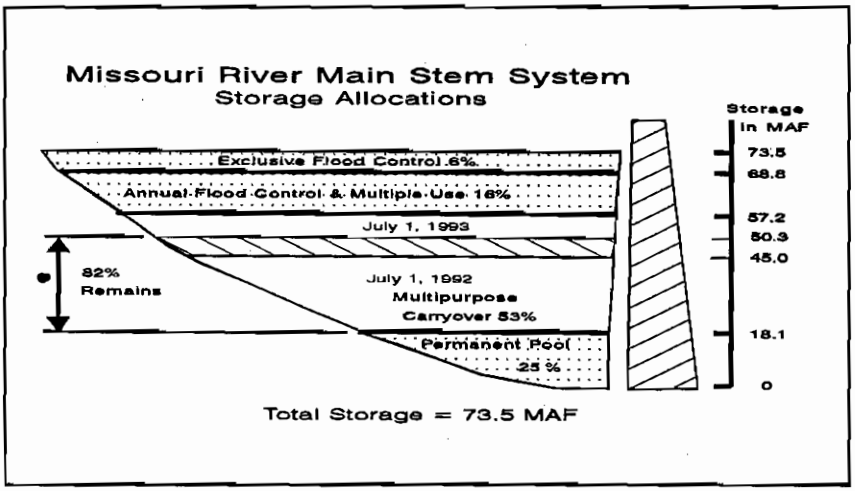
Reach	Runoff		
	1898-1987 Average Volume	Calendar Year 1991 Runoff-Volume	Percent of Average Runoff
		(1,000 Acre-Feet)	
Above Ft. Peck	7,470	7,061	95
Ft. Peck to Garrison	11,080	9,677	87
Garrison to Oahe	2,350	1,833	78
Oahe to Ft. Randall	910	709	78
Ft. Randall to Gavins Point	1,510	2,149	142
Gavins Point to Sioux City	1,680	901	54
TOTAL ABOVE SIOUX CITY	25,000	22,330	89
Sioux City to Nebr. City	7,530 [1/]	5,800 [1/]	77
Nebr. City to Kansas City	11,930 [1/]	4,990 [1/]	42
Kansas City to Hermann	23,160 [1/]	15,160 [1/]	66
TOTAL BELOW SIOUX CITY	42,620	25,950	61

[1/] Except for reaches from Sioux City to Hermann. Averages are taken from USGS Water-Data Reports for the period 1967-1987, adjusted to 1949 depletions.

storage to runoff is high. Total annual runoff upstream from Sioux City, Iowa, for the years of record 1898 to 1991 averaged nearly 25 MAF, or only about a third of the total storage capacity. All of that storage was not, of course, available for use. The system of reservoirs must be viewed as one in which water is stored in four separate storage zones.

A top zone consisting of about 4.6 MAF or 6 percent of capacity is reserved for the control of the most severe floods. This exclusive zone is evacuated as soon as possible, downstream flooding conditions being the only constraint in release scheduling. Flood control operation is not a use of water but absolutely requires that adequate storage space be available whenever needed to prevent downstream flooding. It is the only function the reservoirs serve that requires evacuated storage.

At the bottom of the reservoir system is a "permanent zone." This zone, which consists of 18.2 MAF or 25 percent of the total storage



capacity, is provided to assure minimum head required for power generation and sediment retention, and to allow for continued recreation and fish and wildlife purposes (although at greatly reduced benefits). Permanent pools in each of the reservoirs remain filled with an amount of water that is unavailable for flow regulation.

The largest storage area in the system is a multi-purpose carry-over zone. It contains 39 MAF or 53 percent of the total storage of the six reservoirs. The operations team's goal was to save the water in the multipurpose zone whenever possible so that it could continue to support all project functions during extended drought periods such as the 12-year drought of the 1930s. The operating rules contained in the Master Water Control Manual are defined so that as storage declines in this zone, less water is released.

During years of adequate water supply, the Corps prefers to operate in the next higher zone, the annual flood control and multiple-use zone. The Corps uses this zone to equitably support all authorized functions. The task is difficult at times because the zone consists of only about 11.7 MAF, or 16 percent of system storage capacity. Fortunately, water has never been allocated in the system to benefit specific project purposes. All purposes share the stored water, which enhances the operational team's flexibility in meeting demands.

Potter explained the operational concept in scheduling the retention or release of this water. The first consideration was flow requirements for water supply and public health as determined by the states and the U.S. Public Health Service. This was in accord with a unanimously adopted MBIAC resolution of 23 March 1950, which stated that operational

policy should recognize the need to protect the interests of public health and welfare east of the 98th meridian in the lower basin, just as section I (b) of the 1944 Flood Control Act protected the land area of the basin west of the 98th meridian.[16]

Potter stated that the next consideration in scheduling the release or retention of water from the main-stem reservoirs would be to satisfy requirements for irrigation.[17] These decisions regarding water needed for irrigation at federally sponsored projects were to be made through data pooling by the affected states, MRD, and the Bureau of Reclamation. All authorized irrigation and other upstream beneficial consumptive uses were to be allowed for.

MISSOURI RIVER NAVIGATION FLOW TARGETS

Target Location	Full Service	1989 Target	1990-92 Target (Minimum Service)
Sioux City	31,000 cfs	28,000 cfs	25,000 cfs
Omaha	31,000 cfs	28,000 cfs	25,000 cfs
Nebraska City	37,000 cfs	34,000 cfs	31,000 cfs
Kansas City	41,000 cfs	38,000 cfs	35,000 cfs

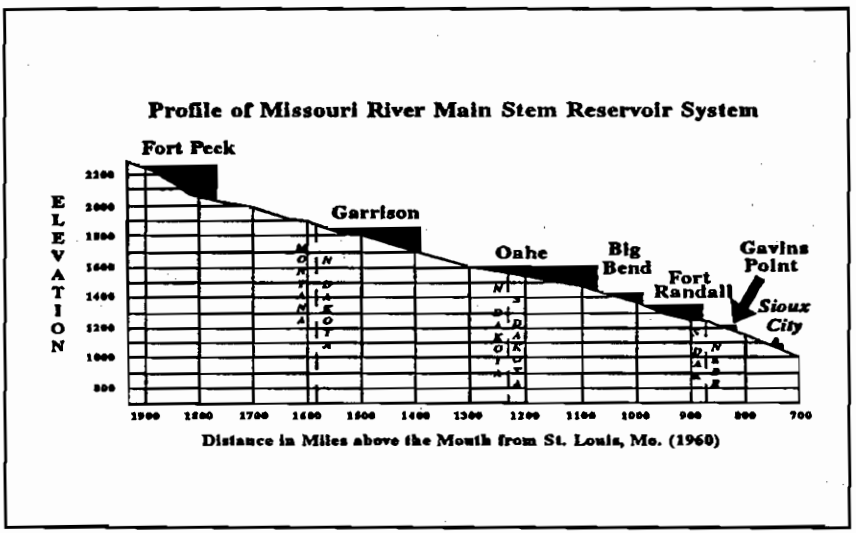
The remaining water supply was to be scheduled so that reservoir releases through the lower-most dam in the mainstem system supplied the seasonal requirements for navigation. Experience, and data collected in 1953, indicated that flows of 25,000 cubic feet per second at Sioux City, Iowa, and 35,000 cfs at Kansas City, Missouri, would permit a 9-foot-deep by 300-foot-wide navigation channel with little or no dredging. Later, the flow targets were increased to 31,000 and 41,000 cfs, respectively. The navigation channel extends 732 miles from Sioux City to the Missouri's confluence with the Mississippi River just above St. Louis.

The Missouri River is free flowing and has no locks and dams. The last flow-control point for the main-stem dams is at Gavins Point Dam, located 80 miles upstream from Sioux City. Flow support for navigation generally is limited to eight months, or almost the entire ice-free season. Season lengths are extended by ten days when excess water is available, but ice conditions do not permit longer extensions. Navigation tows generally work in the lower river prior to the scheduled opening dates if tributary flows are adequate to maintain the needed stages.

Flows of at least 9,000 cfs at Sioux City are required during the ice-free season (without commercial navigation) to permit cities and utilities to take water from the river. Actually, nonnavigation releases have varied from as much as 23,000 cfs, to evacuate excess water, down to 8,500 cfs during drought periods. During extreme rainstorms, releases have been reduced in the navigation season to only 6,000 cfs in order to minimize downstream flooding.

In his 1953 statement, Potter explained that all six main-stem dams and reservoirs were to be regulated internally and adjustments made in the outflow from the system to provide for the maximum generation of hydropower consistent with uses described above. Power plants at the dams on the Missouri River may use nearly all of the reservoir releases made for water supply and navigation. However, Potter envisioned that some special patterning of reservoir releases would be necessary to realize maximum power potentials. For example, when navigation flows are cut, power generation drops dramatically because the quantity of water being released from the four most downstream reservoirs is reduced. At the same time, releases from the upstream dams can be increased to generate more energy from previously stored water. In addition, Big Bend and Oahe releases are reduced in the fall period in order to reduce the storage in Lake Francis Case. Those project releases are increased in winter months to refill the evacuated storage in Lake Francis Case, thus further increasing winter energy production.

Internal system regulation is facilitated by the way the system receives water. Mountain snowmelt runoff flows into the two uppermost



reservoirs during May, June, and July. Characteristically, Fort Peck gets 32 percent of the total inflow into the system and it generates 11 percent of the hydropower the six dams produce. Garrison gets an additional 8 percent of the total inflow and generates 26 percent of the hydropower through the release of its incremental inflow plus the passing of Fort Peck's release. As the summer power load increases, water is released from these two upper-most reservoirs to maintain or raise the level of Oahe.

Natural runoff into Oahe is limited by plains snowmelt, which is generally low compared to mountain snowpack runoff and occurs during March and April. That inflow is supplemented by modest inflows from rainfall runoff. Oahe averages only 10 percent of total runoff into the main-stem system, but generates 28 percent of the power due to passing its local inflow plus the releases from upstream projects. Flows for navigation in the spring are supported primarily by Oahe; Fort Peck and Garrison releases are slowed. Those project releases are again slowed in the fall period, resulting in reduced levels at Oahe. The evacuated storage is refilled by the first of March to the base of the flood control pool, if possible.

These three upper-most reservoirs are large by all standards. In fact, Garrison, Oahe, and Fort Peck are the third, fourth, and fifth largest storage reservoirs in the United States. Only the Bureau of Reclamation's Glen Canyon and Hoover dams, forming Lake Powell and Lake Mead, store more water than does Garrison. The three reservoirs' total capacity constitutes 88 percent of the system's storage volume. Average annual releases from Fort Peck, Garrison, and Oahe are approximately 10,800, 24,100, and 26,600 cfs, respectively. Functioning as an integrated unit, these upper-most main-stem Corps projects provide operating flexibility and opportunities to maximize multi-purpose benefits.

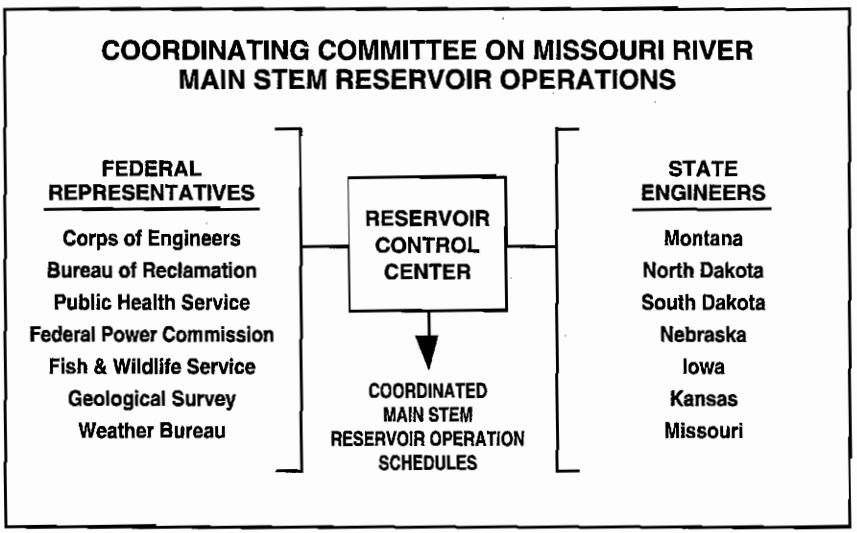
The three lower-most reservoirs are smaller. Big Bend, located downstream from Oahe, does not receive enough inflow to register a percent in the system total, but it does generate 10 percent of the system hydropower production due to the passing of upstream project releases. Fort Randall's incremental inflow is typically 4 percent of the total and it generates 18 percent of the hydropower. The lower-most dam and reservoir, Gavins Point, generally has 6 percent of the inflow and, due to a relatively low head, generates 7 percent of the system's normal annual power production of 10 billion kilowatt-hours.

Potter noted in his 1953 statement that operational objectives other than hydropower needed to be incorporated to the maximum extent practicable in operating policy. For example, he said that the interests of

fish and wildlife and recreation would receive "appropriate and important consideration." Federal and state fish and wildlife agencies would furnish data that the operating team might use in timing and establishing reservoir levels. Corps main-stem system operations would reflect these considerations insofar as practicable without serious interference with the primary authorized functions, Potter said.

The Missouri River Main Stem Reservoir System Reservoir Regulation Manual, initially prepared in 1960, outlined the operating philosophy and described considerations for planning project operations. The Annual Operating Plan (AOP) provides the basis for the Corps of Engineers' placing the concepts of functional relationships and priorities into actual operations. Implementation procedures involve three main elements: (1) estimates of water supply to the reservoirs; (2) determinations of requirements for water supply to the reservoirs; and (3) monthly water schedules for storing and releasing water for optimum coordination of available supply with requirements. MRD's RCC prepares these schedules a year ahead of actual operations to provide adequate time for advance coordination among affected federal and state agencies and other public- and private-sector interests.

While the RCC has primary responsibility for this activity, many disciplines provide support. RCC professionals begin drafting the AOP soon after the first of August. They consolidate information obtained from many sources on various water requirements and develop preliminary reservoir operation water schedules that serve as a basis for coordination with federal, nonfederal, and private interests.



Beginning in 1953, when the Fort Randall project began operating and was combined with the Fort Peck project, federal agency representatives and state engineers assisted the RCC in assembling the information needed on the various operating requirements.[18] This coordinating committee, established at the request of the MRD Division Engineer and chaired by the RCC chief, met in general conference twice a year to review, modify, and agree on the annual operating plan objectives. The committee was advisory only. Subsequently, the RCC executed the details of the AOP through daily interchanges with other interested parties.

These coordination arrangements and procedures were acceptable to most basin interests. However, reservoir operations were controversial as early as 1958, nearly a decade before the six main-stem reservoirs were filled to normal operating levels. Although procedural aspects were virtually unopposed, some interests being served by the multiple purposes of the main-stem system wanted changes in operating priorities.

Coordinating Committee.

On 29 April 1958, the Coordinating Committee on Missouri River Main Stem Reservoir Operations held a special public meeting to obtain the views of affected interests. About 110 persons attended, with 32 representatives of organizations presenting their views for the committee's consideration. Electric power cooperative spokespersons urged that power be given priority over navigation and that navigation releases be curtailed drastically or suspended, at least until the main-stem reservoir storage was filled to normal operating levels. They wanted the system operated for maximum production of year-round power sufficient to supply contract customers.[19]

Power-industry spokespersons stated that the O'Mahoney-Millikin amendment to the Flood Control Act of 1944 established a priority for power over navigation. A few witnesses suggested that power should be incidental to other functions. One witness also questioned the accuracy of the 1951 Report on Adequacy of Flows in the Missouri River and called for an immediate restudy. The Adequacy of Flows report, an inter-agency and state review and analysis of water supply published in 1951, concluded that the Missouri River's regulated water supply was adequate to provide for the multiple-purpose uses, taking into account that severe drought conditions would result in tolerable irrigation shortages on some tributaries and tolerable shortened navigation seasons.[20] The Coordinating Committee members representing the states and participating federal agencies concluded that such shortages should be tolerated to afford maximum use of the basin's water and land resources.[21]

The only substantial change in basic information and assumptions since the 1951 report was a considerably reduced estimate of future depletions of water supply for irrigation in the Missouri River above Sioux City. This information, provided by the Bureau of Reclamation, did not alter the conclusion that the Missouri River's water supply was adequate. Notwithstanding some minor changes in the original basic data assumptions, the Coordinating Committee concluded that a detailed restudy was not needed.

The O'Mahoney-Millikin amendment to the 1944 Flood Control Act and the Rivers and Harbors Act of 1945 did not specifically address the relative priority of hydroelectric power and navigation. This question was the focus of a special joint hearing in 1957 before the Committee on Interior and Insular Affairs and the Committee on Public Works of the U.S. Senate. The Chief of Engineers, in a letter to the chairman of the hearing, said that in his view the O'Mahoney-Millikin amendment did not establish any priority for power over navigation. He cited Senate Document 247 as stating that the Corps and Bureau of Reclamation recognized "the importance of the fullest development of the potential hydroelectric power in the basin consistent with other beneficial uses of water."[22]

The Coordinating Committee agreed with the Chief's conclusion. The committee reported that "any blanket proposal for maximum service to any function by elimination or inequitable reduction in service to any other primary function" was incompatible with the authorizing legislation.[23] Actually, operations for navigation and power release are quite compatible. A Corps official stated that if navigation was not supported, the annual water supply could be adjusted between the reservoirs to

generate more power during the summer and winter when its value would be greater. Likewise, not supporting power would require some seasonal operationing adjustments. Reservoir operations would undergo few changes if either navigation or hydropower production were eliminated.[24]

The Coordinating Committee responded to witnesses who requested that reservoirs be filled and stabilized for recreation and other local uses. It concluded that the primary authorizations were for flood control, irrigation, navigation, and hydropower and that reservoir water levels must fluctuate in order for the projects to function effectively for these purposes. The committee stated that even in normal years water levels in the Fort Peck, Garrison and Fort Randall reservoirs might fluctuate as much as 10 to 15 feet in a few months, therefore making it "impractical to consistently maintain the reservoirs at levels that will completely satisfy many recreationists."[25]

In addressing and clarifying these issues, the Coordinating Committee performed an important public service. Correspondingly, it served the basin in facilitating establishment of operating schedules in accord with the original basic concept of multiple-purpose development and use of surface-water resources. Unfortunately, the Coordinating Committee came within the purview of the Federal Advisory Committee Act (P.L. 92-463). The committee was dissolved in late 1981 rather than complying with the requirements needed in order to continue.[26]

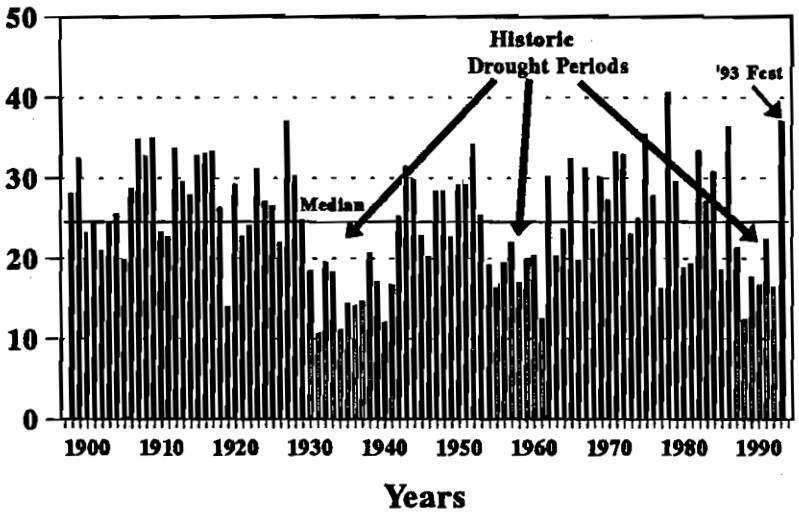
In January 1982, MRD announced its alternative policy approach to the demise of the Coordinating Committee. To perpetuate the committee's functions as much as possible without violating the intent of the Advisory Committee act, MRD would hold semiannual public meetings to discuss basin water-management concerns.[27] At the spring meeting, operational objectives would be outlined for further consideration in drafting the next Annual Operating Plan. Then at the fall meeting, the tentative operating schedules prepared in the interim by the RCC were to be reviewed and revised for use as the basis for actual operations and a draft plan presented for the upcoming year.

Operational considerations presented at the semiannual meetings did not generate much discussion in the first years. However, the variable climate in the vast basin put stress on the system. Floods followed by droughts greatly increased the involvement by those relying on the Missouri River and its reservoirs for business and pleasure.

Even under the best of runoff conditions and reservoir elevations, multi-purpose functions served by the main-stem dams and reservoirs are sometimes in competition. For example, regulation for flood control may cause users immediately downstream from a project to have lower than

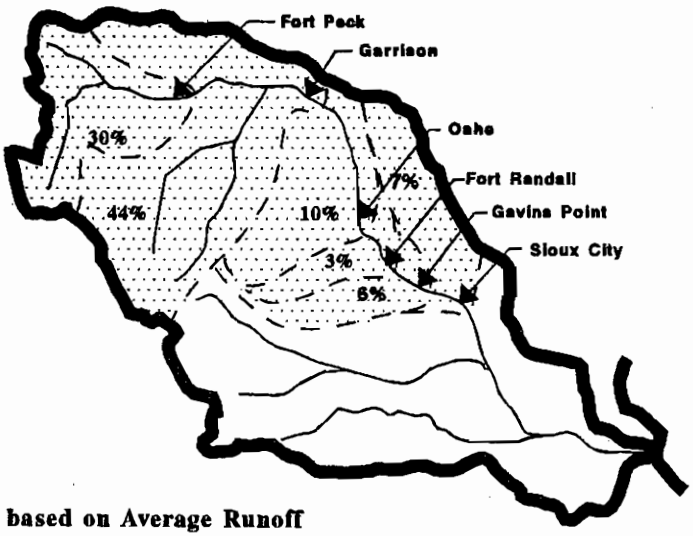
Annual Runoff at Sioux City, Iowa

Adjusted to 1949 Level of Depletions



Missouri Basin Runoff

by River Reach



based on Average Runoff

normal flows that affect power generation, recreation, and fish and wildlife. Fluctuating reservoir levels due to droughts and floods affect irrigation and recreation interests, who prefer a relatively constant pool.

These and other issues exist for the RCC throughout the river reaches of the Missouri. Releases must be regulated for water uses on open river in reaches other than below Gavins Point. There are approximately 200 miles of open river below Fort Peck, 100 miles below Garrison, and 50 miles below Fort Randall. And during the 1980s, a growing array of organized interests began formally expressing their concerns about the effects of reservoir regulation.

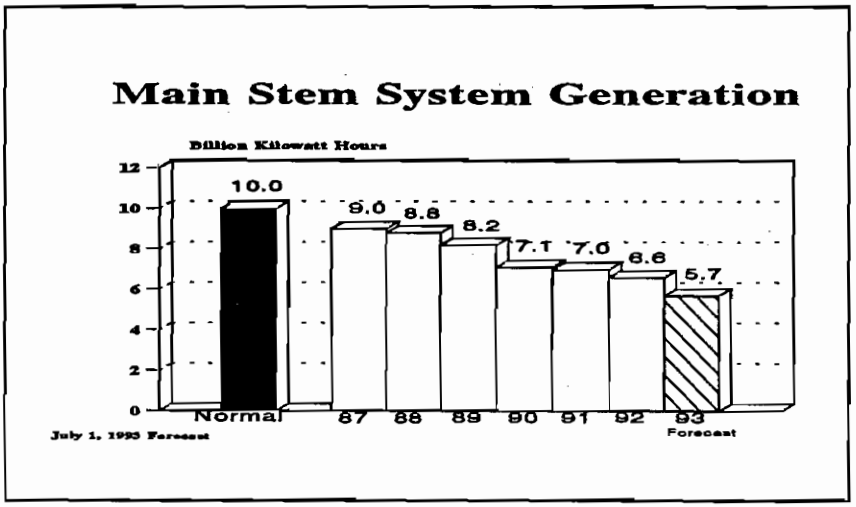
Impacts on dam and reservoir operations caused by varied climatic conditions across the Missouri River basin served as a catalyst for controversy. Runoff records dating from 1898 illustrate a part of the problem for reservoir regulation. While 1977 was dry, runoff was not as low as the record of only 10.7 MAF in 1931. The year 1978 had a record runoff of 40.7 MAF. Both 1981 and 1982 were drought years, but 1983 had the third largest runoff on record.

These runoff extremes may be exacerbated by simultaneous conditions within the basin, such as drought in one subarea and high rainfall in another. For example, during 1986, the five-month runoff in the reach from Garrison to Gavins Point was the maximum for the period of record and record flooding occurred in the lower Missouri basin. At the same time, the upper basin was extremely mild and dry.[28]

The main-stem system inflows for March 1987 were 165 percent of normal due to a heavy and accelerated plains snowmelt. System regulation provided the largest flow reduction since construction of the dams and prevented massive damage from Bismarck, North Dakota, to St. Louis, Missouri. Conditions in the upper reaches of the system contrasted sharply with those in the lower reaches. Because mountain snowpack and summer rainfall were well below normal for the winter of 1986-1987, runoff for the year was below normal.

These conditions and voices of dissent were a portent of the future. Following the record high-water stages experienced in the lower basin in 1986, the Riparian Association contended that the flood control reserve was inadequate. The Corps of Engineers was willing to evaluate the effects of increasing flood control storage in the main-stem reservoirs, but noted that more space given to flood control would result in lower power heads and less hydropower generation.[29]

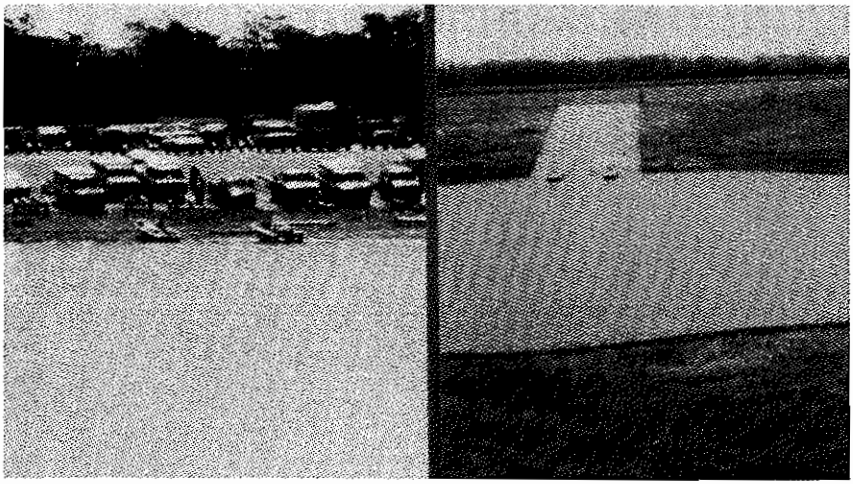
The Missouri Basin Systems Group (MBSG), representing some 200 rural and small municipal electric utilities, would oppose the Riparian Association's request. Members of the MBSG purchased 71 percent of



the hydropower produced by the main-stem system in 1986 and committed under firm power contracts. A change in system operations would threaten those firm commitments, disrupt funding arrangements for local governments and institutions, and alter the Pick-Sloan project plan budgets. Annual power generation averages approximately 10 billion kilowatt-hours with revenues ranging from $75 million to $100 million a year, depending on water and marketing conditions.

The reservoir control team had requests from state and federal fisheries interests that were also in conflict with the Riparian Association. Since 1968, Nebraska, South Dakota, North Dakota, and Montana fisheries personnel had coordinated their fisheries management recommendations to the RCC through the Upper Missouri River Chapter of the American Fisheries Society.[30] The Corps urged (1) the formation of a Natural Resources Committee to facilitate handling various states' requests and (2) expansion of the committee's scope to include wildlife enhancement (this involvement to be coordinated through the U.S. Fish and Wildlife Service).

The RCC sometimes had difficulty implementing the recommendations of the fisheries interests. For example, Oahe received record inflows during the spring of 1986 and the pool elevation soared to a record high (which was to be broken in 1987). Fisheries interests wanted the pool held at least ten feet lower. They preferred that the Corps draw a reservoir down and hold it down for one or more years to establish vegetation along the shoreline. Then, when flooded in succeeding years, the vegetation would provide spawning habitat and nutrients. The problem is the



Lake Oahe — June 1987 at 1613' and April 1991 at 1588'.

uncontrolled rise from inflows and balancing the system through the natural cycle.

Sometimes the RCC simply has too little water to meet competing demands. In 1987, annual water supply was lower than expected 90 percent of the time, based on the entire period of record since 1898. The fall of 1987 was extremely dry and warm, and winter mountain and plains snowpack was far below normal. The subsequent summer was one of the hottest and driest on record. In the fall of 1988, reservoir storage was the lowest in the 22-year period since the system first reached normal operating level and was entering the second cycle of a 2-year drought.

The drought of 1981-1982 was broken with excellent inflows. Nature was not as kind in the case of a later drought. Colonel George LaBlonde of the Missouri River Division opened the 1988 fall public meeting by stating that "This year we are dealing with a devastating drought."[31]

The basin main-stem system would experience an extensive dry period. (Other such periods were the 12-year drought of the 1930s and an 8-year drought during the 1950s.) By late 1991, the RCC reported that runoff for the Missouri River above Sioux City had been "significantly below normal for each of the past five years."[32]

The drought's effects were numerous and varied, and basin residents would probably feel them for years to come. The Upper Missouri Basin Governors' Association expressed concern in August 1989 that the recreation industry, domestic water supplies, and riverine irrigation were threatened. Fisheries resources in Montana, North Dakota, and South Dakota were threatened and the governors were concerned about recov-

MISSOURI RIVER POWERPLANTS

COAL FIRED	MW
Neal North	935
Neal South	600
OPPD — No. Omaha	600
Council Bluffs Energy Center	845
OPPD — Neb. City	550
St. Joseph — Lake Road	100
KCPL — Iatan	700
Nearman Creek Power	256
KCP&L — Grand Ave.	peaking
KCP&L Hawthorne	909
Indep. Power — Mo. City	peaking
Sibley Power	514
Quindaro Power	229
Chamois Power	71
Labadie Power	2400

NUCLEAR	
OPPD — Ft. Calhoun Nuclear	500
NPPD — Cooper Nuclear	800
Callaway Nuclear	1240

ery. Resort operators and the public had experienced loss of boating access and protected marinas. Hydropower production was reduced substantially and the governors feared that power generation would not return to normal for "several years."[33]

Lower basin users of the Missouri River were also hurt by the drought. Below Gavins Point, 15 coal-fired and 3 nuclear power plants, generating approximately 11,150 megawatts of electric energy, rely on the Missouri River for cooling water. A users group of 15 member utilities relies on the lower river for public water supply to some four million people. These interests expressed concern that the Corps policy of reducing releases from the main-stem system in order to conserve water might interrupt their delivery of vital services.[34]

The Corps adopted a policy of releases from Gavins Point of 10,500 cfs and below during winter months. Some water supply intakes, which are fixed structures, were at elevations above river stages. When icing

Water Supply Intake.

conditions in the river blocked flow, the facilities were shut down. For example, St. Joseph, Missouri, was without water for three days in February of 1989. Summertime flows during 1988 and 1989 were insufficient to bring temperatures within a comfortably safe operating range, according to industry spokespersons.

The public water supply and electric energy representatives stressed to the Corps the necessity of maintaining releases that would provide river stages adequate for their water withdrawal facilities. For the health and safety of millions of people, their industries must supply uninterrupted services that depend on Missouri River water. Through industry spokespersons and elected representatives, they declared that maintenance of minimum flows for public water supply must be the highest priority issue in the main stem. The Public Water Supplies Association petitioned the Corps for minimum releases of 15,000 cfs at Gavins Point.[35]

Missouri River water supply users were willing to take measures to enhance their ability to draw water from the river during low flows. However, modifying the fixed structures to operate with lower river stages than those contemplated in the original design required large capital expenditures and complex, time-consuming engineering and construction. Until they could modify their intakes, the water users wanted the Corps to provide relief through additional releases.

The basic problem for these users was that river channelization has caused the stream bed to degrade. Prior to construction of the main-stem dams and stabilization of the downstream channel, the Missouri River

carried over 150 million tons of sediment annually, much of which is now captured by reservoirs behind the main-stem dams. Without the heavy sediment load, the water has scoured out and lowered the river bed.[36]

A flow of 12,500 cfs occurs at a lower surface elevation than that prior to the Pick-Sloan project period, when many water intakes were built. Intake designs were based on historic river conditions with pump requirements and locations determined by known high- and low-water stages. Degradation has affected the original design specifications. With low flows in the downstream reaches during 1988 and 1989, many suction lifts were in excess of the maximum design of the facilities' pumps.

The Corps had considerable difficulty conserving water during the drought period. The RCC had set a release rate that was commensurate with the runoff rate, about 75 percent of normal. As of 1 October 1991, after four years of drought, more than 38 percent of the water in the carryover multi-purpose zone had been used.[37] (During drought conditions, releases are reduced in proportion to the level of water storage in the carryover multiple-use zone.) Since the system filled in 1967, the average annual release from Gavins Point has been 29,400 cfs. In 1989, the average annual release was 23,000 cfs, and in 1990 and 1991 between 20,000 and 21,000 cfs.

The water resulting from the releases was not sufficient for the water users along the lower river who withdrew water through intakes or who were barge and marina operators. The average tow on the Missouri River consists of six barges at full-service flows, which are represented by 31,000 cfs at Sioux City and 41,000 at Kansas City. The Corps had provided releases of 3,000 cfs below full service during 1989 and 6,000 cfs in 1990. As a result, the seasons opened one week late and closed four weeks early.

These water conservation measures had a number of negative impacts on the navigation industry. Tow operators had to reduce their loads to a maximum draft of 7.5 feet, representing at least 16 percent less carrying capacity than in a normal year. Risks of groundings increased, and trip times had to be lengthened. The American Commercial Barge Lines, which had maintained five or six vessels on the Missouri River, reduced operations about 60 percent by the fall of 1990.[38] Commercial tonnage dropped from a peak of 3.3 million tons in 1977 to a 1990 estimate of only 1.4 million tons.[39]

Tow operators had trouble navigating even in the opening weeks of the 1990 season. Commercial marinas had to shut down or dredge. In 1988 and 1989, the Corps dredged the lower river reaches in order to

MISSOURI RIVER COMMERCIAL NAVIGATION TONNAGE AND SEASON LENGTH

Year	Scheduled Length of Season (Months)	Commercial Shipments (tons) (1)	Total Shipments (Tons) (2)	Traffic (1000 Ton-Miles) (1)
1954	7-3/4	297,149		
1955	7	435,455		186,291
1956	7	319,076		132,614
1957	6	273,895		99,710
1958	7	596,116		242,986
1959	7	842,812		380,475
1960	7-3/4	1,440,985	6,948,875	686,412
1961	6-1/2	1,565,736	6,187,381	718,597
1962	8	2,206,680	8,468,705	989,414
1963	8	2,316,066	7,978,002	1,002,745
1964	8	2,549,795	7,633,415	1,126,958
1965	8	2,270,789	7,725,898	1,013,944
1966	8	2,562,867	7,948,179	1,193,112
1967 (3)	8	2,562,657	6,659,219	1,179,235
1968	8 (4)	2,254,489	6,724,562	1,047,935
1969	8 (4)	2,123,152	7,001,107	1,053,856
1970	8 (5)	2,462,935	7,519,251	1,190,232
1971	8 (4)	2,791,929	7,483,708	1,329,899
1972	8 (4)	2,665,579	7,182,841	1,280,385
1973	8	1,817,471	6,370,838	844,406
1974	8	2,576,018	7,673,084	1,227,525
1975	8 (4)	2,317,321	6,208,426	1,105,811
1976	8 (4)	3,111,376	6,552,949	1,535,912
1977	8	3,335,780	6,734,850	1,596,284
1978	8 (4)	3,202,822	7,929,184	1,528,614
1979	8 (4)	3,145,902	7,684,738	1,518,549
1980	8	2,909,279	5,914,775	1,335,309
1981	7-1/4 (6)	2,466,619	5,251,952	1,130,787
1982	8 (4)	2,513,166	4,880,527	1,131,249
1983	8 (4)	2,925,384	6,301,465	1,300,000
1984	8 (4)	2,878,720	6,386,205	1,338,939
1985	8 (4)	2,606,461	6,471,418	1,201,854
1986	8 (7)	2,343,899	6,990,778	1,044,299
1987	8	2,405,212	6,735,968	1,057,526
1988	7-1/2	2,156,387	6,680,878	949,356
1989	6-3/4	1,906,508	5,352,282	796,799
1990	6-3/4	1,329,000	5,841,000	
1991	6-3/4	1,500,000 (8)		
1992	6-3/4	1,200,000 (8)		

(1) Tonnage figures from Waterborne Commerce of the United States except for the years 1954-1959 which were provided by the Kansas City District Corps of Engineers.
(2) Includes commercial commodities; sand, gravel and crushed rock; and waterway improvement materials. Total shipment figures provided by Waterborne Commerce were not available prior to 1960.
(3) Main stem reservoir system reached normal operating storage level in 1967.
(4) 10-day extension of season provided.
(5) 10-day extension and 10-day early opening provided.
(6) Full service flows for shortened season in preference to reduced service.
(7) 10-day extension provided for 1985 season in trade for 10-day delayed support of 1986 season.
(8) Preliminary numbers not final — will be changed.

maintain the minimum navigation channel. And, compounding the problems with commercial navigation, the Corps missed target flows by as much as 6,000 cfs. One discouraged barge industry spokesperson said that "at 25,000 cfs there is no release for navigation" anyway.[40]

At the same meeting at which navigation spokespersons and lower basin water users requested the Corps to release more water from the reservoir system, upper basin interests represented the opposite position. A South Dakota official said the state had "repeatedly stated the need" to maintain stable levels in the main-stem reservoirs "for fisheries, recreation, water supply intakes, and other purposes." Upper basin state representatives wanted the Corps to further curtail the length of the navigation season and to adopt operating plans that "more evenly distributed" the effects of drought between the upper and lower basin states.[41]

In developing the operating plans for 1991 and 1992, during the fifth year of drought, the Corps broadened its integrative process for drafting the AOP. Previously, the draft AOP provided the first opportunity for review of Corps recommendations. The Missouri Basin States Association appointed a technical committee to work with the Corps staff, analyze an array of factors, consider various operations proposals, and develop recommendations for the draft AOP.[42]

During their meeting in August 1991, the MBSA directors recommended an operating scenario for the Corps' use in drafting the 1991-1992 AOP. They did not reach consensus on the plan; some of the upstream states held it did not go far enough to help recover system storage. The directors agreed, however, that the new process improved the way the AOP was developed.

In addition to expanded state participation, the Corps extended public involvement by holding four meetings in the fall of 1991, instead of the usual one public meeting. The meetings were headed by the Assistant Secretary of the Army for Civil Works, accompanied by her executive and a senior staff member of the Corps' Washington, D.C., headquarters water-management office. After review and discussion, the various operating schedules were submitted to the MRD Division Engineer for adoption. The plan then became the framework within which the RCC would schedule detailed daily operations throughout the following year.

Full public participation is needed in order to make the RCC process work well. All parties must strive to achieve "good" public policy characterized by an integrative process that transcends self-interest. As the recent history of Missouri River main-stem operations clearly shows, there are limits on how many interests can be satisfied with the substantive results of any one decision. Since system operations began, Corps

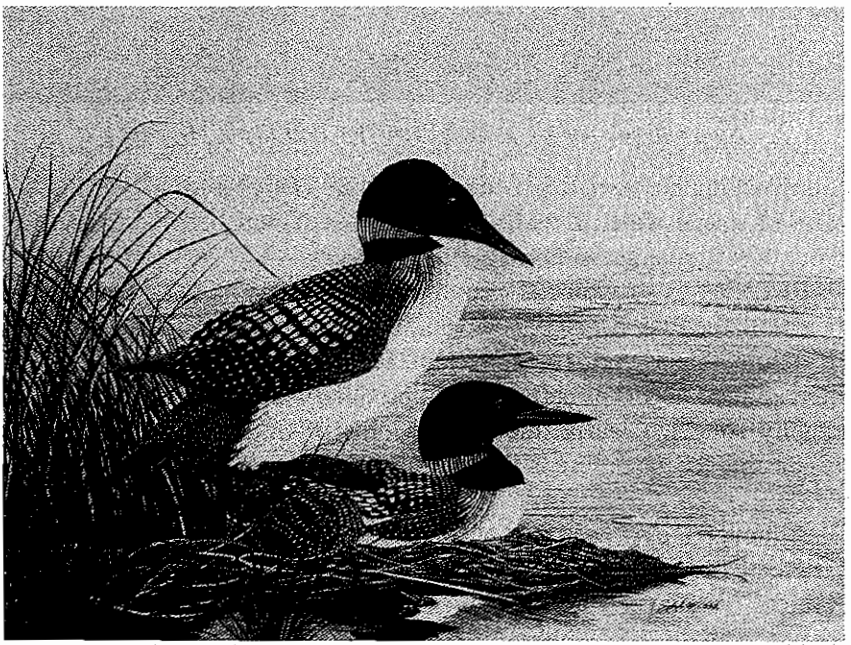
Army Officials and Corps Staff Depart for 1991 Public Meetings.

policymaking has been exposed to full public view. However, during the years of scarce water, a wider array of interests has become concerned about operational decisions.

Resulting frustration and resentment were based more on disappointment with the Pick-Sloan plan developments than with the conduct of the operations. Real-world outcomes of Pick-Sloan favored lower basin interests, and no Corps actions could produce what upper basin interests actually sought. Clearly, the Army Corps of Engineers is in no way responsible for the failure of the Bureau of Reclamation's basin irrigation plan.

Although the Army's Pick plan has been implemented successfully, it has created for the Corps what Lawrence Lynn called Murphy's Law of Politics: "Whatever you did, you should have done something else." In private, virtually every interest in the basin acknowledges that the RCC is performing efficiently and effectively. But when the original policy idea does not equate with the real-world outcome, operations decisions are subject to criticism by special interests.

Drought conditions in the 1980s deepened the resentment upper basin interests had against the lower basin beneficiaries and the Corps of Engineers. While processes for operations decisionmaking were being improved, upper basin resentment intensified because the "losers" thought their interests were being subverted to those of the lower basin "winners." Unable to achieve a basinwide consensus for their demands that the Corps make operations changes, and recognizing that they could not solve their problems through congressional legislation, upper basin states resorted to the courts.



Loons by Sallie Zydek.

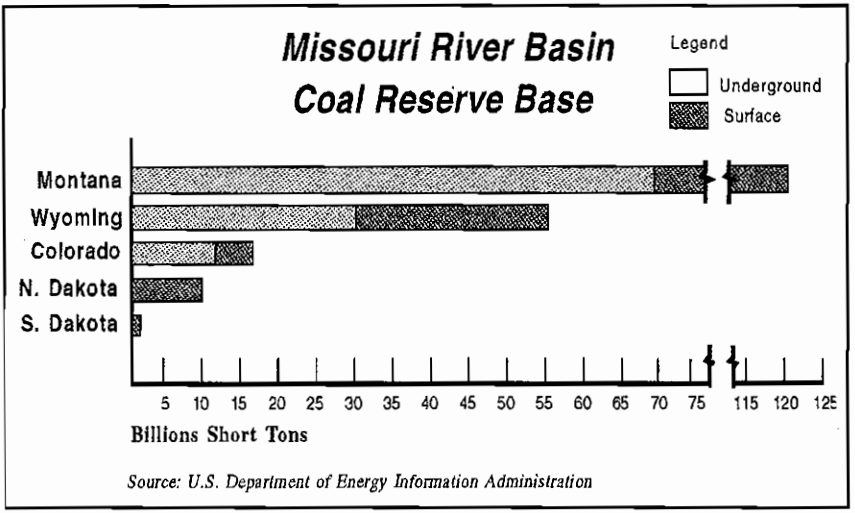
VIII.
Management Challenges

Those dealing with Missouri River water-management issues in the 1990s were confounded by the ambiguity of the Pick-Sloan plan. While the legislative intent is clear with respect to certain development and operations objectives, some other purposes are difficult to discern. The Flood Control Act of 1944 and the Rivers and Harbors Act of 1945 were in fact generic bills for the entire nation. The Missouri River basin provisos had been integrated into the legislation.

Understanding the legislative intent of Pick-Sloan is complicated in part because the language of the law is not contained just in the statute, but also in the adopted documents. And in the years since the 1944 Flood Control Act, other legislation has been enacted that applies to the basin's water and related land resources. The complexity of discerning legislative intent is further compounded by new issues that were not addressed adequately in the original legislative history.

In the decade previous to the drought that began in 1987, the major policy issue related to the main-stem system centered on "surplus water." The drafters of the Pick-Sloan legislation virtually ignored the term and left its definition to the Corps. Under section 6 of the 1944 act, the Secretary of the Army is authorized to enter into contracts for surplus water with states, municipalities, and individuals.[1] The Corps defines surplus water as (1) that stored in a reservoir that is not required because the authorized need for the water never developed or the need is reduced by changes that occurred since authorization or construction or (2) water that would be used more beneficially as municipal and industrial water than for the authorized purpose and that, when withdrawn, would not significantly affect authorized purposes over some specified time period.[2]

In the 1970s, considerable controversy was generated in the Missouri basin over the possible uses of available water supplies for energy developments. The upper basin states contain over one-half of the total coal reserves in the United States. The Missouri Basin Inter-Agency Committee noted in 1969 that these reserves represented "a massive raw material base for the potential production of . . . synthetic liquid and gaseous fuels, and coal chemicals."[3] Following the Arab oil embargo of 1973-1974, many reports were circulated on proposed energy developments in the upper basin that if implemented would greatly increase



demands for water.

As in the past, a "boomer" psychology motivated upper basin interests to work toward capturing the profits from developments designed to exploit the region's natural resources. In the period following the basin states' failure to legislate a water compact, interest in main-stem water resources had languished. The "energy crisis" stimulated the basin's governors to examine unresolved policy issues.

As competition for use of available water supplies increased, so did questions and arguments about jurisdictional control. In December 1973, the Departments of Interior and Army asked the Missouri River Basin Commission to examine issues related to marketing water from the main-stem reservoirs.[4] The MRBC formed an ad hoc steering committee with both state and federal subcommittees, along with supporting technical subcommittees to respond to the request. The commission was to report by February 1974.

The federal subcommittee sought to determine how much water was available at what cost for municipal and industrial marketing, and who should sell it under what authority. It determined that up to 3 million acre-feet of water annually was available and should be marketed at a unit price of between $10 and $25 per acre-foot.[5] Authority for the Corps to sell municipal and industrial water was based on section 6 of the 1944 Flood Control Act or on Title III of the Water Supply Act of 1958.[6]

The state subcommittee concluded that the federal government did not have title to and control of all water stored in the main-stem reservoirs. The lower basin states challenged the authority of either Interior or

Army to change the original purposes that ensured that a designated amount of water was to be stored in a federal reservoir. They stipulated that congressional action was required in accordance with the 1958 Water Supply Act. Upper basin states were more amenable to contracting with federal agencies for resale of water.[7]

The MRBC state subcommittee concluded that the issue of water marketing needed thorough study by the basin commission. It recommended that in the interim, individual states should cooperate with the federal agencies to facilitate energy development proposals. Cooperation ought, however, to be constrained by certain "principles" that enunciated the primacy of state water law and by the right of the states to set the price and market the water.

The MRBC steering committee could only report on the dichotomous positions of its federal and state subcommittees. In July 1974, it reported that the states and federal agencies recognized that each had certain rights to the flow of water into and out of the main-stem reservoirs. These rights were not defined or quantified, and no agreements were reached concerning water to be withdrawn from open reaches between or below the main-stem reservoirs. Specific authorization for marketing water could not be agreed on, but the committee determined that ultimately up to 3 million acrefeet of water stored and not used for irrigation purposes in the main-stem reservoirs could be made available for industrial use.[8]

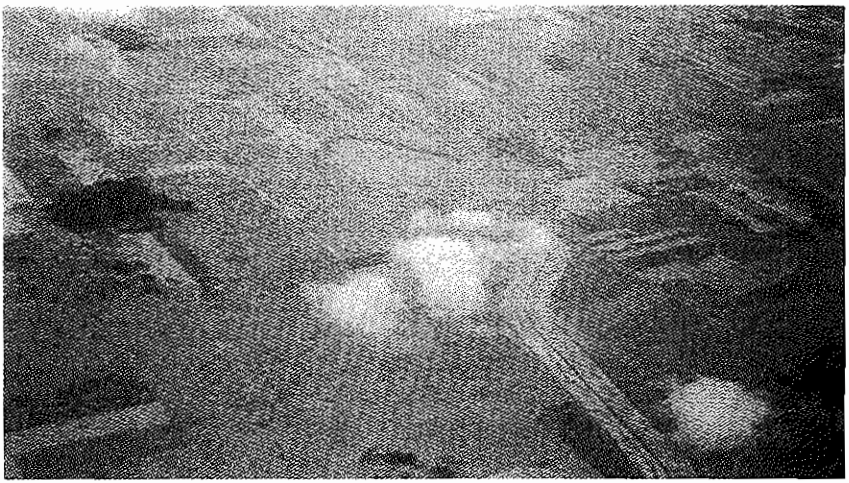
The Departments of the Interior and the Army attempted to resolve the thorny questions. In a memorandum dated 27 November 1974, the Interior Department Solicitor took the position that section 9(c) of the Reclamation Project Act of 4 August 1939 gave Interior the "express authority to market water for municipal and industrial uses."[9] A month later, the Army General Counsel conceded that, based on Interior's function and jurisdictions within the Missouri basin multiple-purpose program and its role in project cost allocation, joint marketing would be acceptable. The Office of Counsel advised the Army to seek "legislation establishing a systematic marketing system."[10]

In their mutual desire to proceed more rapidly than the legislative process allowed, the two federal agencies formalized their agreement on the water marketing issue in a Memorandum of Understanding (MOU).[11] Dated 24 February 1975, the MOU had a term of two years. It was intended to deal expeditiously with the nation's energy crisis pending a more permanent resolution of the questions concerning surplus water in the main-stem reservoirs.

The basin states were dissatisfied with the MOU and attempted unsuccessfully to attach their subcommittee principles to the document.

They questioned its legality and sought a negotiated compromise. The coalition of upper basin states won some concessions when the Bureau of Reclamation agreed to observe the principles as a "gentlemen's agreement" and attempted to legitimize its actions by preparing a programmatic environmental impact statement (EIS) on the MOU.[12]

These concessions allowed states to control pricing and selling of water that was intended originally for federal irrigation projects. If the Bureau of Reclamation's projects had materialized as planned, Congress would have authorized and appropriated money for construction of the irrigation outlets from main-stem reservoirs. Upon project completion, the federal water rights that the bureau routinely filed with the states would have been transferred to irrigation districts through the state permit system. The beneficiaries would have been charged a fee for water service and would have received preference rights for power through the bureau. If all this had materialized, the upper basin and western area states water codes would have been observed.



Incomplete Garrison Diversion Irrigation Project.

The planned projects and scenario of events lobbied for and legislated in the Flood Control Act of 1944 did not materialize. The failed scheme for "a new frontier in irrigation history" further undermined the fragile network of basin interests that had coalesced and endured through the completion of the main-stem projects. After realizing that the stored water had a commodity value, the upper basin states wanted to establish primacy over its control.

North Dakota State Water Commission chief engineer Vernon Fahy saw the federal water marketing agreement as a betrayal of the states. He

said it was "ironic" that after having "contributed so great a cost" to Pick-Sloan in order to serve basin needs, the states were told that the federal government had "assumed ownership of stored waters." Fahy wanted any decision on control over the water impounded in main-stem reservoirs to be made through the MRBC, which represented the basin states.[13]

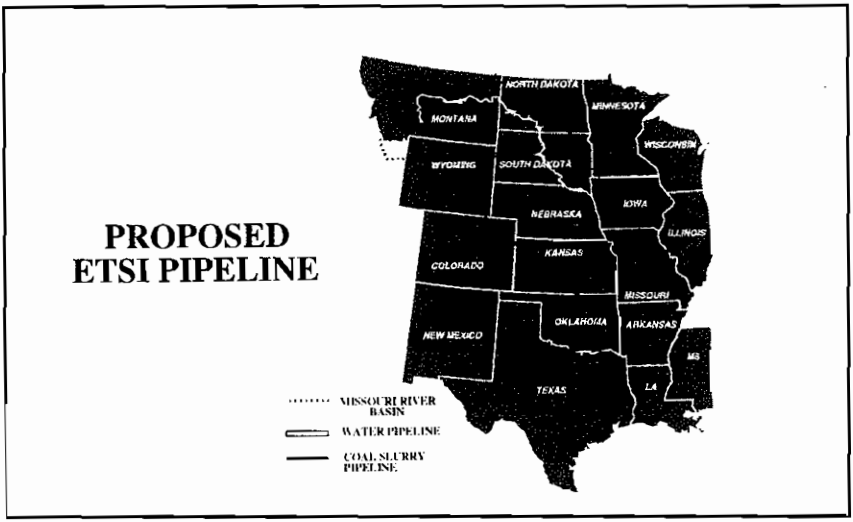
The basin states revisited the water marketing issues in 1977, and they were just as adamant in their positions. Fahy said it was still his opinion that North Dakota and the United States, "as separate and independent sovereigns" had "certain separate and independent powers over the Missouri River." He argued that the state could appropriate water under its own sovereign authority. Fahy held that the federal government "could not authorize industry to appropriate water" from the river.[14]

A number of states again raised questions concerning water rights. They specifically objected to recognition of Indian water rights as opposed to "other valid water rights." Although the amount of water "reserved" to Indian tribes to complement reservation lands was not quantified in 1992, it was well established that tribes have legal claim to Missouri River water that dates from the time the reservations were established, thus granting Indians senior water rights over later water claims. Some states wanted assurances that applicable state laws and water rights would be observed.

The state of Kansas issued an especially strong statement against federal water marketing from Pick-Sloan projects. The state contended that "an arbitrary agreement" between the department secretaries for a block of storage constituted a modification of the purposes of Pick-Sloan and would involve major operational changes. The water marketing agreement was "a flagrant violation of congressional authority and an erosion of the legislative process."[15]

Major General J.W. Morris, director of civil works for the Corps, held that the law clearly defined the purpose for which main-stem water could be used and who controlled it. Through the 1944 Flood Control Act, Congress assigned the agencies' authority according to purpose and control; it did not appropriate water. General Morris said responsibility for distribution of any water surplus to specified purposes rested with the Secretary of the Army.[16] North Dakota Senator Milton R. Young responded that Morris's statement showed that the Corps of Engineers claimed "more authority" than Young thought the federal agency had.[17]

The surplus water issue lay dormant until September 1981, when Energy Transportation Systems, Inc. (ETSI) revealed its intent to contract with South Dakota to buy 50,000 acre-feet of water or about 16.3 billion gallons a year for 50 years from the federal Oahe Reservoir



located in the state.[18] ETSI had filed an option contract with the Corps of Engineers as early as 1973 to use water to flush pulverized coal in a slurry line from the Powder River basin in Wyoming to power plants in Oklahoma, Arkansas, and Louisiana. As originally planned, the line's venture group would use water drawn from the Madison Formation, a huge aquifer beneath eastern Wyoming, southwestern South Dakota, and northwestern Nebraska. Wyoming's state engineer had issued the water permit in 1974, but the use involved an inter-basin transfer that was denied under Title I, section 3(d), of the Planning Act of 1965. The ETSI venture group did not reveal its change of plan to use Missouri River water and to contract with South Dakota until the day the period closed for comments on the proposed line's environmental impact statement related to the line proposed from Wyoming to the south-central states.[19]

On 17 September, South Dakota Governor William Janklow confirmed months of secret negotiations with the ETSI venture group. He called a special session of the legislature to consider the water rights contract and required permits. Although legislators complained that they should have had more time to consider Janklow's deliberations with ETSI, they approved pursuing consummation of the deal, which was projected to bring approximately $1.4 billion to the state over the next 50 years. The state received its first $2 million when it signed the contract with ETSI in February 1982.[20]

The ETSI contract was exceedingly attractive to many interests in the revenue-strapped state. The company's proposed aqueduct to Wyoming would provide up to 2.2 billion gallons of free water a year to water-

needy areas of western South Dakota. State revenue bonds would help finance the line, but ETSI payments, expected to amount to $9 million a year, were to go into a state water development fund that would be used for a wide range of water resources projects and studies.[21]

Despite its benefits, the water sale contract with a private company for out-of-basin use ignited conflict even within South Dakota. American Indians Against Desecration claimed the waterline would cross sacred Indian land. The Dakota American Indian Movement and Women of All Red Nations contested the right of the state to sell Missouri River water and expressed concern about the effect of such sales on Indian water rights. Indian activist Russell Means said the 1868 Fort Laramie Treaty gives Sioux Indians sole ownership of the Missouri River. South Dakota attorneys responded that Indians had the right to use as much water from the river as they needed, but could not bar the state from selling "surplus water."[22]

The Black Hills Alliance held that the water sale violated Indian rights and failed to guarantee South Dakota communities a share of the water. The group claimed ETSI had no legal right to condemn property along the waterline's route if landowners refused to grant easements. Others in water-scarce western South Dakota who depended on the Madison Formation expressed concern that ETSI might deplete that precious source, even with the Oahe water contract.

The chairman of the Standing Rock Sioux Tribe, Pat McLaughlin, filed an intervenors protest to the ETSI contract. The agreement established a precedent, he believed, "whereby commercial marketing of Missouri River water to private out-of-state users may in fact take precedence over instate agricultural uses." McLaughlin contended that the state's ETSI deal represented "a legal infringement upon the reserved water rights of the tribe," which had "only begun to develop the potential for irrigation of its suitable agri-lands" when industrial water was given precedence. He cited federal case law, the Fort Laramie Treaty of 1868, and Articles 6 and 14 of the Constitution to substantiate the position of the Standing Rock Sioux Tribe that the governor had acted with "continuous disregard for Indian rights and self-government."[23]

It was not the volume of water involved in the ETSI contract that constituted a threat, but rather the precedent set. The perception of Indian tribes and some interest groups that the ETSI deal represented the beginning of massive exploitation of Missouri River water was reinforced by ancillary developments. These included plans the Corps was studying to divert 75 times the amount of Missouri River water required for the ETSI pipeline. These proposals called for the transfer by canal of as much as

4.1 million acre-feet of water annually from either the Missouri River in Kansas or the Fort Randall Reservoir in South Dakota to supplement declining supplies in six western states that drew on the groundwater formation known as the Ogallala Aquifer. South Dakota interests also were planning water use projects, such as the Central South Dakota Water Supply System (CENDAK) proposal, which would transfer 488.7 billion gallons of Missouri River water each year to the James River basin in the eastern part of the state for domestic and irrigation use. Still another plan, called the WEB Rural Water Development Project, was reformulated in South Dakota in February 1982 to pipe water from the Missouri River to north-central counties.[24]

These plans to use Missouri River water reinforced the perception that the water remaining for other uses might be insufficient. In 1944, the communities downstream from the big dams had feared floodwaters. In 1982, they feared the river's flow would be reduced to a mere trickle, hampering the operation of riverside power plants and municipal water facilities; and harming navigation, recreation, and fish and wildlife habitats.

The conflict transcended questions concerning water supply and demand. Other issues related to state-versus-state and state-versus-federal control of valuable resources, which the Pick-Sloan legislation had left unresolved. The upper basin states, especially, believed they were not receiving sufficient return on their investments in huge public-works projects in their states. They resented the lower basin states' receiving substantial benefits from their comparatively minimal contributions to the development program.[25]

Governor Janklow was most outspoken in expressing this position. In December 1981, he asserted: "I am not here to tell you we want more than our share of Missouri River water. We will never be able to use the amount of water to which we are entitled; I would say our total use of water doesn't equal that of Omaha, Nebraska, clearly not as much as Saint Louis." He pointed out that Omaha had built a new industrial park that would draw water from the river, and St. Louis and other Missouri cities took water from the river and moved it (even outside the basin) as it saw fit. Also, because of the big dams and reservoirs in his state, the downstream cities did not flood anymore. South Dakota, he said, paid for such benefits to the downstream areas and got virtually nothing in return.[26]

Janklow's "fair share" rhetoric drew critical responses from downstream interests. The Omaha World-Herald, an advocate and beneficiary of the big dams, editorialized that Janklow left "misleading impressions"

that threw "doubt on the credibility of [his] case."[27] The newspaper asserted that South Dakota, too, received substantial benefits from the upstream developments. Other downstream special interests denounced the governor's "sacrifice litany" and escalated the conflict.[28]

As the authorizing boards in South Dakota were issuing required state permits, the Missouri congressional delegation tried to block the ETSI contract. They requested that the Corps of Engineers and the Bureau of Reclamation, which had to approve certain actions before the pipeline could be constructed, withhold granting permits to ETSI. Citing a "significant threat" to downstream states, Missouri's congressmen urged federal officials to begin an extensive and time-consuming environmental assessment that would be thoroughly reviewed before the water sale could be approved.[29]

The federal agencies did not delay the permit process. On 18 August 1982, shortly after the Bureau of Reclamation contracted with ETSI and the Corps of Engineers issued a permit for the building of a water intake structure on Oahe Dam, Missouri joined with Iowa and Nebraska in a suit to block South Dakota's water sale. The states were joined by other plaintiffs, including environmental groups, agricultural organizations, and the Kansas City Southern Railway, all of whom alleged the federal agencies lacked authority to sign the ETSI contract. They contended that the contract, if implemented, would establish a precedent for the sale of water as a cash commodity for export from the basin. Moreover, they argued, the sale would harm downstream states and critical environmental areas and was illegal.[30]

The downstream plaintiffs were heard in U.S. District Court. The judge refused to let South Dakota intervene in the case and wrote an opinion nullifying the permit South Dakota had granted ETSI, concluding that because the main-stem reservoirs had not been constructed as reclamation projects under the Flood Control Act of 1944, the Secretary of the Interior lacked independent power to allocate for industrial use any water stored in them. The U.S. Court of Appeals also ruled in favor of lower basin interests.[31]

In 1987, the U.S. Supreme Court agreed to hear appeals on the issue of the Secretary of the Interior's authority over water stored in the main-stem reservoirs.[32] After hearing the case on 3 November, the Court unanimously affirmed the lower court's ruling. The opinion, released 23 February 1988, stated that it was "beyond question that the Interior Secretary does not possess the authority . . . to execute a contract to provide water from an Army reservoir for industrial uses without obtaining the approval of the Secretary of the Army." The Court held that

although the 1944 Flood Control Act had approved projects that were to be operated by both the Interior and Army departments, Congress had not intended any division of authority that would allow the Interior Secretary to unilaterally remove water from Army reservoirs for irrigation or related purposes. The Court thus confirmed the lower basin plaintiffs' contention that the 1944 act gave the Army Secretary authority to contract for domestic and industrial uses of surplus water in Corps reservoirs, provided those contracts did not adversely affect existing lawful uses of the water.[33]

On the relatively narrow issues it addressed, the Supreme Court's ruling was clear. Under conditions prevailing in 1988, the authority of the Army superseded that of the states in the control of water from the main-stem reservoirs. Any water marketing program intending to use that water would have to meet the conditions in Pick-Sloan. In effect, downstream interests would oversee any proposals for consumptive uses or out-of-basin transfer of the water and would lobby or litigate to prohibit such approvals.

In the aftermath of the ETSI case, controversy shifted from water as a commodity to be marketed to regulation and operation of the main-stem Missouri River projects. Drought placed more stress on the system than it had experienced since reaching normal operating level. It compounded the enmity between upstream and downstream interests, amplified the imbalance between realized and unrealized lower and upper basin Pick-Sloan program benefits, and compelled concerned interests to focus on another relatively unexplored aspect of the 1944 Flood Control Act.

Lake Recreation.

A suit filed in May 1990 by a coalition of the three upper basin states of Montana, North Dakota, and South Dakota pitted traditional purposes of Pick-Sloan against the fisheries and recreation industries.[34] The states sought a restraining order from U.S. District Court to force the Corps of Engineers to maintain water levels sufficient for fish spawning in three main-stem reservoirs. The district court issued an injunction, but the states lost on appeal to the circuit court.

The upper basin coalition wanted the federal courts to consider two management issues not clarified in Pick-Sloan. The plaintiffs contended that federal laws governing main-stem operations establish recreation as a principal objective and that by releasing water to benefit navigation during drought-reduced water conditions, the Corps of Engineers was harming recreation and fisheries. They asked the court to review Corps actions within the purview of the Administrative Procedure Act of 1946 to determine whether the agency's operating decisions were "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law."

By lifting the injunction, the Circuit Court of Appeals deferred to the Corps' decision to release water for navigation. The court recognized that authority was within the Corps' discretionary power to manage the main stem system and noted that the operation policy was implemented with consideration of relevant factors under guidelines in a published master manual.[35] The Court of Appeals did not address the Administrative Procedure Act provision as to whether the Corps' policy in this instance was subject to judicial review.

Before the appeals court determined that issue to be moot, the Assistant Secretary of the Army released a memorandum from the chief counsel of the Corps of Engineers concerning the agency's statutory authorities for recreation and other uses of federal dams and reservoirs administered by the Corps.[36] The chief counsel attached a statement by the Missouri River Division Office of Counsel discussing the role of recreation in the regulation of Missouri River main-stem reservoirs. The chief counsel approved the MRD opinion.

The Corps stated its authority to consider recreation in the management of the main-stem system, but recognized that this regulatory authority is subordinate to its obligation to manage the dams and reservoirs for other purposes. According to the Corps' chief counsel, the system is "designed primarily to accommodate flood control, irrigation, navigation and power with additional purposes such as recreation to be served to the maximum extent possible, without serious interference with the foregoing purposes."

These position papers are not legally binding. They are edifying for those who want to understand the position of the lead agency in interpreting Pick-Sloan issues in the 1990s. Through opinion of Corps legal counsel, the basin public was informed that although some use considerations for main-stem stored water may have changed since Pick-Sloan was adopted, the Corps intended to regulate the system based on its interpretation of traditional Pick-Sloan authorization. The Corps documents note that Pick-Sloan cost allocations have been 25 and 24 percent for flood control and irrigation, and 18 and 33 percent for navigation and power, with no allocation for other uses. Those are the primary purposes for which federal appropriations were made to build Pick-Sloan main-stem projects. Corps counsel concluded that any changes affecting those four purposes require congressional approval.

Changing or clarifying legislation related to Pick-Sloan may be exceedingly difficult unless Congress sees evidence of consensus from basin states and Indian tribes. Even then, Congress must still consider the traditional purposes for which Pick-Sloan was authorized and federal dollars were appropriated. Given that history and the number of cases supporting navigation powers under the commerce clause of the Constitution, the main-stem system will continue to favor downstream interests. Failing to achieve consensus and to secure legislative solutions, upper basin interests have continued to opt for interpretations of Pick-Sloan through the federal courts.

Undaunted by judicial rebuffs, the three upper basin states filed another lawsuit in federal court in February 1991.[37] Alleging that Corps management of the main-stem system was contrary to the intent of the 1944 Flood Control Act and based on an outdated statement of priorities, they asked the court to declare the rights of the states and force the Corps to "develop a plan of operation that reflects contemporary uses and needs." The suit argued that the Corps "will continue to drain the upstream reservoirs to supply water for uneconomic navigation uses." This "archaic" policy, according to the upper basin states, treats fish, wildlife, and recreation as uneconomic "secondary uses." They say that nothing in the 1944 act provides for permanent priorities related to water use and call for a tabula rasa.

Downstream states countered with arguments of major negative impacts if the federal courts were to order the Corps of Engineers to redefine operation priorities. Four lower basin states — Missouri, Iowa, Kansas, and Nebraska — filed friend of the court briefs in U.S. District Court expressing their concern that a reduction of river flow to accommodate upper basin fisheries and recreation industries would jeopardize an array

of critical operations that rely on the discharge of stored water. (The states did not ask to become parties to the lawsuit because a dispute between states goes directly to the U.S. Supreme Court.) The attorneys general of the lower basin states held hearings to gather information from nonfederal governments and other interested parties regarding the Missouri River issues. This would provide a formal record to be used in the lower basin states' role as friend of the court (amici curiae) in the upper basin plaintiffs' suit.[38]

Members of Congress from the basin states expressed their constituents' positions in the conflict. Senator Tom Daschle and Representative Tim Johnson of South Dakota demanded that Corps main-stem management priorities be changed to reflect "contemporary economic realities." Daschle and Johnson contended that South Dakota's "tourist-recreational developments, as well as domestic water and small-scale irrigation projects, dwarf the economic spin-off of the downstream barge industry." They intended to pursue the possibility of taking some administrative duties from the Corps and reordering main-stem system water use priorities.[39]

Senator Charles Grassley of Iowa defended the Corps. He said solution of Missouri River management issues was not to be found in the Congress or the courts. "The Army Corps of Engineers must be allowed to work toward an equitable balance for all concerned interests," he stated. Grassley noted that the Missouri River Main Stem Reservoir System Reservoir Regulation Manual (Master Manual), which the Corps used to manage the main-stem system, was undergoing an extensive review and was "the most fair way to reach a plan for operating the river which is acceptable to everyone involved."[40] (Water control manuals that relate primarily to the functional regulation of an individual project or system of projects are required for all reservoirs under Corps supervision. A "Master Manual" is required in the case of several projects in a drainage basin with interrelated purposes, as in the Missouri River basin.)

The Missouri River Master Manual is based on the Flood Control Act of 1944 and outlines the priorities for water use within the basin and the operating requirements for the main-stem dams and reservoirs. It provides guidance for developing annual operating plans and for making daily operations decisions. The Missouri River Master Manual was prepared initially in 1960 through Corps coordination with other federal agencies and basin states. It was last reviewed and updated in 1978. In the intervening years, numerous issues arose and laws were passed that the Master Manual failed to address.

In 1989, basin state governors requested that the Corps review and update the Master Manual. In November, the Missouri River Division

initiated a two-phased study. Phase 1 was completed in June 1990.[41] The Missouri Basin States Association, which included governor-appointed representatives from all basin states plus one representative from the Indian tribes, monitored the review and provided regular input to the Corps.

Phase 1 of the study was a preliminary assessment of then-current operations and priorities related to water use in the basin. Based on those findings and comments from the public and private sectors at a series of meetings in the basin, the Corps and the governors' oversight group along with a tribal representative focused on the scope of work, data collection development, and analytical tools. The group called for a formal environmental impact statement to include the full range of social, economic, and environmental impacts of alternative scenarios for operating the river.

MBSA created four technical subcommittees to work with the Corps during Phase 2 of the study.[42] These technical work groups focused on hydrology/modeling, low flow/water quality, economics, and environmental considerations. The subcommittees were composed of state employees and at least one tribal representative. Federal agency representatives were included and the Corps contracted with technical experts. This technical team developed models of reservoir system regulation, alternative impacts, regional economics, and specific functional operations scenarios. The subcommittees were scheduled to complete their technical reviews by March 1992.

The Corps of Engineers set May 1992 as the deadline for selecting a "preferred" alternative for updating the Master Manual. The draft environmental impact statement would be available for public comment by January 1993. The Corps would publish the final EIS and updated Master Manual by December 1993.

Senators and representatives from lower Missouri and Mississippi River states intervened by asking the President to direct a Cabinet-level review before the Corps issued a draft environmental impact statement to update the Master Manual.[43] Special interests from the lower basin supported the elected representatives saying the inter-agency review would prevent the Corps "from assigning undue importance in priority to interests such as recreation and to the detriment of power, municipal water supply, and navigation on the Missouri and Mississippi Rivers." This additional review would delay the planned April release of the document.

Nine upper basin members of Congress asked the President to let the process continue as scheduled.[44] They were satisfied with the Corps pledge of "an unbiased analysis" and were concerned that intervention

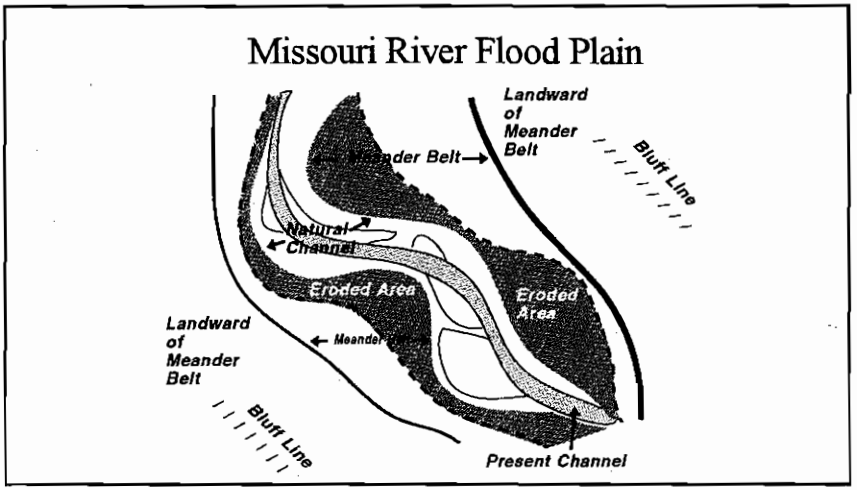
might "jeopardize this process." When the President ordered the Washington-level review, MRD Division Engineer Colonel John E. Schaufelberger said this requirement would "improve the quality of a tool that is critical to a thorough analysis of . . . alternative ways to manage the main stem projects."[45]

Contrasts in the way the Corps produced its 308 Report on the Missouri River basin in 1933 and the 1993 Master Manual are striking. The 308 Report encompassed a study of the entire Missouri watershed for navigation, flood control, hydroelectric power, and irrigation. The agency completed the massive report without technical committees or task groups from the public or private sectors, and without an official review process from those affected. Fifty years later, the Master Manual review required the Corps to consult and coordinate with a wide array of technical, political, and special interests. The federal cost of the effort was estimated in 1991 at more than $8 million; costs would escalate with the mandated Cabinet-level review.

The dollar cost of the Master Manual study manifests the Corps' shift from project development to an expanding regulatory role in extraordinarily complex basinwide water management. For example, changes in Corps main-stem management policy would impact the environments of the reservoirs and river reaches. A growing body of evidence showed how Pick-Sloan developments and operations had changed those environments and what effects Corps regulatory activities were having.

Stream ecologists pointed out the changes brought about by the river's regulation. The big dams control runoff, which reduces flooding, limits the movement of sediment, and alters the movement of fish and wildlife. Before the river was channelized and dammed and its water impounded, the stream bed was wide in many places, with many channels having sandbars and islands. Stream banks were thick with towering trees and marshy vegetation. Away from the river's edge and on the islands, numerous aquatic pools and wetlands existed.

Before it was confined, the river meandered in a wide floodplain with a constantly changing channel alignment through much of its basin reach. (Meandering creates a living productive ecosystem through erosion and deposition.) Within its floodplain were numerous shallow side channels and low-velocity current areas with quiet side pools where a diverse aquatic habitat flourished. These areas provided feeding and breeding places for fish, birds, and fur-bearing animals. Sandbars and islands in seral stages of development were highly productive for many species of plants and wildlife. The variety of plant species associated with the natural floodplain formed a diversified and abundant habitat.



Meander Line.

Plant and animal communities supported by these habitats have been diminished by engineering projects. Channelization of the river from Sioux City to its confluence with the Mississippi River has degraded this entire ecosystem.[46] It confined the river to a narrow floodplain approximately ten percent of its original width, eliminated the side channels and quiet pools, and isolated backwater areas and associated wetlands. Stabilizing the main channel shortened the river in this reach by 127 miles, increased the velocity of water flow, and mitigated its natural erosive action. One study shows that by the year 2003, only 112,000 acres of a preconstruction erosion zone of 664,000 acres will remain.[47]

The river has cut deep into its bed since it has been channelized. Stage trends for the period 1920 to 1990 indicate the water surface at Sioux City has lowered 8 to 10 feet for a regulated flow of 30,000 cubic feet per second. Degradation, or lowering of the stream bed, severs the adjacent shallow pools and wetlands from their main water source and adversely affects riverine areas and riparian habitat. The six Corps main-stem dams and reservoirs also removed natural habitat from the basin's inventory. The impounded water permanently covered 861 miles of river channel with its active erosion zone of approximately 200,000 acres.

Prior to construction of the main-stem dams and stabilization of the downstream channel, the Missouri River carried 150 to 200 million tons of sediment annually. With the Pick-Sloan structures in place, the river averages about 50 million tons. Organic matter eroded from basin soils and meandering stream banks is now captured in reservoirs or contained in channel works. Pick-Sloan projects disturbed the natural cycle of

Riverine Habitat.

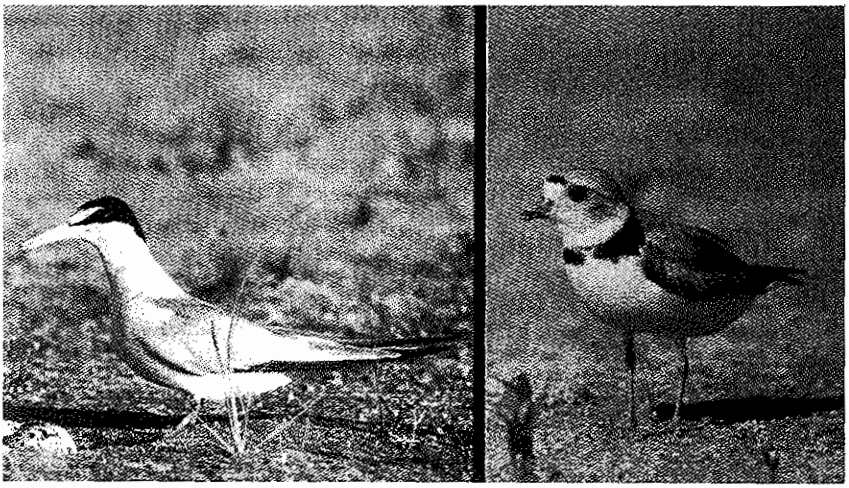
spring and early summer high flows that carried river-borne nutrient-rich organic matter onto the floodplain and contributed to terrestrial and aquatic habitats.

The Corps of Engineers has been unable to do much about the ecosystem damage caused by Pick-Sloan. The value system in place when the Pick-Sloan plan was authorized gave little consideration to destruction of natural habitats and reduction of habitat diversity, creation of migratory barriers, or interception of organic matter by impoundments and channelization. And even in the context of the value system of the 1940s, the trade-offs for perceived benefits to be derived from Pick-Sloan would have caused decisionmakers to set aside ecosystem losses. Hence, the Corps has had scant authority to manage the main-stem system in a way that would safeguard biocentric values.

Finally, in 1973, with growing awareness and concern for species and their protection or promulgation, Congress passed legislation regarding the conservation, protection, and propagation of endangered species. The Endangered Species Act, as it is popularly termed, requires all federal agencies to consider reasonable and prudent measures to protect and conserve species and critical habitats.[48] The act was amended in 1979 to protect endangered plants and authorized the Secretary of the Interior to propose land as critical habitat. Additional legislation in 1980 and 1982 encouraged federal departments and agencies to use their statutory and administrative authority to conserve and promote fish and wildlife conservation, plant species, and critical habitat.

Fortunately, when the endangered species legislation was applied to

the Missouri basin the Corps had a support group in place. The Missouri River Natural Resources Committee, coordinated through the U.S. Fish and Wildlife Service (FWS), is an association of natural resources managers representing the basin states. It responded to provisions in the endangered species legislation stipulating consultation procedures that were to be administered by the FWS. The Corps' major difficulty was in making operations decisions that met both Pick-Sloan requirements and the mandates of the Endangered Species Act.



Least Tern — Piping Plover.

By 1991, three Missouri basin riverine species had been federally listed as endangered or threatened: the least tern, piping plover, and pallid sturgeon. Two other riverine species, the sicklefin chub and sturgeon chub, were candidates for federal listing, and harvest restrictions had been imposed on paddlefish. Some basin states had imposed a ban on commercial harvest of catfish, once a primary commercial target species on the Missouri River. Missouri River biologists estimated the collective density of fish was less than 20 percent of what once lived in the basin.[49]

A "Biological Opinion" issued by the FWS in November 1990 held that the Corps' main-stem operations jeopardized the continued existence of the interior least tern population and the northern Great Plains population of the piping plover. A year later, the FWS charged that the Corps still had not adopted "reasonable and prudent alternatives" for meeting the service's fledge ratio goals. The FWS's field supervisor for North Dakota and South Dakota charged in November 1991 that the Corps' operating plan for 1992 did not adequately safeguard riverine fish and wildlife values.[50]

In formulating its policies and operations for managing the river, the Missouri River Division Reservoir Control Center had been mindful of the basin's natural communities and the hydrologic processes needed to support them. Generally, Missouri River fish and wildlife interests had been satisfied with Corps operations and had cooperated with power, irrigation, and other commercial interests to meet the multi-purpose values associated with main-stem operations. The difficulties inherent in reconciling the various interests were compounded by prolonged drought conditions and the resulting lower reservoir levels.

The drawdown issues illustrated the Corps' difficulty in managing the system and satisfying an expanding number of competing interests. The conflict was no more apparent than that related to the nesting habitat for the least tern and piping plover. Typically, these sparrow-sized birds arrive from the Gulf of Mexico and South America in early summer, nest on the few remaining sandbars in the upper ends of reservoirs and in the few miles of still unchannelized river, and lay their eggs in June. If the nesting succeeds, the birds return south by mid-August.

The Corps is mandated by law to protect these habitat areas. The RCC adjusted operations to accommodate the birds' nesting habits, while fulfilling its requirements to meet downstream navigation target flows. During the drought period, the Corps had been trying to conserve water. But if it allowed the birds to establish their nests on the sandbars at the water's edge in early spring, the amount of water that could be released for navigation in the summer months was limited. The Corps adopted a policy of increasing releases from the lower-most dams by about 7,000 cfs every third day to try to force the nesting birds to the higher elevations on the sandbars.[51]

The FWS was not satisfied with the Corps' release policy. It wanted the agency to maintain a release rate of about 28,000 cfs rather than the fluctuating cycle of 23,000 cfs to 30,000 on the third day. The FWS recognized that the Corps was trying to conserve water; the service's own responsibilities for successful fish spawns at the reservoirs in the spring required comparatively high water levels, as did recreation. Furthermore, sufficient water for summer and winter releases would help aquatic species and habitats downstream of the big dams.

Still, the FWS stated in 1991 that it wanted the Corps to split the navigation season because that policy provided the "opportunity to more closely simulate historic river hydrology."[52] The FWS maintained that by considering natural cycles, the Corps regulators would provide suitable sandbar habitat for terns and plovers, improve fish spawning conditions for such species as the pallid sturgeon and chub, promote enhanced

riverine wetlands and riparian areas, and afford better overall recreation and fisheries and wildlife management.

In light of its competing mandates to comply with both the Endangered Species Act and Pick-Sloan requirements, MRD felt constrained to make any additional adjustments in its operating plans for 1992. With mountain snowpack conditions at about 85 percent of normal in March, RCC technicians were conservative in planning releases to meet targets in the spring. They had to carefully weigh competing demands against a shrinking supply.

Missouri's Attorney General disputed the Corps' solution. He said MRD's RCC was shortening the navigation season despite the fact that storage in upstream reservoirs was in excess of the amount set forth in the Master Manual. The state filed suit in U.S. District Court on 11 May 1992 asking the court to order the Corps to (1) stop deviating from the navigational volume set out in its Master Manual, (2) maintain reservoirs at the levels specified, and (3) prepare an environmental impact statement on its actions in response to the drought.[53] The Missouri River Basin Association director had voted for the operating plan. Although the court denied the state's request for an injunction, it agreed to consider in the fall of 1993 such issues as whether the Corps was violating the Flood Control Act of 1944, the National Environmental Protection Act, the Administrative Procedure Act, and the rules promulgated by the agency in its Master Manual.

The conflicts between traditional uses of Missouri River water under Pick-Sloan and the demands and mandates of more contemporary interests were all too apparent when the drought continued. Simplifying operations to safeguard the least tern's sandbar habitat would harm the navigation industry and further damage habitat and wetland areas downstream. Retaining water in upstream reservoirs and lowering the river's surface elevations in reaches below any of the dams would deprive municipalities and public-services facilities of water supplies. Cutting back on water releases to assist recreation and improve fish spawning in the reservoirs would cause the Western Area Power Administration to lose power generation.

The Corps of Engineers had in place in 1992 an integrative process clarifying many of the main-stem management issues. Hanging over this process like the sword of Damocles was the matter of Indian reserved water rights, another important issue not considered by the drafters of Pick-Sloan legislation and not being addressed during the extensive Master Manual review process. Although tribal water rights will not affect Corps operations until the amount of water they are entitled to is

defined, Indian reserved water rights ultimately could disrupt carefully formulated alternative-operation-scenario modeling and substantially affect non-Indian water use. Those familiar with Missouri basin water issues agree that tribal claims will be a factor in future river management.

In 1992, the issues in determining Indian claims related to both quantity and priority of right. Even with the active participation of the basin states, the federal government took little account of Indian water rights when it passed the Pick-Sloan legislation. In 1908, the U.S. Supreme Court held that when the federal government withdrew lands from the public domain to establish Indian reservations, it also implied withdrawal from the then-unappropriated waters of streams sufficient to satisfy the purposes of the reservation.[54] The Indian water rights had been reserved along with the land and were not subject to state law. The decision, known as the Winters Doctrine, has withstood the test of time in establishing that the implied water rights are sufficient to satisfy purposes of the reservation.

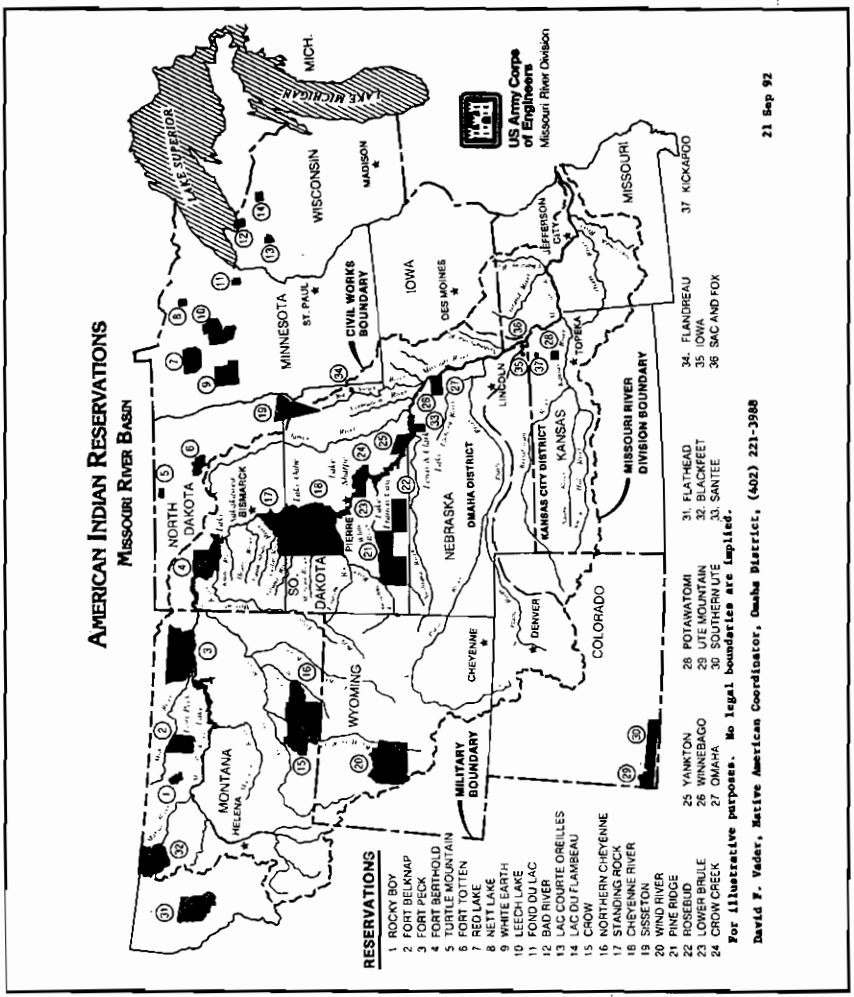
In 1992 the extent of Indian water rights was a major issue in the Missouri basin. The Indians there are united in claiming that Winters ensures them of enough water to render Indian reservations viable and permanent homelands. They assert that this includes sufficient water to sustain aquatic life and recreation, municipal and industrial uses, and irrigation and other agricultural pursuits.

Missouri basin tribes expect the federal government to help them attain economic independence by developing a policy statement that supports their receiving an allocation of low-cost hydropower generated at the main-stem dams. Indians also want the right to market water on and off the reservation. They feel that water revenues would enable them to develop an economy on a par with their more affluent neighbors who are already beneficiaries of federally subsidized water projects.

Difficult processes are required in establishing water rights for each of the 26 Indian tribes in the Missouri basin. The three basic approaches would be to form a compact, litigate, or negotiate. In reality, negotiations almost universally include litigating or forming a compact. In 1993 tribal representatives asked the Secretary of the Interior to (1) provide independent tribal legal counsel on water rights for both litigation and negotiation of water rights claims; (2) create independent legal counsel for the Bureau of Indian Affairs to eliminate potential conflicts of interest between and within the Departments of Justice and Interior; (3) support amending the McCarran Amendment to prohibit adjudication of Indian water rights in state court proceedings; (4) initiate a process to lift the Interior Department's moratorium on approval of tribal water codes; and

(5) support working groups in achieving water settlements.[55]

Montana created the Montana Reserved Water Rights Compact Commission in 1979 to settle tribal claims. In 1985, the Assiniboine and Sioux Indian tribes of the Fort Peck Reservation in northeastern Montana and the state of Montana entered into a water compact. It allows any amount of the tribal water rights, quantified at 1,050,000 acre-feet a year of water from the Missouri River and tributaries, to be diverted for marketing on the Fort Peck Reservation. The compact allows the tribes to divert 50,000 acre-feet of water off the reservation under certain conditions; other diversions may be allowed if Montana and the Department of Interior approve. It includes a number of other provisions concerning water policy and management.[56]



The Fort Peck-Montana compact was approved by the U.S. Attorney General and the Secretary of the Interior. After the compact had been ten years in process, the Senate Select Committee on Indian Affairs asked the U.S. Senate to ratify the agreement.[57] Even if approved, litigation could delay implementation.

Litigation has not proved to be expeditious in resolving the complex issues associated with Indian reserved water rights. After the Shoshone and Arapahoe of the Wind River Reservation in Wyoming brought suit in 1977, the courts awarded the tribes 500,000 acre-feet of water a year. Fourteen years later, the states and tribes were arguing over specific rights to use. Each side had spent more than $9 million without resolving many of the underlying problems. Implementing plans to provide the highest and best uses of scarce water resources also has been difficult. The Wind River water rights litigation subjected both the Indian and non-Indian communities and their economies to enormous uncertainties and risks.[58]

Negotiated settlements are less disruptive and less costly as relates to existing non-Indian uses of water, while more quickly enabling Indian reservations to become viable, economically self-sufficient communities. Settlements may be safeguarded and implemented in a more facilitative manner than with litigation or through compacts because negotiators have established cooperative partnerships rather than adversarial relationships. Negotiated settlements offer greater flexibility, provide opportunities for public financing, and appeal to private-sector interests who want to turn "paper rights" into development dollars. The negotiating process brings together those who have an expressed interest in the agreement and fosters partnerships in pursuing dual objectives.

In 1989, the Senate Committee on Indian Affairs appealed to President George Bush for more coordinated policymaking on behalf of American Indians.[59] In the Missouri basin some efforts were made in 1990 to affirm that commitment. An Indian representative sat as a full member of the Missouri Basin States Association and in 1992 was elected its secretary. The Corps' technical committees reviewing the Missouri River Master Manual had tribal representation.

In 1993 the Mni Sose Coalition was established to address all aspects of Indian water rights issues in the Missouri River basin. The coalition formed as a nonprofit corporation with 19 tribes as members to assist them in protecting, developing, and managing their reserved rights to Missouri basin water. The coalition will act as an advocate for Indians on specific water issues.[60]

Because they do not want to risk losing basic treaty rights, Missouri

basin tribes have been conservative in protecting their water rights. Once the tribes quantify their claims for Missouri basin water, federal and nonfederal interests will know how much water they have for the future. Pending this quantification, planners in the early 1990s were still using the rough estimates of about 8 million acre-feet per year, or one-third of the river's normal annual flow at Sioux City. Treating the basin tribes as sovereign partners with the states and the federal government will help ensure management of water resources in accord with policies and goals based on realistic assessments of water quantities and on contemporary social, economic, and political values.

Recognizing jurisdictional rights and dependencies is important. Despite the forward strides made, legal and institutional arrangements have not kept pace with changing values and new directions for use of Missouri River main-stem water. Enlightened policy and management must integrate solutions that address the concerns of all involved parties. The various users and holders of water rights need to unite, as Pick-Sloan advocates did in the 1940s, as full partners in regional water management.

Reconciling the needs of competing interests is just one aspect of the increasingly complex management of the main-stem system in the 1990s under the Pick-Sloan authority and its interpretation. The Corps has forged an effective coalition to review conflicts related to operating criteria and the Master Manual, and to consider what policy changes could be implemented within the constraints of existing legislation. With a well-informed membership and clearly defined terms of reference, the Missouri River Natural Resources Committee provided influential and valuable guidance based primarily on fish and wildlife concerns.

The Missouri Basin States Association had changed its name to the Missouri River Basin Association, reflecting the association's expanded representation. In January 1993, the association had nine voting directors (eight representing the states and one tribal), and eight representatives of federal agencies serving on the board in an advisory capacity. While continuing to produce annual operating plan recommendations and providing technical assistance to the Master Manual review, MRBA broadened its activities. The association asked the new Secretary of the Interior to support MRBA management activities and it testified before Congress on behalf of water resources projects the directors agreed to support.[61]

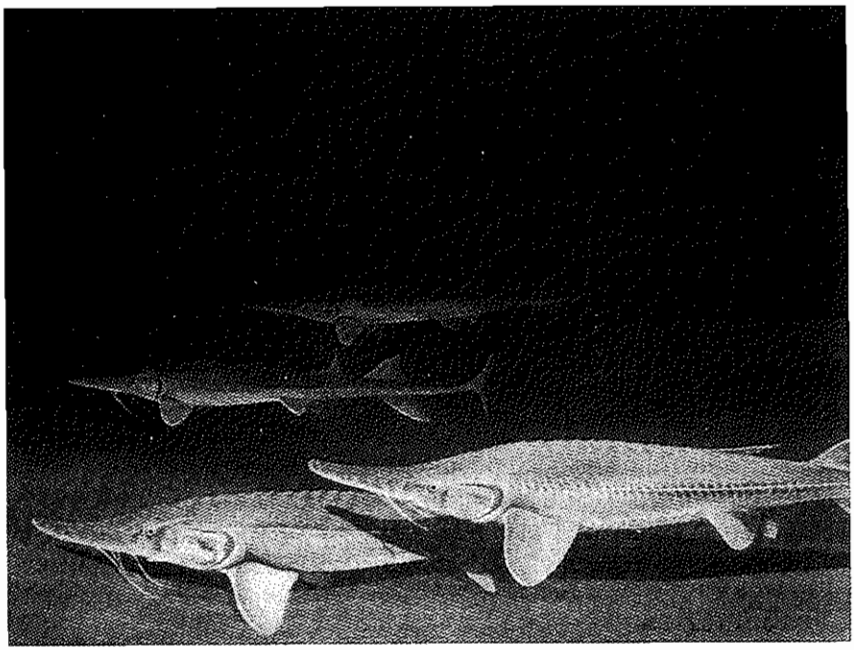
Alternative management scenarios were an option. However, under the 1944 Flood Control Act and in accordance with the navigational servitude decisions of the U.S. Supreme Court, the Corps had a duty to maintain sufficient flows for navigation purposes. The issues involved

could not be determined on the basis of equities or economic factors related to the states. The "new frontier in irrigation history" did not materialize, and recreation interests were at risk of being harmed by water releases from the main-stem system for downstream purposes. Unfortunately, the Corps of Engineers had limited authority to make operating decisions based on adverse impacts.

Federal officials are authorized and obligated to act by the Constitution and the Congress. No legal authority was in place in 1993 to enable significant changes in system operation. Any Missouri River main-stem management policy impeding interstate commerce, and thereby negatively affecting public health and safety, would be struck down by the federal courts.

The navigation powers in the commerce clause serve to clarify much of the ambiguity in Pick-Sloan legislation. The nation was created to be independent from state restraint in matters within the federal government's sphere of delegated powers. Because state water policy was enacted into law mostly to serve individual needs, state laws are inadequate to meet federal needs in multi-purpose interstate water project management. Federal water policy is based on a broader perspective.

The challenge for the people of the Missouri River basin in the 1990s was to design institutions and procedures that would satisfy both interstate requirements and state and local needs; to work toward main-stem system management that would more adequately meet competing demands arising from changing public values; and to seek a way to operate the system so that each use or need would be met in proportion to its public values, so long as the adopted policy met the test of navigation servitude.



Sturgeon by Sallie Zydek.

Appendix A
Missouri Basin
Water Resources Development
A Chronology of Selected Events

1650

The first irrigation in the Missouri River basin is thought to have been started by the Taos Indians along Ladder Creek in northern Scott County, Kansas.

1764

City of St. Louis, first outpost of the West, established below the mouth of the Missouri River by fur trader Pierre Laclede.

1803

President Jefferson arranges purchase of the Louisiana Territory from France. The Missouri River basin constitutes almost two-thirds of the purchase.

1804

Jefferson assigns two U.S. Army officers — Meriweather Lewis and William Clark — to lead an expedition through the Missouri basin to the Northwest. They return two years later.

1819

First recorded steamboat navigation on the Missouri River and U.S. Army Major Stephen Long ascends the river aboard the Western Engineer to Council Bluffs.

1824

U.S. Supreme Court opinion declares in Gibbons v. Ogden that "The power of Congress . . . comprehends navigation, within the limits of every State in the Union; so far as that navigation may be, in any manner, connected with 'commerce with foreign nations, or among the several States, or with the Indian tribes.'" Federal commerce power over navigation includes authority to control not only all navigable waters of the U.S., but also the nonnavigable tributaries if the navigable capacity of navigable waterways is affected or if interstate commerce is otherwise affected.

1824
Congress authorizes the U.S. Army Corps of Engineers (COE) to aid navigation on the Nation's waterways. "Snagging" work on the Missouri River begins in 1838.

1844
The flood of 1844 is generally conceded to be the greatest known in the lower Missouri River basin. Although no records are available, the river in flood is estimated to have discharged 900,000 cubic feet per second at its mouth.

1862
The first 160-acre land grant under the Homestead Act is made to Daniel Freeman near Beatrice, Nebraska Territory.

1866
Congress enacts legislation providing that "whenever . . . rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same." This Act recognized that under conditions prevailing in portions of the Missouri basin, the acquisition of water by prior appropriation for a beneficial use was entitled to protection.

1869
Completion of the first transcontinental railroad through the Missouri River basin fosters settlement in the region.

1877
Desert Lands Act of 1877 authorizes sale of public lands to persons who would irrigate them within three years.

1881
Some 300 delegates to a Missouri River Improvement Convention is St.Joseph, Missouri, call on the federal government to appropriate money for river projects.

1884
Congress creates the Missouri River Commission under the provisions of the Rivers and Harbors Act. The five-member body is composed of three Corps of Engineers representatives and two civilian representatives. The Commission is to: (1) superintend and direct river improvements authorized by Congress, and (2) consider and devise additional plans for improving the river for purposes of commerce and navigation. The

Commission functions until 1902, when its duties are returned to the COE.

1894

Congress authorizes the Missouri River Power Company of Montana to construct a dam across the Missouri River. Project not completed.

1897

Capt. Hiram Chittenden, COE, submits report upon the practicability and desirability of constructing reservoirs in upper Missouri basin. He concluded that upstream reservoir construction was "an indispensable condition to the highest development" of the region.

1889

John Wesley Powell, author of Report on the Lands of the Arid Regions of the U.S. (1878) and director of the U.S. Geological Survey, urged irrigation development in North Dakota, South Dakota, and Montana, stating that no water falling within these upper basin states should flow beyond their boundaries.

1902

Reclamation Act establishes irrigation in the West as a national public policy by authorizing the Secretary of the Interior to locate, construct, operate and maintain works for the storage, diversion, and development of waters for the reclamation of arid and semi-arid lands in the Western states.

1904

Congress authorizes the Ox Bow Power Company of South Dakota to construct a dam across the Missouri River. Project is not completed.

1906

The Secretary of the Interior is authorized to develop hydroelectric generation at reclamation projects where needed for irrigation.

1908

In Winters v. U.S., relating specifically to Indian reserved water rights, the Supreme Court states that the federal government has the constitutional power to "reserve the waters and exempt them from appropriation under the state laws" beginning at the time lands were withdrawn from the public domain.

1910

Congress authorizes development of a six-foot navigation channel on the Missouri River from Kansas City to the mouth. The project was extended to Sioux City in 1927 with authorization to study the feasibility of

increasing the channel depth to nine feet in the stretch from Kansas City to the mouth of the river.

1911

Conservation of watersheds legislation enables the states to enter into compacts or agreements with other states or the United States for the purpose of conserving the forests, water supplies and navigability of rivers.

1920

The Federal Water Power Act controls non-federal development of hydroelectric power through a licensing system to be administered by the newly created Federal Power Commission which evolves into the Federal Energy Regulatory Commission).

1925

The Rivers and Harbors Act of 1925 authorizes COE and the Federal Power Commission to consider needs for irrigation in planning for navigation, water power, and flood control.

1926

First interstate compact allocating surface water in the Missouri River basin approved by the States of Colorado and Nebraska and ratified by Congress. The compact allocates the waters of the South Platte River.

1927

Congress authorizes the extension of the six-foot navigation channel on the Missouri River from Kansas City to Sioux City, Iowa.

1927

Congress authorizes COE to undertake comprehensive river basin studies known as "308" reports. The reports are to recommend development for the purposes of navigation, flood control, hydroelectric power, and irrigation.

1930s

Drought period in the Missouri basin is of longer duration than any previously recorded.

1933

COE issues 308 Report on Missouri River basin — H. Doc.238, Seventy-third Congress, 1933 — which is keystone technical sourcebook. COE recommends Fort Peck, Montana,"be built to the maximum practicable capacity and be operated primarily for navigation, with such arrangement for future installation of power as will permit the maximum production of hydroelectric power consistent with the primary demands of navigation."

President Roosevelt uses report and authority under provisions of National Industrial Recovery Act to initiate project construction of first main stem federal dam on Missouri River. Congress formally approved this action in 1935.

1933

Chief of Engineers creates Missouri River Division with three districts: Kansas City, Omaha, Ft. Peck.

1934

The National Planning Board and its successors advocate comprehensive river basin planning as a solution to the nation's water and related land resource problems.

1936

Roosevelt creates the Great Plains Committee to recommend ways to ameliorate the effects of drought, depression, and poor land use practices plaguing much of the Missouri basin. The Committee's report, published in 1940 by the National Resources Planning Board, recommends among other things, additional irrigation projects and detailed planning.

1936

Flood Control Act declares flood control to be a proper federal activity; that improvements for flood control purposes are in the interest of the general welfare; that the federal government should improve or participate in the improvement of navigable waters or their tributaries for flood control "if the benefits to whomsoever they may accrue are in excess of the estimated costs, and if the lives and social security of people are otherwise adversely affected." The Act prescribes that federal investigations and improvements of rivers and other waterways should be under the jurisdiction of the COE.

1936

Bill introduced in Congress to create a Missouri Valley Authority (MVA).

1937

Roosevelt proposes the division of the nation into seven regions, drawn along river basin watershed boundaries, for the purpose of multipurpose basin development. The Missouri basin is one of the regions.

1938

Congress authorizes the installation of hydroelectric generating facilities at Fort Peck.

1938

First "comprehensive" plan for flood control and other purposes in the

Missouri basin, as set forth in Flood Control Committee Document 1, Seventy-fifth Congress, 1937, is adopted by Congress which includes a system of reservoirs on Missouri River tributary streams in the lower basin.

1938

Congress authorizes the Secretary of War to provide additional storage capacity at flood control dams for domestic water supplies.

1939

The Reclamation Project Act, Section 9, authorizes the Bureau of Reclamation (BOR) to plan for the conservation, control, and use of water resources in the Missouri basin and permits BOR to allocate part of reclamation project costs for flood control and navigation. The resulting plan, presented to Congress in 1943 as Senate Document 191, becomes popularly known as the "Sloan Plan" after its chief author William Glenn Sloan, then Assistant Director of the BOR's office in Billings, Montana.

1939

The Reclamation Project Act provides that the sale of hydroelectric power from federal projects must give preference to municipalities and public agencies and to cooperatives and other nonprofit organizations financed by Rural Electrification Loans. It also authorizes the Secretary of the Interior to add municipal water supply to the multiple purposes of its projects.

1939

Board of Engineers for Rivers and Harbors recommends a nine-foot by 300-foot navigation channel on the Missouri River from Sioux City to the mouth.

1941

The National Resources Planning Board sponsors a conference in Omaha, Nebraska, to discuss the creation of a basinwide planning organization. The Missouri Valley Regional Planning Commission is created. It is composed of one delegate from each of eight basin states (omitting Colorado and Wyoming) appointed by their governors, and federal representatives from the Departments of Army, Agriculture, and Interior. The Commission publishes a report in 1942 that calls for an apportionment of the waters of Fort Peck and future reservoirs that might be constructed. The Commission ceases operation in 1943 when Congress does not fund the National Resources Planning Board.

1941

Congress authorizes additional dams and reservoirs in Missouri River

basin, including Cherry Creek at Denver.

1942

The Missouri River States Committee organizes at a meeting in Billings, Montana. The Committee eventually includes all ten basin states represented by the states' governors and their technical advisers. The aim of the "Governor's Committee" is to foster and expedite the planning, development and use of the water and related land resources of the Missouri basin for the greatest common good of the basin and the nation.

1943

Missouri River flooding causes the Flood Control Committee of the House of Representatives to request the COE to review previous plans. COE, through Missouri River Division office in Omaha, Nebraska, submits House Document 475, which becomes known as the "Pick Plan" after then Missouri River Division Engineer Colonel Lewis A. Pick.

1944

The Missouri River States Committee submits a resolution to Congress through President Roosevelt calling for: 1) a single comprehensive plan for Missouri basin development, 2) the COE and BOR to coordinate and merge their plans, 3) legislation to implement the basinwide development plan, and 4) the beneficial consumptive use of basin water arising in states wholly or partially west of the 98th meridian to have precedence over water for navigation. Roosevelt endorses the resolution in his transmittal to Congress and adds his recommendation for a Missouri Valley Authority.

1944

Senator James Murray of Montana introduces the first of his many bills to create a Missouri Valley Authority (S. 2089). None are reported out of committee.

1944

COE and BOR representatives meet in Omaha on October 16-17 and affect a merger of their plans. The combined plan is submitted to Congress as Senate Document 247 and is enacted into law on December 22 as part of the Flood Control Act of 1944 (P.L. 534, 78th Congress). The Plan, with some modifications, provides for the construction of 316 separate project units, with 112 dams having a total storage of 107 million acre-feet of water, 4.3 million acres of irrigation, 2.6 million kilowatts of hydroelectric generating capacity, and hundreds of miles of levees and other flood protection structures.

Contains a statement assigning navigation functions a priority subordi-

nate to beneficial consumptive use functions in cases involving water rising west of the 97th meridian. Provides that COE reservoirs may include irrigation purpose in 17 western states.

Provides for disposal by the Secretary of the Interior of electric power from COE projects and establishes "basin account" mechanism, a means of keeping track of the monies returned to the U.S. Treasury from the marketing of "surplus" energy (energy not needed to support irrigation pumping).

Authorizes disposal by the Secretary of Army for domestic and industrial uses of surplus water available at reservoirs.

Specifies that the Secretary of the Army shall prescribe regulations for the use of storage allocated for flood control or navigation to all reservoirs constructed wholly or in part with federal funds.

Authorizes providing facilities in reservoir areas for public use, including recreation and conservation of fish and wildlife.

Contains a precedent-setting statement declaring policy of Congress to recognize rights and interests of the states in water resource development, and requires consultation and coordination with affected states.

1945

Congress authorizes, in the Rivers and Harbors Act (P.L. 14, 79th Congress), nine-foot navigation channel on Missouri River downstream from Sioux City, Iowa.

1945

The Washington-based Federal Inter-Agency River basin Committee creates the Missouri Basin Inter-Agency Committee (MBIAC). The MBIAC is composed of federal and state members and its broad duty is to effect coordination among parties engaged in basin water and land resource planning and development.

1946

COE breaks ground on Pick-Sloan project in Kansas City, begins work on Garrison Dam on Fort Berthold Indian Reservation in North Dakota, and condemns land on Standing Rock and Rosebud Sioux Reservations needed for Fort Randall project in South Dakota.

1946

Fish and Wildlife Coordination Act provides for consultations to prevent loss or damage to fish and wildlife at any federal or non-federal agency project operating under federal permit when the project is authorized to impound, divert or control waters. The Act is amended in 1958 to give

fish and wildlife conservation planning equal consideration to other project purposes.

1946
Water Pollution Control Act authorizes the Surgeon General to assist in and encourage studies and plans, interstate compacts, and creation of uniform state laws to control pollution.

1947
BOR begins work on Boysen Dam in Wyoming.

1948
Congress authorizes $5.1 million settlement with Three Affiliated Tribes of the Fort Berthold Reservation.

1949
Gladwin Young of U.S. Department of Agriculture devises plan to integrate upstream watershed management techniques into the Pick-Sloan program. The "Young Plan" is not authorized.

1950
Congress establishes guidelines for settlement negotiations with Cheyenne River and Standing Rock Sioux Tribes for the Oahe project.

1951
Catastrophic floods in lower Missouri basin produces discharges of 636,000 cubic foot per second at the river's confluence with the Mississippi. Extensive damages result in the nation's first $1 billion flood.

1952
Flooding is extensive in the upper and middle Missouri basin. A discharge of 500,000 cubic feet per second is recorded at Bismarck, North Dakota, and the cities of Omaha, Nebraska, and Council Bluffs, Iowa are threatened.

1952
President Truman appoints the Missouri Basin Survey Commission to study basin development plan and administration. The Commission recommends creating a Missouri River Basin Commission, with some members dissenting.

1952
Congress authorizes $450,000 settlement with Arapahoe and Shoshone Tribes of the Wind River Reservation for Boysen project damages.

1953
COE files suit to condemn lands on Crow Creek and Lower Brule Sioux

Reservations for Fort Randall Dam project in South Dakota.

1953
Missouri River Division creates Reservoir Control Center.

1954
Congress authorizes in Flood Control Act extensive revised dam and reservoir plans in Missouri and Kansas. BOR's Canyon Ferry Dam in Montana is completed.

1954
The Missouri River States Committee negotiates a basinwide compact without success.

1954
Congress authorizes $10.6 million settlement with Cheyenne River Sioux Tribe for Oahe project damages and $238,000 settlement with Yankton Sioux Tribe for Fort Randall project damages. It establishes guidelines for negotiations with Crow Creek and Lower Brule Sioux Tribes for Fort Randall and Big Bend project damages.

1955
Garrison Dam completed. Congress authorizes BOR's Angostura Unit in South Dakota.

1956
Senator Murray introduces last bill to create a Missouri Valley Authority.

1957
Congress authorizes $12.3 million settlement with Standing Rock Sioux Tribe for Oahe damages.

1958
The Water Supply Act permits the incorporation of storage space in COE and BOR reservoirs for future domestic, municipal, and industrial water needs.

1958
Congress authorizes BOR's Red Willow Dam in Wyoming.

1958
U.S. District Court in North Dakota blocks COE attempt to condemn land on Standing Rock Sioux Reservation for Oahe project.

1959
Construction begins on Big Bend Dam and Reservoir in South Dakota, the last of the COE's main stem Missouri River projects. And, BOR's Gray Reef Dam in Wyoming is authorized for construction.

1959
U.S. Senate Select Committee on national Water Resources recommends comprehensive studies of water and related land resources be undertaken for all river basins in the nation. Recommendations are eventually translated into legislation in the Water Resources Planning Act of 1965.

1961
Congress amends the Federal Water Pollution Control Act to provide for a more effective program of water pollution control, including consideration of storage in federal projects for water quality control.

1962
Congress authorizes $3.2 million settlement to Lower Brule Sioux Tribe and $4.4 million to Crow Creek Sioux Tribe for Fort Randall and Big Bend project damages.

1963
Formation of Missouri Basin Systems Group leads to organization of Basin Electric Power Cooperative.

1963
U.S. District Court in Montana awards Crow Tribe additional compensation of $2 million plus interest for Yellowtail project damages.

1963
U.S. Supreme Court reaffirms the Winters doctrine in Arizona v. California and clarifies the question of quantification of Indian reserved water rights.

1964
MBIAC creates Standing Committee on Comprehensive Basin Planning. Committee is charged to produce a "framework study" to "provide guidance for future multipurpose development of the [basin's] water and related land resources for their optimum or best use." The framework study is published in seven volumes in 1971.

1964
Congress directs that any Pick-Sloan project not yet initiated would have to be "hereafter authorized" by Congress.

1965
Congress requires consideration in Federal Water Project Recreation Act of opportunities for outdoor recreation and fish and wildlife enhancement in planning water resources projects. Recreational use of the project is to be coordinated with other existing and planned federal, state, or local recreational developments.

1965
Congress passes the Water Resources Planning Act permitting the creation of river basin commissions at the request of basin state governments, authorizing funding to partially support the work of the basin commissions and state water planning agencies, and creating the U.S. Water Resources Council to provide a national perspective to water resource planning.

1965
Congress reauthorizes Garrison Diversion Unit to serve 250,000 acres of irrigated land.

1967
First year of operation for the main stem Missouri River dams as a system.

1968
Congress reauthorizes down-scaled Oahe Irrigation project.

1968
Wild and Scenic Rivers Act requires that plans for water resource development consider setting aside certain streams as wild, scenic, or recreational rivers as an alternative to other uses. A portion of the upper Missouri in Montana is included in the Act.

1969
The National Environmental Protection Act (NEPA) commits the nation to responsibility for the quality of the environment. The Act requires an Environmental Impact Statement (EIS) on proposed federal actions affecting the environment.

1970
Water Quality Improvement Act and Environmental Quality Improvement Act establishes the Office of Environmental Quality.

1970
River and Harbor and Flood Control Act expresses the intent of Congress that the objectives of enhancing regional economic development, the quality of the total environment, including its protection and improvement, the well-being of people, and the national economic development are the objectives to be included in federally financed water resource projects.

1970
Congress officially designates "Pick-Sloan Missouri Basin Program."

1972

The Missouri River Basin Commission (MRBC) is created by Presidential Executive Order 11658. The MRBC is charged under law with, among other things, maintaining a comprehensive plan for basin development and being the principal coordinator of federal, state, interstate, local and nongovernmental entities for water and related land resource development in the basin.

1972

The Federal Water Pollution Control Act is amended to establish the explicit national goal of eliminating all pollutant discharges into U.S. waters by 1985 and an interim goal of making the waters safe for fish and wildlife and people. The Act provides that in the planning of any COE reservoir consideration shall be given to inclusion of storage for regulation of streamflow and the impact of storage for the purpose of water quality control are determined by the Administrator of the Environmental Protection Agency (EPA). Nothing in the Act is to be considered as affecting or impairing the authority of the Secretary of the Army to maintain navigation.

Sections 402 and 403 establish a permit program in EPA to regulate the discharge of pollutants into the waters of the United States, replacing the Corps Refuse Act Permit Program under the Act of 1899 without repealing the Act. All permits issued under the COE program are considered permits under the new EPA program.

Section 404 authorizes a separate permit program for the disposal of dredged or fill material in the nation's waters, to be administered by the COE.

1973

Congress directs all federal departments and agencies to carry out programs to conserve endangered and threatened species, in consultation with the Secretary of the Interior and to preserve the habitat of such species. (Note: Section 7 of the Endangered Species Act Amendments of 1978 [P.L. 95-632] authorizes procedures by which a federal agency, state governor, or license applicant may apply for an exemption to the Act.)

1977

The MRBC adopts its first comprehensive water management plan for the Missouri basin.

1978

The Missouri River between Gavins Point Dam and Ponca State Park,

Nebraska, is authorized as a national Recreational River under the National Parks and Recreation Act of 1978.

1980
The MRBC adopts its second comprehensive water management plan for the Missouri basin.

1980
Fish and Wildlife Conservation Act provides funds to states to conduct inventories and conservation plans for conservation of non-game wildlife.

1981
COE officially completes navigation channel to Sioux City.

1981
The MRBC and five other river basin commissions are abolished by Presidential Executive Order 12319. The governors of the ten Missouri basin states resolve to form the Missouri Basin States Association (MBSA) to continue some activities of the MRBC. The MBSA is incorporated as a nonprofit organization to "conduct, encourage, and participate in activities which promote interstate coordination of water resources management in the Missouri River basin."

1981
The Energy Transportation Systems, Inc. (ETSI) reveals its intent to contract with South Dakota to buy 50,000 acre feet of water, or about 16.3 billion gallons a year for fifty years from the Oahe Reservoir. Missouri, Iowa, and Nebraska filed suit to block South Dakota's sale. The states were joined with other plaintiffs, including environmental groups and the Kansas City Southern Railway, all of whom alleged that federal agencies lacked authority. They contended the contract, if implemented, would establish a precedent for the sale of water as a cash commodity for export from the basin, would harm downstream states, and was illegal.

1982
Missouri Basin States Association discusses state positions on Missouri River water allocation.

1982
Congress authorizes development of WEB pipeline and feasibility studies for South Dakota water projects to be built in lieu of Oahe and Pollack-Herried projects. Same legislation authorizes irrigation projects on the Standing Rock, Cheyenne River, Crow Creek, Lower Brule, and Omaha Indian reservations to receive Pick-Sloan pumping power at preferential rates.

1982
Congress makes clear in the Reclamation Reform Act that the provisions of federal reclamation law are not applicable to lands which receive benefits from water resources projects constructed by the COE, except in limited circumstances.

1983
The MBSA completes a Flood Plain Management Study of the lower Missouri River flood plain and a Missouri River Basin Hydrology Study.

1984
Garrison Diversion Unit Commission reduces Garrison project to 131,940 acres of new irrigation in North Dakota.

1985
Northern Lights Institute commences Missouri River Management Project emphasizing public education and awareness of water issues.

1986
Garrison Unit Tribal Advisory Committee recommends additional compensation to Standing Rock Sioux and Fort Berthold tribes for Oahe and Garrison project damages.

1986
BOR exercises no functions at Oahe reservoir although some irrigators draw water from the lake pursuant to South Dakota water permits.

1986
Congress passed a Water Resources Development Act, the first comprehensive water resources bill to pass in sixteen years. Act contains the statement that "The Pick-Sloan Missouri Basin Program shall be prosecuted, as authorized and in accordance with applicable laws including the requirements for economic feasibility, to its ultimate development on an equitable basis as rapidly as may be practicable, within the limits of available funds and the cost recovery and repayment principles established by Senate Report No. 470 and House Report No. 282, 89th Congress, 1st session."

Act establishes preconditions for local protection projects and new cost sharing requirements.

Authorizes acquisition of recreation lands and general authority to undertake fish and wildlife mitigation measures.

1987
Missouri River Natural Resources Committee forms as an association of natural resources managers representing the states in the basin.

1987
U.S. Supreme Court agrees to hear appeals on the issue raised in the ETSI case of the power of the Secretary of the Interior over water stored in the Missouri River main stem reservoirs, but declines to rule on the even larger issue of the federal and state governments' relative interests in Missouri River water.

1988
Water Resources Development Act requires that there be opportunity for public review and comment before a change is made in reservoir operation involving reallocation of storage or significantly affecting any project.

1988
U.S. Supreme Court affirms the lower court's ruling in ETSI Pipeline Project v. Missouri, et al that "It is beyond question that the Interior Secretary does not possess the authority . . . to execute a contract to provide water from an Army reservoir for industrial uses without obtaining the approval of the Secretary of the Army." The court confirmed the lower basin plaintiffs' contention that the 1944 Act gave the Army Secretary the authority to contract for domestic and industrial uses of surplus water in COE reservoirs, provided those contracts did not adversely affect existing lawful uses of the water. Finally, Justice Byron R. White wrote that the executive branch was "not permitted to administer the [Flood Control Act of 1944] in a manner that is inconsistent with the administrative structure that Congress enacted into law."

1988
Northern Lights Institute publishes The Missouri River Brief Series.

1989
Protracted drought and shifting priorities in basin water use prompts Missouri basin states and the COE to begin a review of the Master Water Control Manual for reservoir operations. Focus of the review is a consideration of alternative scenarios for operating the river. Phase I of the study, completed in June 1990, consists of a preliminary assessment of the current operation and priorities of water use is the basin. Based on those findings, along with public comments, technical subcommittees were developing in Phase II, alternative operating scenarios and evaluating the hydrologic, economic, social, and environmental impacts of the alternatives.

1989
Northern Lights Institute convenes Missouri River Assembly.

1990
Upper basin states of Montana, South Dakota, and North Dakota, concerned about the impact on spawning fish, filed sued at the U.S. district court level arguing that by using drought-reduced water in the reservoirs for the benefit of downstream navigation the COE was harming the states' recreation industry. The U.S. Court of Appeals for the Eighth Circuit ruled in favor of the COE, overruling a federal judge who ordered a reduction in the water releases from a reservoir in the Dakotas.

1990
Northern Lights Institute convenes second meeting of Missouri River Assembly.

1991
Upper basin states of Montana, South Dakota, and North Dakota file suit in U.S. District Court alleging the COE violates the intent of the Flood Control Act of 1944 in operating the main stem reservoir system and requests the courts to declare the rights of the states based on priorities for the basin that reflects contemporary uses and needs. Downstream states counter with amicus briefs showing major negative impacts if courts were to order COE to redefine priorities.

1992
Congress authorizes additional financial compensation to Indian tribes of the Fort Berthold and Standing Rock Sioux Reservations for damages to them resulting from U.S. government actions involving construction of the Garrison and Oahe projects.

1992
Missouri files suit in U.S. District Court to prohibit the Corps from reducing the level of flow in the Missouri River below the amount specified in the water control plan contained in the Master Manual.

1993
Missouri Basin States Association changes its name to the Missouri River Basin Association reflecting the association's expanded perspective and representation to include Indian tribes.

1993
U.S. District Court dismisses suit filed by South Dakota, North Dakota, and Montana against COE.

1993
Missouri basin tribes officially form the Mni Sose tribal water rights coalition.

Appendix B
Missouri Basin Water Problems

JOINT HEARINGS

BEFORE THE

COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS

AND THE

COMMITTEE ON PUBLIC WORKS
UNITED STATES SENATE

EIGHTY-FIFTH CONGRESS

FIRST SESSION

ON

PROBLEMS OF OPERATION OF MULTIPLE-PURPOSE

PROJECTS IN THE MISSOURI BASIN

MAY 1, 2, AND 3, 1957

EXHIBIT A

Missouri River Basin

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Upper Missouri River Basin.	Units not designated, but those desirable and necessary provided for.	Brenner Reservoir, 15,000 acre-feet. Clark Canyon Reservoir, 150,000 acre-feet. Landon Reservoir, 15,000 acre-feet. Kelly Reservoir, 5,000 acre-feet. Apex Reservoir, 3,000 acre-feet. Terry Reservoir, 10,000 acre-feet. Whitetail Reservoir, 6,000 acre-feet. Taylor Reservoir, 20,000 acre-feet. Bridger Reservoir, 16,000 acre-feet. Canyon Ferry Reservior, 2,000,000 acre-feet. Wells Reservoir, 2,600 acre-feet. Nilan Reservoir, 10,000 acre-feet. Newland Reservoir, 10,000 acre-feet. Tiber Reservoir, 915,000 acre-feet. Wilson Reservoir, 160,000 acre-feet. Stanford Reservoir, 3,000 acre-feet. Hobson Reservoir, 10,650 acre-feet. Ross Fork Reservoir, 6,700 acre-feet. Snowy Reservoir, 3,000 acre-feet. (For flood control, silt control, power, irrigation of 460,900 acres new lands, 208,700 acres supplemental water.
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Upper Missouri River Basin.	----------	Adopted because of more detailed study and of no conflict in plans.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Yellowstone River Basin....	Boysen Reservoir, 3,500,000 acre-feet. Lower Canyon Reservoir, 2,250,000 acre-feet. (Each for flood control, irrigation, navigation, power, and other purposes.)	Boysen Reservoir, 730,000 acre-feet. Mission Reservoir, 890,000 acre-feet. Kane Reservoir, 750,000 acre-feet. Yellowtail Reservoir, 470,000 acre-feet. Du Noir Reservoir, 220,000 acre-feet. Raft Lake Reservoir, 41,000 acre-feet. Soral Creek Reservoir, 25,000 acre-feet. Onion Flat Reservoir, 9,000 acre-feet. Badwater Reservoir, 7,500 acre-feet. Oregon Basin Reservoir, 150,000 acre-feet. Anchor Reservoir, 15,000 acre-feet. Lake Solitude Reservoir, 7,000 acre-feet. Red Gulch Reservoir, 13,000 acre-feet. Little Horn Reservoir, 50,000 acre-feet. Antelope Reservoir, 9,000 acre-feet. Sweetgrass Reservoir, 12,000 acre-feet. Hunter Mountain Reservoir, 150,000 acre-feet. Thief Creek Reservoir, 130,000 acre-feet. Sunlight Reservoir, 40,000 acre-feet. South Fork Reservoir, 25,000 acre-feet. Willow Park Reservoir, 9,700 acre-feet. Triangle Park Reservoir, 4,000 acre-feet. Bull Creek Reservoir, 14,000 acre-feet. Lake DeSmet Reservoir, 44,000 acre-feet. Smith Reservoir, 30,000 acre-feet. Middle Fork Reservoir, 50,000 acre-feet. Moorhead Reservoir, 390,000 acre-feet. (For flood control, silt control, power, irrigation of 509,560 acres new lands, 204,500 acres supplemental water.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Yellowstone River Basin....	Rejected----------	Adopted.

***Missouri River Basin*—Continued**

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Missouri River—Fort Peck to Sioux City.	Fort Peck Reservoir (constructed) to be operated as a multiple-purpose reservoir primarily for irrigation when substitute storage is built on the Missouri River. Oahe Reservoir, 6,000,000 acre-feet. Fort Randall Reservoir, 6,000,000 acre-feet. Garrison Reservoir, 17,000,000 acre-feet. Oak Creek Reservoir, 6,000,000 acre-feet. Gavins Point Reservoir, 200,000 acre-feet. (For flood control, navigation, irrigation, power, domestic and sanitary purposes, wild life, and recreation.)	Fort Peck Reservoir (constructed) to be used primarily for irrigation, also for navigation, flood control, silt control, and power. Oahe Reservoir, 19,700,000 acre-feet. Fort Randall Reservoir, 5,100,000 acre-feet. Big Bend Reservoir, 250,000 acre-feet. Medicine Lake Reservoir, 5,200,000 acre-feet. Crosby Reservoir, 230,900 acre-feet. Sheyenne Reservoir, nonactive capacity. Jamestown Reservoir, 800,000 acre-feet. (For flood control, navigation, irrigation, power, silt control, recreation, municipal.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 347, 78th Cong., 2d sess.	
Missouri River—Fort Peck to Sioux City.	Oahe Reservoir—Rejected. Fort Randall Reservoir—Rejected. Garrison Reservoir—Adopted. Oak Creek Reservoir—Rejected. Gavins Point Reservoir—Adopted.	Oahe Reservoir—Adopted. Fort Randall Reservoir—Adopted. Big Bend Reservoir—Adopted. Medicine Lake Reservoir—Adopted. Crosby Reservoir—Adopted. Sheyenne Reservoir—Adopted. Jamestown Reservoir—Adopted.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Minor western tributaries...	Units not designated, but those desirable and necessary provided for.	Alzada Reservoir, 70,000 acre-feet. Broncho Reservoir, 50,000 acre-feet. Heart Butte Reservoir, 110,000 acre-feet. Dickinson Reservoir, 7,000 acre-feet. Cannonball Reservoir, 40,000 acre-feet. Thunder Hawk Reservoir, 30,000 acre-feet. Shadehill Reservoir, 134,000 acre-feet. Blue Horse Reservoir, 50,000 acre-feet. Bixby Reservoir, 90,000 acre-feet. Green Grass Reservoir, 90,000 acre-feet. Edgemont Reservoir, 45,000 acre-feet. Angostura Reservoir, 160,000 acre-feet. Keyhole Reservoir, 276,000 acre-feet. Northfork Reservoir, 15,000 acre-feet. Rockyford Reservoir, 70,000 acre-feet. (For flood control, silt control, power, irrigation 212,980 acres new lands, 11,300 acres supplemental water supply, and municipal.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Minor western tributaries...	----------	Adopted because of more detailed study and of no conflict in plans.

Missouri River Basin—Continued

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Niobrara, Platte, and Kansas Rivers.	Kanopolis Reservoir. Tuttle Creek Reservoir. Harlan County Reservoir. Cherry Creek Reservoir. (All of above authorized 1938 and 1941 flood control acts). Medicine Creek Reservoir. Hale Creek Reservoir. Red Willow Reservoir. Enders Reservoir. Beecher Island Reservoir. (Total capacity 5,650,400 acre-feet for flood control, irrigation, and other purposes.) (Irrigable lands not specified, but for determination by later investigation.)	Kanopolis Reservoir, 432,000 acre-feet. Pioneer Reservoir, 34,000 acre-feet. Harlan County Reservoir, 1,199,000 acre-feet. Bonny Reservoir, 118,000 acre-feet. Wray Reservoir, 7,000 acre-feet. Culbertson Reservoir, 170,000 acre-feet. Medicine Creek Reservoir, 32,000 acre-feet. Harvey Reservoir, 36,000 acre feet. Norton Reservoir, 16,000 acre-feet. Kirwin Reservoir, 174,000 acre-feet. Webster Reservoir, 165,000 acre-feet. Glen Elder Reservoir, 304,000 acre-feet. Wilson Reservoir, 262,000 acre-feet. Cedar Bluff Reservoir, 272,500 acre-feet. Narrows Reservoir, 660,000 acre-feet. Glendo Reservoir, 150,000 acre-feet. Plum Creek Reservoir, 384,000 acre-feet. Boelus Reservoir, 790,000 acre-feet. Davis Reservoir, 380,500 acre-feet. Dismal Reservoir, 30,000 acre-feet. Erickson Reservoir, 20,000 acre-feet. Loretta Reservoir, 15,000 acre-feet. (For flood control, silt control, irrigation 1,284,060 acres new lands, 21,804 acres supplemental water.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong, 2d sess.:	
Niobrara, Platte, and Kansas Rivers.	Hale Reservoir—Rejected. Beecher Island Reservoir—Rejected. Enders Reservoir—Adopted. Except as noted, approved.	Bonny Reservoir—Adopted. Pioneer Reservoir—Adopted. Harvey Reservoir—Rejected. Except as noted, approved.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Lower Missouri	The plans are identical, including 6 reservoirs and a series of levees and appurtenant works: Osceola Reservoir Chillicothe Reservoir Arlington Reservoir South Grand Reservoir Pomme DeTerre Reservoir Richland Reservoir (All above reservoirs authorized by the 1938 Flood Control Act.)	
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Lower Missouri Basin	Adopted because plans identical.	

Notes

Notes to Chapter One — Flood Control Plans

[1]National Resources Planning Board (NRPB), The Problems of a Changing Population (Government Printing Office, 1938); Future of the Great Plains and Drainage Basin Problems and Programs (GPO, 1938 and 1936).

[2]Address, Secretary of the Interior Harold L. Ickes to National Reclamation Association, September 30, 1943, typeset copy in Joseph C. O'Mahoney Collection, American Heritage Center, University of Wyoming.

[3]T.A. Larson, History of Wyoming (Lincoln, Nebraska: University of Nebraska Press, 1965), 504.

[4]Roy E. Huffman, "War and Post-War Problems of Irrigation Planning in the Northern Plains," Journal of Land and Public Utility Economics, 19 (1943), 452-463.

[5]F. Alan Coombs, "The Impact of the New Deal on Wyoming Politics," in John Braeman, editor, The New Deal: The State and Local Levels (Columbus: Ohio State University Press, 1975), 205-206.

[6]U.S. Senate, Committee on Commerce, subcommittee hearings on H.R. 3961, Omnibus Rivers and Harbors Bill, 78th Congress, 2d sess., May 11, 1944, 1062.

[7]President Franklin D. Roosevelt, Executive Order, October 20, 1942, to War Production Board and the War Manpower Commission. W.E. Langdon, Chief, Technical Information, MRD, to OCE, january 14, 1944.

[8]Merrill Q. Sharpe, "Eight States and a River," State Government, 16 (1943), 221-223.

[9]H.G. Hershey, "History of the Missouri River States Committee," April 15, 1963; and Sharpe, "History of the Missouri River States Committee," South Dakota Historical Collections, 22 (1946), 400.

[10]MRSC, Minutes of meeting, May 21, 1943.

[11]National Reclamation Association, Report of the Committee of the National Reclamation Association, Preservation of Integrity of State Water Laws, October, 1943.

[12]U.S. Army Corps of Engineers, Annual Reports of the Chief of Engineers (ARCE), 1934, 842 and 1835, 1013; and House, Committee on

Rivers and Harbors, Hearings on S. 2650, 75th Congress, 3d sess., March 3, 1938.

[13]Rivers and Harbors Act of May 18, 1938, U.S. Statutes at Large, 52, 402, as amended, 16 U.S.C. 833 et seq; and Michael P. Malone, "The Montana New Dealers," in Breaman, The New Deal, 240-268.

[14]House, Committee on Rivers and Harbors, hearings on S. 2650, 2-4.

[15]MRSC, Minutes of meeting, May 21, 1943.

[16]Ibid.

[17]Letter, Maj. Gen. T.M. Robbins, Asst. Chief of Engineers, to Pick, "Progress schedule for . . . flood control and rivers and harbors projects," March 29, 1943, CE, SPEOR.

[18]Memorandum, Col. Pick to District Engineers, U.S. Engineer Offices (the four districts: Denver, Fort Peck, MOmaha, Kansas City), April 12, 1943.

[19]House, Committee on Flood Control, hearings on H.R. 4485 Flood Control Plans and New Projects, 78th Congress, 1st sess., May 13, 1943, 1.

[20]Letter, Col. Pick to Missouri Senator Harry S. Truman, May 18, 1943, and Truman's reply May 24.

[21]House, hearings on H.R. 4485, Flood Control, May 13, 1943, 1.

[22]Ibid., 19.

[23]MRSC, Minutes of meeting, May 21, 1943.

[24]Ibid.

[25]Ibid.

[26]U.S. Statutes At Large, 49, Sec. 1, 1570, June 22, 1936.

[27]MRSC, Minutes of meeting, May 21, 1943.

[28]Hearings on H.R. 4485, June 10, 1943, 395-397.

[29]Ibid., 370-371.

[30]Ibid., 285.

[31]Letter, President Roosevelt to Mississippi Representative W.M. Wittington, Chairman, House Flood Control Committee, May 5, 1941, in E.B. Nixon, Franklin D. Roosevelt and Conservation (GPO, 1957), 504.

[32]Jearings on H.R. 4485, June 10, 1943, 597-599.

[33]Ibid., June 13, 1944, 679.

[34]House, H. Doc. 475, Letter from Chief of Engineers with Report on a Review of Reports on the Missouri River for Flood Control from Sioux City, Iowa to the Mouth," 78th Congress, 2d sess., March 2, 1944.

[35]"Report on review of reports on the Missouri River Basin," Col. L.A. Pick, Missouri River Division Engineer, to the Chief of Engineers, August 10, 1943, in H. Doc. 475, 17.

[36]"Report of the Board of Engineers for Rivers and Harbors, Missouri

River to Sioux City," Brig. Gen. John S. Kingman, Senior Member, to Chief of Engineers, August 23, 1943, in H. Doc. 475, 3-5.

[37]Maj. Gen. Eugene Reybold to Chairman, Committee on Flood Control, in H. Doc. 475, 3-5.

[38]Letter, E.H. Wiecking, Land Use Coordinator, Department of Agriculture, to Maj. Gen. Thomas M. Robins, Acting Chief of Engineers, November 23, 1943, in H. Doc. 475, 12-13.

[39]Letter, Leland Olds, Chairman, Federal Power Commission, to Maj. Gen. Reybold, December 14, 1943, in H. Doc. 475, 5-9.

[40]Letter, H.W. Bashore, Commissioner, Bureau of Reclamation, Department of the Interior, to Gen. Reybold, December 17, 1943, in H.Doc. 475, 5-9.

[41]Gen. Reybold to Chairman, Committee on Flood Control, in H. Doc. 475, 3-4.

[42]Letter, Harold D. Smith, Director, Bureau of the Budget, to Secretary of War Henry L. Stimson, February 16, 1944, in H. Doc. 475, vii-ix.

[43]W.W. Whittington, "Bureaucracy Rides the River," Nation's Business, 33 (September 1945), 76, and his address to Mississippi Valley Association, June 28, 1943, Congressional Record, 8377-8391.

Notes to Chapter Two — Upper Basin Concerns

[1]President's Water Resources Policy Commission, *Water Resources Law* (GPO, 1950), 5-19.

[2]*U.S. v. Appalachian Clectric Power Co., U.S. Statutes at Large,* 311 (1940), 377; and *Oklahoma v. Atkinson,* ibid, 313 (1941), 508. Also see "New Water Laws Needed for the West," *Reclamation Era,* 30 (1940), 18.

[3]*Water Resources Law,* 181-246.

[4]House Committee on Flood Control, hearings on H.R. 4485, *Flood Control Plans and New Projects,* 78th Congress, 2d sess., February 1-23, 1944, vol. 2, 18.

[5]Resolution, Western Governors Conference, April 10, 1943.

[6]National Reclamation Association (NRA), "Report and Recommendations of the Committee on Preservation of Integrity of State Water Laws," October 27, 1943.

[7]Ibid., 141-143.

[8]House, House Documents 214 and 821, Missouri River, Sioux City to Mouth, 76th Congress, 1st and 3rd sess., 1939 and 1940; and American Society of Civil Engineers TRANSACTIONS, vol. 104 (1939), 672.

[9]Letter, Governor Lester C. Hunt to Senator Joseph C. O'Mahoney, January 19, 1944,in the Joseph Christopher O'Mahoney Collection, Ameri-

can Heritage Center, The University of Wyoming, Laramie, Wyoming.

[10]Letter, F.O. Hagie, Secretaru-Manager, National Reclamation Association, to Sen. O'Mahoney, Jan. 28, 1944, in O'Mahoney Collection.

[11]"Report to members of the Yellowstone Basin Association," by H.W. Bunston, undated; and, House, Committee on Rivers and Harbors, hearings on H.R. 3961, 78th Congress, 2d sess., Feb. 17, 1944.

[12]Letter, President Franklin D. Roosevelt to Texas Represesntative Joseph J. Mansfield, Chairman, House Rivers and Harbors Committee, February 7, 1944.

[13]Bunston, "Report to members of the Yellowstone Basin Association."

[14]House, Committee on Rivers and Harbors, hearings on Amendment to the Missouri River Provisions in H.R. 3961, 78th Congress, 2d sess., Feb. 18, 1944, 3.

[15]Ibid., 35. "Cubic feet per second" is an engineer's term used to define the movement of a cube of water one foot in all dimensions moving a distance of one foot in one second.

[16]Ibid., 45.

[17]House, Report 1000, *Missouri River,* Describing H. Doc. 214, 76th Congress, 1st sess., 1939, 78th Congress, 2d sess., 1944.

[18]Memorandum, Clifford H. Stone, "Conflict Between Uses of Water for Navigation and Irrigation," National Reclamation Association Bulletin, April 7, 1944.

[19]*Congressional Record* (C.R.), 78th Congress, 2d sess., 1944, 2857.

[20]Ibid., 2846.

[21]Ibid., 2928.

[22]House, Committee on Flood Control, hearings on H.R. 4485; and memorandums, Col. G. R. Goethals, U.S. Army Corps of Engineers, Feb. 16 and 17, 1944, CE, SPEWF.

[23]Ibid., 974-975.

[24]Ibid., 978.

[25]Ibid., 1061-1065.

[26]Ibid., 994-998; and "Report to the Chamber of Commerce, Kansas City, Missouri," in letter from Mayor Gage to Missouri Senator H.S. Truman, March 6, 1944, in Truman Senatorial Files, H.S. Truman Library (HSTL).

[27]House, Committee on Flood Control, hearings on H.R. 4485, 969-970.

[28]Statement of Bunston to ibid., 1027.

[29]Missouri River States Committee (MRSC), Minutes of meeting, March 13 and 14, 1944, MRSC files, Omaha, Nebraska.

[30]House, Flood Control Committee, House Report 1309, *Flood Control Plans and New Projects,* H.R. 4485, 78th Congress, 2d sess., 1944.

[31]Bunston, "Report to Members of the Yellowstone Basin Association."

[32]Memorandum, S. Raushenbush, Chief, Branch of Economics and Statistics, Department of the Interior, to Commissioner, Bureau of Reclamation, April 1944, copy sent to Senator O'Mahoney, April 19, 1944.

[33]An acre includes 45,560 square feet. To convert cfs to acre-feet, the square feet in an acre is divided into the total seconds. The Bureau used 1.5 acre-feet per irrigated acre as the consumptive-use formula.

[34]Letter, Lachlan Macleay, President, Mississippi Valley Association, to George Catts, Chamber of Commerce, Kansas City, Missouri, April 13, 1944, in Truman Senatorial Filce, HSTL.

[35]Letter, Macleay to Don O. McBride, Director, Division of Water Resources, Oklahoma Planning and Resources, Oklahoma City, Oklahoma, April 13, 1944, in O'Mahoney Collection.

[36]Letter, McBride to Macleay, April 20, 1944, in O'Mahoney Collection.

[37]*U.S. Statutes At Large,* 52, Flood Control Act of June 28, 1938, paragraph 4(b), 1215, 1219.

[38]Clifford Stone, Report on H.R. 4485, in National Reclamation Association Bulletin, May 3, 1944.

[39]Congressional Record, 78th Congress, 2d sess., 1944, 4212.

[40]Ibid., 4216.

[41]Illinois Representative Everett M. Dirksen, "Public Works Planning as Aid to Overall Postwar Employment," *Civil Engineering* (November 1944), 466.

[42]Peter Schuck, "Public Interest Groups and the Policy Process," *Public Administration Review,* 37 (1977), 132-140; and Michael Nelson, "How to Break the Ties that Bind Congress," *Washington Monthly* (1976), 14-18

[43]Statement, W.E. Welsh, Watermaster, Boise River, Idaho, to U.S. Senate Commmittee on Irrigation and Reclamation, hearings on S.555, a bill to establish a Missouri Valley Authority, 79th Congress, 1st sess., 1945.

[44]Statement, J.H. Toelle, Professor of mining and irrigation law, Montana State University, Missoula, Montana, to ibid., September

25, 1944, 507.

[45]Memorandum, Stone, "Conflict Between Uses of Water for Navigation and Irrigation," National Reclamation Association Bulletin, April 7, 1944, 3.

Notes for Chapter Three — The Sloan and Pick Plans

[1]Senate Document 191, *Missouri River Basin; Conservation, Control, and Use of Water Resources,* 78th Congress, 2d sess., April, 1944.

[2]"W.G. Sloan, co-author of the Missouri River Basin Plan," *Reclamation Era,* 37 (1951), 70-71; New York *Times*, September 18, 1949; Bismarck, North Dakota Tribune, December 14, 1950.

[3]*U.S. Statutes at Large,* 53 (August 4, 1939), 1187, 1193-1194; and House, Committee on Irrigation and Reclamation, hearings on H.R. 6773 and H.R. 6984, 76th Congress, 1st sess., 1939.

[4]Remarks, W.E. Warne, Assistant Commissioner of Reclamation, before Senate Committee on Irrigation and Reclamation, subcommittee hearings on S. 1915, September 26, 1944.

[5]S. 191, 11, 18, 155.

[6]Ibid., 28-54. Percentages are the author's derived from the report data.

[7]Ibid., 55-67.

[8]Ibid., 68-78.

[9]Ibid., 80-96.

[10]Ibid., 96-118.

[11]Harry Bashore, Commissioner, Bureau of Reclamation, "Regional Development of the Missouri Basin: A Multiple-Purpose Plan by the Bureau of Reclamation," *Civil Engineering* (November 1944), 461-464.

[12]*Engineering News-Record* (May 25, 1944), 1.

[13]Board of Review's Report to the Commissioner, E.B. Degler, chairman, Director of Branch of Project Planning, Denver, Colorado, April 26, 1944, in S.191, 10-16.

[14]Letter, Albert Day, Acting Director, U.S. Fish and Wildlife Service, Department of the Interior, to H. W. Bashore, May 6, 1944, in S.191, 9.

[15]Letter, William Zimmerman, Jr., Assistant Commissioner, Office of Indian Affairs, Department of the Interior, to Bashore, April 26, 1944, in S.191, 5-6.

[16]Letter, Maj. Gen. E. Reybold, Chief of Engineers, War Department, to Bashore, April 25, 1944, in S.191, 6-8.

[17]Letter, E.H. Weicking, Land Use Coordinator, Department of Agriculture, April 25, 1944, in S.191, 8-9.

[18]Letter, Bashore to Harold L. Ickes, Secretary of the Interior, Department of the Interior, April 28, 1944, in S.191, 2-4.

[19]Letter, Ickes to the President through the Bureau of the Budget, May 1, 1944, in S.191, 1-2.

[20]Letter, Harold Smith, Director, Bureau of the Budget, Executive Office of the President, to Ickes, May 4, 1944, in S.191, 1.

[21]Senate Committee on Commerce, subcommittee hearings on H.R. 3961, *Omnibus Rivers and Harbors Bill,* Part 6, 78th Congress, 2d sess., May 10-18, 1944, 1163-1180.

[22]Ibid., 1179-1180.

[23]Handwritten notes, Senator Joseph O'Mahoney, in the Joseph Christopher O'Mahoney Collection, American Heritage Center, The University of Wyoming, Laramie, Wyoming.

[24]Draft legislation with handwritten notes in O'Mahoney Collection.

[25]Memorandum regarding O'Mahoney amendment from Senator John Overton to Senator Carl A. Hatch, May 25, 1944, in O'Mahoney Collection.

[26]Ibid.

[27]Senate Committee on Commerce, Senate Report 903 to Accompany H.R. 3961, 78th Congress, 2d sess., 1944, including minority views of Senator Edward V. Robertson.

[28]Ibid., Part 2, minority views of Senator Robertson.

[29]Senate Committee on Commerce, subcommittee hearings on H.R. 4485, *Flood Control Plans and New Projects,* 78th Congress, 2d sess., June 9, 1944, 535-537.

[30]H.R. 4485 and House Report 1309, *Flood Control Plans and New Projects,* 78th Congress, 2d sess., March 29, 1944. Also Report on H.R. 4485, in *National Reclamation Bulletin,* May 3, 1944.

[31]Draft amendments to H.R. 4485 with handwritten notes, June 17, 1944, in O'Mahoney Collection.

[32]Letter, President Franklin Roosevelt to Senator Overton, June 13, 1944, reprinted in *Congressional Record,* June 21, 1944, 6453.

[33]Senate Committee on Commerce, Report 1030 to Accompany H.R. 4485, 78th Congress, 2d sess., 1944.

[34]Letter, President Roosevelt to Senator Overton, August 7, 1944.

[35]Missouri River States Committee (MRSC), *Report of The Engineering Subcommittee,* May 25, 1944.

[36]MRSC, Minutes of meeting, August 5 and 6, 1944.

[37]Letter, Clifford Stone, Director, Colorado Water Conservation Board, to Loran Bishop, Wyoming State Engineer, August 18, 1944, in O'Mahoney Collection.

[38]Letter, Senator O'Mahoney to Stone, August 22, 1944, in O'Mahoney Collection.

[39]Senate, S.2089, a bill to establish a Missouri Valley Authority, 78th Congress, 2d sess., August 18, 1944.

[40]Senate, S.2100, a bill to establish a Missouri Valley Authority, 78th Congress, 2d sess., August 23, 1944.

[41]National Reclamation Association *Bulletin,* August 23, 1944.

[42]Resolutions, Water Conservation Conference, September 7 & 8, 1944, with notes and markups, copies in O'Mahoney Collection.

[43]*Congressional Record* (C.R.), 78th Congress, 2d sess., August 22, 1944.

[44]Message, President Roosevelt to Congress, September 21, 1944, in Edgar B. Nixon, editor, *Franklin D. Roosevelt and Conservation,* 1911-1945 (GPO, 1957), vol. 2, 594-596.

[45]Senate, Committee on Irrigation and Reclamation, subcommittee hearings on S.1915, *Conservation, Control, and Use of Water Resources, Missouri River Basin,* 78th Congress, 2d sess., Sept. 26 and Oct. 2, 1944.

[46]Letter, Secretary of the Interior Ickes to Alabama Senator John H. Bankhead II, chairman, Committee on Irrigation and Reclamation, September 26, 1944, in O'Mahoney Collection.

[47]Subcommittee hearings on S. 1915, 479-484.

[48]*Joint Report, Representatives, Bureau of Reclamation and Corps of Engineers on Plans for Development of the Missouri River Basin,* October 17, 1944, in S. 247, 78th Congress, 2d sess., November 21, 1944, 5-6.

[49]Senate, Committee on Irrigation and Reclamation, subcommittee hearings on S.555, a bill to establish a Missouri Valley Authority, 79th Congress, 1st sess., September 25, 1945, 530-531.

[50]S.247 with transmittal letter by Harry Bashore, Commissioner, Bureau of Reclamation, and Maj. Gen. Eugene Reybold, Chief of Engineers, to the Secretaries of War and of the Interior, October 25, 1944, 1-5.

[51]Congressional Record, 78th Congress, 2d sess., November 21, 1944.

[52]Message, President Roosevelt to the Congress, H.Doc. 784, Reconciliation Report on Problems of the Missouri Valley Project, 78th Congress, 2d sess., November 27, 1944.

[53]Letter, President Roosevelt to Speaker of the House of Representatives Sam Rayburn, November 27, 1944, in Nixon, *Roosevelt and Conservation,* vol. 2, 613-614.

[54]Congressional Record, 78th Congress, 2d sess., November 27, 1944, 8419-8420.

[55]Markup of H.R.4485, with notes on letterhead of Representative Case to fit "appropriate amendments into the bill," in O'Mahoney Collection. Also Congressional Record, 78th Congress, 2d sess., November 29, 1944.

[56]Congressional Record, 78th Congress, 2d sess., December 1, 9, and 13, 1944, 9278, 9281-9287, 8794, 8834, 8842, 9409, 9419, and 9807.

[57]*U.S. Statutes At Large,* 58 (1944), 887, 892; Public Law 534, 78th Congress, 2d sess., 1944; C.R., 78th Congress, 2d sess., December 22,

1944, A5279. Also Nixon, *Roosevelt and Conservation,* vol. 2, 618-619.

[58]Congressional Record, 78th Congress, 2d sess., December 1 and 14, 1944, 8672-8673 and 9479.

[59]*Engineering News-Record,* December 23, 1944, 36.

[60]*U.S. Statutes At Large,* 59 (1945), 10, 12, 19.

[61]*Engineering News-Record,* January 18, 1945.

Notes to Chapter Four — Missouri Valley Authority

[1]Senate, Committee on Irrigation and Reclamation, subcommittee hearings on S.555, a bill to establish a Missouri Valley Authority, 79th Congress, 1st sess., September 27, 1945, 570-571, 577.

[2]Senate Resolution 97, 79th Congress, 1st sess., March 12, 1945.

[3]Senate, Committee on Commerce, Senate Report 246, *Missouri Valley Authority Act,* 79th Congress, 1st sess., May 7, 1945.

[4]Ibid., 1-2.

[5]Letter, Henry L. Stimson, Secretary of War, to Josiah H. Bailey, Chairman, Senate Committee on Commerce, May 7, 1945, reprinted in ibid., 10-11.

[6]Senate, Committee on Irrigation and Reclamation, Senate Report 639, *Missouri Valley Authority Act,* 79th Congress, 1st sess., October 18, 1945.

[7]Senator Murray's MVA bills were: S. 089, 1944; S.555, 1945; S. 1156, 1945; S. 1156, 1947-1948; S. 1160, 1949-50; S. 1883, 1951-1952, 78th through 82d Congress.

[8]D.E. Spritzer, "One River, One Problem: James Murray and the Missouri Valley Authority," in R.C. Meyers & H.W. Fritz, *Montana and The West: Essays in Honor of Kay Ross,* (Boulder: Pruett Publishing, 1984), 122-143.

[9]C.H. Pritchett, "Development of the Tennessee Valley Authority Act," *Tennessee Law Review,* 15 (1938), 128-141; and "Tennessee Valley Authority as a Government Corporation," SOCIAL FORCES, 16 (1937), 120-130.

[10]Clarence L. Hodge, *The Tennessee Valley Authority: A National Experiment in Regionalism* (Washington, DC: The American University Press, 1938).

[11]Message to the Congress by President Franklin D. Roosevelt in H. Doc. 15, "Muscle Shoals Development," 73d Congress, 1st sess., April 10, 1933, 1-3.

[12]*U.S. Statutes At Large,* 48 (May 18, 1933), 58-72; and letter from Senator George W. Norris of Nebraska to President Roosevelt, September 19, 1939, in Nixon, *Roosevelt and Conservation,* vol. 2, 378-382.

[13]Francis X. Welsh, "Constitutionality of the TVA as a Power Development Program," HARVARD LAW REV., 48 (1935), 806-815 and "Constitutionality of the Tennessee Valley Project," *Georgetown Law Rev.*, 23 (1935).

[14]Arthur E. Morgan, "What About a Missouri Valley Authority," in *Report of the State of Missouri Commission Studying The Tennessee Valley and the Missouri Valley,* November 28, 1945.

[15]The American Forum of the Air, "Do We Want More TVAs?," Theodore Granik, moderator, with panalists Lachlan Macleay, Ralph Carr, Judson King, Estes Kefauver, Feb. 5, 1946.

[16]Statement, Harry Bashore, Commissioner, Bureau of Reclamation, before the Senate subcommittee of the Committee on Irrigation and Reclamation with reference to S. 555, September 24, 1945, 431.

[17]Remarks, Montana Governor Sam C. Ford to the Senate subcommittee of the Committee on Irrigation and Reclamation with reference to S. 555, September 24, 1945, 535.

[18]Missouri River States Committee (MRSC), Minutes of meeting, August 15, 1945.

[19]Ibid.

[20]Statement, South Dakota Governor Merrill Q. Sharpe, before the Senate subcommittee of the Committee on Irrigation and Reclamation with reference to S. 555, September 25, 1945, 514.

[21]Statement, J. Howard Toelle, Professor of mining and irrigation law, Montana State University, on behalf of Montana Reclamation Association, to ibid., 534-535.

[22]Statment, Clifford Stone, Director, Colorado Water Conservation Board, to ibid, 472-473, 478. See also Stone's "Analysis of the Proposed MVA Act," for Water Conservation Conference, March 1945.

[23]Statement, H.M. Rollins, President, Wyoming Reclamation Association, to Senate subcommittee of the Committee on Irrigation and Reclamation, with reference to S.555, Sept. 27, 1945, 611.

[24]A joint letter to Congress concerning national land and water policies from 20 national and regional organizations of the United States, April 13, 1945, typeset copy in O'Mahoney Collection.

[25]Remarks, Senator Overton, chairman, subcommittee of the Committee on Irrigation and Reclamation with reference to S. 555, September 27, 1945.

[26]Address, Mississippi Representative William Whittington to National Rivers and Harbors Congress, July 27, 1944, typeset copy in MRD-HF.

[27]Remarks, Senator Overton and Pritchett before the subcommittee of

the Committee on Irrigation and Reclamation with reference to S.555, September 27, 1945, 54-55.

[28]Address, President Harry S. Truman, at ceremony of the Tennesse Valley Authority, Kentucky Dam, Gilbertsville, Kentucky, October 10, 1945, draft in Truman Official Files (OF), HSTL.

[29]Louis W. Koenig, editor, *The Truman Administration:Its Principles and Practices* (New York: New York University Press, 1956), 135-139.

[30]Letter, Montana Senator James E. Murray to President Truman, April 24, 1945, and response from Matthew J. Connelly, Secretary to President, May 2, 1945, in OF-HSTL.

[31]Richard Neustadt, "Congress and the Fair Deal: A Legislative Balance Sheet," *Public Policy,* 5 (1954), 349-381; and *Presidential Power: The Politics of Leadership From FDR to Carter* (New York: Wiley & Sons, 1980

[32]Message, President Truman to Congress, "Comprehensive Plan for Flood Control and Water Use, Mississippi River Basin," July 16, 1947.

Notes for Chapter Five - Missouri Basin Inter-Agency Committee

[1]Missouri Basin Inter-Agency Committee (MBIAC), Minutes of meeting, July 19, 1945.

[2]Missouri River States Committee (MRSC), Minutes of meeting, August 15, 1945.

[3]MBIAC, Minutes of meetings, July 19, 1945 and January 17, 1946.

[4]National Water Policy Panel of Engineers Joint Council (EJC), "Statement of desirable policy with respect to the conservation development and use of the national water resources," June 1950.

[5]EJC, Statement prepared for the Missouri River Basin Survey Commission (MBSC), July 3, 1952. MBSC file, Harry S. Truman Library (HSTL), Independence, Missouri.

[6]Commission On Organization of the Executive Branch of the Government, *Task Force Report on Natural Resources,* Appendix L (GPO, 1940), 132.

[7]Ibid., 135.

[8]See Frank J. Trelease, "Federal-State Relations in the Law of Water Rights," National Water Commission, Legal Study No. 5 (Springfield, Virginia: National Technical Information Service, 1971).

[9]Executive Order 10095, January 3, 1950.

[10]Report of the President's Water Resources Policy Commission, *A Water Policy for the American People,* (GPO, 1950), vol. 1, 49.

[11]Report to the President's Water Resources Policy Commission, "Missouri River Basin," Office of the Chief of Engineers, Department of

the Army, 1950, typeset draft.

[12]Report of the President's Water Resources Policy Commission, *Ten Rivers In America's Future,* (GPO, 1950), vol. 2, 247.

[13]Statement of Dr. Roland R. Renne, President, Montana State College and member of the Commission, to MBIAC, May 24, 1951.

[14]Statement of Nebraska Governor Val Peterson to President's Water Resources Policy Commission, Sioux City, Iowa, June 12, 1950. President's Water Resources Policy Commission Field Conferences, HSTL.

[15]President's Water Resources Policy Commission, *A Water Policy for the American People,* 37-51.

[16]Ibid., 49-53.

[17]Executive Order 10318, January 3, 1952; modified by Executive Order 10329, February 25, 1952.

[18]MRSC, Minutes of meeting, January 23, 1952.

[19]Memorandium from Brig. Gen. Donald G. Shingler, Division Engineer, MRD, to Maj. Gen. Lewis A. Pick, Chief of Engineers, June 6, 1952.

[20]Statement of Gen. Shingler to Missouri Basin Survey Commission, Jefferson City, Missouri, June 12, 1952.

[21]Statement of South Dakota Governor Sigurd Anderson to Missouri Basin Survey Commission, Pierre, South Dakota, May 23, 1952.

[22]Statement of Montana Governor John W. Bonner to Missouri Basin Survey Commission, Great Falls, Montana, May 15, 1952.

[23]Statement of Gladwin E. Young, Field Representative, U.S. Department of Agriculture, to Missouri Basin Survey Commission, Sioux City, Iowa, May 8, 1952.

[24]Statement of Nebraska Governor Val Peterson to Missouri Basin Survey Commission, Lincoln, Nebraska, August 22, 1952.

[25]Missouri Basin Survey Commission, staff reviewed draft, Part 8, Chapter 2, December 12, 1952, 4-5.

[26]Ibid., 5.

[27]Ibid., 6.

[28]Report of the Missouri Basin Survey Commission, *Missouri Land and Water,* 9.

[29]Ibid.

Notes for Chapter Six — A Model River Basin Organization

[1]Message to Congress, President Truman on the nation's land and water resources, January 19, 1953, in *Public Papers of The Presidents: Harry S. Truman,* 1953 (GPO, 1966), 1208-1215.

[2]F.L. Zimmerman and Mitchell Wendell, "Representation of the Region in Missouri Basin Organization," *American Political Science Review,* 48 (March 1954), 158.

[3]The Council of State Governments (CSG), State Organization and Activities In Water Resource Programs, January 15, 1958.

[4]CSG, "The Missouri Basin's Water Resources: Organizing for Operation," September 1951; and G.J. Hopkins, "Missouri River Basin Development Program and the Missouri Basin Inter-Agency Committee," May 15, 1958.

[5]Statement, C.H. Stone, Director, Colorado Water Conservation Board, to President's Missouri Basin Survey Commission (MBSC), November 17, 1952.

[6]Albert Lepawsky, "Water Resources and American Federalism," *American Political Science Review,* 44 (September 1950), 646.

[7]C.M. Hardin, "Political and Other Processes in Formulating and Implementing Land-Use Policies in River Basins," *Journal of Farm Economics,* 31 (February 1949), 668.

[8]Memorandum, Lt. Gen. Lewis A. Pick, Chief of Engineers, Department of the Army, to James E. Lawrence, Chairman, MBSC, November 7, 1952.

[9]Missouri Basin Inter-Agency Committee (MBIAC), Minutes of meeting, June 17, 1946.

[10]Address, C.P. Peterson, Board of Directors, National Reclamation Association, "Area Home Rule," to Missouri River States Committee, November 30, 1949.

[11]F.L. Zimmerman and M. Wendell, "Interstate Compacts," in *The Book of The States,* 1966-1967 (Chicago: Council of State Governments, 1966), 236-237.

[12]W.R. Vawter, "Interstate Compacts — The Federal Interest," in Commission On Organization of the Government, *Water Resources and Power,* (GPO, 1950), vol. 3, 1683-1723.

[13]J.C. Muys, "Interstate Compacts and Regional Water Resources Planning and Management," *Natural Resources Law,* 6 (1973), 153-188.

[14]Frank J. Trelease, "A Federal-State Compact for Missouri Basin Development," WYOMING LAW JOURNAL, 7 (1953), 161-190.

[15]Address of Stone, Director, Colorado Water Conservation Board, "Interstate Compacts," to MBIAC, July 20, 1950; and Stone, "Interstate Water Compacts,"*Rocky Mountain Law Review,* 24 (1952), 141.

[16]MBIAC, Minutes of meeting, January 19, 1950.

[17]Letter, Brig. Gen. Samuel D. Sturgis, Jr., Division Engineer, Missouri River Division, to Maj. Gen. L.A. Pick, Chief of Engineers, May

10, 1950.

[18]Memorandum, Sturgis to Pick, July 24, 1950.

[19]MRIAC, Minutes of meeting, January 19, 1950.

[20]Ibid.

[21]CSG, "The Missouri Basin Study," November 30, 1950.

[22]MRSC, Minutes of meeting, November 30, 1950.

[23]MRSC, Minutes of meeting, January 23, 1952.

[24]Ibid.; and President's Missouri Basin Survey Commission staff comments, "Proposed Federal-State Compacts, The Council of State Governments' Modified Compact."

[25]Memorandum, Brig. Gen. D.G. Shingler, Division Engineer, MRD, to Maj. Gen. L.A. Pick, Chief of Engineers, February 7, 1952.

[26]Letter, Brig. Gen. William E. Potter, Division Engineer, MRD, to Maj. Gen. L.A. Pick, Chief of Engineers, February 7, 1952.

[27]MRSC, Minutes of meeting, December 2, 1953.

[28]Senate Bill 2821 and House Resolution 6894, 83d Congress, 2d sess., 1954; and memorandum, Potter to Maj. Gen. S.D. Sturgis, Jr., Chief of Engineers, February 5, 1954.

[29]Brief, F.B. Horne, American Law Division, Legislative Reference Service, Library of Congress, to Senator Butler, "S.2821 and the Revised Draft of the Proposed Missouri River Basin Compact," June 16, 1954.

[30]Ibid.

[31]*Congressional Record* (CR), 83d Congress, 2d sess., 1954, 15004-15005; and letter from Senator Case to F.J. Henson, July 2, 1954.

[32]Senate Report 2322, 83d Congress, 2d sess., 1954.

[33]MRSC, Minutes of meeting, September 7, 1955.

[34]Senate, S. 1572, "An act to recognize a Missouri River States Committee," 83d Congress, 1st sess., 1953.

[35]Statement of D.P. Fabrick, Vice President, Montana Reclamation Association, to MBSC, Billings, Montana, May 17, 1952.

[36]MRSC, Minutes of meeting, September 7, 1955.

[37]Commission On Organization of the Executive Branch of the Government, *Water Resources and Power,* vol. 1, 193.

[38]MBIAC, Minutes of meeting, December 7, 1954; and letter, Gen. Potter to Maj. Gen. Samuel D. Sturgis, Jr., Chief of Engineers, December 9, 1954.

[39]MBIAC, Minutes of meeting, April 21, 1944.

[40]Address, Maj. Gen. Keith R. Barney, Division Engineer, Missouri River Division, "Future Activities of MBIAC," to MBIAC, August 13, 1959.

[41]MBIAC, Minutes of meetings, February 18 and June 24, 1960.

[42]MBIAC, "Report of Ad Hoc Subcommittee On Organization and Procedure," May 23, 1960.

[43]Ibid.

[44]MRSC, Minutes of meeting, December 14, 1960.

[45]Address, Theodore M. Schad, Staff Director, Senate Select Committee on National Water Resources, to MBIAC, April 20, 1960.

[46]Senate Report 29, *Report of the Select Committee on National Water Resources,* 87th Congress, 1st sess., 1961.

[47]*New York Times*, February 19, 1961; and Theodore C. Sorensen, *Kennedy* (New York: Harper and Row Publishers, 1965), 236-237.

[48]Senate Document 97, *Policies, Standards, and Procedures in The Formulation, Evaluation, and Review of Plans For Use and Development of Water and Related Land Resources,* 87th Congress, 2d sess., 1962, 1-13.

[49]Address, Richard A. Hertzler, Chief, Office of Civil Functions, Department of the Army, "Developments in River Basin Planning," to MBIAC, June 19, 1963.

[50]Address, C.F. Schwan, Jr., Director, Council of State Governments, "The States and River Basin Planning," to MBIAC, January 29, 1964. Also Congressional Record, 88th Congress, 1st sess., March 15, 1963, 4085.

[51]Address, R.L. Smith, Executive Secretary, Kansas Water Resources Board, "Apprehension Indicated by Some States Regarding the Basin Planning Commissions," to MRSC, February 14, 1962.

[52]Council of State Governments, "Special Letter: Water Resources Planning Legislation," to all governors, March 22, 1963.

[53]Remarks, Dr. H.G. Hershey, State of Iowa, to MRSC, June 18, 1963. See also letter, South Dakota Governor Archie Gubbrud to Senator C.P. Anderson, April 30, 1963.

[54]*Statutes At Large,*, Sec. 79, 242-254, July 22, 1965.

[55]Ernst Liebman, The Water Resources Council, (Springfield, Virginia: National Technical Information Service, 1967), 49-50.

[56]MBIAC, special business meeting, Minutes of meeting, June 10, 1969; and remarks, W.D. Maughan, Director, Water Resources Council, "Multiple-Objective Regional Planning," to MBIAC, July 8, 1970.

[57]MRSC, Minutes of meeting, April 29, 1966.

[58]Memorandum, Joseph Grimes, Chief Engineer, State of South Dakota, to South Dakota Governor Nels Boe, April 29, 1966.

[59]Water Resources Council, *Alternative Institutional Arrangements for Managing River Basin Operations,* August 1976, 4-8.

[60]MBIAC, Minutes of meeting, June 10, 1969.

[61]Remarks, N.L. Barbarossa, Water Resources Council, to MBAIC, December 8, 1971; and memorandum, W.D. Maughan, Director, Water Resources Council, to Secretary of the Interior R. B. Morton, September 7, 1971.

[62]MBIAC, Minutes of meeting, December 8, 1971; and, Executive Order 11658, March 22, 1972.

[63]Missouri River Basin Commission (MRBC), Minutes of meeting, June 14, 1972.

[64]MRBC, Minutes of meetings, August 1-2 and November 2-3, 1977.

[65]MRBC, Missouri Basin Hydrology Study file in MRBC records.

[66]Executive Order 12319, September 9, 1981. Articles of incorporation for a new, non-profit Missouri Basin States Association were filed on September 18, 1981.

[67]Missouri Basin States Association (MBSA), Annual Report, Fiscal Year 1982; and Missouri River Basin Commission, Annual Report, Fiscal Year 1981, 5.

[68]MBSA, Statement of Purpose, May 20, 1982. See also MBSA, Annual Report, Fiscal Year 1982, 3.

[69]MBSA, Bylaws, Article II; and minutes of meetings, 1982-1987.

[70]MBSA, Board of Directors, Minutes of special meeting, February 26, 1987. The revised bylaws and articles of incorporation were to go into effect May 14, 1987.

[71]MBSA executive committee materials on "The role of MBSA in helping resolve future water conflicts in the Missouri basin," November 15, 1983; and MBSA, Minutes of meeting, May 16, 1984.

[72]MBSA, Minutes of meeting, November 8, 1984. Also see *Basin Bulletin,* November 16, 1984.

[73]MBSA, Minutes of meeting, May 9, 1985.

[74]MBSA, Minutes of meeting, November 13, 1985.

[75]Letter, Kansas Governor John Carlin to all other basin state governors, July 15, 1985.

[76]MBSA, Summary of Missouri Basin States Governors' Representatives meeting, April 22-23, 1986.

[77]MBSA, Statement of Principles for Management of Missouri River Basin Water Resources, September 18, 1986. Also L. Morandi, National Conference of State legislatures, "Negotiating Allocation Accord," June 1987.

[78]Memorandum, Joseph F. Harkins, Chairman, Missouri River Basin Governors' Representatives Group, to MBSA Board of Directors, December 23, 1986.

[79]MBSA, Board of Directors, Minutes of special meeting, August 26,

1987.

[80]MBSA, *The Missouri River Report,* March 1991.

Notes for Chapter Seven — System Operation

[1]John R. Ferrell, *Heartland Engineers* (GPO, 1992), 75-91.

[2]John R. Ferrell, "Developing the Missouri: South Dakota and the Pick-Sloan Plan," *South Dakota History,* vol. 19 (1989), 314-322.

[3]*Statutes At Large,* 58 (P.L.534, December 22, 1944, 43 USCA 390b), 887.

[4]Letter from Brig. Gen. Samuel D. Sturgis, Jr., Division Engineer, Missouri River Division, to Maj. Gen. L.A. Pick, Chief of Engineers, May 10, 1950. The conferences were May 12 and November 28, 1949.

[5]Missouri Basin Inter-Agency Committee (MBIAC), Minutes of Meeting, September 22, 1949.

[6]Memorandum from Sturgis to Pick, July 24, 1950.

[7]Missouri River States Committee (MRSC), Minutes of meeting, November 30, 1950.

[8]Ibid.

[9]MBIAC, Minutes of meeting, January 19, 1950.

[10]Letter from Brig. Gen. William E. Potter, Division Engineer, MRD, to Maj. Gen. Pick, August 8, 1952.

[11]Bureau of Reclamation, Regions 6 and 7, Corps of Engineers, Missouri River Division, Work Group Report on Coordination of Interests . . . in Operation of Main Stem Reservoirs, Missouri River, February 1952.

[12]Statement, Gen. Potter to MBIAC, December 3, 1953.

[13]Ibid. The first meeting, attended by representatives of interested federal agencies and the basin states, was June 16, 1953.

[14]MBIAC, Minutes of meeting, December 3, 1953.

[15]System information in this section is from: *MRD, Misouri River Main Stem Reservoir System Reservoir Regulation Manual* (MASTER MANUAL), 1979, and various MRD, Annual Operating Plans (AOP).

[16]MBIAC, Minutes of meeting, March 23, 1950.

[17]MBIAC, Minutes of meeting, December 3, 1953.

[18]Letter from Gen. Potter to Gen. Lewis Pick (retired), December 10, 1954.

[19]Coordinating Committee on Missouri River Main Stem Reservoir Operations, Minutes of public meeting, April 29, 1958; and H.J. Pafford, Jr., MRD RCC, "Operations - Missouri Basin System," June 25, 1958.

[20]Missouri Basin Inter-Agency Committee, *Report on Adequacy of Flows in The Missouri River,* April 1951. See also MBIAC, *Suplemental*

Report, April 1959.

[21]Coordinating Committee, Minutes of meeting, April 29, 1958.

[22]Letter from Maj. Gen. E.C. Itschner, Chief of Engineers, to Senator J.E. Murray, Chairman, Committee on Interior and Insular Affairs, June 7, 1957 in *Missouri River Basin Water Problems,* May 1-3, 1957, 419-423.

[23]Coordinating Committee, Minutes of meeting, April 29, 1958.

[24]Ibid. See also statement of Duane Sveum, Chief, MRD Reservoir Control Center, Missouri River Main Stem Reservoirs, Spring Public Meeting, April 5, 1989.

[25]Coordinating Committee, Minutes of meeting, April 29, 1958.

[26]Letter from Brig. Gen. Mark J. Sisinyak, MRD Division Engineer, to all governors of the Missouri River basin states, January 8, 1982.

[27]Letter from Charles Abraham, Chief, MRD Reservoir Control Center, to former members of the Coordinating Committee, January 28, 1982.

[28]MRD, Missouri River Main Stem Reservoirs: Notes on the Fall 1986 Public Meeting on Missouri River Water Management, October 8, 1986. (Hereafter Missouri River Main Stem Reservoirs, Public Meeting, date.)

[29]Missouri River Main Stem Reservoirs, Fall Public Meeting, October 15, 1987.

[30]Statement, Del Broze, South Dakota Department of Water and Natural Resources, to Missouri River Main Stem Reservoirs, Spring Public Meeting, April 28, 1982; and see also Spring Public Meeting, April 3, 1986.

[31]Statement, Col. George LaBlonde, MRD, Missouri River Main Stem Reservoirs, Fall Public Meeting, November 3, 1988.

[32]Missouri River Main Stem Reservoirs, Fall Public Meeting, October 15, 1991.

[33]Upper Missouri River Basin Governors' Association, Final Position Statement, to MRD regarding annual operating plans, August 21, 1989.

[34]Missouri River Main Stem Reservoirs, Fall Public Meeting, November 3, 1988; and Spring Public Meeting, April 5, 1989.

[35]Statements, T. L. Gloriod, President, Missouri River Public Water Supplies Association, Missouri River Main Stem Reservoirs, Fall Public Meetings, November 3, 1988 and October 16, 1990.

[36]A.S. Harrison and W.J. Mellema, *Aggradation and Degradation Aspects of The Missouri River Main Stem Dams,* U.S. Army Corps of Engineers, MRD, May 1984.

[37]Missouri River Main Stem Reservoirs, Fall Public Meeting, October

15, 1991.

[38]Statement, James Fox, American Commercial Barge, Missouri River Main Stem Reservoirs, Fall Public Meeting, October 16, 1990.

[39]MRD estimate, Missouri River Main Stem Reservoirs, Spring Public Meeting, April 11, 1990.

[40]Statement, Jeff Covinsky, Conti Carriers, Missouri River Main Stem Reservoirs, Fall Public Meeting, October 16, 1990.

[41]Statement, Dick Beringson, South Dakota Game Fish and Parks Department, Missouri River Main Stem Reservoirs, Fall Public Meeting, October 16, 1990.

[42]MBSA, Recommendations for 1992 Annual Operating Plan, December 17, 1991; and *The Missouri River Report,* January 1992.

Notes on Chapter Eight — Management Challenges

[1]*Statutes At Large,* 58 (1944), 807, 892; Public Law 534, 78th Congress, 2d sess., December 22, 1944. 33 U.S.C. 708.

[2]U.S. Army Corps of Engineers, *Digest of Water Resources Policies and Authorities,* CECW-RR, Pamphlet No. 1165-2-1, February 15, 1989, 18-29, 26-44.

[3]MBIAC, *Missouri River Basin Comprehensive Framework Study,* vol. 7 (GPO, June 1969), 99.

[4]Letter from J.O. Horton, Asst. Sec. of the Interior and C.R. Ford, Chief, Office of Civil Functions, Office of the Chief of Engineers, to J.W. Neuberger, Chairman, Missouri River Commission, July 1, 1974.

[5]Senate Committee on Interior and Insular Affairs, Subcommittee on Energy Research and Water Research, Hearings on Missouri River Basin Industrial Water Marketing, 94th Cong., 1st sess., July 18, 1975, 46.

[6]Memorandum, Corps of Engineers DAEN-GCX-A to DAEN-CWZ, "Review of Authorities . . . Water Supplies from . . . Reservoirs for Municipal and Industrial Purposes," January 16, 1974.

[7]Missouri River Basin Commission (MRBC), "Background Report and Missouri River Basin State Comments on Water Policies from Missouri River Main-Stem Reservoirs," March 4, 1977.

[8]MRBC, "Report of Ad Hoc Committee on Water Marketing," July 1, 1974.

[9]Memorandum from Kent Frizzell, Solicitor, U.S. Department of the Interior, to Secretary of the Interior Rogers C.B. Morton, November 27, 1974.

[10]Statement, C.R. Ford, Deputy Asst. Sec. of the Army for Civil Works, to Senate Subcommittee on Energy, July 18, 28-39.

[11]Memorandum of Understanding between the Secretary of the Inte-

rior, Rogers C.B. Morton and Secretary of the Army Howard H. Callaway, February 25, 1974.

[12]MRBC, "Missouri River Basin State Comments," March 4, 1977.

[13]Ibid.

[14]Letter from Vern Fahy, North Dakota State Engineer, to Neuberger, January 12, 1977.

[15]Letter from James A. Power, Jr., Executive Director, State of Kansas Water Resources Board, to Richard E. Brown, Executive Secretary, MRBC, February 22, 1977.

[16]Statement, Maj. Gen. John W. Morris, Corps of Engineers director of civil works, before Senate appropriations subcommittee on energy and water development, April 22, 1975.

[17]Minot (North Dakota) *Daily News,* April 26, 1975.

[18]John R. Ferrell, "Developing the Missouri: South Dakota and the Pick-Sloan Plan," *South Dakota History,* vol. 19 (1989), 334-337.

[19]Energy Transportation Systems, Inc., "Coal Slurry Pipelines: Papers from Presentations Given at the Mid-West Electric Consumers Association Annual Meeting, 1976," 1-3.

[20]Brief of Plaintiffs, William J. Janklow, et al, in the U.S. District Court . . . , Rapid City, South Dakota, March 16, 1983.

[21]Ferrell, "Developing the Missouri," 335.

[22]Ibid., and *Sioux Falls Argus Leader,* February 10 and March 16, 1982.

[23]Statement, Pat McLaughlin, Chairman, Standing Rock Sioux Tribe, printed in *Rapid City Journal,* January 16, 1982.

[24]Ferrell, "Developing the Missouri," 336.

[25]Ibid., 337.

[26]Missouri Basin States Association (MBSA), Minutes of meeting, December 15, 1981.

[27]*Omaha World-Herald,* January 6, 1982.

[28]*Kansas City* (Missouri) *Times,* March 7, 1982; and *Jefferson City* (Missouri) *Post Tribune,* Februalry 10, 1982.

[29]Ferrell, "Developing the Missouri," 338.

[30]Brief of Plaintiffs, States of Missouri, Iowa, and Nebraska, and Brief of Plaintiffs, Kansas City Southern Railway Company, The Sierra Club, et al, U.S. District Court, Lincoln, Nebraska, August 18, 1982.

[31]*Missouri V. Andrews,* 586 F. Supp. 1268 (D. Neb.1984). The opinion of the court of appeals is reported at 787 F.2d 270 (CA8 1968).

[32]Petitioners ETSI Pipeline Project and Donald P. Hodel, Secretary of the Interior, filed petitions for writs of certiorari on December 7, 1986. Nos. 86-939 and 86-941.

[33]ETSI *Pipeline Project V. Missouri,* 108 S.Ct. 805 (1988).

[34]Plaintiffs, States of South Dakota, North Dakota, and Montana v. Col. Donald E. Hazen, et al., U.S. District Court, Bismarck, North Dakota, May 3, 1990.

[35]8th U.S. Circuit Court of Appeals, St. Louis, Missouri, September 12, 1990.

[36]Memorandum from Lester Edelman, chief counsel, Corps of Engineers, to Asst. Sec. of the Army (C.W.), *Corps of Engineers Statutory Authority For Recreation and Other Uses of Corps Reservoirs,* August 17, 1990.

[37]Plaintiffs, States of South Dakota, North Dakota, and Montana v. Col. D.E. Needham, et al., U.S. District Court, Billings, Montana, February 4, 1991.

[38]Letter from Missouri Attorney General William Webster, to Col. D.E. Hazen, MRD Division Engineer, August 2, 1991; and News Release from Office of Missouri Attorney General, August 13, 1991.

[39]Memorandum for release from South Dakota Senator Tom Daschle and Representative Tim Johnson, July 13, 1990.

[40]Statement for public release from Iowa Senator Charles Grassley, August 14, 1991. Also see Senator Grassley's Sen. Res. 61, *Maintenance of the Missouri River,* 102d Congress, 1st sess., February 22, 1991.

[41]*MRD, Missouri River Master Water Control Manual Review and Update,* Phase 1 Report, May 1990.

[42]Memorandum from Richard H. Opper, Executive Director, Missouri Basin States Association, to Board Members, October 4, 1990.

[43]Memorandum from G. Edward Dickey, Acting Assistant Secretary of the Army (Civil Works), to Corps of Engineers Director of Civil Works, *Missouri River Master Water Control Manual,* March 2, 1993

[44]Letter from South Dakota Senator Tom Daschle, et al., to Presient Bill Clinton, March 15, 1993.

[45]MRD, News Release, March 29, 1993.

[46]John R. Ferrell, *Agricultural Legacies* (Pierre, South Dakota: State Press of South Dakota, 1986).

[47]*MRD, Misouri River Bank Stabilization and Navigation Project, Final Feasibility Report and Final Environmental Impact Statement For The Fish and Wildlife Mitigation Plan,* 1981.

[48]Engangered Species Act of 1973 (Public Law 96-159, December 28, 1979; and Amendments of 1978 (Public Law 95-632), November 10, 1978; and Amendments of 1982 (Public Law 93-305), October 13, 1982.

[49]L.W. Hesse and J.C. Schmulbach, "The Missouri River: The Great Plains' Thread of Life," *Boundaries Carved In Water,* vol. 6 (April

1991).

[50]Letter from Joel A. Medlin, Field Supervisor, North and South Dakota, U.S. Fish and Wildlife Service, Department of the Interior, to D.J. Sveum, Chief, Reservoir Control Center, MRD, November 6, 1991.

[51]*MRD, Annual Operating Plan,* 1991-1992 (December 1991), 85.

[52]Letter, Medlin to Sveum, November 6, 1991.

[53]Plaintiff, State of Missouri v. Col. S.H. Bornhoft, et al., U.S. District Court, Kansas City, Missouri, May 11, 1992.

[54]*Winters V. U.S.,* 207 U.S. 454 (1908). Also see Karen Lewotsky, "Indian Reserved Water Rights," *Boundaries Carved in Water,* vol. 8 (April 1988).

[55]Mni Sose Intertribal Water Rights Coalition, Minutes of meeting, January 7-8, 1993.

[56]Montana Reserved Water Rights Compact Commission, *The Fort Peck-Montana Compact,* Montana Code Annotated, 85-20-201 (1987), signed May 15, 1985.

[57]Senate Select Committee on Indian Affairs, *Final Report and Legislative Recommendations,* 101st Congress, 1st sess., November 20, 1989.

[58]Select Committee on Indian Affairs, Hearings on *Indian Water Policy,* Senate Hearing 101-142, Ajpril 6, 1989, 28-32, 45-48, 153-160, 213.

[59]Letter from New Mexico Senator Dennis DeConcini, Chairman, et al., Senate Select Committee on Indian Affairs, Special Committee on Investigations, to President George H.W. Bush, February 23, 1989.

[60]Mni Sose Intertribal Water Rights Coalition, Minutes of meeting, January 7-8, 1993.

[61]Missouri River Basin Association, *The Missouri River Report,* April 1993.

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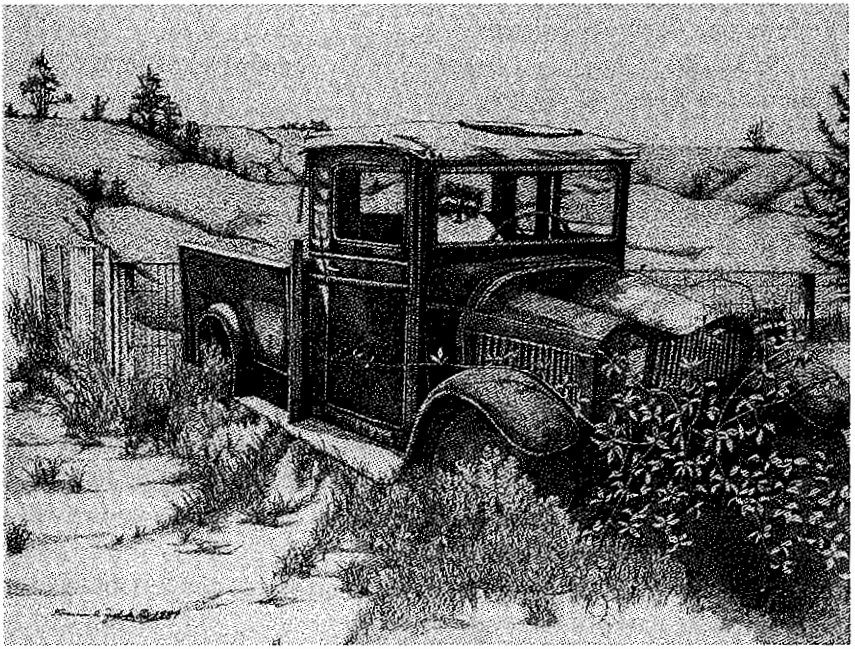

Raccoon by Sallie Zydek.