



Decades Down The Road



An Analysis of Instream Flow Programs in Colorado and the Western United States

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for the Colorado Water Conservation Board
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Cimarron River

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Introduction

There are nearly as many names used to describe water designated for use within a stream, lake or river as there are Western states. Some examples include instream flow water right, minimum desirable flow, reservation, bypass flow, transfer, new appropriation, adjudication, permit condition, and reserved water right. Western states not only use different terms for instream flow protection, but many have established different types of programs to achieve this protection. While there are some fundamental similarities among the approaches used across the West, each program also has significant differences.

In the early 1900s (Gillilan and Brown 1997), individual Western states began to acknowledge that water flowing in a stream, over a waterfall, or existing in a lake could be a desirable use of water. Water was being withdrawn from streams, rivers and lakes, or impounded for future use or power generation, in larger and larger quantities in most Western states. A few legislatures and administrators took the initiative to provide a degree of protection for water in lakes or flowing in streams. Oregon's legislature first protected waterfalls on the Columbia River Gorge in 1915, then in 1955 placed a moratorium on new withdrawals from certain streams with important salmon fisheries and scenic beauty. Idaho enacted legislation to protect levels in several scenic lakes in the 1920s (Gillilan and Brown 1997, Shupe and MacDonnell 1993).

The early 1970s saw an emergence of instream flow protection programs throughout the Western United States. It was during this time that Western states began to write comprehensive instream protection into statutes, rules and procedures for stream management. The first states to do this included Colorado and Montana in 1973 and Washington in 1974.

The rise of instream flow programs in the West was not directed by a central authority such as the federal government, nor was it the result of joint meetings and agreements among Western states. Instead, every state created instream flow protections to fit its unique water allocation system. Various federal agencies, especially the U.S. Fish and Wildlife Service (USFWS), commissioned studies highlighting opportunities to protect instream flows across the country. Reports were written in the 1970s and 1980s about institutional methods for reserving instream flows. State water experts also met at various conferences, such as one in Logan, Utah in 1975 and one in Boise, Idaho in 1976 (Gillilan and Brown 1997). Stream and lake protection programs established in the 1980s were certainly guided by existing programs. These opportunities for collaboration notwithstanding, instream flow programs in the Western states developed according to the needs and interests prevalent in each state. In this way, unique programs developed that are encompassed in each state's water rights system.

Figure 1: Terms

Instream flow often refers to the water flows necessary to sustain one or more specified instream use of water. In this way, instream flow is basically synonymous with *streamflow*. The term *instream flow protection* refers to the legal, physical, contractual, and/or administrative methods used to ensure that water remains in streams, natural lake beds, or other areas where water naturally flows or occurs. In this document, **instream flow** refers to that water flowing in a stream reach or natural lake at a given time. *Instream flow protection* encompasses the array of methods employed to protect water in a stream channel or lake bed for a stated purpose (Gillilan and Brown 1997). The term *instream flow program* is used to refer to the institutional entities and body of rules, laws, and statutes that govern instream flow protection.

In Colorado, the legislature recognized the need to correlate the activities of mankind with reasonable preservation of the natural environment and created the State's Stream and Lake Protection Program in 1973. The program has been active in appropriating, acquiring, and protecting water to preserve the water-dependent natural environment for over three decades. The program currently holds 1926 appropriated water rights and 21 acquisitions of existing water rights for streams and lakes. In 2003, Colorado marked the 30th anniversary of its Stream and Lake Protection Program, and staff from this program noted that this anniversary could serve as a point of reflection to analyze what Colorado has done to address instream flow needs, to explore the experiences of neighboring states also noting such anniversaries, and to look forward to developing trends and future needs.

Purpose, Need and Scope

There are significant differences in how Western states approach instream flow protection and the effort to compare and contrast the state's instream flow programs is a difficult task given the unique aspects of each state's program.

A search for "Western state instream flow programs" in any water-related search engine yields pages of books and articles that have been written on this subject. Authors who have contributed to this field of study include law professors, practicing lawyers, economists, planners, biologists, students and others (see References section). Because there are a number of published works written by authors from a range of professional backgrounds, it is worth asking whether another contribution is needed. The answer is yes and the reasons are varied.

Most of the existing literature provides program histories, legislative authorities and case studies. However, nothing found in the existing literature compares states using consistent criteria. Moreover, studies found do not evaluate how successful each state has been in protecting instream flows. It is thus difficult to draw comparisons among states. Perhaps authors have not analyzed all states based on the same criteria due to the significant programmatic differences. Some works focus on state programs but review different criteria for each state. *Instream Flow Protection in the West* (MacDonnell and Rice 1993) has a chapter dedicated to each of 13 states, each written by a different author and covering different information. Other works focus on methods available for instream flow protection. For example, *Instream Flow Protection: Seeking a Balance in Western Water Use* (Gillilan and Brown 1997) is organized largely by the various tools and policies available to states for instream flow protection, highlighting what can and has been done. The most recently written book, *Instream Flows for Riverine Resource Stewardship* (Instream Flow Council 2002), while a thorough and exhaustively researched book, focuses on the biologic and hydrologic issues underpinning instream flow protection, not the political and administrative issues.¹ It also does not provide a state-by-state analysis.

So what is different in this report? Instream flow protection is an emerging concern in the West, and the past several years have seen legislative and institutional changes that are not addressed in these older works. The exceptional drought experienced by most Western states in 2001-2003 has also influenced the way states value instream flow protection.

¹ A new edition, edited by Tom Annear, is now available but was not reviewed for this document.

The fundamental purpose of this report is to characterize programs and accomplishments for each state and to compare Colorado's program and experiences to the achievements and challenges experienced in other Western states. In addition, information from every state is examined to determine the strengths of Colorado's instream flow program and to explore areas where Colorado could improve its program, especially by looking at unique approaches emerging in other states. The analysis thus focuses on Colorado's program and other states in comparison. It is not intended to provide a thorough description and analysis of every individual state, a task that is beyond the scope of this project.

It is important to note that this document focuses on how state statutes establish and govern water rights for instream use. Various administrative mechanisms are applied throughout the Western United States, but these are not always applied in a systematic manner. The exercise of instream flow water rights and their equivalent is difficult to compare state-to-state due to the differences in water right administration systems. Comparing the different alternative mechanisms is beyond the scope of this analysis. Valuable sources on alternative mechanisms include a 2004 article by Trout and Witwer and Gillilan and Brown's 1997 book.

An important actor involved in instream flow protection in the Western United States is clearly the Federal Government, through agencies such as the U.S. Department of the Interior and the U.S. Department of Agriculture. While federal jurisdiction does apply to the management of instream flows in various cases and locations, the focus of this document is on *state-level* measures available and applied for instream flow protection. The intent of this report is to analyze how states have protected instream flows and not to explore the application or intersection with federal management. While this is an important issue, it also is beyond the scope of this document. Although discussion of state-federal interaction is presented in the analysis section, other literature is suggested for a more thorough discussion of this topic.²

Report Outline

This review of state programs and their comparison to Colorado is organized as follows:

- ⇒ The *methodology* is summarized.
- ⇒ A *descriptive analysis* is presented with information about instream flow protection in every state, ranging from how programs are organized to what achievements have been realized.
- ⇒ Once this descriptive foundation is created, a *comprehensive analysis* is presented, looking subjectively at the effectiveness of state programs on the basis of nine characteristics of effective instream flow programs.
- ⇒ The analysis concludes with a *summary* of the comprehensive analysis, and a comparative graphic is generated for all states.
- ⇒ An *emerging issues* section is presented that explores new opportunities in instream flow protection.
- ⇒ *Appendices* contain extensive information for each state in the study.

² See for example Heather Blomfield Lee, *Forcing the Federal Hand: Reserved Water Rights v. States' Rights for Instream Protection*; Wendy Weiss, *The Federal Government's Pursuit of Instream Flow Water Rights*, and Robert V. Trout and James S. Witwer, *Whose Water? Meeting New Federal Water Demands in Prior Appropriation States*.

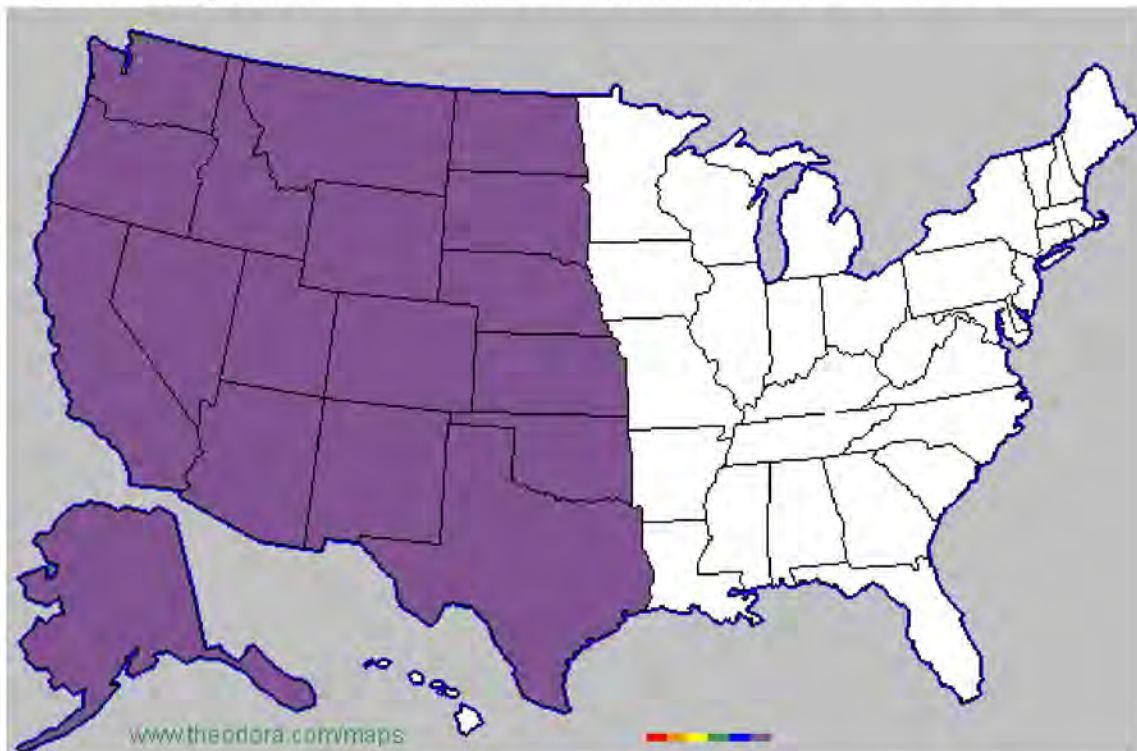
Methodology

The methodology applied to this study can be summarized as follows:

1. Determination of study scope
2. Data compilation through
 - literature review
 - expert interviews
 - state interviews
3. Generation of descriptive tables for every state (Appendix X)
4. Analysis
 - to establish a descriptive understanding of states using consistent criteria
 - to review the effectiveness and achievements of each state's instream flow protection
 - to discuss emerging issues

The scope of this study includes all states west of the 100th Meridian, excluding Hawaii. The states included are: Alaska, Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming. See Figure 2 below for a map of the study area.

Figure 2: Study Area (base map courtesy of www.theodora.com/maps, used with permission)



A three-pronged approach was utilized to gather information about state programs. A literature search was performed using legal and academic search engines and sources identified by experts. Publications and other literature sources were compiled to create an instream flow library to be housed in the Colorado Water Conservation Board (CWCB)'s Water Resources Information Center (WRIC).

The literature search was followed by a series of individual interviews with instream flow experts (Appendix A). First, national experts in instream flow issues were interviewed. Information gaps were identified and served as a basis for a second set of interviews with experts

from every state. For some states it was necessary to talk with more than one person. In other states, one contact was sufficient.

The literature review and interviews were used to gather specific information based on a list of categories describing instream flow protection. These categories are shown in Figure 3. Tables were created for each category and information entered for every state. All 18 tables are included in Appendix B.

Analysis was begun using these state-by-state tables and comparative

information found in the literature search. The first step was to establish a descriptive understanding of states based on consistent criteria. The criteria that guided the analysis are summarized in Figure 4. Tables were created based on these criteria to highlight a variety of descriptive and comparative issues in a format where states could easily be compared. These tables are found in the Descriptive Analysis subsection.

The second step of the analysis was to examine the achievements and determine the effectiveness of instream flow protection in every state. This analysis was performed using nine characteristics considered to be indicative of effective instream flow management, shown in Figure 5. These characteristics are described in the Analysis section below. Clearly identifying the characteristics used for analysis is intended to make the basis of analysis clear to any reader.

The third and final stage of analysis was completed through identification of areas of concern and growth as identified by the interviews, literature and previous steps of analysis. This is presented as the Emerging Issues section.

Figure 3: State-by-State Categories

- General Water Rights System
- Instream Flow Legal Recognition
- Options Available for Instream Flow Protection
- Entities Authorized to Appropriate Instream Flows
- Entities Authorized to Request/Recommend/Administer Instream Flows
- Processes for Securing Instream Flow Rights or Reservations
- Public Participation
- Protected Beneficial Uses of Instream Flows
- Acquisition Program (or other capacity for transfers or conversion of existing water rights)
- Flow Quantification Methods
- Monitoring and Enforcement
- Record Keeping
- Federal and NGO Involvement
- Statistics
- Other

Figure 4: State-by-State Criteria

- Underlying water right system
- Legal recognition of instream flows
- Explicitly recognized beneficial uses of instream flows
- Type of instream flow water rights
- Who participates in instream flow water rights creation and administration
- Tools available to states for instream flow protection
- Accomplishments
- Timeline

The differences among state instream flow protection approaches make direct numeric comparisons and analysis difficult and it would be misleading to simply present quantitative comparisons of the number of instream flow rights or stream miles protected. However, interesting and insightful observations arise from the analysis of qualitative information. This report includes a combination of both quantitative and qualitative comparisons.

Figure 5: Characteristics of Effective Instream Flow Management

- Existence of legal mechanisms to protect instream flows
- Permanence of the instream flow rights, reservations or permits
- Resources available and dedicated to instream flow activities
- Legally and scientifically defensible quantification methodology
- Protection and enforcement of instream flow rights, reservations or permits
- Partnerships
- Planning/Needs identification
- Evolving and dynamic programs
- "On-the-ground" accomplishments

Analysis

Descriptive Analysis

In order to understand and compare Western state instream flow programs, it is first necessary to establish a baseline of knowledge about these programs. A series of tables is presented in the following section to help establish this understanding. Most tables are presented in two formats. The first table is designed to present information for every state. The second table summarizes the key issues identified in the first, presenting information by subject rather than by state. The tables are designed to describe the following criteria in the following order:

1. Underlying water right system
2. Legal recognition of instream flows
3. Explicitly recognized beneficial uses of instream flows
4. Types of instream flow water rights
5. Who participates in instream flow water rights creation and administration
6. Tools available to states for instream flow protection
7. Accomplishments
8. Timeline of instream flow protection implementation

1. Underlying water right system

Any instream flow program is largely conditioned by the water rights system in which it operates. Most of the Western states use a prior appropriation system. States along the Pacific Coast and the 100th Meridian have either a blend of riparian and prior appropriation systems, or have shifted to a prior appropriation system after starting with a riparian system. States in the intermountain West tend toward a more pure prior appropriation system.³ Colorado is unique

³ The intermountain states include Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. Shortly after statehood, these states extinguished all common law recognition of riparian rights by adopting a "first in time, first in right" method of appropriation. Many commentators trace the roots of pure prior appropriation back to the 1882 Colorado Supreme Court case, *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882).

among Western states in having a primarily judicial rather than permit-based administrative system – obtaining an administrable water right in Colorado generally requires water court adjudication (except for well permits), whereas other states mainly issue water right permits first by administrative process. Tables 1 and 2 below summarize these systems.

Table 1: Underlying Water Right Systems in Western States

State	Water Rights System	Court vs. Permit System
Alaska	Prior appropriation	Permit
Arizona	Hybrid: Prior appropriation for surface water and subflow, riparian law for groundwater	Permit
California	Hybrid: Prior appropriation and riparian law	Permit
Colorado	Prior appropriation	Court
Idaho	Prior appropriation	Permit
Kansas	Prior appropriation with vestiges of riparian law	Permit
Montana	Prior appropriation	Permit
Nebraska	Prior appropriation with vestiges of riparian law	Permit
Nevada	Prior appropriation	Permit
New Mexico	Prior appropriation	Permit
North Dakota	Prior appropriation with vestiges of riparian law	Permit
Oklahoma	Prior appropriation with vestiges of riparian law	Permit
Oregon	Prior appropriation with vestiges of riparian law	Permit
South Dakota	Prior appropriation	Permit
Texas	Prior appropriation with vestiges of riparian law	Permit
Utah	Prior appropriation	Permit
Washington	Prior appropriation with vestiges of riparian law	Permit
Wyoming	Prior appropriation	Permit

Table 2: Summary of Underlying Water Rights Systems in Western States

	Prior Appropriation	Hybrid (Prior Appropriation and Riparianism)	Prior Appropriation with Vestiges of Riparianism
Number of States	9	2	7

2. Legal recognition of instream flows

A basic criterion of instream flow programs is whether water can legally be kept in a stream or natural lake. It is interesting first to note the names used to by different states to describe instream flow protection. Alaska and Montana use the term reservation for instream flows. California and Texas do not grant new instream flow water rights but place conditions on other water rights and permits to leave flows in streams for instream purposes (though water rights can be transferred to instream flow purposes). Texas statutes refer to environmental flows. Washington can close basins to future appropriations and can establish instream flows and trust water rights. Idaho uses the term minimum stream flow right. Kansas uses a similar term—minimum desirable streamflow. Nebraska references instream flow appropriations. New Mexico discusses applying water rights to instream uses. Arizona, Colorado, Nevada, Oregon, South Dakota and Utah use the term instream flow water rights. Please note that in this study the terms instream flow or instream flow water right are often used to refer to any of the above terms.

Tables 3 and 4 show that 16 of the states in this study have some form of legal recognition for instream flows. Two states, North Dakota and Oklahoma, have not formally recognized instream use as a legally permissible use of water. South Dakota allows instream flows without expressly recognizing instream flow rights.⁴ New Mexico recognizes instream uses as legally permissible and has issued permits for instream uses, but not yet created rights for instream uses.⁵

Table 3: Legal Recognition of Instream Flows (ISF)

State	ISF Legally Recognized as a Beneficial Use	Special Status Exists for ISF Water Rights
Alaska	Yes	Yes
Arizona	Yes	Yes
California	Yes	Yes
Colorado	Yes	Yes
Idaho	Yes	Yes
Kansas	Yes	Yes
Montana	Yes	Yes
Nebraska	Yes	Yes
Nevada	Yes	No
New Mexico	Yes	No
North Dakota	No	No
Oklahoma	No	No
Oregon	Yes	Yes
South Dakota	Yes	No
Texas ⁶	Yes	Yes
Utah	Yes	Yes
Washington	Yes	Yes
Wyoming	Yes	Yes

Table 4: Summary of Instream Flow Legal Recognition

	No legal recognition	Legally recognized but not a separate water right	Special statutes/status for instream flow water rights
Number of States	3	2	13

⁴ Instream flow rights have been allowed in South Dakota since 1984 when the South Dakota Supreme Court recognized instream uses for fish, wildlife, aesthetics, fish and wildlife habitat, despite there being no enumerated list of beneficial uses in South Dakota's water code. This court determination came from an interpretation of SDCL § 46-1-6 (3), which defines a "beneficial use" as "any use of water within or outside the state, that is reasonable and useful and beneficial to the appropriator, and at the same time is consistent with the interests of the public of this state in the best utilization of water supplies" (Gillilan and Brown 1997).

⁵ In 1998, the New Mexico Attorney General (AG) released an opinion (NMAG Op. No. 98-01) that for transfers only, the law "permits the State Engineer to afford legal protection to instream flows for recreation, fish or wildlife or ecological purposes." A 1998 memorandum from the State Engineer Office to the AG similarly concluded that the State Engineer "could act favorably upon an application for an instream use if the applicant can demonstrate that the means exist by which it can be proven that the right has been perfected and that the use is continuous. Emergency and temporary permits have been granted for instream uses to address endangered species issues, but no existing rights have yet been permanently transferred. Regulations regarding the beneficial use of water for instream uses are currently being written by the State Engineer (Lewis 2005, Medley 2005, Sanders 2005).

⁶ In 2001, the Texas Legislature passed Senate Bill 2, establishing the state's first instream flow program (freshwater flows for estuaries were established in 1975). The state does not grant permits for environmental flows. It instead sets instream flow levels across priority basins. Future permits for water use in these areas are to be conditioned by the amount of water needed instream as determined in the instream flow studies (Austin 2005, NAS 2005).

3. Explicitly recognized beneficial uses of instream flows

Another interesting criterion used to compare instream flow programs is how many legally recognized uses are available for instream flow appropriation. Tables 5 and 6 show the legally recognized beneficial uses for each state. Please note that a particular use may benefit from instream flow protection even though it is not expressly protected by law. For example, fisheries protection may also provide for recreational opportunities. This report does not enumerate all incidental uses, but simply identifies those instream uses expressly protected under statute or case law.

The categories of use presented in Tables 5 and 6 (developed especially from Gillilan and Brown 1997 and Postel and Richter 2003) are intended to show the array of instream flow uses that are of potential benefit across a wide spectrum of needs. It appears from this table that the states with the broadest protection include Alaska, California, Idaho, Kansas, Texas and Oregon, each with six to eight permitted uses. Washington follows with five uses and Colorado, Montana, Nebraska, New Mexico and South Dakota have four. The most restrictive state is Wyoming. Flows for the establishment or maintenance of fisheries are Wyoming's only recognized instream use. A unique feature of Colorado's beneficial uses is highlighted in Figure 6 below.

Figure 6: Recreational Flows in Colorado

In Colorado, recreational flows are managed separately from instream flows. Under C.R.S. § 37-92-103, local governmental entities and water districts can apply for recreational water rights where an in-channel diversion structure is present. The first recreational in-channel diversion (RICD) was filed on the Cache La Poudre River by the City of Fort Collins in 1986 to benefit fish, recreation and wildlife. Diversion dams were built to control the river's flow, but no water was diverted out of the streambed. At the time of filing, the application appeared to be for an instream flow, which can only be held by the Colorado Water Conservation Board (CWCBC). The filing was challenged in court and the Colorado Supreme Court found that if water was sufficiently controlled by man-made structures, the water right could be considered as "diverting" water within the streambed for a beneficial use

(<http://www.crwcd.gov/H2O/RICDs.pdf#search='recreational%20flow%20fort%20collins%20colorado'>).

Prompted by this case, the Colorado General Assembly passed Senate Bill 216 in 2001, establishing RICDs as a legal, beneficial use of water and directing the CWCBC to establish rules governing this new type of water right. The CWCBC is statutorily required to review water rights applications for recreational in-channel diversions ("RICDs") after an applicant submits an RICD application to water court. An RICD is the "minimum stream flow as it is diverted, captured, controlled, and placed to beneficial use between specific points defined by physical control structures pursuant to an application filed by a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district for a reasonable recreational experience in and on the water." The CWCBC is required to submit its findings and recommendations to water court regarding an applicant's requested RICD water right. Numerous communities in Colorado have filed for RICDs, including Chaffee County, the Upper Gunnison River Water Conservancy District and the cities of Aspen, Longmont, Pueblo, Silverthorne, Steamboat Springs, and Vail. More information on RICDs can be found at the CWCBC Web site: http://cwcb.state.co.us/isf/Programs/RICD_main.htm.

Table 5: Beneficial Uses of Instream Flows as Established by Statute or Case Law

State	Fish	Other aquatic organisms	Wildlife	Riparian areas	Recreation	Aesthetics	Environmental protection	Navigation	Channel maintenance	Water quality
Alaska	•		•	•	•			•		•
Arizona	•		•		•					
California	•	•	•	•	•	•		•		•
Colorado	•	•		•			•			
Idaho	•	•	•		•	•		•		•
Kansas	•	•	•		•	•				•
Montana	•		•		•					• ⁷
Nebraska	•		•		•					• ⁸
Nevada	•		•		•					
New Mexico ⁹	○		○		○		○			
North Dakota										
Oklahoma										
Oregon	•		•	•	•	•				•
South Dakota ¹⁰	•		•	•		•				
Texas				•	•	•		•	•	•
Utah	•				•		•			
Washington	•		•		•	•				•
Wyoming	•									

Table 6: Summary of Explicitly Recognized Beneficial Uses of Instream Flows

	Fish	Other aquatic organisms	Wildlife	Riparian areas	Recreation	Aesthetics	Environmental protection	Navigation	Channel maintenance	Water quality
Number of States	14	4	11	6	12	7	2	4	1	9

⁷ Water quality is a recognized beneficial use for leases only, not for reservations, in Montana.

⁸ Beneficial uses for transferred water rights in Nebraska include water quality maintenance and water necessary for compliance with compacts, decrees or other state contracts.

⁹ These protected uses are identified in NMAG Op. No. 98-01 and current policy of the Office of the State Engineer, but they have not been affirmed in court decree, statute or rule.

¹⁰ These uses were explicitly identified in the *Dekay* ruling. To date, the applicability of the *Dekay* ruling has not been challenged as it relates to uses other than fish, wildlife, aesthetics, fish and wildlife habitat.

4. Types of instream flow water rights

Tables 7, 8 and 9 detail how states grant instream flows. Most states allow instream flows to be secured both as new water right appropriations and as transfers of existing rights to instream flow uses. Some states are more restrictive and only allow transfers of existing rights. California, New Mexico, Texas and Utah allow transfers but do not allow new appropriations.

Interestingly, some states require that instream flow water rights be reviewed on a periodic basis. Other traditional water rights, such as those for agricultural or municipal uses, do not carry this same review requirement. Table 7 shows that four states (Alaska, California, Montana, and Nebraska) require periodic review of instream flow water rights. This is not required in other states. This review requirement does not apply to instream flow rights secured through transfer in Montana and Nebraska. Transferred rights are subject to review in California, but it is important to note that review in California applies to all water rights, not only instream flows. The implications of review requirements are discussed in the Comprehensive Analysis section.

Table 7: Types of Instream Flow Water Rights

State	New Appropriation of ISF Water Right Allowed	Transfers or Conversions to ISF Water Rights Allowed	Review Required
Alaska	Yes	Yes ¹¹	Yes, 10 years
Arizona	Yes	Yes	No
California	No	Yes	Yes (frequency unknown)
Colorado	Yes	Yes	No
Idaho	Yes	Yes ¹²	No
Kansas	Yes	Yes ¹³	No
Montana	Yes	Yes	Yes, 10 years
Nebraska	Yes	Yes ¹⁴	Yes, 15 years
Nevada	Yes	Yes	No
New Mexico	No	Yes (see footnote 5)	n/a
North Dakota	No	No	n/a
Oklahoma	No	No	n/a
Oregon	Yes	Yes	No
South Dakota	Yes	Yes	No
Texas	No ¹⁵	Yes	No
Utah	No	Yes	No
Washington	Yes	Yes	No
Wyoming	Yes	Yes	No

¹¹ Current law does not prohibit transfers to instream flow reservations, though none have been completed.

¹² The legal mechanisms for permanent donation to a minimum streamflow have not been developed and no such transactions have taken place. Short-term leases have been authorized through the Idaho Natural Flow Water Bank.

¹³ The State has the authority to purchase water rights in over-appropriated areas and retire those rights to the stream, barring that water from future appropriation for out-of-stream purposes. However, it is not converted into an instream flow right or "minimum desirable streamflow" and this authority has not yet been exercised (Stover 2005).

¹⁴ Nebraska passed new legislation in 2004 (LB 962) allowing water right holders to transfer a water right to instream flow use. The right remains the property of the water right holder, but is leased to the Nebraska Game and Parks Commission or natural resource district (NRD) for up to 30 years at a time, with funding provided potentially by nonprofit organizations, the Commission or the NRDs. To date, no leases have been processed (France 2005).

¹⁵ Texas sets environmental flows across priority basins; however, the state does not grant permits for instream flow use. The levels set will be used to condition what can be diverted out-of-stream under future permits (Austin 2005).

Table 8: Summary of New Appropriations and Transfers

	New Appropriation of ISF Water Rights		Transfers or Conversions to ISF Water Rights	
	Yes	No	Yes	No
Number of States	12	6	16	2

Table 9: Summary of Review Requirements

	Review Required	No Review Required
Number of States	4	11

5. Participation in instream flow water rights creation, administration and ownership

A common topic in the literature and discussion surrounding instream flow water rights is which persons or entities may secure instream flows and by what processes. Tables 10 and 11 list the agencies or entities that can hold an instream flow water right, through new appropriation or transfer of existing rights. Tables 12 and 13 list the agencies and entities that participate in administration, recommendation or review of instream flows, and which agency or agencies grant and administer the instream flows.

Most states require a governmental agency to acquire and hold an instream flow water right. Alaska, Arizona and Nevada are the only states that allow any person, organization or agency to hold an instream flow. These three states and Montana and South Dakota allow federal agencies to hold state instream flow water rights. Nebraska and Oregon allow multiple state agencies to hold an instream flow water right. All other states either do not grant any instream flow water rights or allow only one state agency to hold those rights. In Kansas and Idaho, the legislature must approve instream flow water rights that are then administered by the state's division or department of water resources. See Table 11 for a summary of these findings.

Little difference exists among the Western states on who proposes and reviews instream flow recommendations. In most states, any person can suggest or recommend a stream for protection. Typically though, recommendations come from a state's wildlife agency or, in some instances, from federal agencies. One consistency among all states is that the wildlife agency is authorized to provide comment and input. More discussion of these tables and the implications of these criteria for effective instream flow programs follow in the Comprehensive Analysis section.

Table 10: Participation in Instream Flow Water Rights Appropriations or Transfers

State	Who Can Appropriate ISF Water Rights	Who Can Transfer Existing Water Rights to ISF Use
Alaska	Any local, state or federal government agency and any private person or organization	Not allowed
Arizona	Any person, the state of Arizona or a political subdivisions thereof (including, but not limited, to counties, incorporated cities, towns, and irrigation, power, electrical, agricultural improvement, drainage, and flood control districts)	The state and political subdivisions of the state (private individuals can retain the right but lose the original priority date)
California	Not allowed	Any water right holder can transfer a right to ISF purposes if established criteria are met
Colorado	Colorado Water Conservation Board	Any person, including government entities or organizations, can transfer rights to the CWCB for conversion to ISF
Idaho	Idaho Department of Water Resources (IDWR)	The U.S. Bureau of Reclamation can lease water from Idaho's water bank for use in the Snake River system. ¹⁶
Kansas	Legislature	The state (through the Division of Water Resources)
Montana	Federal and state agencies and any political subdivision of the state	Any public or private entity can lease for ISF purposes
Nebraska	Natural Resource Districts (NRDs) and Nebraska Game and Parks Commission (GPC)	Any water right holder can lease to the GPC Commission or NRDs for up to 30 years at a time
Nevada	Any "person" including individuals, organizations, corporations, government agencies, etc.	Same as appropriations
New Mexico	Not allowed	Same as other water right transfers
North Dakota	Not allowed	Not allowed
Oklahoma	Not allowed	Not allowed
Oregon	Department of Fish and Wildlife, Department of Environmental Quality, State Parks and Recreation Department can apply for new water rights, then held in trust by the Water Resources Department	Any entity can purchase, lease or receive ISF as a gift but converted ISF use must be held in trust by the Water Resources Department
South Dakota	Not explicitly determined. So far, Division of Wildlife, Game, Fish and Parks, private organization and U.S. Fish and Wildlife Service granted permits or transfers of use.	Not explicitly determined. So far, Division of Wildlife, Game, Fish and Parks, private organization and U.S. Fish and Wildlife Service granted permits or transfers of use.
Texas	Not allowed (desired instream flow levels are set through basin studies, see footnote 4)	Any individual or entity with an existing water right can transfer to ISF. Rights can be donated to Texas Water Trust of the Texas Water Development Board in perpetuity or for a given number of years.
Utah	Not allowed	Division of Wildlife Resources (DWR) and Division of Parks and Recreation (DPR)
Washington	Department of Ecology	Individuals can donate rights, which are then held by the Department of Ecology
Wyoming	State of Wyoming (initiated by the Game & Fish Department; Water Development Commission applies to the State Engineer's Office)	Anyone can give as a gift or voluntary transfer to the state (Game & Fish Department acts as petitioner, administered by the State Engineer and the Board of Control)

¹⁶ Idaho's Water Supply Bank is intended to transfer water from willing lessor to willing lessee. The only application for instream use is the U.S. Bureau of Reclamation's ability to use up to 427,000 AF annually in the Snake River system. An additional 60,000 AF annually will be available through the Nez Perce Settlement out of upper Snake River reservoirs (Robertson 2005).

Table 11: Summary of Participation in Appropriations and Transfers

	No one	Legislature	1 State Agency	> 1 State Agency	State & Federal Agencies	Anyone
Appropriations	CA, ND, NM, OK, TX, UT	KS, ID	CO, WA, WY	NE, OR	MT, SD	AK, AZ, NV
Transfers	AK, ID, NM, OK	--	CO, KS, OR, WA	UT, WY	SD, NM	AZ, CA, MT, NE, NV, TX

Table 12: Participation in Instream Flow Water Rights Administration

State	Who Proposes, Reviews, or Provides Other Official Input	Who Authorizes and Administers the ISF Water Right
Alaska	Alaska Department of Fish & Game's Statewide Aquatic Resources Coordination Unit, Federal Agencies, Private Individuals and Organizations	Division of Mining, Land & Water (Department of Natural Resources)
Arizona	Any entity can propose, Arizona Department of Water Resources (ADWR) reviews applications. Arizona Game and Fish Department is asked to comment as well.	ADWR (<i>note that ADWR does not have enforcement authority. County attorney and sheriff are authorized to enforce surface water rights</i>)
California	Department of Fish and Game (transfers only)	State Water Resources Control Board
Colorado	Division of Wildlife, Division of Parks and Outdoor Recreation, Division of Water Resources, U.S. Department of Agriculture, U.S. Department of the Interior make ISF recommendations to the CWCBC. Any entity may recommend streams to the CWCBC.	Appropriated, monitored and protected by the Colorado Water Conservation Board (CWCBC). Water Court adjudicates all water rights and the Division of Water Resources administers all water rights
Idaho	Anyone may petition IDWR Board, review and comment provided by Departments of Fish and Game, Parks and Recreation, Environmental Quality	Legislature must approve rights either explicitly or by not rejecting them in a given legislative year. Idaho Department of Water Resources (IDWR) and its Board administer ISF rights
Kansas	Kansas Water Office (KWO) currently monitors ¹⁷	Legislature authorizes, Division of Water Resources (DWR) administers flow
Montana	Federal, and state agencies and political subdivisions of the state may reserve ISF	Department of Natural Resources and Conservation (DNRC) processes, issues and administers ISF reservations
Nebraska	Natural Resource Districts (NRDs) and Nebraska Game and Parks Commission (GPC), Department of Natural Resources, Water Division	Department of Natural Resources, Water Division
Nevada	Any entity may appropriate water for instream flow purposes	Division of Water Resources
New Mexico	Unknown (transfers only)	Office of the State Engineer administers water rights
North Dakota	Not applicable	n/a (State Engineer administers other water rights)
Oklahoma	Not applicable	Not applicable (Water Resources Board main agency facilitating Oklahoma water rights)
Oregon	The Department of Fish and Wildlife, the Department of Environmental Quality and the State Parks and Recreation Department provide input.	Water Resources Department

continued

¹⁷ 1980 recommendations were made by DWR, Kansas State Board of Agriculture, KWO, Kansas Department of Health and Environment and Kansas Department of Wildlife and Parks, which met to negotiate minimum desirable streamflow values to recommend to the Legislature.

Table 12: Participation in Instream Flow Water Rights Administration, Continued

State	Who Proposes, Reviews, or Provides Other Official Input	Who Authorizes and Administers the ISF Water Right
South Dakota	Anyone may recommend. Department of Game, Fish and Parks most involved	Water Rights Program of Department of Environment and Natural Resources, Water Management Board
Texas	Texas Parks and Wildlife Department, Texas Water Development Board and the Texas Commission on Environmental Quality (TCEQ) and other stakeholders can make permit recommendations	The TCEQ administers water permits
Utah	Division of Wildlife Resources and Division of Parks and Recreation (transfers only)	State Legislature must approve purchase of water rights for instream flow purpose and State Engineer administers the water rights
Washington	Department of Fisheries and Wildlife, groups associated with the WRIA (water resource inventory area) process	Department of Ecology
Wyoming	State Game and Fish Commission	Wyoming Water Development Commission holds instream flow water right, State Engineer receives and processes applications and administers rights

Table 13: Summary of Participation in Instream Flow Water Rights Administration

	1 State Agency	> 1 State Agency	Any Entity (including Federal)
Recommendations	CA, WY	KS, NE, OR, UT	AK, AZ, CO, ID, MT, NV, SD, TX, WA
Water Right Administration	AK, AZ, CA, MT, NE, NV, OR, TX, WA	CO, ID, KS, SD, UT, WY	--

6. Tools available to states for instream flow protection

Table 14 highlights various methods states use to secure instream flow water rights. A variety of methods are used in different states, ranging from the granting of new instream flow water rights to the conditioning of future out-of-stream appropriations. Some states, such as Colorado, grant water rights for instream uses while other states, such as Kansas, create a reservation of a minimum flow that cannot be removed by additional out-of-stream uses. Note that federal methods for instream flow protection, such as Wild and Scenic River designation and Federally Reserved Water Rights, are not presented in this table (as explained in the Introduction).

Table 14: Tools Available for Instream Flow Protection

State	Tools for Instream Flow Protection
Alaska	- Reservation¹⁸ - Department of Natural Resources (DNR) commissioner must review public interest criteria when adjudicating water rights, with the authority to condition permits to protect fish and wildlife
Arizona	General water right appropriations¹⁹
California	- California Wild and Scenic Rivers Act - Administrative review of new and existing water permits resulting in protective conditions for ISF - Conversion of existing right to ISF purposes
Colorado	- Instream flow water right obtained through new appropriation - Acquisition and conversion of existing rights through grant, purchase, donation, bequest, devise, lease, exchange, or other contractual agreement. - Short-term loan or lease of water right from private individual or water bank to the CWCB
Idaho	- Minimum streamflow water right permits - Protected river status, designate stream reach or sub-reach as natural or recreational river - Idaho Water Bank provides for rental of rights for ISF use - Legislative approval required for new ISF rights
Kansas	- Minimum desirable streamflow - Kansas Water Assurance Program (indirect)
Montana	- Reservations - Water rights leasing programs - Conversion of conserved water to ISF reservations
Nebraska	- Instream appropriation - Transfer of existing rights to ISF purposes for up to 30 years at a time
Nevada	General water right appropriations for instream uses
New Mexico	- Transfer of an existing surface water right to ISF use is considered permissible - The Strategic Water Reserve, created and funded in 2005, allows for the acquisition of water for endangered species, their habitat, and Interstate Compact obligations
North Dakota	No specified method. Public interest criteria, including fish, wildlife and recreation, may be considered when issuing a permit, which could result in conditions placed to protect these interests
Oklahoma	No specified method. Oklahoma Scenic Rivers Act may indirectly provide protection for ISF
Oregon	- Conversion of minimum streamflows (from 1955 legislation) to ISF rights - Application for new ISF rights and conversion of conserved water to ISF rights - Transfer, gift, acquisition
South Dakota	- Administrative initiative to grant permits for ISF purpose and one change-of-use request - A judicial determination holds that diversion is not necessary. Recreation and fish and wildlife propagation are considered beneficial uses
Texas ²⁰	- Legislation exists to protect freshwater flows in bays and estuaries - Studies are performed for segments or basins. Environmental flow levels condition future permits.
Utah	- Permanent or temporary acquisition of ISF rights through donation or by purchase (funds for purchase require legislative authorization) - Utah Code authorizes the State Engineer to reject an application to appropriate water or to change use of a water right if approval would unreasonably affect public recreation or the environment
Washington	- Minimum flows set through administrative rule-making procedure²¹ - Trust Water Rights Program allows conserved water to be dedicated to ISF
Wyoming	- Appropriation of new water right - Acquisition of a right through voluntary transfer or gift (no purchase)

¹⁸ Recognized by 1980 amendments as “an appropriation of water” AK ST 46-15-145.

¹⁹ AZ Legislature added “wildlife, including fish” to the state’s list of beneficial uses in 1941 and “recreation” in 1962. Furthermore, a diversion is not required to appropriate a water right. (Dishlip 1993)

²⁰ A National Academy of Sciences panel reviewed the process and methods established to set instream flows in Texas. The study is available at http://www.twdb.state.tx.us/instreamflows/pdfs/NAS_Report.pdf.

²¹ Washington water code amended in 1979 to clarify that minimum flows are appropriations.

7. Accomplishments

A critical criterion used to compare state programs is what has been accomplished for instream flow protection through the methods and tools described above. A primary focus of this report originally was to examine how states have achieved goals set for instream flow protection.

Research did not reveal that any particular state program set a quantifiable or qualitative goal when establishing its program. Certain states, such as Texas and Washington, are looking at instream flows across basins through planning processes and may have goals set per basin; however, no state-wide or programmatic goal is clearly set. Despite the lack of stated goals, it is assumed that a fundamental goal of instream flow protection is to provide protection for stream flows through legal measures. To this end, a key measurement of accomplishment is how many instream flow rights (or reservations, or other term, as appropriate) have been created in every state. An even better indicator of instream flow protection than total number of instream flow water rights would be the percentages of flow, stream miles or critical basins protected. A large state may have many rights, but many more unprotected miles, than a smaller state, for example.

Although it seemed feasible to determine total number of rights, as Table 15 shows, not all states can provide this information. Table 15 contains the most accurate information that could be collected and is intended to give a sense of how active state programs have been to date in establishing legally recognized instream flow protection. Because very few states could provide information on total miles or total flow, this information is not shown as percentages of total flow or stream miles. A caution when reviewing this table is that the existence of an instream flow right does not guarantee instream flow protection. A right must be measured, monitored and protected, not just established. This issue will be discussed in the following section.

Table 15: Accomplishments

State	Appropriations		Transfers		# State Employees
	# of Rights	Miles or CFS	# of Rights	Miles or CFS	
Alaska	17 adjudicated (276 pending)	32.8 miles	0	0	4 Full-time equivalent (FTE)
Arizona	93 instream flow rights (some still being perfected)	Not available ²²	Not available	Not available	No FTE (at least 6 part-time)
California	Not applicable	Not applicable	Not available	Not available	6 FTE Equivalent
Colorado	1,926 (including 476 lakes)	8,549 miles	21 (4 are leases)	398 cfs and 8,651 AF	7 FTE
Idaho ²³	85 licensed or permitted (includes 3 lakes)	>672 miles	Not available	Not available	5 FTE
Kansas	33 minimal desirable streamflows set on 23 streams (Stover 2005)	Not available	0	0	No FTE
Montana	434 (Schenk 2005)	2477 miles	Not available	Not available	2 FTE
Nebraska	9 (France 2005)	Not available	0	0	No FTE
Nevada	11 ²⁴	Not available	Not available	Not available	No FTE
New Mexico	0	0	2 - 3 permits, 0 rights	250 miles (approximate)	No FTE
North Dakota	0	0	0	0	No FTE
Oklahoma	0 (Illinois River and several tributaries designated through Scenic Rivers Act)	0	0	0	No FTE
Oregon	1550 (includes lakes) (Rice 2005)	Not available	30 transfers; 15 conserved water; 280 leases	Not available	2 FTE Equivalent
South Dakota	5 (Duvall and Grunlund 2005)	No information	1 (Duvall 2005)	Not available	No FTE
Texas	Not applicable	Not applicable	0	0	9 - 10 FTE
Utah	Not applicable	Not applicable	4	Not available	No FTE
Washington	180 streams conditioned with ISFs. closures in 20 basins (Bolender 2005)	Not available	79 (1 - 20 year leases); 12 (permanent) ²⁵	Over 5300 acre feet	12 FTE
Wyoming	97 (Annear 2005)	417 miles	0	0	2 FTE

²² "Not available" implies that the information could not be gathered for this study, not that the information does not exist. For example, a state may have records of all water rights, with instream flow details, within general files, making it impossible to gather statistics only on instream flow rights in a timely manner.

²³ The Nez Perce Water Rights settlement will be finalized in 2005 and should add 205 water rights in the Snake River Basin with priority dates of April 1, 2005 (Roberston 2005).

²⁴ The figure for Nevada may be higher than 11, but research indicate that records on water rights granted for instream flow purpose are not tallied in an available spreadsheet or database.

²⁵ Figures for Washington transfers are approximate. The Department of Ecology is creating a database to track Trust Water Rights with an expected completion in Fall 2005 (Adelsman 2005).

Table 16: Summary of Accomplishments, Number of Appropriations and Acquisitions

	0	1 – 10	11 – 50	51 – 100	101 – 500	501 – 1000	>1000
# of ISF Rights (appropriations and permanent or long-term transfers)	NM, ND, OK	NE, SD, UT	AK, KS, NV	AZ, ID, WY	MT, WA	--	CO, OR

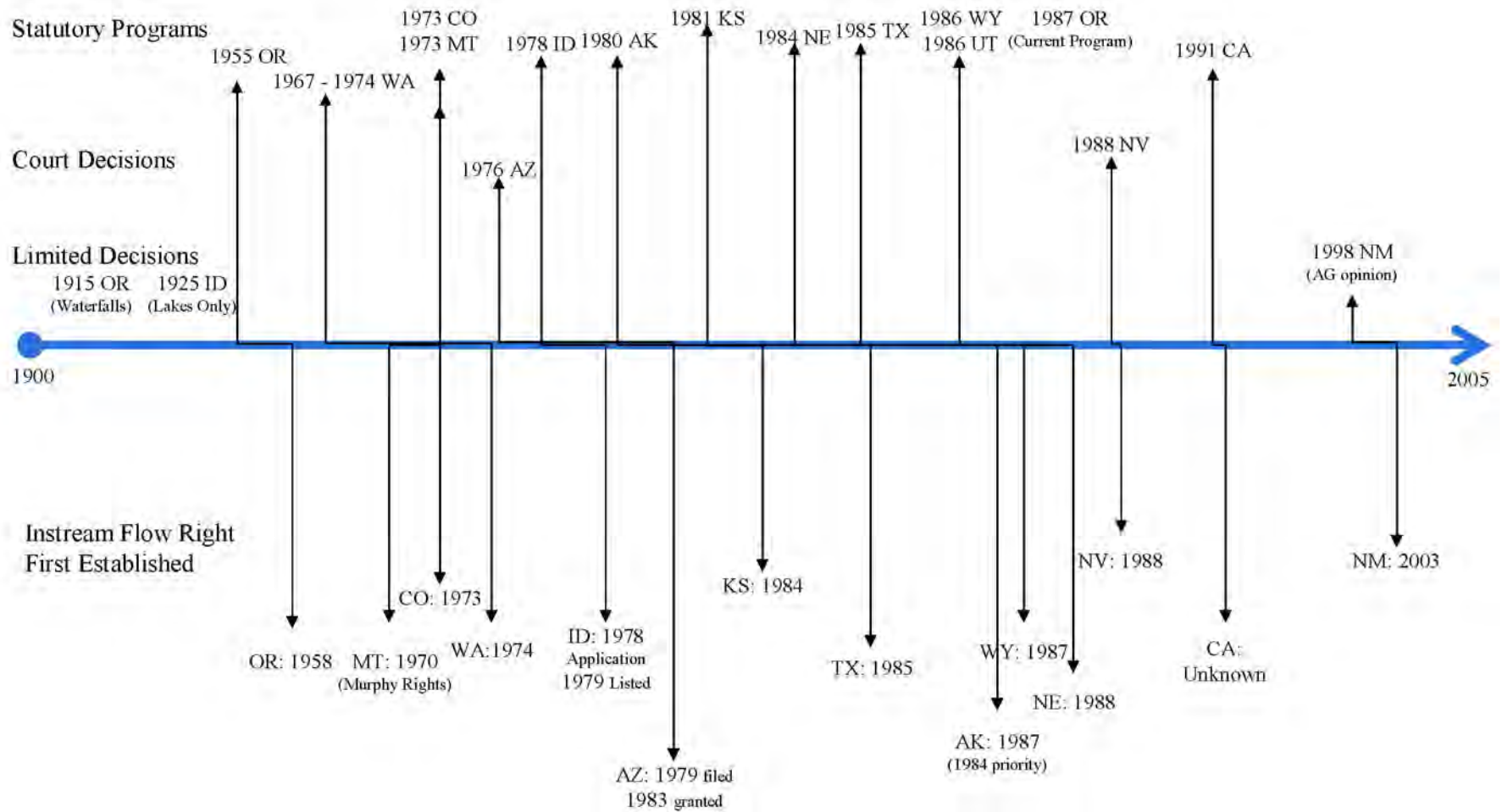
8. Timeline

For an historical perspective, it is useful to see when instream flow programs were established and when a state created its first instream flow. This information is shown in Figure 7 on the following page. Figure 7 shows when a state established instream flow protection across the top of the timeline. This information is divided into three layers. The top layer shows creation of statutory programs, the middle layer shows issuance of court decisions, and limited decisions (by rule or narrow statute) closest to the timeline. Below the timeline are the years when each state established its first instream flow through the authority listed above the line. An arrow connects the creation of the authority with the actual instream flow on the bottom.

Some programs, such as Colorado and Idaho, secured instream flows immediately after the legal basis was established. Nevada's first instream flow right was established subsequent to the court decision that legalized such a right. In other states, such as Arizona and Kansas, it took three years for an instream flow right to be established. Reasons that contributed to timing of applications for instream flow protection can largely be traced to the dedication of resources (fiscal and personnel), political will, anticipated legal complications, and clarity of filing needs and processes.

Gillilan and Brown (1997) trace the first state protection of instream flows to Oregon in 1915 when the state passed measures to protect waterfalls along the Columbia River Gorge. It later moved to protect flows on the Rogue River in 1929. In the 1920s, Idaho added aesthetics, health and recreation to its list of beneficial uses to protect levels in several scenic lakes (Gillilan and Brown 1997). In 1955, the Oregon legislature created an administrative process to establish minimum flows to protect salmon during spawning season. This process created administrative rulings for minimum flows rather than decreed water rights. Oregon's current system of instream flow protection dates to 1987 with the passage of Senate Bill 140, the Instream Water Rights Act. This law recognized instream flow as a beneficial use. It also accorded instream flows water right status, not just administrative protection (Gillilan and Brown 1997, Mattick 1993). Montana took several measures to protect flows in the late 1960s. The state established instream flow water rights on 12 streams (known as Murphy Rights); officially declared that water resources were to be protected for fish, wildlife and public recreational purposes in 1967; and established a process for instream flow protection in 1973. Washington initiated a minimum-flow program in 1967 and strengthened it in 1974. These and other dates are reflected in Figure 7.

Figure 7: Timeline of Creation of Instream Flow Authority (top) and First Instream Flow Right (bottom)



Tables 1 – 16 and the timeline in Figure 7 provide a baseline understanding of how Western states protect instream flows and what has been accomplished to date. Additional information is available on a state-by-state basis in Appendix B.

Comprehensive Analysis

With a clearer understanding of how states have designed and managed instream flow programs, it is possible to undertake an analysis of the characteristics of an effective instream flow program. It is important to clearly identify the characteristics that underlie the determination of an effective instream flow program. These characteristics were derived from the existing literature and through interviews with instream flow experts and government officials.

Fundamentally, an effective instream flow program is one that 1) actively seeks to secure instream flows, 2) manages and defends the instream flows it has acquired, 3) has an active and ongoing dialogue with the public, state and federal agencies and nonprofit organizations, and 4) operates with an open public process. The specific characteristics examined for this analysis are:

- Existence of legal mechanisms to protect instream flows
- Permanence of the instream flow rights, reservations or permits
- Resources available and dedicated to instream flow activities
- Legally and scientifically defensible quantification methodology
- Protection and enforcement of instream flow rights, reservations or permits
- Partnerships
- Planning/Needs identification
- Evolving and dynamic programs
- “On-the-ground” accomplishments

These characteristics are expounded in the following paragraphs.

Existence of Legal Mechanisms to Protect Instream Flows

Any analysis of effective instream flow protection starts with the question of whether such protection can be achieved in a manner consistent with applicable laws. This study considers statutory provisions or court determinations that clearly establish that holding water instream is consistent with state law. It is clear from the previous sections that the majority of Western states (16) do provide some means of instream flow protection. References to governing state statutes can be found in the appendices under the descriptive file for every state.

Two states, North Dakota and Oklahoma, currently have no statutory or judicially determined means to protect instream flows. New Mexico’s Attorney General opined in 1998 that water rights could be transferred to instream flow uses. Since this time, the Office of the State Engineer has not yet received an application to permanently transfer an existing surface water right to an instream use; however, temporary and emergency permits have been granted for fish and wildlife purposes in association with endangered species and interstate compact issues (Medley 2005, Sanders 2005).

Of the 16 states that allow instream flow protection, 14 states have statutes that clearly establish instream flows as a distinct water right (via water right application, reservation, permit, etc.). Distinctive instream flow programs have been established in these states in order to bypass the physical diversion requirement typically needed for demonstrating beneficial use of a traditional water right. Instream flow protection in these states is typically made possible by legislation that categorically excludes certain instream flow uses from the “physical diversion” requirement. The enabling legislation also specifies how such uses are to be achieved. The 14 states that have established statutory protection for instream flows do so through water right (Arizona, Colorado, Nebraska, Nevada, Oregon, South Dakota, Utah and Wyoming), as a designated minimum flow (Idaho, Kansas and Washington) or as a reservation (Alaska and Montana). California and Texas allow for transfers of water to instream flow water rights or as an administrative set-aside from future out-of-stream permits.

Colorado is one of the 14 states that allow instream flow protection through statute. Colorado was one of the first states to legalize instream flow protection and establish a statutorily created instream flow program in 1973. Instream flow rights in Colorado were established that same year. Other early states include Washington and Oregon. Washington created a minimum-flow program in 1967 and strengthened it in 1971. Oregon created a minimum-flow program in 1955 and created its current program through legislation passed in 1987 (Gillilan and Brown 1997). Nevada and New Mexico were the last states to explicitly recognize the legality of instream flow water rights. Nevada courts determined instream uses were beneficial uses in 1988 and the Attorney General released an opinion (1998 NMAG Op. No. 98-01) that the law permits legal protection to instream flows for recreation, fish or wildlife or ecological purposes.

Permanence of Instream Flow Protection

Western states achieve instream flow protection through a variety of tools (Table 14). Different tools provide for protection over different periods of time. Some methods provide temporary protection such as leases or other temporary conveyances that can range from several months to many years. Other methods provide instream flow protection through direct granting of a water right. While there are important roles for temporary conveyances (such as drought response), long-term resource protection requires longer-term, permanent rights and the assurances they bestow. Establishing an instream flow water right can be a slow process; however, once a water right is granted, it is generally considered to be a property right and as such to have greater permanence when legally challenged than a temporary permit or administrative constraint on another water right. It is also more likely to be integrated into the state’s water right system and administered as other rights are administered.

One measure of the permanence of water rights is whether there is a requirement to periodically review the water right. In four states, Alaska, California, Montana and Nebraska, instream flow water rights are subject to periodic administrative review. These reviews are generally set to establish whether the need and purpose for the instream flow are still valid and if there is still sufficient water available to meet that need. In Montana, reviews are required every 10 years for

reservations²⁶ (the 12 Murphy Rights created in the late 1960s are exempted from review), whereas in Alaska, reviews are not mandatory and are held only upon request. To date, no reviews have been conducted in Alaska. In addition to posing a significant demand on state resources, a review requirement makes instream flow water reservations continually vulnerable to revocation. In these states (with the exception of California), other types of water rights are not typically subject to the same level of periodic review.

In Montana, a reservation holder has to file an update or report on use of the reservation to the Department of Natural Resources and Conservation (DNRC) every 10 years. The DNRC can make adjustments in the amount of that reservation if it finds that the reservation is not being put to use. Some reservations held by cities and conservation districts have never been used and may be subject to abandonment through this 10 year review. Those held by the Montana Department of Fish, Wildlife, and Parks (DFWP) were put to use immediately, so it would be difficult to claim that those reservations had not been used. However, the DFWP must file reports to the DNRC to document flow levels, how the reservations are being used and the importance of the reservations. These reports can require a significant investment of time and resources. To date, no reservations for instream flow purposes have been revoked (Schenk 2004).

Nebraska also requires review for permanent rights, and for seven years had an interesting provision in addition to its review policy. A 1997 amendment required the DWR Director to hold a hearing every 15 years from the date of granting an instream flow permit. The Director, under N.R.S. §46-2-112, has discretion to modify or cancel the instream flow right under review (Covell 1998). The hearing requirement was revoked in 2004, leaving the need for review. As of 2005, only one water right had been reviewed under this authority, with no changes made to it (France 2005).

In the 11 other Western states with instream flow protection, no periodic review is required. Instream flows have a similar level of permanence to other privately held water rights. This equal footing helps to establish and maintain protection for the beneficial instream uses claimed.

Resources Available and Dedicated to Instream Flow Protection

Resources are critical to the investigation, establishment and maintenance of instream flow protection. These resources may come in a variety of forms, including staff, funding and technology, and are typically associated with governmental agencies. To accomplish the goals of instream flow protection, a program needs legal, technical, and policy-oriented staff and associated resources to administer its program in accordance with state statutes and rules. In light of the many challenges involved in integrating instream uses with traditional off-stream uses, adequate staffing appears to be particularly advantageous to achieving program goals (Gillilan and Brown, 1997).

Interestingly, few states have staff dedicated specifically to instream flow protection in state water and wildlife agencies. Nine Western states have no staff hired specifically for instream

²⁶ Reservations can be established for both instream and out-of-stream uses in Montana. All reservations require review, not just those established for instream flow purposes. However, out-of-stream uses can eventually be granted water rights, whereas instream uses currently must remain as reservations.

flow issues. Only Alaska, California, Colorado, Idaho, Texas and Washington have four or more full-time staff members who specialize in instream flow issues. Colorado is the only state to have most of these employees concentrated in one agency (seven are at the Colorado Water Conservation Board and one staff member at the Division of Wildlife is dedicated full-time to instream flow issues); in the other states, employees tend to be distributed among different agencies, such as the state's water management agency and the state division of fish and wildlife.

As will be pursued in the 'Partnerships' subsection below, the argument is not that more employees necessarily equate to a better a program, but that in a state that has employees dedicated to instream flow protection, more staff is available to monitor and protect instream flows and to coordinate with public needs.

Some states have shifted staff focus from appropriating or securing new instream flow rights to the transfer of existing rights to instream flow purposes. According to officials in Oregon and Montana, for example, filings for new instream flow rights or reservations have slowed (Rice 2005, Schenk 2005). Oregon has filed over 1,500 new water rights on rivers and lakes in the state. During the years that these filings were taking place, the Water Resources Department (WRD) had multiple staff members dedicated principally to instream flow protection. Currently, at least two staff members are working nearly exclusively on leases and transfers (with other staff involved from other state agencies) (French 2004, Rice 2005). Other staff from the WRD are actively involved in monitoring and protecting existing instream flows, but are not dedicated exclusively to instream flow issues.

Another critical resource question is what technical resources are dedicated to instream flow protection. These resources include the methods used to determine instream flow quantities and those used to track, monitor and enforce protected instream flows. This issue will be discussed in more detail in the following section and under "Protection and Enforcement" but briefly, there are varying levels of technology applied to instream flow management. Colorado has been active in incorporating the use of digital geographic information systems (GIS) to incorporate legal, hydrologic and biologic information on instream flows. This information is available to resource managers to monitor and protect instream flows and to any person interested in accessing information on instream flows. Alaska has a mapping and reporting program that displays maps with the approximate location of water rights and reservations of water in a given area. Tabular reports display general information about the rights or reservations selected on the map. Kansas has real-time gage information available for all its minimum desirable flows as there is a U.S. Geological Survey (USGS) gage at all 33 points. Oregon has instream flow rights on its searchable database, Water Right Information System (WRIS), and is currently migrating information on transfers and leases to this system (Rice 2005). Maps showing instream flows can also be generated. Wyoming is in the process of putting a map on its Web site with links to information on all instream flows in the state. Washington, Wyoming and others have put considerable effort into entering informative materials on its Web site to help interested parties better understand the applications and implications of instream flow protection.²⁷

²⁷ Colorado's database of instream flows can be accessed at <http://cwcb.state.co.us/isf/Database/> and associated documents can be seen at <http://cwcb.viis.state.co.us/cwcbimaging.htm>. Alaska's information is at http://www.dnr.state.ak.us/mlw/mapguide/wr_intro.htm. Oregon's database can be accessed at

Legally and Scientifically Defensible Quantification Methodology

How states determine the appropriate instream flow level needed to protect the target resource or activity is of interest to the effectiveness of an instream flow program. Many methodologies exist to determine instream flow levels and which are the most appropriate is a topic of interest and debate.²⁸

Because this report focuses on issues of policy and administration, methodology as a characteristic of effective instream flow management is included here not to debate the merits of the different available methods, but to identify states that have established a scientific procedure for quantifying flows. Scientifically defensible methodologies are important for several reasons: 1) in most states, a water right must indicate the amount of water needed to accomplish a use without waste, encouraging efficient resource use; 2) to provide reliable information to decision makers balancing the needs for competing uses of water on and off the stream; 3) to demonstrate that the proposed flow level is a repeatable finding that other parties could also determine; and 4) to ensure that the instream flow is defensible in court or in the context of other challenges. It is critical that programs use scientifically established methods to determine flow needs and take steps to evaluate these methods and adopt appropriate tools periodically.

Most states have established that scientifically recognized and accepted methodologies are essential to establishing instream flow quantities. For example, Montana's statutes indicate that instream flow recommendations must be defensible but do not require a particular methodology be used. In practice, wetted perimeter analysis has been and continues to be the standard in Montana (Schenk 2004). The policy of California's Department of Fish and Game is to use the Instream Flow Incremental Method (IFIM), but the best methodology to employ is always determined on a case-by-case basis (Smith 2005). Oregon identifies in its administrative rules that accepted methodologies must be used. Such methodologies include IFIM and the Oregon Method (French 2004). Washington has used IFIM, PHABSIM and other methodologies adapted to local conditions (Beecher 2004). While Montana, Oregon and Washington provided the names of methodologies they often use, they, as with the other Western states, do not require a specific methodology. This may be partly influenced by the variety of climates and geographies within each state, making a uniform methodology difficult to implement.

In Colorado, a scientifically defensible methodology is consistently used to justify an instream flow recommendation. R2CROSS (an instream flow incremental methodology developed in Colorado as a cost-effective, easily interpreted method for determining instream flows) is primarily used, though other methodologies are applied depending upon the individual circumstances of the stream or lake. The intent in Colorado is to clearly outline appropriate methodologies for an appropriation or acquisition early in the process. While issues of instream flow quantification will continue to be debated and new methodologies developed and adopted,

<http://apps.wrd.state.or.us/apps/wr/wrinfo/wrinfo.php>. Wyoming's instream flow information can be found at <http://gf.state.wy.us/fish/watermangtISF/index.asp>.

²⁸ While the determination of instream flow quantities and timing and analysis of biological needs in relation to flow are important topics, they are not fully explored here. Recent books such as the Instream Flow Council book, *Instream Flows for Riverine Resource Stewardship*, and Postel and Richter's book, *Rivers for Life: Managing Water for People and Nature*, examine these issues and provide important insight.

the need for states to remain informed and adaptive in regards to flow-setting strategies is important.

Protection and Enforcement

Water is a scarce resource in the Western United States. Simply creating an instream flow water right or other such protected flow does not ensure that water will be there when needed. “Protection” here refers to the defense of an established instream flow against injury or depletion. “Enforcement” means instream flows are monitored and administrative calls²⁹ are placed as necessary to meet an instream flow right.

A fundamental step in the protection or enforcement of an instream flow water right is knowing what instream flow rights the state holds. It is necessary to know what rights are held as well as the amounts and timing of these rights to be able to protect and enforce them. Greater availability and accessibility of data also provide effective assistance for future planning needs. Interestingly, many states either do not have a tracking system for the instream flow protection measures established (such as California), or do not have this information readily accessible (such as Texas and Washington). Other states (such as Idaho and Colorado) have information easily accessible to the public and agency staff. A more detailed look at this issue will follow in the discussion of “On-the-Ground Accomplishments.”

According to the research performed for this report, at least five states do not regularly protect and enforce instream flow water rights (Alaska, Arizona, Idaho, South Dakota and Wyoming). At least five states have active protection and enforcement programs (Colorado, Kansas, Montana, Oregon and Washington). Several others states (such as Texas and Utah) do not have a formal monitoring program but will pursue enforcement if an instream flow right is not being met. Nevada allows for monitoring and enforcement in a manner similar to that for any other water right.

Some states, such as Idaho and Alaska, rarely monitor flows. Limited funding and resources do not allow for extensive monitoring. In the case of Alaska, existing instream flow reservations are found in areas where water is abundant and water withdrawals are minimal. For these reasons, protection and enforcement may not be currently necessary or be the highest and best use of scarce financial resources. It should be noted, though, that the lack of monitoring to support protection and enforcement also hampers a state’s ability to establish future instream flow quantities because stream flows have not been sufficiently understood to pursue new instream flow water rights (Estes 2004, Gillilan and Brown 1997). In Arizona, an applicant must provide four years of monitoring data to perfect an instream flow water right (this monitoring is not required for other water uses such as agricultural applications). After this four-year period, monitoring is the responsibility of the instream flow water right holder. For protection, until an adjudication court issues decreed water rights and the Department appoints a water superintendent or other such authority, a sheriff or other police officer currently may enforce

²⁹ A “call” is a request by a water right holder, who is not receiving all of the water he or she is entitled to by decree, that upstream junior water right holders shut down or curtail their use until the senior right is satisfied.

surface water rights upon complaint by an affected person. Also, individual water users may initiate judicial proceedings to resolve conflicts (Ronald 2005, Logan 2005).

In those states that do monitor or enforce water rights, a wide variety of approaches are used to conduct these activities. For example, Montana's Department of Fish Wildlife and Parks (DFWP) actively monitors and protects its instream flow reservations, starting with the application. An applicant in Montana must outline a strategy for monitoring instream flows in its request (see Figure 8).

Colorado provides both legal and physical protection for instream flow rights. Because the water courts adjudicate water rights in Colorado, the Colorado Water Conservation

Board (CWCB) provides legal protection by reviewing every water right application filed in the state water court for potential impacts to existing

instream flow water rights. If potential injury is identified, then CWCB staff files a statement of opposition with the water court and seeks protective terms in that decree. This protection through filing of statements of opposition has allowed junior instream flow water rights to gain relevance in Colorado's prior appropriation system. If a transfer of a senior water right to another location or use would detrimentally affect a junior instream flow, the CWCB can file a statement of opposition and request terms and conditions in the transfer or change that protects the instream flow right by ensuring maintenance of stream conditions that existed at the time of the instream flow appropriation.

The CWCB performs monitoring and enforcement and provides physical protection for instream flows largely with the use of gages. If flows fall below the instream right and water is available given the seniority of the right, the CWCB can place a call to meet its flow requirements. One staff member is dedicated to protection and one to monitoring and enforcement. Staff has placed calls to enforce instream flow water rights since the program's inception (Baessler 2005). Legal

Figure 8: Instream Flow Monitoring and Protection in Montana, A Closer Look

Like many state water agencies, Montana's Department of Fish, Wildlife and Parks' (DFWP) monitoring program is dependent on the U.S. Geological Services' (USGS) system of real-time gages. The DFWP only supplements with state gages where USGS coverage is inadequate. Montana's monitoring strategy has proven to be effective. Although the gaging system in Montana doesn't cover every region where an instream reservation is in place, it covers most streams where instream reservations are at issue. Many small streams do not have good gaging information, but virtually all of the main streams and rivers, especially those with junior users who could potentially be called out, are currently monitored. In 2003, Montana staff investigated potential areas where additional monitoring would make a difference in potential calls and found no sites with junior water users that weren't already covered.

As regards protection, the Montana DFWP experienced problems in the past with unpopular calls for water and has since established a statewide system to predict late-summer streamflows and identify streams for potential calls. If reservations are likely to suffer, staff will send a warning letter prior to June 1 to over 500 water users warning about potential calls. As stream levels dip below reserved levels, the DFWP will make these administrative calls. In 2004, DFWP had close to 150 calls and roughly 200 in 2003. Another enforcement model is seen in Montana's Blackfoot River Basin, where there is a cooperative agreement with the local watershed group. There the local users developed a drought contingency plan, designed to "share the pain" of drought (Schenk 2004).

protection is achieved through monthly review of the water court resume³⁰ and requests for stipulations and filings of statements of opposition.

Colorado gages many of those instream flow water rights that are especially vulnerable to out-of-priority depletions. Understanding that it is not possible or financially feasible to place and maintain gages on all its water rights, the state partners with other agencies, primarily the U.S. Geological Survey, but also with municipalities and other groups, to monitor stream levels. Staff of the Colorado Division of Wildlife (DOW) and the Division of Water Resources (DWR) also act as “eyes and ears” on the ground regarding stream conditions. In addition to monitoring instream flow water rights, the CWCB has been active in providing forums for discussions of monitoring needs across the state by participating in and helping host various conferences on this topic. For more information on monitoring in Colorado, see Figure 9.

Figure 9: Technologies Applied in Colorado for Instream Flow Water Right Monitoring

The Colorado Water Conservation Board (CWCB) is among the largest water right holders in Colorado in total number of water rights. This poses monitoring challenges to ensure that flow needs are being met in a manner consistent with the decreed right. The CWCB is working to apply a range of technologies to effectively manage its instream flow and natural lake level water right portfolio. Monitoring currently occurs through:

- “Eyes and ears” of people who regularly see the stream and may call the CWCB or water commissioner if the levels appear to be low. These include water commissioners, division engineers, district wildlife managers, members of local Trout Unlimited chapters and others.
- *Staff gages* that are read by various agencies and individuals, including those listed above.
- *Gages linked with satellite monitoring systems.* Currently 457 gages owned and operated by the Division of Water Resources, 294 gages owned and operated by the U.S. Geological Service (USGS) and 19 gages owned and operated by the Northwest Water Conservancy District are tied to satellite systems. This makes information consistently available on a real-time basis (note that these are total satellite gage numbers, not those dedicated to instream flow monitoring).
- *Flow alert system.* Approximately 60 satellite gages are currently connected to an electronic alert system. If a gage measures below or above a certain flow, an alert is sent to the water right holder via both email and cellular phone. Staff at the CWCB can then investigate whether the decrease in flow is due to natural causes or junior depletions to the instream flow water right.

The CWCB is working with the USGS and others to develop new technologies, methods and tools to monitor flows, among these are:

- *Dye dilution tracer methodologies* to monitor late season and winter flow conditions. Gages can freeze and ice in streams can lead to inaccurate data, so alternate methods are needed. In this project, dye is released into a stream and a sensor picks up the dilution amounts downstream, allowing for improved estimation of stream flows. Accurate and consistent estimation of stream flows relies on good vertical and lateral mixing of the tracer
- *Instream Flow Decision Support System.* This system will eventually provide a means to track and model stream flows throughout the state. GIS layers will contain information on amounts and timing of decreed water rights, real-time data on stream flows, and modeling commands to predict what flows should be and compare these to actual flows entering the system. The system will contain a map with alerts that appear when a specified flow has been invaded.

³⁰ The water court resume is a document published monthly by water courts in Colorado. This document provides notice of proposed new water right applications, changes in water rights, exchanges and augmentation plans.

With some of its water rights acquisitions, the donor of the water right and the CWCB have entered into agreements allowing the donor to be the CWCB's agent for monitoring the water right. One example is the Boulder Creek donation. The City of Boulder monitors and reports annually to the CWCB on flows for that instream flow water right. In this way, the CWCB remains active and informed, while allowing local municipalities that are well equipped to monitor flows to do so. Such a relationship allows municipalities such as the City of Boulder to retain a sense of stewardship in the management of this important instream flow through its downtown area.

To some degree, all state programs lack the resources required for complete monitoring and enforcement of all instream flows. However, those programs that have dedicated the most resources to monitoring and enforcement have done well to first prioritize where monitoring most needs to take place (streams where flows may be depleted by junior diverters) and to search for appropriate partners to help accomplish monitoring, such as the USGS or local water managers.

Partnerships

Partnerships are a critical characteristic of efficient management. They allow state agencies to leverage scarce resources by uniting staff and resources with those from other agencies and organizations. Partnerships can apply to new appropriations of instream flow water rights, acquisitions or transfers of existing water rights to instream flow purposes, and to protection and enforcement of established instream flows.

Multiple state agencies actively work together on instream flow appropriations to varying degrees in different states. Typically, a state's department or division of fish and wildlife provides recommendations as a primary source of expertise and information on aquatic species' needs and habitat concerns. Coordination with fish and wildlife agencies is common in at least eleven states (Alaska, Arizona, California, Colorado, Idaho, Montana, Oregon, Texas, Utah, Washington, and Wyoming). In at least eight states (Colorado, Idaho, Montana, Nebraska, Oregon, South Dakota, Texas, and Utah), the state's division or department of parks and recreation is also involved. In three states (Oregon, Texas and Washington), a department or division of environmental quality also participates in recommendations related to water quality.

In addition to sharing responsibilities and expertise among state agencies, instream flow programs have largely benefited from working with groups outside state government. One important player is the federal government. As detailed in several publications, while both federal and state agencies have jurisdiction over various aspects of water issues and needs for which they manage water, it is largely state law that governs water use.³¹ Nonetheless, in special

³¹ A few examples include *California v. United States*, 438 U.S. 645 (1978) (finding that absent any clear congressional directive to the contrary, the federal government must comply with state law when appropriating water). For more detailed analysis of federal instream flow rights and conflicts with state law see Heather Blomfield Lee, *Forcing the Federal Hand: Reserved Water Rights v. States' Rights for Instream Protection*, 41 *Hastings L.J.* 1271 (1990); Wendy Weiss, *The Federal Government's Pursuit of Instream Flow Water Rights*, 1 *U. Denv. Water L. Rev.* 151 (1998) and Robert V. Trout and James S. Witwer, *Whose Water? Meeting New Federal Water Demands in Prior Appropriation States*, 50 *Rocky Mt. Min. L. Inst.* § 22 (2004).

cases federal agencies may have authority to hold water rights by reservation or indirectly manage water through conditions placed on federal storage projects. The federal reserved water rights doctrine recognizes rights to a quantity of water sufficient to fulfill the specific purpose for which the federal government reserved the land; uses of this water may include instream flows.³² Federal agencies have also exercised regulatory authority to limit water uses that would interfere with various objectives under federal environmental or resources management statutes, such as for endangered species (done in accordance with the Endangered Species Act).³³ Often, controversy, extended court cases and associated costs have accompanied the application of federal efforts to manage water flows.

Efforts are being made in various states to incorporate federal agencies into instream flow management in a nonadversarial manner. Federal agencies can apply for state water rights for instream flow purposes in six states, Alaska, Arizona, Montana, Nevada, Texas and South Dakota. In Washington, federal agencies can participate with watershed groups in the Watershed Resources Inventory Area (WRIA) planning efforts to recommend river segments for instream flow protection. In Texas, federal agencies have contributed to studies to determine instream flow needs on a basin or segment basis. Federal agency representatives have also participated in a National Academy of Sciences review of instream flow protection in Texas as mandated by Texas Senate Bill 2 from 2001 (NAS 2005).

In Colorado, state and federal officials are working together to find cooperative means to maintain or enhance instream flows on federal lands. State statute requires that, prior to the initiation of an instream flow appropriation or acquisition, the CWCB “shall request recommendations from the United States Department of Agriculture and the United States Department of the Interior” (C.R.S. § 37-92-102(3)). It is thus written in law that the state must work with federal agencies to determine instream flow needs. While state law prohibits federal agencies from holding instream flow water rights, state-sponsored means are available to federal agencies to establish such rights. One effective approach is through the acquisition program, where agencies, organizations and private individuals can transfer existing rights to the CWCB for instream flow purposes. These transfers can occur in multiple ways, from outright gifts to the CWCB to leases where the original donor retains significant interest in and responsibility for the water right. Through a memorandum of understanding entered into in 2005, the CWCB and the U.S. Forest Service are exploring ways to work cooperatively on instream flow protection. See Figure 10 for further details.

³²The reserved water rights doctrine was formulated by the Supreme Court in relation to Indian reservations, *Winters v. United States*, 207 U.S. 568 (1908). See also *California v. Federal Energy Regulatory Comm’n*, 495 U.S. 490 (1990) (holding that federal law preempts state law when water is appropriated under the authority of the Federal Water Power Act). For a thorough analysis of the federal government’s authority to appropriate flows granted by the 1920 Federal Water Power Act see Michael C. Blumm, *Streamflows after California v. Federal Energy Regulatory Commission*, 21 *Env’tl. L.* 113 (1991); Pamela S. Snyder, *California v. FERC: State Designated Instream Flows Fall Prey to FERC Authority under the FPA*, 5 *J. Env’tl. L. & Litig.* 127 (1990). For a detailed analysis of the federal government’s authority to appropriate flows for National Forests see Diane E. McConkey, *Federal Reserved Rights to Instream Flows in the National Forests*, 13 *Va. Env’tl. L.J.* 305 (1994).

³³ See e.g., *Klamath Water Users Protective Ass’n v. Patterson*, 204 F.3d 1206 (9th Cir. 1999).

Figure 10: Pathfinder Project in Colorado

Providing protection for instream flows on federal lands has been a problematic issue throughout the Western United States for many years, and one not without controversy in Colorado. In May 2000, the Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forests initiated a process with multiple stakeholders to explore perspectives and options for strategic planning and for providing instream flow protection on streams located on National Forest lands. This process has been termed the Pathfinder Project.

Eleven stakeholder groups representing water users, conservationists, and water regulatory and management agencies met on a regular basis over four years to provide local community perspectives, ideas, and possible ways to manage for instream flows on National Forest lands. The following groups or stakeholders were represented in the Pathfinder Project: Club 20, Trout Unlimited, Grand Mesa and Grand Valley Water Users, San Miguel Watershed Coalition, Overland Reservoir and Ditch Company, State of Colorado Division of Water Resources, High Country Citizens' Alliance, State of Colorado Division of Wildlife, local ranchers, State of Colorado Water Conservation Board and the U.S. Forest Service.

A primary objective of the Pathfinder process was to develop alternatives to the controversial bypass flow requirements that have historically been imposed on special use permits in Colorado. To address this objective, the Pathfinder Steering Committee developed a list of "tools" (strategies or actions) for the Forest Service to use in cooperation with state agencies, water managers, water users, and other interested parties to provide instream flow protection on streams that flow through National Forest lands in Colorado.

The strategy set forth by the Pathfinder Project is one of actions that progress from more cooperative actions to more unilateral ones. A variety of options are outlined that provide for instream flow needs before the Forest Service would move to take unilateral federal action through bypass flow requirements (amount of water required to flow past a dam or diversion to support downstream needs) for special-use permits. The Pathfinder Project strategy views the application of bypass flow requirements as a federal action of "last resort," while recognizing that parties supporting the strategy have not waived their rights and abilities to either use or challenge such action. The first two tiers of action focus on collective and cooperative actions such as: re-operation of diversion or storage facilities, variable water use (drought options), possible acquisition (e.g., donations, purchase, leasing), better monitoring and management of diversions (efficiency), protection under the CWCB Instream Flow Program, limiting diversions to decreed amounts, and conservation. This cooperative approach to instream flow protection demonstrates the opportunities for federal agencies to work with stakeholders and state instream flow programs to achieve federal streamflow protection objectives in a manner consistent with state law. For more information, please see <http://www.gmugpathfinder.org> and http://cwcb.state.co.us/USFS/Pathfinder_Project.pdf.

Protection and enforcement are an important area of partnership for the effective management of instream flow programs. In almost every state, the primary agency responsible for managing instream flows is the state's department or division of water management. In Texas and Washington, the primary administrators are housed in the Commission on Environmental Quality and the Department of Ecology, respectively. In Colorado, the primary responsibility to monitor and protect instream flows is held by the Colorado Water Conservation Board. Many states work cooperatively with other agencies and nonprofit organizations to effectively protect state instream flows. Most states rely on the gage system installed and managed by the U.S. Geological Survey to help monitor flows.

Another area of partnerships is between state agencies and nonprofit organizations to facilitate new appropriations of or transfers of existing rights to instream flows. For example, The Nature Conservancy (TNC) has actively worked with various states to provide for instream flows in the manner most appropriate for the particular state. In Arizona, TNC holds 10 instream flow water

rights certificated by the State and one in progress towards certification (in Arizona, once a water permit is perfected, the State issues a certificate of water right) (Logan 2005). In Alaska, TNC is working with state agencies to identify and apply for instream flow reservations. In Colorado, TNC was the first nonprofit organization to participate in the acquisition program, by acquiring and then donating the 1862 priority G. Berkeley Ditch water right in Boulder to the CWCB.

An interesting development in instream flow protection, especially geared toward transfers and acquisitions, is an emerging partnership between state agencies and private water trusts. Water trusts exist in Colorado, Montana, Oregon and Washington. These nonprofit organizations were created to help facilitate the transfer of water rights to instream flow needs where willing sellers or donors can be identified. Of these four states, only Montana allows private individuals as well as organizations to hold instream flow water rights. Nonetheless, Montana's water trust does not accept permanent transfers of water rights – only leased water rights may be banked.

Water trusts can help individuals or organizations participate in instream flow protection by hiring skilled staff and coordinating board members and volunteers to work cooperatively with state agencies. And even in states where private individuals or organizations can hold instream flow rights, doing so is a lengthy process that may be prohibitively expensive or complex. Other benefits being realized through water trusts include 1) ability to raise funds for purchase or to lease water rights for instream flow purposes; 2) skilled marketing that can help generate interest in and understanding of instream flows; 3) individuals who can help negotiate terms and conditions of transfers of water rights to instream flow uses; and 4) minimizing costs and time spent by potential donors of instream flow water rights. By leveraging the resources available to water trusts, states can expand their instream flow programs. More discussion of water trusts is found in the Emerging Issues section.

Planning/Needs Identification

As the Western states experience growth and development, it is important to provide an opportunity for preserving the water-dependent natural environment as water uses are developed for human needs. Careful planning and needs identification are necessary to help achieve this balance and to guide instream flow protection to areas of highest need.

Washington and Texas are pursuing interesting new planning efforts in regards to instream flow protection. In Washington, a watershed planning process was begun in 1998. Planning is occurring in over 60 watershed resource inventory areas (WRIAs). This process includes setting an instream flow by rule – a level that water is not supposed to fall below. Under the WRIA planning process, biological studies of designated watershed areas determine minimum flows needed to protect fish and other resources. In turn, this information goes back to stakeholder groups, which develop instream flow regulations that may be implemented if adopted through the final process. If instream flows are not set through this process by a certain date, the responsibility reverts to the Department of Ecology (this is happening in several WRIAs). Ideally, in Washington, a locally driven process is being used to direct the setting of instream flows throughout the state (Clifford 2004). There have been some problems with this process, primarily the time needed to complete the plans and the lack of available water to meet the rules

that have been set, but it is providing interesting experience in setting plans and goals for instream flow protection.

Texas is moving from setting environmental flows at specific projects (typically following reservoir construction) to planning for entire basins or river segments (Austin 2005, Loft 2004). Senate Bill 2, passed in 2001, initiated an instream flow program by directing the Texas Water Development Board (TWDB), Texas Commission on Environmental Quality (TCEQ), and Texas Parks and Wildlife Department (TPWD) to “jointly establish and continuously maintain an instream flow data collection and evaluation program.” They were further instructed to conduct studies to determine flow conditions in rivers and streams to maintain a “sound ecological environment” (NAS 2005). These agencies produced two documents in a series titled the *Texas Instream Flow Studies*. The first is the 2002 *Programmatic Work Plan* (PWP) and the second is the 2003 *Technical Overview*. These documents outline Texas’ approach to instream flow protection, describing the process for conducting sub-basin studies. The PWP identified six priority sub-basins for initial work (2003 to 2010) with four backup basins if any of the six cannot be evaluated. The sub-basin studies are to include consideration of hydrology, geology, geomorphology, water quality and connectivity, conducted in an interdisciplinary manner. Spatially, the PWP recognizes that studies will primarily be conducted as a fish and wildlife evaluation of a river segment, sometimes as a more comprehensive evaluation of a sub-basin and rarely as a comprehensive evaluation of an entire basin (PWP 2002, NAS 2005). The PWP is considered a rather ambitious document, but one that outlines a largely sound approach to evaluating instream flow needs across a basin (NAS 2005). Some recommendations provided by the National Academy of Sciences review of the PWP include the need to develop studies that can be consistently applied across the state while being tailored to a particular sub-basin and articulation of clear goals. Another area identified for improvement is to more clearly articulate how stakeholders will be involved in the process and who they will be. Currently, the PWP has identified the need for strong stakeholder involvement from groups such as the federal government, river basin authorities, the academic community, environmental groups, recreational groups and others. Pending legislation may create more changes to instream issues.

Colorado prioritizes potential instream flow appropriations through an annual work plan. The CWC staff works in conjunction with representatives from the state Division of Wildlife and Division of Parks and Outdoor Recreation, federal agencies from the Departments of the Interior and Agriculture, interested nongovernmental organizations such as Trout Unlimited and The Nature Conservancy, and the public. The recommendations made by these parties are ranked with a set of pre-established criteria based on ecological needs, feasibility of appropriation, and level of support, among other factors. The top candidate streams are then identified in the work plan for the coming year for field study to determine whether to pursue them for appropriations. In 2005, acquisitions (water rights transferred to instream flow uses) will join appropriations in this work plan process. Staff will look more closely at water-short areas of the state where flows for new appropriations have not been historically met (restoration of flows, unappropriated flows, etc.) and will look for solutions by pursuing acquisition with willing entities in these regions. Acquisitions are especially pertinent to water-short areas as they can be used to preserve or improve the natural environment to a reasonable degree (new appropriations can only be applied for preservation, not improvement). Further planning is occurring through the Statewide Water Supply Initiative (SWSI), explained further in the Emerging Issues section.

Evolving and Dynamic Programs

Both the science and the policy supporting instream flow protection are continually evolving. While citizens, legislatures and agencies established foundations for instream flow protection as far back as the early 1970s, effective management requires adoption and changes of law and policy over the years. The evolving and dynamic nature of a program has been evaluated by determining whether new rules and statutes have been created and applied since its creation. Many states have adapted or changed instream flow programs to meet changing needs. Statutes and rules in other states have remained largely as when first introduced, or in some states were never created. This latter category includes Kansas, Nevada, New Mexico³⁴, North Dakota, South Dakota, Utah, and Wyoming.

In other states, laws and rules have been adjusted to address changing needs, lessons learned, and emerging science. States that have been the most active in addressing needs and creating and perfecting new rules and laws include Alaska, Arizona, California, Colorado, Idaho, Montana, Nebraska, Oregon and Washington. For example, Nebraska passed new legislation in 2004 (LB 962) allowing water right holders to transfer a water right to instream flow use. Previously, transfers could not be made to instream flow purposes (France 2005). Montana passed House Bill 308, which removes a sunset provision from the leasing program, making permanent the provisions in the Montana Water Use Act that provide for water leases for instream flow fisheries purposes by private parties (Schenk 2005).

One interesting example of a state addressing the need for clearer rules is Arizona. Given differences between instream flows and offstream uses, government officials and others realized that there were many unanswered questions on the part of potential instream flow applicants. In 1986, the Arizona Department of Water Resources (ADWR) convened an interagency task force consisting of professionals with experience in quantifying instream flow beneficial uses. The stated goal of the Task Force was to “make recommendations to the Department on acceptable methods for determining beneficial use standards.” For this purpose, two subcommittees were established: the Hydrologic Subcommittee and the Biological Subcommittee. The recommendations of the Task Force resulted in the Department’s issuance of a guide to assist applicants to assist potential applicants with meeting statutory requirements for instream flows (Ronald 2005). Currently the Arizona Department of Water Resources (ADWR) provides a document, *Guide to Filing Applications for Instream Flow Water Rights in Arizona*, which outlines procedures on how the ADWR processes instream flow applications (Logan 2005).

Colorado has adjusted and updated its instream flow program since the original legislation was passed in 1973. Some bills removed authorities from the program (such as House Bill 00-1438 in 2000 that removed the ability for the state to convert conditional water rights to instream flows), while others helped to clarify and strengthen the program. For example, Senate Bill 02-156, passed in 2002, gave the state authority to acquire water to preserve and *improve* the natural

³⁴ Late research for this study found that the 2005 New Mexico Legislature passed legislation and provided \$2.8 million to create and fund the “Strategic River Reserve.” This legislation allows the New Mexico Interstate Stream Commission to lease or purchase water rights from willing sellers, obtain rights to store water, and accept donations of water rights to help endangered species and their habitat, and to meet Interstate Compact obligations. No transfers have occurred to date, but regulations for the implementation of the program are currently being developed (Medley 2005).

environment when acquiring water rights, a significant change from the strict preservation language associated now only with new appropriations.³⁵ This is an especially important change for river restoration work in which the existing environment may be seriously damaged but could be improved through stream corridor enhancements and additional flow. Another response to emerging needs is House Bill 03-1320, passed in 2003. This law authorizes water rights owners to loan water to the CWCB for instream flow use for a period not to exceed 120 days, and was originally restricted to use in a basin or county where the governor declares a drought emergency. This law was updated in 2005 with passage of House Bill 05-1039, which removes the requirement of a declaration of drought emergency. This authorization helps to simplify the process for transfers during critically dry periods.

Another interesting factor associated with new legislation and rule or policy setting is that it provides a forum for significant public involvement in the program. In Colorado, as in other states, there are strict guidelines that require public notice and comment at various stages of rulemaking and the making of policy. In this way, the public is continually involved in helping to shape the state's approach to instream flow management.

On-the-Ground Accomplishments

As mentioned previously, the instream flow programs found in Western states utilize a wide variety of mechanisms to achieve established goals. Rather than focus on the actual mechanisms used to achieve these goals, this section attempts to evaluate program effectiveness in terms of what programs have been able to achieve in real terms. Accomplishments are a critical characteristic for this analysis as they demonstrate how effective each program has been in actually achieving resource protection.

Information generated for this study of achievements has focused on the above discussed sections on partnerships, levels of protection and enforcement, and planning/needs identification. Another set of interesting achievements is how many streams have been protected. States break down into several categories on this issue. The first category involves the presence or absence of information on instream flow transactions. Some states have extensive and easily accessible records on instream flow water rights. One of the best among these is Colorado. At a glance, the public can determine how many appropriations and acquisitions (transfers) exist for instream flows and natural lake levels. Using the CWCB Web site, one can find a listing of all these rights and scan detailed information on the name of the rights, the priority date, the location, biological justification, and other forms of data. Any interested person can also access judicial records on the water right through the Water Resources Information Center (WRIC).³⁶ Furthermore, the public will be able to access an interactive geographic information system (GIS) of instream flows created by the CWCB in late 2005.

Like Colorado, Idaho provides easily accessible information on its instream flow Web page. A spreadsheet contains detailed information on the state's minimum flow water rights, such as the

³⁵ Other states that allow for improvement or enhancement, rather than only maintenance of existing flows, include Arizona, California, Kansas, Montana, Nebraska, Oregon, Utah and Washington.

³⁶ Colorado Web sites include: <http://cweb.state.co.us/isf/Database/> and <http://cweb.vjis.state.co.us/cwcbimaging.htm>.

location, mileage, requesting entity, priority date and flows. A map shows the location of these flows (though this is not an interactive map as posted on the Web site).³⁷ However, as with many states, good information is available for new appropriations, but limited to no information is available for transfers. Alaska also has a searchable water rights database and map that the public can access.³⁸ It is not clear, however, if instream flows can be individually searched at this site.

At the other extreme, some states interviewed could not provide information regarding the number of instream flow rights processed. Nevada does not appear to have digitized information that can be easily searched to determine how many water rights were established for instream flow protection. California also has limited information on existing instream flow water rights. While many transactions have been processed through the Environmental Water Account, it is difficult to know how many are in effect at any particular time (Hanak 2002). Texas has modified a few water permits based on instream flow needs, and certain flows have been identified for estuary needs (Austin 2005), but no specific list could be found. Montana does have a database where staff can query if a reservation is established on a stream, but not a central Web-based site where this information can be accessed. Staff is working to move this information to the Web (Shenk 2005).

Other states lie between these two extremes. Finding a tally of instream flows in Washington is difficult. The Water Right Tracking System, released in 2005, provides information updated monthly on pending water right and water right change applications.³⁹ This is a useful tool that provides information on applicants, location, type of use and quantity, complete with map links. However, it does not provide a summary of quantity or information about existing instream flows or other water rights. Oregon has interactive maps on its Web site showing where instream flow water rights are located, though codes for instream flows are not easily understood without staff assistance.⁴⁰ The state also lacks easily tabulated information or any indication as to quantity or type of existing water rights. Wyoming posts information about its instream flows on the State Engineer's Web site. This spreadsheet has details on all applications, showing priority date, hearing status, stream segment, whether and when a permit has been issued, location, quantity, and stream length.⁴¹ This information is not yet mapped to show locations.

Recognizing that information availability varies greatly, the following summary shows which states have established the greatest number of instream flows. Although it would be helpful to discuss number of stream miles or volume of water protected, this is not possible given both the lack of available information and the fact that some states operate on a segment basis and some on a point basis, thereby having no stream miles to report.

It is interesting to contrast Tables 16 and 11 (pages 14 and 19 respectively). Contrasting these two tables shows that some of the states with the most permissive legislation (especially regarding who is eligible to appropriate flows and what instream uses are permitted), such as

³⁷ Idaho's minimum stream flow map and database can be accessed from:

http://www.idwr.state.id.us/waterboard/planning/minimum_stream_flow.htm.

³⁸ Alaska's Web site can be accessed at http://www.dnr.state.ak.us/mlw/mapguide/wr_intro.htm.

³⁹ Washington's Web site can be accessed at <http://www.ecy.wa.gov/programs/wr/rights/tracking-apps.html>.

⁴⁰ Access Oregon's maps at http://www.wrd.state.or.us/OWRD/MAPS/index.shtml#Interactive_Water_Right_Maps.

⁴¹ Wyoming's instream flow tabulation can be found at <http://seo.state.wy.us/PDF/IFAPSSHweb.pdf>.

Alaska, Arizona and Nevada, have some of the fewest protected rights. States where only one or more state agencies (Colorado and Oregon) may apply for instream flow water rights are the states that have been most active in securing instream flows.

Summary of Analysis

A wide variety of styles and results exists among the Western states across a wide range of issues central to effective management of instream flow protection, from the simple existence of legal mechanisms to protect instream flows to the management style exercised, to the on-the-ground accomplishments. No one state has a clear monopoly on the best program and achievements.

Some states have not participated in instream flow protection to any significant degree. The least active include New Mexico, North Dakota and Oklahoma, an interesting mix of geographic locations and economic backgrounds. These states are surrounded by other states with similar geography, hydrology and economies that have made greater strides toward instream flow protection.

Some states gravitate to a middle ground. These states have the legal ability to protect instream flows and have done so to some extent, but have not taken great strides to move beyond original legislation or goals. Included among these states are Kansas, Nebraska, Nevada, South Dakota, and Utah. While these states can legally protect instream flows, very few rights have been processed, around 62 total. Additionally, these states (with the exception of Nebraska's provisions to allow transfers and simplify the review process) have not updated legislation or rules to expand the protection available through instream flows or to facilitate the process.

Alaska, Idaho, and Wyoming have all pursued more instream flow rights and more actively support instream flow issues than the aforementioned states, but have been hampered in different ways from being active with their programs. Alaska has hundreds of applications in the progress to become instream reservations, but due to limited resources has not yet processed these applications (Estes 2004). It should be noted, though, that Alaska has limited pressures on its water resources, making instream flow filings less critical than in other states with more heavily depleted water resources. Legislation passed in Wyoming is fairly narrow compared to other states (Table 5); however, managers there have made efforts to keep the public well informed and perform as well as possible. The Wyoming Game and Fish Department has posted extensive information about instream flows on their Web site.⁴² The Web site has links to useful technical papers, articles and publications that describe instream flows and their application in Wyoming, such as the difference between instream flows and return flows and the instream flow program's five year plan.

Some states are difficult to classify and compare. In Arizona, instream flows were established as a legally permissible use not through special statute but by court decision that instream uses were beneficial uses and diversion was not necessary. Several statutes have been enacted that expressly address instream flows, but only 93 instream flow water rights have been applied for, mostly by federal agencies, a few nonprofit organizations and several state entities. However, it

⁴² Wyoming's information can be found at <http://gf.state.wy.us/fish/watermangtISF/index.asp>.

can be said that administrative staff has dedicated time and resources to proactively convene a multiparty task force to clarify the application process for instream flow water right applications (Gillilan and Brown 1997, Logan 2005). Given these realities, Arizona appears to rank toward the middle ground.

Texas is difficult to rank. It does not currently have the authority to grant permits for instream flow protection so would appear to fall toward the lower end of the Western states. However, as described under the characteristic of Planning and Needs Identification, Texas has taken a particularly active stance toward setting instream flow levels throughout the state and refining methods to accomplish instream flow protection in an inclusive and participatory manner. Texas is also difficult to classify because it is just now at the end of a significant program review (NAS 2005) and limited information is currently available about on-the-ground instream flow protection. More changes may be made soon to the program if pending legislation passes (which has been adopted by the Senate and is being considered by the House of Representatives) (Austin 2005). This thorough bill is indicative of the level of effort that has been applied to instream flows in Texas. Also difficult to compare to other Western States is the work done to address freshwater inflow needs of bays and estuaries. This program, in place since 1985, has seen the completion of studies of the major estuaries (with flow needs addressed through conditioning of rights, not through instream flow water rights).

California has a complex water right system mixing appropriative and riparian rights with major interbasin transfers. Management of instream flow needs is similarly a complex affair, very different from that of any other state. A primary means of instream flow protection is through administrative and judicial procedures to limit other water uses, but there appears to be no overall summary of how many water bodies are thus protected and how effective protection is. An area of concern with the program is that instream flows are set as points rather than segments. In some areas, such as Mono Lake, this is not critical as there are no diversions downstream of the administrative flows. With rights transferred to instream flow uses, those can be removed after passing the original point of diversion by a downstream user. The Environmental Water Account and other transfer mechanisms, which more closely approximate other states, are relatively new and are not quantified. Section 1707 of the California Water Code (authorizing transfers to instream flow purposes) was not established until 1991. According to some authors (Gillilan and Brown 1997), California is considered a “state to watch.” Although certain aspects of California’s instream flow protection are interesting for study, it is not comparable or easily measured for the purposes of this analysis.

A final batch of states rank toward the top when program effectiveness is evaluated by the factors considered in this analysis. In this category are Colorado, Montana, Washington and Oregon. These states have all processed numerous rights, actively monitor and protect these flows, adequately staff programs, and are on the forefront of new management ideas. All these states have sought to proactively manage instream flows. Interestingly and coincidentally, these are also the states with active, private water trusts.

Montana is included in this category based on the number of transactions, its active monitoring and protection, and ongoing dialog with numerous stakeholders and new approaches to securing instream flows. Although it has only 12 actual instream flow water rights (“Murphy Rights”),

Montana has processed over 400 reservations. Montana's program continues to change and be updated by the Legislature. After some difficult seasons enforcing instream flows, state agencies created a careful system of notification and outreach with potentially affected water right holders. In addition to working actively with water right holders, Montana, like its Pacific Northwest neighbors, works actively with organizations such as the Montana Water Trust and Columbia Basin Water Transactions Program. Montana, like Oregon and Washington, has looked to creative means for finding water, working with agriculturalists and others for transfers and conserved water. Some concerns regarding program effectiveness include: the legal status of reservations in comparison to water rights (instream flows are primarily processed as reservations while other water uses can be granted full water rights); and, associated with the reservation issue, the review requirement, which can be a significant use of state resources and renders instream flow reservations less permanent than water rights. Finally, Montana has indicated that it is working on posting information on reservations to its Web site, but currently this information is not as available as in other states.

Oregon is often referred to as a "program to watch," and has achieved significant protection. Oregon has established a significant number of water rights across stream reaches in comparison to other states. It has also been among the first states to establish instream flow protection and to experiment with tools to transfer water rights to instream flow uses, including the use of split season⁴³ instream leasing. Activity on appropriation of new water rights has recently slowed, with more emphasis placed on acquisition of leases and transfers of existing rights to instream flow purposes. Legal concerns have surfaced, with some of the conserved water transfers injuring senior water rights. An interesting note about Oregon is that it can set its instream flow water rights at desired levels, not flows that are actually available. Flow levels are considered goals, biologically the most desirable level (French 2004, Gillilan and Brown 1997). Oregon appears to be the only state to use this approach. Any reading of Oregon totals should contain the caveat that these are not necessarily the flow levels currently available for instream flow purposes. Oregon, as with many programs, has also been criticized for the complexity of its programs and resulting difficulty in protecting flows, even with short-term leases. It is understood that efforts are being made to address these concerns while maintaining necessary review and analysis.

Washington ranks among the top states for reasons similar to that of Oregon. It has established more water rights than many other states—with conditions set on over 180 streams and closures established in over 20 basins, and was one of the first states to establish instream flows, and has worked with the transfer of existing rights to instream flow uses under voluntary transactions. Washington's program is in a renewed period of activity with its WRIA (Watershed Resource Inventory Area) planning and Trust Water Rights Program. State agencies and partners have been particularly active in establishing plans and goals for instream flow activities. According to management at the Department of Ecology, over 12 people have been dedicated full-time to instream flow issues. It will be valuable to follow the WRIA experience to see if it produces new, enforceable, widely accepted instream flows. It is an interesting effort to combine instream

⁴³ Split seasons is defined in Oregon Administrative Rules, Division 77, as "the exercise of a water right in the same season defined by the water right in the same calendar year for both the existing purpose of the water right and for an instream purpose, provided that water is not used for the existing purpose during the period in which the water is to be protected instream" (OAR §690-077-0010 (29)).

flow protection with other water management concerns. Washington has also been uniquely active in preparing studies and reports on instream flow issues, both for the state and across the Western United States. For example, the Washington Department of Ecology helped prepare an "Analysis of Water Banks in the Western United States."⁴⁴ The Department of Ecology has also created a useful tool, the Water Right Tracking System, to show the progress of water right applications and permits. They have been working on, and anticipate completion of in Fall 2005, a database to track Trust Water Rights (Adelsman 2005). Their Web site in fact contains much information and many links on current instream flow issues.⁴⁵

Colorado has realized a strong mix of achievements and has adjudicated 1,947 instream flow and natural lake level water rights. While the process to appropriate, acquire and adjudicate these rights is neither simple nor speedy (similar to Oregon), these rights are among the most permanent and secure of any state. Instream flow water rights in Colorado are fully adjudicated property rights rather than being established by administrative measures and yet do not require legislative approval nor periodic review, as required in a few other states. Colorado has also actively sought to update its program through legislation and rule-making. While at times this has limited the scope of the program, in other cases it has led to wider options and improved efficiency. Although Colorado's statutes are among the most limiting regarding who can appropriate instream flows, and are not the most permissive regarding types of beneficial uses for instream flows, Colorado has still perfected more permanent water rights than any other state; in fact, more than most other states combined. In water-short areas of the State, Colorado has advocated use of the Water Acquisition Program to acquire senior water rights to preserve or improve the natural environment. With the continually expanding use of the Water Acquisition Program and coordination with the Colorado Water Trust and similar organizations, private participation in instream flow protection should continue to grow.

⁴⁴ This report is available at <http://www.ecy.wa.gov/pubs/0411011.pdf>.

⁴⁵ The tracking system is available at <http://www.ecy.wa.gov/programs/wr/rights/tracking-apps.html>. The Washington Department of Ecology instream flow Web site is at <http://www.ecy.wa.gov/programs/wr/instream-flows/isflm.html>.

Table 17 ranks all 18 states on the basis of four factors, which are a compilation of the nine characteristics of effective instream flow management that guided the comparative analysis.

Table 17: State-by-State Ranking of Instream Flow Protection Effectiveness

	Minimal	Moderate	High
Results⁴⁶	NE SD OK TX NM ND OK	ID WY AK AZ CA KS NV	CO OR MT WA
Maintenance⁴⁷	OK NV NM ND SD	KS TX NE AK AZ ID WY	CO MT OR WA
Process⁴⁸	KS SD NM ND OK	MT TX AZ ID UT WY CA NE NV	CO OR WA AK
Groundwork⁴⁹	SD NM ND OK	AK MT KS NE CA TX UT	CO OR WA WY NV AZ ID
	Minimal	Moderate	High

⁴⁶ Results are a function of the on-the-ground accomplishments in the number of instream flow rights.

⁴⁷ Maintenance is a function of protection and enforcement, pursuit of useful partnerships, and efforts made to update and improve protection through new statutes, rules or other policy measures.

⁴⁸ Process is a function of how states follow scientific methods for setting flow levels, whether flow levels are set at one base flow or several flow levels, what resources the state dedicates to securing and protecting instream flow rights, and how many agencies and outside organizations and individuals participate. Another factor is what planning process is used to identify and fill instream flow needs.

⁴⁹ Groundwork is a function of legal recognition of instream flow as beneficial use, ability to appropriate new flows, ability to transfer existing water rights or permits to instream flow purposes, and permanency of water rights.

Figure 11: State Ranking (base map courtesy of www.theodora.com maps, used with permission)



Emerging Science

When the majority of instream flow programs were established in the 1970s and 1980s, the focus was on the protection of a “minimum” flow, often granted as a year-round figure. The sciences associated with river management at the time focused on the need for a minimum amount of

water to be left in a stream, particularly the effect this flow had on fish. It was believed that low flows were the primary constraint on the health of aquatic species (Postel and Richter 2003).

Research and practice over the past decades show that low flows do not tell the entire story. According to the scientific community, the health of an aquatic system is keyed to the entire flow regime, with different species of fish, plants and other organisms taking their cues from periods of low flows, peak flows and the naturally occurring flow variation throughout the year. River health is not only tied to annual hydrograph variations, but inter-annual variations as well. Thus, meeting the needs of fish, riverine habitat and other environmental values requires not only management for a given minimum flow, but for a range of flows that mimic the natural flow regime of a stream. This includes needs for low flow periods and peak flows. Since the inception of instream flow programs, biological and hydrologic sciences have evolved to demonstrate the importance of variable flows to stream health and associated biological communities. Additionally, an interdisciplinary approach with experts in hydrology, biology, geomorphology and water quality clearly results in an improved understanding of river needs (Instream Flow Council 2002, NAS 2005, Postel and Richter 2003).

Blending changes in the scientific understanding of riverine systems with instream flow programs is not a simple task. As stated earlier, a characteristic of effective instream flow management is the ability to provide permanent, reliable water rights. Fluctuating flow levels are not easy to incorporate into a prior-appropriation legal system that requires reliability and consistency for efficient and equitable management of all water users. An interesting discussion and synthesis of instream flow science and policy can be found in the recently released review of Texas' instream flow program in Chapter 3 "An Introduction to Instream Flow Science and Programs" (NAS 2005). A key issue pertinent to this report is how to translate advances in science into sound policy.

Some researchers have suggested turning the water rights system "upside down." With "upside-down instream flow water rights," a stream would be managed by looking at how much water could be extracted for irrigation, municipal, hydropower and other traditional needs while still meeting the flow needs of the stream ecosystem. With this approach, flows could be withdrawn or modified only as much as the best available science shows would not be harmful to the river's health. If more was withdrawn, this trade-off would be clearly known. This approach would be most applicable in relatively undeveloped streams where not all the water is already appropriated. In highly developed appropriated streams, upside-down water rights could have the greatest applicability in periods of peak flow (Silk, McDonald, Wigington 2000).

Australia and South Africa currently provide useful insights for incorporating natural flow regimes into river management. As programs were developed in these countries well after those in the United States, it was possible to incorporate newer science into policy. Both countries established what some experts call "holistic" methodologies to determine flow demands. These methodologies look at a wide array of biological factors to determine flow, not just fish or other key species needs. This science is then translated into policy by setting goals for particular rivers and basins; for example, assigning classes to a system from natural to good to fair to poor, each with a different associated flow regime (from natural to highly altered). Rather than setting one or two flow levels for a system, a desired regime is set forth in policy (Postel and Richter 2003)

Of the 16 states that legally permit instream flow protection, several states only allow for instream flow filings that meet the minimum necessary to maintain the natural environment. Among these states are Idaho, Nebraska (though the minimum requirement has not been strictly interpreted), and Wyoming. Colorado only allows for the minimum level for new appropriations, but now allows for flows to preserve or improve the natural environment for water transfers. Utah refers to a “reasonable” flow. Alaska does not require a minimum flow, only that the flow requested must be available for reservation. Oregon and Montana reference a 50% exceedence flow when determining instream flows. Oregon statutes include references to “desirable” levels for recreation, “conservation, maintenance and enhancement of aquatic and fish life, wildlife, and fish and wildlife habitat” and levels “necessary” for pollution abatement (ORS §537.336).

Most if not all states have instream flows that have been set at one minimum flow level throughout the year. Several states, including Arizona, Colorado, Montana, Oregon, Washington, and Wyoming, allow for setting of multiple flow levels, though often split into only two seasons. Colorado is active in prescribing more than one flow level. While it may be possible to create conventional instream flow rights to reflect a natural flow paradigm, this has proven to be a difficult and rarely used policy tool for implementing enhanced scientific understanding of stream systems. New approaches to mimic natural flows in critical streams through instream flow rights and other policy tools are a key area of development for instream flow protection. Fundamentally, to make emerging science relevant to resource management, continued conversation is needed among scientists, policy-makers and water users, fed by experiences in on-the-ground implementation.

Sources of Water to Meet Instream Needs

Water scarcity and competing demands are hardly emerging issues in Western water management. However, recent droughts throughout the Western states and increasing demand from a growing and urbanizing population is putting new and different strains on water distribution, affecting water availability for instream flow protection. To this is added a growing capacity to provide economic valuation to ecosystem services such as those provided by stream systems, and a growing understanding of the role recreation and tourism play in the Western states. Instream flow management will be challenged to balance the continued need for instream and out-of-stream needs.

Most water has already been appropriated in the Western United States. According to a study on water supply recently completed in Colorado, the state faces a municipal and industrial shortage of about 20 percent by the year 2030 (CDM 2004). States will face growing challenges on how to manage water resources to meet competing needs. In addition to growing demand, drought will continue to provide a level of uncertainty as to how much water will be available during dry years compared to a “normal” water year. Where will water come from to meet instream needs?

One potential source of water is that used in ranching and agriculture, an area cities are turning to to purchase or lease water rights. This is also where water trusts, as outlined below, are developing partnerships. Another potential source of water may come as reservoirs are enlarged or new dams are built, in the form of storage rights granted for instream flow releases. Several states have implemented legislation to promote flexibility with regards to short-term leases and

needs during times of drought. Among these states are Colorado (with authority for the CWCB to receive loaned flows established in 2003 House Bill 1320 and 2005 House Bill 1039), Idaho, Montana, Oregon, and Washington (through the Washington Water Exchange).⁵⁰ Oregon has a measure that allows it to suspend the public notice period (only 21 days for short-term leases) in times of drought, though this has not yet been used (Rice 2005). States are also exploring ways to find “surplus” water and make it available for instream flows through conservation. This particular area is one of great controversy and debate. A final means of finding water is to work with water rights holders to transfer retiring rights to instream uses.

In regard to methods to put conserved water into instream flow programs, Montana and Oregon are the states with the most activity. The Oregon Conserved Water Program (ORS 537.455, passed in 1987) amended state water law to allow water users who voluntarily conserve water to retain control over a portion of the saved water. A water user can submit an “Allocation of Conserved Water Proposal” to the Oregon Water Resources Commission. If the proposal is approved and the conservation measures are implemented, the law authorizes the water user to keep up to 75% of the conserved water for additional use, sale, or lease, with a minimum of 25% of conserved water going to the state. The exact percentage depends upon the amount of non-reimbursable state and federal funding. The process is a relatively long one, requiring at a minimum design of a project, public notice and comment, Oregon Water Resources Department (OWRD) review and determination, project approval, and completion and issuance of new certificates (<http://www.owt.org/solutions.html>). To date, approximately 35 projects have been submitted with 15 completed (Rice 2005). Oregon officials identify problems associated with this system such as the difficulty of determining how much water is conserved and whether this water would have resulted in return flows in its prior “unconserved” state. Problems have also been identified with unintended injury to other water right holders as water is dedicated instream or sent to other locations through this program. Determination of consumptive use and resolving injury to other users are complex issues that may discourage conservation efforts. Another issue is that Oregon’s program is entirely voluntary and officials estimate that many conservation projects are happening without entering into the Conserved Water Program, resulting in little gain for instream flow protection.⁵¹

In Montana, the legislature amended the state’s water code in 1995 to allow water right holders to donate or lease some or all of their water rights for transfer to instream use. This water code, M.C.A., 85-2-419, allows for water saved through increased water use efficiency to be donated or leased for instream use. According to state officials, this has become a useful tool for establishing instream reservations, opening opportunities that did not exist solely with the retirement of water rights.

In Washington, the Irrigation Efficiency Program is an effort to move conserved water into a state water trust. Currently, the government will provide up to 85% cost share for irrigation improvements and in return requires that a percentage of the water equal to or greater than the cost share be dedicated to the Trust Water program. In this way, conserved water can later be applied to instream or other uses (Lovrich, Siemann et al. 2004). Interestingly, the donor cannot

⁵⁰ Washington’s Water Exchange is at http://www.ecy.wa.gov/programs/wr/drought/2005/drt_wtrxchg.html.

⁵¹ Information on Oregon’s Conserved Water Program can be found at http://oregon.gov/OWRD/mgmt.shtml#Water_Conervation.

specify what the water will be used for and it is open for application to instream, irrigation, municipal and other uses. Again, determination of efficiencies and impacts to other water right holders is a difficult issue.

The Kansas legislature added authority in 1988 for the State to purchase water rights in over-appropriated areas on a cost-share basis. This authority had not been exercised as of 2005. Currently, Kansas is considering legislation to revise this authority and make it more attractive for water users to retire a water right in an over-appropriated basin through its Irrigation Transition Assistance Program. This program would be supported through the Natural Resources Conservation Service (NRCS) and its EQIP program (that provides incentive grants to help implement dryland practices). Kansas is pursuing federal funding for a pilot program to implement this Irrigation Transition Assistance Program. The primary purpose is to stabilize an aquifer, but it could also be used to stabilize stream flows (Stover 2005).

In conjunction with water conservation measures or as separate ways to work with agriculturalists, water trusts (see below) and others are promoting the following tools to help water right holders flexibly manage water rights to increase streamflows. These tools include modified land management (through practices such as switching to dryland crops or rotating crops); installing more efficient irrigation systems; withdrawing water from a different location in the system to help re-water the driest stretches; changing the source of irrigation water from surface water to groundwater or stored water; irrigating during the first half of the season, then leasing or donating the water instream for the second, drier half of the season; or coordinating with neighboring irrigators to take turns leasing or donating water instream. The Oregon Water Trust lists these tools as modified land management, water conservation, split-season leasing, source switching, point of diversion change, and rotational pooling agreements (<http://www.owt.org/solutions.html>).

A question exists as to whether the amount of consumptive water available from conservation projects that will clearly not adversely affect other water right holders is so negligible that the required effort to develop these programs is not a wise use of time and resources. An area that is being explored with potential benefits is working with agriculturalists and ranchers to help direct retired water rights in part to instream flows through voluntary agreements that may be pursued through donation, purchase or lease. States could help to make this possible by providing clear information on how to transfer rights, support for the necessary studies to determine potential impacts to other water right holders, support for the expenses associated with pursuing a change of use, studies and information on the true impacts of moving water from consumptive out-of-stream use to instream flows (to offset concerns from neighbors and other individuals) and the establishment of centers that could help potential donors or sellers meet with interested buyers.

The CWCBC has conducted a Statewide Water Supply Assessment (SWSI) to assess Colorado's current and future water needs and develop ways to meet projected demand. Through this process, round table meetings were held in every water basin in Colorado to discuss water needs and issues with local, state and federal agencies, the public, and nonprofit organizations. Several potential water development projects were identified. The meetings resulted in a conclusion that environmental and recreational demands for water are expected to increase with population growth. The CWCBC is looking at ways that its instream flow program can address environmental

needs and also provide and maintain regulatory stability in connection with water development projects.

Water Trusts and Other New Partnerships

A recent addition to instream flow protection is the development of private water trusts. Water trusts can generally be defined as nonprofit organizations whose mission is to work cooperatively with water right holders, governmental agencies and other interested parties to restore flows to priority streams. Currently, water trusts exist in four states—Colorado, Montana, Oregon and Washington. The Oregon Water Trust was the first, created in 1993. The Montana Water Trust was established in September 2001, the Washington Water Trust in 1998, and the Colorado Water Trust in 2002. The Columbia Basin Water Transactions Program (CBWTP), started in 2002 (<http://www.cbwtp.org>), acts as a water trust across the Columbia Basin states of Montana, Idaho, Washington and Oregon.

The four water trusts promote an approach that is consistent with the direction instream flow protection is taking within state agencies. Key aspects of the water trust approach include 1) a clearly articulated prioritization process and/or criteria to identify candidate streams; 2) involvement of board members and others from all elements of the water community; and 3) the application of a “market-based” approach to acquiring water rights through lease, purchase or donation only with willing parties.

The four existing water trusts all emphasize use of scientific approaches for identifying candidate streams for instream flow protection. Both the Washington Water Trust (WWT) and the Oregon Water Trust (OWT) prioritize first by basin or watershed. The OWT chooses those that have historically supported significant fisheries and analyzes streamflow and habitat conditions to evaluate potential acquisitions. The OWT “concentrates acquisition efforts on small to medium sized tributaries that provide spawning and rearing for salmonids... where small amounts of water can provide significant ecological benefits.” The WWT “established priority basins by a set of criteria which includes low flow problems due to irrigation diversion, ESA listed fish, and the potential to provide significant benefit.” According to the Montana Water Trust (MWT) Web site, “MWT uses science-based methods to identify those streams where the acquisition of out-of-stream water rights for conversion to instream water rights will provide the greatest potential benefits for fish and water quality.” The Colorado Water Trust (CWT) clearly outlines the criteria and factors it applies to the evaluation of potential acquisitions. For example, the criteria it uses, as listed on its Web site (<http://www.coloradowatertrust.org/guidelines.html>), are as follows:

1. Benefit “water short,” ecologically significant, water dependent natural environments (as shown on the CWT-DOW Identified Potential Conservation Interests river basin maps).
2. Complement rather than duplicate or compete with other established conservation programs.
3. Comply with Colorado water law, including water development under interstate compacts and equitable apportionments.
4. Have credible records of actual consumptive use, i.e., no “paper” or conditional rights, or other factors that invite hotly contested change cases.
5. Minimize harm to agricultural productivity.

6. Constitute the minimum interest necessary to accomplish the objective.

An interesting aspect of water trusts is the breadth of interests represented by the boards and outreach efforts. For example, the OWT writes that “Oregon Water Trust’s board of directors is a diverse group. Agricultural, environmental, legal and tribal perspectives are equally represented on the board. Oregon Water Trust’s diverse board membership allows us to openly and effectively address the concerns of rural Oregonians regarding their livelihoods and the conservation of aquatic resources.” The WWT writes “The Water Trust works cooperatively with farmers, ranchers, irrigation districts, tribes, public agencies, land trusts, and other non-governmental organizations to accomplish its stream restoration goals.” In Colorado, the board members of the CWT include water attorneys, ranchers, and representatives of public utilities, environmental organizations, municipal water providers, water conservancy districts and others. Its Web site states, “The Trust works in coordination with the agricultural community and other water users, governmental entities, land trusts, watershed groups and other non-profit conservation organizations.” The need for increased partnerships and representation of a broad spectrum of water users and other interested parties appears to be well established in the formation, board membership and stated intents of these water trusts. The CBWTP has funded over 100 water transactions since 2002, with funding provided largely by the Bonneville Power Administration (providing approximately \$4 million annually for water transactions) (Purkey 2005).

A final key aspect of the water trust approach is the use of market-based approaches to acquire instream flows. All four water trusts clearly indicate a reliance on market-based, voluntary means to secure instream flows. For example, the CWT writes, “the Trust uses market-based mechanisms to acquire rights by purchasing them from willing sellers and by accepting donations.” Water trusts are working within the existing water right system and implementing legislative authorities to transfer existing water rights to instream flow purposes through permanent change of use or short- to long-term leases. In all states but Colorado, the ability to transfer water to instream flow use has only been in existence since the 1990s (Colorado’s original enabling statutes from 1973 made transfers legal). Water trusts are filling an important niche by developing skills in water rights transactions and making this available to the public and governmental agencies. It is possible that they can provide an important extension to state agencies by working with members of the public who may be hesitant to work directly with a governmental agency. They can also, as is the case with the CWT, develop materials and help educate important communities about the intricacies of water rights transactions. The CWT is currently working on materials to help members of land conservation groups better understand how water rights are, and are not, intertwined with conservation easements and other methods employed to preserve open space.

As for accomplishments, these groups are at most 11 years old and, at youngest, three years old. According to its website, the Oregon Water Trust negotiated two water leases for a total of 1.4 cubic feet per second (CFS) in its first year. It currently manages 84 projects⁵² protecting 123.8

⁵² The Oregon Water Trust defines projects as short term if they include paid and donated leases and water use agreements less than or equal to five years long. Long-term projects include permanent acquisitions, conserved water projects, time-limited transfers, and conservation easements.

CFS. The Washington Water Trust shows on its Web site that it has completed 26 transactions⁵³ since its creation in 1998. These include one permanent purchase of a water right, one permanent donation, three 20-year leases, and one split-season lease. The majority are for one- to seven-year leases, some of which have been renewed over multiple years.

Water trusts are certainly not the only nongovernmental entities working with instream flow water rights. Groups such as Trout Unlimited and The Nature Conservancy have been working on these issues for decades. State agencies have and continue to work with these and other groups to help reach different communities and pursue effective instream flow protection. Currently, Trout Unlimited is actively involved through its Western Water Project in policy and on-the-ground instream flow issues. The Nature Conservancy is working with agencies across the Western United States from federal to state agencies. For example, TNC has assisted the State of Alaska in filing over 100 new water rights applications by providing expertise and fiscal resources.

Nonprofit groups in general, and in particular the highly specialized water trusts, can play an important role in meeting instream flow water needs. These groups provide a bridge to the private community that may have concerns about working directly with governmental agencies. As state agencies look for new funding sources, water trusts and other nonprofits can bring experience with fund raising and even eligibility that government agencies may lack to raise money for water rights acquisition, monitoring and protection.

Conclusions

The common belief that instream flow protection in the Western United States is unique to each state was strongly supported by the results of this report. States use different terms and varied statutes, rules and other administrative processes, among many other distinctions. The intent of this report has been to clearly describe how 18 states approach instream flow protection and to apply basic criteria and characteristics to compare what states have achieved toward the end of effective instream flow management.

It is not possible to compare and contrast these unique programs in a purely consistent manner, due to the states' diverse approaches. At the same time, a pattern of successes and constraints has emerged from this report and, as shown in the comparative and summary analysis sections, states do gravitate to different levels of performance. Colorado clearly emerges as a strong program. More instream flow water rights have been established in Colorado than in any other state. These are monitored and protected in an active manner, and the state has dedicated significant resources to this program. Furthermore, Colorado is considering all issues identified in the emerging issues section. The state is working actively with nonprofit organizations to improve its program's effectiveness, multiple flow levels have been prescribed, and new ways to achieve these flows are being pursued through species recovery agreements. One area of improvement in which Colorado could continue to look to its neighbors for assistance is the area of planning and

⁵³ The Washington Water Trust defines transactions to include a lease, purchase and sale, or donation agreement with willing water right holders and temporary or permanent transfer of the water rights to the State Trust Water Rights Program.

identifying priority streams for protection. Washington and Texas are interesting states for further study and to potentially use as models.

Finally, it is important to recognize a common constraint on analysis of instream flow programs. A truly interesting and valuable aspect of analysis of the effectiveness of instream flow protection would be to determine, with commonly accepted evaluation matrices, how this protection has resulted in resource protection. Fundamentally, the purpose of instream flow protection is to achieve the goals set forth in the protected uses as shown in Table 5. If the goal is to provide instream flow for recreation, then how much more valuable is that experience than it would be without the instream flow? If the goal is fishery or riparian habitat preservation or improvement, has the instream flow helped to achieve the stated goal? Are fisheries improving or persevering where they might have failed without the instream flow? No studies surfaced that specifically answer these questions. Although all managers and experts interviewed agreed that this is an important issue, for various reasons such studies are not feasible at this time. A primary reason is that there have been limited situations in which the only flow in a stream is the instream flow, so it is difficult to scientifically determine if an instream flow is sufficient for resource protection when it has nearly always been complemented by other flows, such as a senior call pulling water down a stream. At this time, it is not possible to analyze the impact of instream flow protection on the resource itself. The question of ultimate resource protection, however, is one of interest for future research.

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- <http://www.kwo.org/index.htm> Kansas Water Office.
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New Mexico

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South Dakota

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- <http://www.state.sd.us/denr/des/waterrights/summary.htm#Ownership> Summary of South Dakota water laws and rules.
- <http://www.state.sd.us/denr/des/waterrights/wmb.htm> Water Management Board.
- <http://www.sdgfp.info/Index.htm> South Dakota Game, Fish and Parks.
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Wyoming

- <http://gf.state.wy.us/index.asp> Wyoming Game and Fish.
- <http://seo.state.wy.us/> Wyoming State Engineer's Office.
- <http://seo.state.wy.us/PDF/IFAPSSHweb.pdf> Table of applications and permitted rights.
- <http://seo.state.wy.us/PDF/b849r.pdf> Overview from 2003 of Wyoming water rights.
- <http://wwdc.state.wy.us/> Wyoming Water Development Commission.
- <http://gf.state.wy.us/fish/watermangtISF/index.asp> Water Management and Instream Flow.

DECADES DOWN THE ROAD



AN ANALYSIS OF INSTREAM FLOW PROGRAMS IN COLORADO AND THE WESTERN UNITED STATES

APPENDIX A

INTERVIEW LIST

Interviews Conducted

National Contacts

Ms Nina Burkardt	U.S. Geological Survey
Mr. David Harrison	Moses, Wittemyer, Harrison and Woodruff
Mr. Doug Kinney	Natural Resources Law Center
Dr. Robert Milhous	U.S. Geological Survey
Mr. Drew Peternell	Trout Unlimited
Mr. Andrew Purkey	Colombia Basin Water Transactions Program
Mr. Robert Wiggington	The Nature Conservancy

State Contacts

Alaska

Ms Lana Davis	Alaska Division of Mining, Land and Water
Mr. Christopher Estes	Alaska Department of Fish and Game

Arizona

Ms Elizabeth Logan	Arizona Department of Water Resources
Ms Janet Ronald	Arizona Department of Water Resources

California

Ms Ellen Hanak	Public Policy Institute of California
Ms Pat Miner	California Department of Water Resources
Mr. Gary Smith	California Department of Fish and Game
Mr. Greg Thomas	Natural Heritage Institute

Colorado

Ms Linda Bassi	Colorado Water Conservation Board
Mr. Jeffrey Baessler	Colorado Water Conservation Board
Mr. Todd Doherty	Colorado Water Conservation Board
Ms Anne Janicki	Colorado Water Conservation Board
Mr. Jay Skinner	Colorado Department of Wildlife

Idaho

Ms Cindy Robertson	Idaho Department of Fish and Game
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Kansas

Ms Susan Stover	Kansas Water Office
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Montana

Mr. Curt Martin	Montana Fish, Wildlife and Parks
Mr. Bill Schenk	Water Resources Division
Ms Kathleen Williams	Montana Fish, Wildlife and Parks

Nebraska

Ms Susan France

Department of Natural Resources Surface Water

Nevada

Mr. Kurt Suchsland

Nevada Division of Water Resources

New Mexico

Ms Lynette Guevara

Mr. Greg Lewis

Mr. Nic Medley

Mr. DL Sanders

New Mexico Environment Department

New Mexico Office of the State Engineer

New Mexico Office of the State Engineer

New Mexico Office of the State Engineer

North Dakota

Ms Karen Goff

Mr. Robert White

North Dakota State Water Commission

North Dakota State Water Commission

Oklahoma

Mr. Derek Smithee

Oklahoma Water Resources Board

Oregon

Mr. Steve Brutscher

Mr. Dwight French

Mr. Rick Kepler

Mr. Bob Rice

Oregon Parks and Recreation Department

Oregon Water Resources Department

Oregon Department of Fish and Wildlife

Oregon Water Resources Department

South Dakota

Ms Stacey _____

Mr. Ron Duvall

Mr. Eric Gronlund

Water Rights Program, Department of Environment
and Natural Resources

Water Rights Program, Department of Environment
and Natural Resources

Water Rights Program, Department of Environment
and Natural Resources

Texas

Dr. Barney Austin

Mr. Todd Chenoweth

Mr. Chris Loft

Surface Water Resources Division, Texas Water
Development Board

Texas Commission on Environmental Quality

Texas Commission on Environmental Quality

Utah

Mr. Bill Bradwisch

Utah Division of Wildlife Resources

Washington

Ms Hedia Adelsman

Ms Wendy Bolender

Ms Peggy Clifford

Mr. Doug McChesney

Mr. Roger Von Gohren

Mr. Hal Beecher

Department of Ecology, Water Resources Program

Department of Ecology, Water Resources Program

Department of Ecology, Water Resources Program

Department of Ecology, Water Resources Program

Department of Ecology, Water Resources Program

Washington Department of Fish and Wildlife

Wyoming

Mr. Tom Annear

Wyoming Game and Fish

DECADES DOWN THE ROAD



AN ANALYSIS OF INSTREAM FLOW PROGRAMS IN COLORADO AND THE WESTERN UNITED STATES

APPENDIX B

STATE-BY-STATE DESCRIPTIONS



State by State Descriptions of Instream Flow Protection
State: Alaska

General Water Rights System

- When Alaska was admitted to the Union in 1959, the framers of the constitution recognized the importance of Alaska's water resources in Article VIII of the constitution.
 - Alaska's Constitution provides that the state's water resources are to be allocated to *beneficial uses* under the doctrine of *prior appropriation*. [Alaska Constitution, Article VIII, Section 13]
 - Appropriation by prior right is subject to public water supply, the only expressly recognized preferred use. Appropriation by prior right may also be subject to other preferences established by law and to the general *reservation* of fish and wildlife. [Id.]
 - The Alaska constitution explicitly identifies all water in the state as a common property resource, and has been interpreted to confer state waters to the *public trust*. "Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for *common use*." [Alaska Constitution, Article VIII, Section 13]
- After statehood, Alaska's early legislation further recognized the importance of state water resources. Alaska's 1966 Water Use Act established a prior appropriation water rights system. The Water Use Act also established a public interest finding-based permitting system overlying the prior appropriation system [AS 46-15] The Alaska Department of Natural Resources (DNR) is assigned the authority to administer the Act. DNR evaluates all applications for new or transferred water rights. The Act generally provides:
 - Procedures to maintain existing rights and obtain new rights to divert, impound, or withdraw surface and ground waters in the state;
 - Procedures for public notice and review, prior to the issuance of a permit [AS 46-15-133]; and
 - Abandonment and forfeiture procedures [AS 46-15-140].
 - Note: Water rights in Alaska are appropriated through use of a water rights permit system

Instream Flow Legal Recognition

- *Reservations* for instream uses, pursuant to Alaska Constitution, Article VIII, Section 13, was further defined in Alaska's 1980 Instream Flow Law. The 1980 amendments define instream reservations as "an *appropriation of water*." A.S. 46-15-145
- Although defined as an "appropriation", instream reservations are subject to additional procedural limitations compared to diversionary appropriations. Instream reservations are subject to *review* every ten years to verify that:
 - the purpose for reservation continues to be valid
 - the need for the reservation continues to exist [11 AAC 93.147 (b)(3)]
 - Instream flow review is also subject to public and agency notice requirements.

Options Available for Instream Flow Protection

- State's resources managed as a public trust
- *Public Interest* laws are included in the 1966 Water Use Act, requiring the DNR commissioner to evaluate public interest criteria when adjudicating water rights. This was the primary tool before ISF legislation was added in 1980. With it, the DNR can condition permits to protect fish and wildlife. It doesn't; however, protect unallocated water from future appropriations. Several aspects of the original act relate specifically to instream protection including AS 46.15.080:
 - (a) The commissioner shall issue a permit if he/she finds that (4) the proposed appropriation is in the *public interest*.
 - (b) In determining the public interest, the commissioner shall consider:
 - (2) the effect of the economic activity resulting from the proposed appropriation;
 - (3) the effect on fish and game resources and on public recreational opportunities;
 - (4) the effect on public health;
 - (5) the effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation.
- Reservation of water. A water right to maintain a specified instream flow or level of water at a specific point or part of a stream or water body for entire year or specified period of time for one of the recognized instream uses



- Reservations under AS 46.15.035 and .037 requiring ADNR to establish a reservation for fish before an approval can be issued for the removal of water from the hydrologic unit. These reservations are not subject to review or other provisions of AS 46.15.145.

Entities Authorized to Appropriate Instream Flows

- Any local, state, or federal government agency
- Any private person or organization

Entities Authorized to Request/Recommend Instream Flows

- Division of Mining, Land & Water (Alaska Department of Natural Resources, DNR) administers Alaska Water Use Act (1966) (Harle and Estes 1993).
- "The **Statewide Aquatic Resources Coordination Unit (SARCU)** was established by the Alaska Department of Fish and Game (ADF&G) as one of its tools for meeting water demands of the department for sustaining healthy fish and wildlife production."
- "The SARCU provides departmental coordination, scientific expertise, core personnel, data collection and analyses, and other relevant scientific information and actions needed by the ADF&G to comply with state, federal, and local laws. Fish, wildlife, and aquatic data are obtained, analyzed, and effectively used to make recommendations for sustaining fish and wildlife production, including waterway access. Examples of these actions are to quantify instream flow requirements for fish and wildlife, quantify diversionary and water withdrawal requirements for hatcheries and other departmental facilities, file for water rights for instream flow and out of stream uses, and provide scientific based recommendations to state federal and local permitting authorities for avoiding and mitigating impacts of water related developments to fish and wildlife production. The multi-divisional unit is headquartered in Anchorage with staff based in Anchorage and Juneau (Douglas Island)." <http://www.sf.adfg.state.ak.us/statewide/instflow/isfhome.cfm> on July 13, 2004

Process for Securing Instream Flow Rights or Reservations

- In addition to further defining the legal significance of instream reservations, Alaska's 1980 Instream Flow Law outlines the procedure for establishing instream flows. [AS 46.15.145]
- In 1983 DNR regulations on a more detailed procedure for establishing instream flows were adopted and later amended in 1990.
- The current regulation 11 AAC 93.142 specifies a detailed list of information that must be included in an application including:
 - The purpose of the proposed reservation
 - Location of the proposed reservation
 - The need for the reservation
 - The quantity proposed to be reserved
 - Method used to quantify the requested flow or lake level
 - Data substantiating the request
 - An application fee (Fees for instream flow application is presently \$500 per application. Annual fees of \$50 are required for non-domestic uses of more than 1500 gallons per day. State agencies have been exempt.)
- 11 AAC 93.142 - .146 specify procedure for notice, assignment of priority date, and agency hearings for instream applications.
 - Public *notice* is required once in a newspaper. Individual *notice* must be served to the Alaska Departments of Fish and Game and Environmental Conservation, any federal, state, or local government in whose jurisdiction the proposed reservation would occur, and any others who may have requested notice.
 - Priority date* is established by the date and time that an application is judged complete and accepted by ADNR for filing. An application containing partial data and needing no longer than three years more data (extendable for up to 2 more years for a total of five) is complete for purposes of acceptance for filing. Therefore the date of that acceptance becomes the priority date, per 11 AAC 93.146(e). After filing for a reservation, applicants then have up to three years, extendable for cause for an additional two years, to complete data collection and analysis to fully quantify the proposed reservation.
 - Informal *hearings* on proposed reservation of water may be held if DNR determines they are necessary.



Public Participation

- Private individuals can apply directly for instream or lake level reservation.
- Can participate in review of reservations (every 10 years or sooner). Public and agency review notice is given.

Protected Beneficial Uses of Instream Flows

Alaska's Instream Flow Law recognizes a variety of protected instream uses, including uses associated with recreation. AS 46.15.145(a) expressly recognizes the following:

- Protection of fish and wildlife habitat, migration, and propagation;
- Recreation and park purposes;
- Navigation and transportation purposes; and
- Sanitary and water quality purposes.

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- No formal acquisition program exists. Current law does not prohibit transfers though none have been executed. (Estes 2004)

Flow Quantification Methods

- No single method is specified by DNR regulation. Most methods used to date have been the IFIM or Tennant. (McKinney and Taylor 1988)
- Alaska's varied approaches to quantification are an area of great contention. Establishing a uniform methodology has proven difficult given Alaska's variety of climatic zones and stream characteristics.

Monitoring and Enforcement

- In comparison to other western states, Alaska's available streamflow data for monitoring ISF reservations is sparse. Over 99 percent of the rivers and streams in Alaska are ungaged (Harle and Estes 1993). The USGS, DNR, FWS, and BLM collect hydrologic data, but are limited by funding and access (inadequate road systems and extreme climates make collection difficult). Because the majority of instream flows are being appropriated by agencies (individuals are constrained by application fees and an expensive documentation process), monitoring contributions from individuals is limited.
- At this time Alaska does not require stream flow monitoring of established instream flow reservation reaches or lake levels. Subsequent diversionary appropriators could be required to monitor the compliance of their diversions with an established instream flow reservation.

Record Keeping

- A mapping and reporting program displays maps with the approximate location of water rights and reservations of water in a given area. Simple tabular reports display general information about the rights or reservations you may "select" on the map. http://www.dnr.state.ak.us/mlw/mapguide/wr_intro.htm

Federal and NGO Involvement

- BLM filed application in 1989 for ISF on Beaver Creek National Wild River, granted by DNR (Harle and Estes 1993).
- The legislature amended the Alaska Water Use Act in 1986 to establish procedures for state court basin-wide adjudication of federal reserved water rights. They also established procedures for DNR to conduct administrative basin-wide adjudication, including federal reserved water rights, if the federal agency consents to have its federal reserved water rights administratively adjudicated by DNR. Almost 49% of lands are federal reserved lands. Note that an instream flow reservation established under AS 46.15.145 would not take the place of or extinguish a federal reserved water right. See http://www.dnr.state.ak.us/mlw/factsht/wtr_fs/fed_rsv.pdf Federal Reserved Water Rights Fact Sheet for more detailed information.

**Statistics**

- Total Number of Reservations: 17 (Davis 2005), 256 pending applications (position had not been funded to adjudicate at DNR until 2004. These rights have priority date of as of applications' dates of acceptance for filing.)
- Stream miles 32.8 (McKinney and Taylor 1988)
- Year created: 1980
- Number of employees: 4 full-time employees

Other

- "Currently, less than 1 percent of Alaska's water resources have been allocated for various uses. In comparison to other states, Alaska's population of approximately 600,000 people is relatively small versus the state's large geographic size and environmental diversity. Many population centers and most waterways are inaccessible by road. Similarly less than one percent of the state's waterways have been inventoried to establish short- and long-term seasonal water volumes and availability. Historical baseline biologic data are also limited."
<http://www.sf.adfg.state.ak.us/statewide/instflow/isfhome.cfm> on July 13, 2004

Web Sites of Interest

- <http://www.adfg.state.ak.us/> Alaska Department of Fish & Game.
- <http://www.sf.adfg.state.ak.us/statewide/instflow/isfhome.cfm> Statewide Aquatic Resources Coordination Unit (SARCU).
- <http://www.dnr.state.ak.us/mlw/water/index.htm> Division of Mining, Land & Water, Water Resources Program.
- http://www.dnr.state.ak.us/mlw/factsht/wtr_fs/instream.pdf Reserving Water for Instream Use Fact Sheet.
- http://www.dnr.state.ak.us/mlw/factsht/wtr_fs/fed_rsv.pdf Federal Reserved Water Rights Fact Sheet.
- http://www.dnr.state.ak.us/mlw/factsht/wtr_fs/wtr_right.pdf Water Rights in Alaska Fact Sheet.
- http://www.dnr.state.ak.us/mlw/mapguide/wr_intro.htm Water Rights and Temporary Use Authorizations.

Sources

- Davis, Lana (May 2004, April 2005) Alaska Division of Mining, Land & Water, Water Resources Program. Personal Communication.
- Estes, Christopher C. (September 2004) Alaska Department of Fish & Game. Personal Communication.
- Harle, Mary Lu and Christopher C. Estes (1993) "An Assessment of Instream Flow Protection in Alaska" in *Instream Flow Protection in the West, Revised Edition 1993*. Lawrence J. MacDonnell, Teresa A. Rice and Steven J. Shupe, eds, Natural Resources Law Center, University of Colorado School of Law, Boulder.
- Gillilan, David M. and Thomas C. Brown. (1997) *Instream Flow Protection: Seeking a Balance in Western Water Use*. Island Press, Washington, D.C.
- McKinney, Mathew J. and Jonathan G. Taylor (October 1988), *Western State Instream Flow Programs: A Comparative Assessment*, Instream Flow Information Paper No. 18, Biological Report 89(2), US Department of the Interior, Fish and Wildlife Service, Research and Development, Washington, D.C.
- Above websites
- Please note that at the time of publication, comment and review had not been received from the Chief Water Manager or the Alaska Department of Fish and Game



State-by-State Descriptions of Instream Flow Protection

State: Arizona

General Water Rights System

- Arizona uses the doctrine of prior appropriation in determining right to surface waters.
 - Although Arizona did not become a state until 1912, Arizona's commitment to a prior appropriation system of water rights began before statehood.
 - In 1864, the First Legislative Assembly of the Territory of Arizona passed a "first in time, first in right" rule for Arizona's surface waters. (<http://ag.arizona.edu/AZWATER/arroyo/081con.html>)
 - Main provisions of Arizona's Surface Water Code:
 - In Arizona, "[a]ny person, the State of Arizona or a political subdivision thereof may appropriate unappropriated water for... recreation, wildlife, including fish..." [A.R.S. §45-151(A)]
 - There is no physical diversion requirement for an appropriation of water in Arizona.
 - The Department of Water Resources must apply preferences "as between two or more pending conflicting applications for the use of water from a given water supply, when the capacity of the supply is not sufficient for all applications" in the following order: (1) domestic and municipal; (2) irrigation and stock watering; (3) power and mining; (4) recreation and wildlife, including fish, and (5) nonrecoverable water storage. [A.R.S. §45-152]
 - An application for a permit to appropriate water for beneficial use shall be approved if the application is in proper form unless "the application or proposed use conflicts with vested rights, is a menace to public safety, or is against the interests and welfare of the public." Every criterion must be satisfied for the application to be approved. [A.R.S. §45-153]
- Although the exclusive water rights system for surface water is prior appropriation, special management areas and the reasonable use doctrine are applied to manage groundwater.
 - Arizona has active groundwater management areas within the state. In these areas, conservation requirements must be met, and groundwater use is closely regulated. Outside of active management areas, groundwater use is subject to the doctrine of reasonable use. Both inside and outside of active management areas, restrictions are placed on the transportation of groundwater from one groundwater basin to another.
 - Subflow, considered a category of surface water physically located beneath the surface of the earth, is administered under the prior appropriation system. The most recent legal decision regarding subflow was issued in 2000 (*In re the General Adjudication of all Rights to Use Water in the Gila River System and Source*, 198 Ariz. 330, 9 P.3d 1069 (2000)). This case defines categories of wells that are subject to the jurisdiction of the adjudication court. These wells are subject to a presumption that they are pumping subflow as a matter of law, but this legal presumption may be rebutted by a factual showing.

Instream Flow Legal Recognition

- Instream flow protection is found in A.R.S. § 45-151, which provides that unappropriated water may be appropriated for, among other things, recreation and wildlife, including fish. Under A.R.S. § 45-141, beneficial use is the basis, measure and limit to the use of water. A physical diversion of water is not required to appropriate water under Arizona law.
- In addition to the above provisions of Arizona water law, the legislature has adopted several statutes to protect and restore rivers and streams and associated riparian habitats. See A.R.S. §§ 45-2101 et seq. (Water Protection Fund); A.R.S. §§ 17-231, 17-401 to 407 (habitat restoration projects); A.R.S. §§ 17-296 to 298.01 (Heritage Fund); A.R.S. § 37-1156 (Riparian Trust Fund); and A.R.S. §§ 41-501 to 503 (natural areas protection). At the administrative level and on judicial review, the Department's statutory authority to administer an instream flow program has been upheld. This issue is currently before the Arizona Court of Appeals.
- How Arizona's ISF program came to be
 - In 1976, the Arizona Court of Appeals determined that instream appropriations are permissible, since ISF uses are recognized in statute and appropriation in Arizona does not require a physical diversion. [*McClellan v. Jantzen*, 547 P.2d 494, 496 (Ariz. Ct. App. 1976)]
 - The legislature added "wildlife, including fish" to the state's list of beneficial water uses in 1941. In 1962 the legislature also added "recreation."
 - The Court reasoned that the addition of these two uses is evidence enough that a diversion is not necessary to receive a water right under state law (Gillilan and Brown 1997 p 113).



- Following the *McClellan* decision, in 1979, the DWR received two applications for permits to appropriate water for instream flow purposes. The Arizona Chapter of The Nature Conservancy filed applications for Ramsey and O'Donnell Creeks. In 1983, DWR granted these applications and issued permits to appropriate. In 1990, DWR issued a certificate of water right for instream flows in Ramsey Creek.
- ISF protection today
 - The DWR continues to issue new ISF water right permits under the authority of Arizona's general appropriation statutes found in Title 45.
 - The DWR has also allowed for the transfer of an existing use to an ISF use under A.R.S. §45-172 (which applies to transfers of all uses). Private entities may sever and transfer their water rights and retain the original priority date if certain statutory criteria are satisfied. If an existing right is severed and transferred for instream flow purposes, then it will lose its priority date unless it is transferred to the "state or its political subdivisions."
 - In 1986, DWR convened an interagency task force consisting of professionals with experience in quantifying instream flow beneficial uses. The stated goal of the Task Force was to "make recommendations to the Department on acceptable methods for determining beneficial use standards." For this purpose, two subcommittees were established: the Hydrologic Subcommittee and the Biological Subcommittee. The recommendations of the Task Force resulted in the Department's issuance of the "Guide to Filing Applications for Instream Flow Water Rights in Arizona." The Guide was adopted to provide guidance to potential applicants on the process by which statutory requirements could be satisfied.
 - An application for a new ISF water right may be superseded by a water right application for other uses (e.g., domestic, irrigation, or power) of water from a given water supply, when the capacity of the supply is not sufficient for all applications. ISF uses are subordinated to almost every other water use. In effect, other water uses may be approved over a contemporaneously filed application for an instream use. [A.R.S. §§45-153 and 157]
 - In 1994, the legislature established the Arizona Water Protection Fund to provide for the "restoration and conservation of the water resources" of Arizona.
 - The policy of this legislation is to "allow the people of this state to prosper while protecting and restoring this state's rivers and streams and associated riparian habitats, including fish and wildlife resources that are dependent on these important habitats." [A.R.S. §45-2101]
 - From 1995 through 2000, the AWPf funded 161 projects with grants totaling more than \$30 million.

Options Available for Instream Flow Protection

- Surface water law states "Any person, the state of Arizona or a political subdivisions thereof may appropriate unappropriated water for domestic, municipal, irrigation, stock watering, water power, recreation, wildlife, including fish, nonrecoverable water storage pursuant to § 45-833.01, or mining uses, for his personal use or for delivery to consumers."
- "Wildlife, including fish" added in 1941 and "recreation" in 1962 as permissible uses that could occur without a diversion.
- In 1994, the legislature adopted the Water Protection Fund statutes, A.R.S. § 45-2101 et seq., which the legislature explicitly intended to protect riparian areas (Ronald 2005).

Entities Authorized to Appropriate Instream Flows

- "Any person, the state of Arizona or a political subdivisions thereof may appropriate unappropriated water..." [A.R.S. § 45-151]

Entities Authorized to Request/Recommend/Administer Instream Flows

- Arizona Department of Water Resources (DWR) administers water rights

Processes for Securing Instream Flow Rights or Reservations

- Acquiring new ISF right appropriations
 - The procedures for filing an application for a permit to appropriate and the statutory criteria that must be considered by the Department in reviewing such an application are described in A.R.S. §§ 45-152 and 153. Under A.R.S. § 45-153, an application for a permit to appropriate water for beneficial use shall be



approved by the director if the application is in proper form unless "the application or proposed use conflicts with vested rights, is a menace to public safety, or is against the interests and welfare of the public." Each of these criteria must be satisfied in order for the application to be approved.

- After a permit is granted, if the applicant submits proof that the water right has been perfected (by putting water to beneficial use), the Department will issue a certificate of water right. [A.R.S. § 45-162]
- Before a permit may be granted, the applicant must submit one year of streamflow measurement data. In order to perfect an instream flow right and obtain a certificate of water right, the applicant must submit four years of streamflow measurement data (Logan 2005).
- Guidelines and a form for ISF applications at <http://www.water.az.gov/adwr/content/forms/Files/WaterRights/ISFguide1233002.pdf>
- Acquiring ISF rights through transfer of existing right
 - Arizona law also allows for transfers to ISF uses under its general transfer statute A.R.S. §45-172.

Public Participation

- Individuals, organizations can apply for water rights
- A protest to an application for a permit to appropriate water may be submitted on any of the grounds set forth in A.R.S. § 45-153. The DWR may issue a permit over protests.
- After an application is determined to be correct and complete, the applicant must post a notice of the filing of the application in the vicinity of the place of use for three continuous weeks, and publish the notice in a newspaper of local circulation once a week for three weeks. In addition, the Department mails notice to those entities that subscribe to the Department's free watershed subscription service. The notice indicates that protests may be filed with the Department within 60 days of the last notice published in the newspaper. Regardless of whether a protest is filed, the Department may either issue a decision on the application or set the matter for an administrative hearing. The Department has up to 580 days to either grant or deny an application for a permit to appropriate water for instream flow purposes. If a hearing is held, the time frame is increased by 120 days. The Director's final decision is subject to judicial review.

Protected Beneficial Uses of Instream Flows

- Recreation, wildlife, and fish purposes are all permitted ISF uses in Arizona. [A.R.S. §45-151]

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Private entities may sever and transfer their water rights and retain the original priority date if certain statutory criteria are satisfied. If an existing right is severed and transferred for instream flow purposes, then it will lose its priority date unless it is transferred to the "state or its political subdivisions."
- Under A.R.S. § 45-172, if the water use involves a watershed or drainage area that supplies or contributes water for the irrigation of lands within an irrigation district, agricultural improvement district or water users' association, then the consent of that entity is required in order for DWR to accept the application for filing.
- As of May 2005, there has been one transfer of a water right from a diversionary right for irrigation purposes to an in-situ water right to a lake for recreation and wildlife, including fish under A.R.S. § 45-172.

Flow Quantification Methods

- The method used is determined by the applicant. It must be sound enough to withstand review by the DWR's hydrology section and biological review from the Arizona Department of Fish and Game.

Monitoring and Enforcement

- To perfect and certificate an instream flow water right, streamflow must be monitored for four years. This monitoring is the responsibility of the applicant.
- Until the adjudication court issues decreed water rights and the Department appoints a water superintendent or other official, a sheriff or other police officer within a county may enforce surface water rights upon complaint by "an affected person." A.R.S. § 45-112(C). A.R.S. § 45-112(A) lists the types of violations that are classified as class 2 misdemeanors. Also, individual water users may initiate judicial proceedings to resolve conflicts.
- It is the applicant's responsibility to monitor streamflows after a certificate of water right is granted (not the DWR).



Record Keeping

- The Department maintains a registry of applications, permits and certificates of water rights for all surface water rights, including those for instream flow purposes.

Federal and NGO Involvement

- In 1986, DWR convened an interagency task force consisting of professionals with experience in quantifying instream flow beneficial uses. The stated goal of the Task Force was to "make recommendations to the Department on acceptable methods for determining beneficial use standards." For this purpose, two subcommittees were established: the Hydrologic Subcommittee and the Biological Subcommittee. The recommendations of the Task Force resulted in the Department's issuance of the Guide.
- Federal agencies and NGOs can apply for rights (and ISF rights have been granted to TNC and BLM and Tonto National Forest) (Dishlip 1993)
- Gillilan and Brown say that to the best of their knowledge, AZ is the only state where the Forest Service has applied for ISF rights under state law. The Forest Service is fairly active in working with state for ISF protection on federal lands. (p206)

Statistics

- Number of ISF rights: 93 applications have been filed for instream flow water rights.
- Stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: 1979, ADWR received two applications for permits to appropriate water for instream flow purposes. In 1983, ADWR granted these applications and issued permits to appropriate. In 1990, the certificate of water right issued for instream flows in Ramsey Creek.
- Number of employees: 6 employees at ADWR (dedicated part-time to ISF and part-time to other issues)

Other

- No additional information.

Web Sites of Interest

- <http://www.water.az.gov/adwr/> Arizona Department of Water Resources.
- <http://www.water.az.gov/adwr/content/forms/Files/WaterRights/ISFguide1233002.pdf> Application process and form for instream flow water maintenance.
- <http://mitchtobin.com/Archive/Patagonia%20water%20conflict.htm> Article about TNC and town of Patagonia.

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- Dishlip, Herb (1993) "Instream Flow Water Rights: Arizona's Approach" in *Instream Flow Protection in the West, Revised Edition 1993*, Lawrence J. MacDonnell, Teresa A. Rice and Steven J. Shupe, eds, Natural Resources Law Center, University of Colorado School of Law, Boulder.
- Gillilan, David M. and Thomas C. Brown. (1997) *Instream Flow Protection: Seeking a Balance in Western Water Use*. Island Press, Washington, D.C.
- Logan, Elizabeth. (February 2005) Arizona Department of Water Resources. Personal Communication.
- Ronald, Janet (June 2005) Arizona Department of Water Resources Legal Division. Personal Communication.
- Above Web sites

State-by-State Descriptions of Instream Flow Protection
State: California

General Water Rights System

- Generally, California maintains a unique and complex system of water rights:
 - Incorporating principles of common law riparianism as well as newer principles of prior appropriation.
 - In 1850, California was one of the first Western states to join the union. California's admission to the union predated modern theories of prior appropriation; as such, Eastern riparian law formed the basis of California's water code. Eventually, principles of riparianism melded with California's prior appropriation customs, established in gold mining camps.
 - California's first Legislature, in 1850, adopted riparian common law as the governing principle for State water allocation. However, the Legislature has since recognized the mining custom of prior appropriation in addition to riparian law. [See Cal. Stat. 1851-5-621, sanctioning the use of "customs, usages, or regulations established and in force at the bar, or diggings..."]
- California water rights in application: After much debate over conflicting legal doctrines, the California Supreme Court has specified where and when each system should apply in law.
 - In an 1886 decision, the California Court proclaimed that rules of riparianism would govern on lands that have been granted by the federal government to individuals or the state, while prior appropriation would prevail on public domain. [see *Lux v. Haggin*, 69 Cal. 255, 10 P. 674 (1886)]
 - The exception to this distinction occurs in situations where land passes out of the public domain before appropriations were initiated in 1872 (1872 being the year that the California Legislature extended explicit recognition to prior appropriation) (Gillilan and Brown 1997).
 - Both riparian and appropriative water rights are limited to the "reasonable" amount of water needed for a "beneficial use." [Calif. Constitution Article 10, Section 2] (Gillilan and Brown 1997) As such a riparian right can only prohibit future appropriation and diversions to the extent that the riparian may reasonably use water.
 - Today, all surface water rights acquired since December 1914 must be based on a permit or license issued by the State Water Resources Control Board (SWRCB), except for riparian rights. [per *People v. Shirokow*, 26 Cal. 3d 301, authorized administration of the state's water rights system to the Water Resources Control Board] (Gray 1993)

Instream Flow Legal Recognition

- California does not allow new appropriations for ISF purposes without diversion, but does allow an individual with a consumptive use permit to acquire an ISF right via a change of their existing permitted use.
 - In 1991, California enacted legislation which allowed an existing appropriator to dedicate an existing right to instream flow purposes.
 - The State Water Resources Control Board (hereafter the "Board") may grant permission only if it "finds that the change may be made without injuring any legal user of the water and without unreasonably affecting fish, wildlife, or other instream beneficial uses." [Cal Water Code §1707]
- The degree of legal protection of ISF rights in California varies according to the mechanism used.
 - Indirect ISF protection through agency action or inaction may not create permanent protection of ISF, because no property right is conferred once an agency acts.
 - ISF protection afforded by the Wild and Scenic Rivers Act may likewise lack legal protection. In a recent ruling on a diversion from the Lower American River (LAR), the SWRCB stated that: "[r]ead closely, the [California Wild and Scenic Rivers] Act appears to promise more protection than is actually delivered." The Board was ruling on an attempt to prevent the East Bay Municipal Utilities District (EBMUD) from depleting flows in the state-designated wild and scenic LAR. Instream flow advocates argued in vain that the LAR's status as a state wild and scenic river should constrain EBMUD from removing water upstream from the designated part of the river. In a narrow interpretation of California's Wild and Scenic Rivers Act, the Board found the Act does not prevent the construction of diversion or impoundment facilities." (Williams and McHugh 1990)
 - The strongest legal protection of ISFs in California lies with those acquired through transfer (per Cal. Water Code §1707). As permitted rights, ISF permits issued by the Board are legally defensible property rights.



- California's Fish and Game Code is a source of additional protection. Section 5937 of the code states that "the owner of any dam shall allow sufficient water at all time to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam." With support from California Trout and Trout Unlimited, among others, this provision is gaining greater prominence (Gillilan and Brown 1997, p142). Section 5946 of the code ensures that the provisions of 5937 shall be met in full in particular areas of the state (Smith 2005).

Options Available for Instream Flow Protection

- A 1991 amendment to California's Water Code (§1707) allows an existing appropriator to dedicate all or a part of its water rights to ISF purposes.
- The Broad has broad authority to protect ISF through grants of water rights permits and regulation of existing water rights
- California has consolidated regulation of water rights with administration of federal and state water pollution control, so it can protect instream uses threatened by deteriorating water quality.
- The Judiciary has authority through to enforce prohibition against wasteful, unreasonable, or nonbeneficial uses of water and pursuant to powers to enforce public trust doctrine (Gray 1993).

Entities Authorized to Appropriate Instream Flows

- New appropriations of water for instream flow purposes without a diversion is not permitted (Miner 2004).

Entities Authorized to Request/Recommend/Administer Instream Flows

- Any water right holder can transfer a right to ISF purposes if established criteria are met.

Processes for Securing Instream Flow Rights or Reservations

- Transfers of water in California are governed primarily by California Water Code §1707. This process is described in the document: <http://www.waterrights.ca.gov/watertransferguide.pdf>. Some details pertinent to instream flows include the following:
 - "Any person entitled to the use of water, whether based upon an appropriative, riparian, or other right, may petition the board pursuant to this chapter, Chapter 6.6 (commencing with Section 1435) or Chapter 10.5 (commencing with Section 1725) for a change for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in, or on, the water. [Cal. Water Code §1707 (a)(1)]
 - Transfer of water is subject to various regulations and environmental laws such as the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA) and the California Water Code. To transfer water, a water right holder petitions the State Water Resources Control Board. Information and documentation for the transfer depends on the specifics of each water transfer proposal and may be covered by documentation that has been done for various agency programs." (<http://www.watertransfers.water.ca.gov/faqs/index.cfm>)

Public Participation

- Individuals are permitted to transfer existing water rights to instream flow purposes.

Protected Beneficial Uses of Instream Flows

- Overall, California law allows for a broad range of protected uses, including recreation.
- Explicit:
 - Cal Water Code §1707(a)(1) allows changes to water right permits and licenses for the purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in, or on the water.
- Implicit:
 - When the Board protects ISFs under the Federal Water Pollution Control Act, the legislature has allowed for an even broader range of protected uses. Cal. Water Code § 13050 (f) states that "Beneficial uses" of the waters of the state that may be protected against quality degradation include, but are not limited to, ...recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. (<http://www.leginfo.ca.gov/cgi->



[bin/displaycode?section=wat&group=13001-14000&file=13050-13051\)](#)

- California's Wild and Scenic Rivers System protects "scenic, recreational, fishery, or wildlife values... together with their immediate environments."

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- As of 1991, any water right holder can transfer a right to ISF purposes if established criteria are met.
 - An Environmental Water Account (EWA) was established in 2001 (Hanak 2004; Thomas 2004). "The EWA is authorized to "re-operate" the Central Valley Project (CVP) and the State water Project (SWP) so long as the changes in operations incur no uncompensated costs to the Projects' water users. The EWA is authorized to acquire, through market transactions with willing sellers, alternative sources of water called "EWA assets". These assets are then used to:
 - augment in stream flows and Delta outflows
 - modify water exports to protect fisheries, and
 - replace regular project water that was used to protect fish."
- (<http://www.n-h-i.org/Projects/WaterResources/WaterResources.html>)

Flow Quantification Methods

- It is the policy of the California Department of Fish and Game to use IFIM methodologies. Methodologies are determined on a case-by-case basis depending on the habitat and other issues under consideration (Smith 2005)

Monitoring and Enforcement

- No information available.

Record Keeping

- Information on water transfers can be found at <http://www.watertransfers.water.ca.gov/>.

Federal and NGO Involvement

- No information available.

Statistics

- Number of ISF rights: No information available.
- Stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: In 1991, California enacted legislation which allowed an existing appropriator to dedicate an existing right to instream flow purposes
- Number of employees: Approximately 6 full-time employees

Other

- As of 1993, the California Legislature had designated seven rivers or river segments as "wild and scenic." These rivers and segments include reaches on the American River; and the Smith, Klamath, Eel, and Trinity Rivers (as well as many of their tributaries), the West Walker River, and the East Fork of the Carson River. (Gray 1993 p11-9)
- "Perhaps the most effective use of existing law for stream preservation could be made not by granting appropriations for recreational purposes but by denying appropriations that destroy them." (Gillilan and Brown 1997 quoting Frank Trelease, p. 140)

Web Sites of Interest

- <http://www.swrcb.ca.gov> State Water Resources Control Board.
- <http://www.dwr.water.ca.gov/> Department of Water Resources.
- <http://www.dfg.ca.gov/> California Department of Fish and Game.



- http://www.leginfo.ca.gov/.html/wat_table_of_contents.html California Water Code.
- <http://www.waterrights.ca.gov/watertransferguide.pdf> Document on Water Transfers in California.
- <http://www.watertransfers.water.ca.gov/faqs/index.cfm> FAQ's related to Water Transfers in California.
- <http://www.n-h-i.org/Projects/WaterResources/WaterResources.html> Natural Heritage Institute.

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State by State Descriptions of Instream Flow Protection
State: Colorado

General Water Rights System

- In the eyes of many, Colorado is the original prior appropriation state. In 1982, the Colorado Supreme Court erased any doubts that riparianism was still alive. [see *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443]
- Colorado's unique water rights system
 - Colorado is the only prior appropriation state that does not have a permit system.
 - "Water matters" are considered by a unique judicial system that specializes in water right claims.
 - Colorado has used a judicial water rights system since statehood.
 - Colorado's modern water court system was established in 1969 through the enactment of the Water Right Determination and Administration Act. [C.R.S. §§37-92-101 to 602]
 - The 1969 Act simplified earlier administrative arrangements by establishing seven basin-specific water divisions.
 - Each water division has a division engineer who reports to the state engineer.
 - Each water division has a water court, most with a water judge, referee, and clerk.
 - The water rights adjudication process
 - Upon filing an application with water court, the application is published in the water court resume, which provides notice to all users in the basin of proposal and is published once a month. The application is also noticed in local newspapers. Each court varies in publication procedures.
 - Once the application is filed and published, parties with concerns regarding the application have two months to oppose the application and file a "Statement of Opposition" with the water court.
 - If there is no opposition to an application, the matter usually goes before the water referee who rules on most of the cases prior to being heard by a water judge. After the referee has reviewed the application, asked for further information and clarification, and received a consultation from the Division Engineer as to his or her opinion on the application, the referee will issue what is known as a "Ruling of the Referee." Once that ruling is mailed, other persons then have 20 days to review the ruling and file a protest to the referee's ruling. If no protest is filed, the matter goes to the judge who signs the ruling, making it a decree of the court.
 - If the matter is protested, the case will go before the water judge for trial. The judge will set the matter for hearing and decide whether or not the application should be granted. Should any party participating in the case be dissatisfied with the judges ruling, they can then appeal that matter directly to the Colorado Supreme Court (<http://water.state.co.us/wateradmin/waterright.asp>).
- Main statutory/constitutional provisions
 - "[T]he right to divert the unappropriated waters of any natural stream shall never be denied." [Colo. Const. Art. XVI, §6]
 - "The water of every natural stream, not heretofore appropriated, within the State of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the People of the State, subject to appropriation as hereinafter provided." [Colo. Const. Art. XIV, §5]
 - Water rights can be lost through abandonment in Colorado. [C.R.S. §37-92-402]

Instream Flow Legal Recognition

- Colorado's instream flow program was created by statute in 1973. [C.R.S. §37-92-102] Through legislative amendment and Supreme Court decisions, Colorado's ISF program has evolved.
 - In 1973, the Colorado General Assembly eliminated any statutory reference to "diversion" as a requirement for appropriation and put into place a state program for the preservation of stream flows, administered through the Colorado Water Conservation Board ("CWCB"). The 1973 legislation was later affirmed by the Supreme Court in 1979 in *CWCB v. Colorado River Water Conservation District*.
 - "[B]eneficial use" shall also include the appropriation by law of such minimum flows between specific points or levels for natural streams and lakes as are required to preserve the natural environment to a reasonable degree." [C.R.S. §37-92-103]
 - Later amendments to the original 1973 legislation include:
 - Authority for the CWCB to appropriate new rights by acquisition of senior right by purchase, gift, or contractual agreement. [now codified in C.R.S. §37-92-102(3)(c.5), amended in 1986]



- Authority for the CWCB to appropriate or acquire water not only to preserve existing habitats but also to improve Colorado's riparian corridors. [C.R.S. §37-92-102(3).]
- Authority for water rights owners to loan water to the CWCB for instream flow use for a period not to exceed 120 days, but only in a basin or county where the governor declares a drought emergency (HB 1320, 2003) House Bill 1039, passed in the 2005 legislative session, removes the requirement in HB 1320 of declaration of drought emergency [C.R.S. §37-83-105(2)] (Bassi 2005).
- In *Aspen Wilderness Workshop, Inc. v. Colorado Water Conservation Bd.*, 901 P.2d 1251 (1995), the Colorado Supreme Court found the CWCB has a "unique fiduciary duty" to the citizens of the state.
- "The Board also shall request recommendations from the United States Department of Agriculture and the United States Department of the Interior." [C.R.S. §37-92-102(3)]
- The CWCB has issued ISF specific rules in 2 CCR 408-2.
- Overall, Colorado's statutes provide a means by which new ISF appropriations may be made by the CWCB as well as transferred to ISF uses from senior consumptive uses (via. the CWCB's acquisition program).

Options Available for Instream Flow Protection

- New appropriation of an ISF water right can be acquired to preserve the environment to a reasonable degree
- An existing water right can be acquired for ISF purposes (through grant, purchase, donation, bequest, devise, lease, exchange, or other contractual agreement) to preserve or *improve* the environment to a reasonable degree.
- Management of reservoir releases (example of Phantom Canyon and Longmont in Gillilan and Brown 1997)
- Short-term loan or lease of water right from private individual or water bank to the CWCB

Entities Authorized to Appropriate Instream Flows

- The Colorado Water Conservation Board (CWCB) is the only entity that can hold an ISF water right after 1973.
- State water courts hear and adjudicate water rights
- Individuals, agencies, and organizations can transfer rights to the CWCB for conversion to ISF use.

Entities Authorized to Request/Recommend/Administer Instream Flows

- The CWCB is the principle agency. It can apply for new or acquire existing water rights
- Water Courts adjudicate water rights and hear protests over new fillings or change of use.
- The Division of Water Resources administers water rights and is responsible for administering calls.
- The Division of Wildlife, Division of Parks and Outdoor Recreation, U.S. Departments of Agriculture and Interior make ISF recommendations per statute
- Public can petition the CWCB to consider an instream flow and can review and comment on recommendations.

Processes for Securing Instream Flow Rights or Reservations

- The CWCB, in order to initiate an appropriation, must determine that the natural environment will be preserved to a reasonable degree by the water available for the appropriations to be made; that there is a natural environment that can be preserved to a reasonable degree with the Board's water right, if granted; and that such environment can exist without material injury to water rights." (Covell 1998)
- Colorado prioritizes potential instream flow and natural lake level appropriations through an annual work plan procedure. The CWCB staff works in conjunction with representatives from the state's divisions of wildlife and parks, federal agencies from the Departments of the Interior and Agriculture, interested nongovernmental organizations such as Trout Unlimited and The Nature Conservancy, and the public.
- Rules governing the appropriation process for new appropriations and acquisitions can be found at http://cwcb.state.co.us/isf/Rules/Adopted_Rules_7-21-04.pdf. In summary the following steps are followed:
 - Recommendations of streams and lakes for protection made to the CWCB Board or staff at any time.
 - The Board approval process includes at least 6 board meetings with multiple opportunities for public comment and notice to interested parties. Staff provides the Board with necessary engineering and legal analysis. The Board declares its intent to appropriate flows in January, published notice is sent to interested parties, public comment is taken in March, notice to contest and ISF appropriation must be submitted in March, staff notifies parties of contested ISF appropriations in April. At its May Board Meeting, the Board may take final action on uncontested appropriations and set hearings on contested appropriations. A prehearing conference is held in July for contested appropriations. Staff makes its final recommendations



in September and notifies interested parties. The Board may hold further hearings. Final action and further updates can follow at subsequent Board meetings in November and later.

Public Participation

- Rules governing the ISF process for acquisitions and new appropriations provide for public comment.
- The CWCBC sends notice to a mailing list of interested parties when it intends to file for or acquire an ISF.
- Any individual or NGO can transfer an existing water right to the CWCBC to be held as an ISF water right.
- Public can petition the CWCBC to consider an ISF and can review and comment on ISF recommendations.

Protected Beneficial Uses of Instream Flows

- “[B]eneficial use” shall also include the appropriation by law of such minimum flows between specific points or levels for natural streams and lakes as are required to preserve the natural environment to a reasonable degree.” [C.R.S. §37-92-103].
- Authority for the CWCBC to appropriate or acquire water not only to preserve existing habitats but also to improve Colorado’s riparian corridors. [C.R.S. §37-92-102(3)]
- Instream flows have been granted for fisheries, riparian habitat and other aquatic organisms.

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- The Board may acquire, by grant, purchase, donation, bequest, devise, lease, exchange, or other contractual agreement, from or with any person, including any governmental entity, such water, water rights, or interests in water in such amount as the Board determines is appropriate for stream flows or for natural surface water levels or volumes for natural lakes to preserve or improve the natural environment to a reasonable degree.
- The Acquisition Program was established in 1986 (SB 91) and amended in 1987 (SB 212). These statutes clearly authorized the CWCBC to acquire water rights for ISF by methods other than appropriation, and clarified that only CWCBC could do this (Sims 1993). It should be noted that the original legislation in 1973 did not preclude acquisitions but they were not pursued fully until the above legislative changes.
- As in most other states, the transferred right belongs to the state. Colorado however is only state where individual/organization/agency that donates right retains some control if desired in the administration, monitoring and enforcement of right (Gillilan and Brown 1997 p125-126)

Flow Quantification Methods

- R2CROSS and PHABSIM are primarily used.

Monitoring and Enforcement

- Active monitoring program managed by the CWCBC.
- The CWCBC partners with other agencies, primarily the U.S. Geological Survey but also with municipalities and other groups to monitor stream levels. Staff of the Colorado Division of Wildlife (DOW) and the Division of Water Resources (DWR) also act as “eyes and ears” on the ground regarding stream conditions.
- The CWCBC has one staff member dedicated to protection and one to monitoring and enforcement. Staff has placed calls to enforce instream flow water rights since the program’s inception (Baessler 2005). Other protection comes through constant review of the water right resume and requests for stipulations and filings of statements of opposition (Bassi 2005; Janicki 2004).

Record Keeping

- An on-line database of all rights, location, cfs, year of appropriation, etc. can be found at <http://cwcb.state.co.us/isf/Database/> and <http://cwcb.viis.state.co.us/cwcbimaging.htm>
- The CWCBC is creating a GIS system which will show all ISF water rights.
- The Division of Water Resources has a database of water rights at http://cdss.state.co.us/db/viewdata_rights.asp.

Federal and NGO Involvement

- Since 2002, Colorado has had one of four water trusts in the Western U.S. The Colorado Water Trust’s mission is “The Colorado Water Trust is a private, non-profit conservation organization, which acquires, or assists



others in acquiring, water rights or interests in water rights, using voluntary approaches from willing owners, for conservation benefits. Conservation benefits include the long-term restoration and protection of Colorado's water dependent natural heritage and environmental diversity, the maintenance of ecologically beneficial open space and habitat provided by irrigated agriculture, and the protection of related water-based recreation and aesthetics. The Trust will seek conservation benefits for cold and warm water fisheries, and for stream, lake, riparian and wetlands systems." <http://www.coloradowatertrust.org/>

- The CWCB has a working relationship with The Nature Conservancy (which has transferred several water rights to the CWCB), Trout Unlimited and other NGOs.
- Through its annual workplan, the CWCB seeks input on instream flow appropriations and acquisitions from numerous federal agencies, including the U.S. Bureau of Land Management, the U.S. Fish and Wildlife Service, the U.S. Forest Service and others. During this processes, the public and NGOs are invited to participate.
- The CWCB and U.S. Forest Service have entered a new memorandum of understanding to work cooperative on instream flow needs. Details can be found at http://cwcb.state.co.us/USFS/Pathfinder_Project.pdf.

Statistics

- Number of ISF rights: 1926 appropriations and 21 acquisitions (Doherty 2005; Janicki 2005)
- Stream miles: 8549 miles (Doherty 2005)
- Total cfs: Flows vary throughout the year.
- Any of above as percentage of state total miles: 29% (Doherty 2005)
- Year created, 1973 Senate Bill 97 gave CWCB authority to acquire and appropriate for ISF purposes
- Number of full-time employees: 7 at the CWCB

Other

- Recreation is not considered a beneficial instream use in Colorado. C.R.S. § 37-92-103 allows local governmental entities and water districts to apply for recreational water rights under a programmatic set of rules that deals with recreational rights (2 CCR 408-3) (http://cwcb.state.co.us/isf/Programs/RICD_main.htm).

Web Sites of Interest

- <http://cwcb.state.co.us/isf/Programs/Instream.htm> CWCB Instream Flow and Natural Lake Level.
- <http://cwcb.state.co.us/isf/Database/> ISF and Natural Lake Level searchable database.
- <http://parks.state.co.us/> Division of Parks and Outdoor Recreation.
- <http://wildlife.state.co.us/> Division of Wildlife.
- <http://water.state.co.us/> Division of Water Resources.
- <http://water.state.co.us/wateradmin/waterright.asp> Obtaining a Water Right, Division of Water Resources.
- http://www.tu.org/conservation/wwp_co.asp Trout Unlimited Colorado Water Project.
- <http://www.coloradowatertrust.org/> Colorado Water Trust.

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- Above Web sites



State-by-State Descriptions of Instream Flow Protection
State: Idaho

General Water Rights System

- Like many of the other Intermountain West states, Idaho adopted a pure prior appropriation system upon statehood in 1890.
- In 1909 the supreme court of Idaho stated in no uncertain terms “there is no such thing in this state as a riparian right to the use of water as against an appropriator and user of such waters... In order to acquire a prior or superior right to the use of such water, it is as essential that a riparian owner locate or appropriate the waters and divert the same as it is for any other user of water to do so.” [Gillilan and Brown p27... quoting *Hutchinson v. Watson Slough Ditch Co.*, 16 Idaho 484 (1909)]
- Most of the usual characteristics of a prior appropriation system can be found in Idaho’s water code including:
 - Required beneficial use of appropriations,
 - Prioritization of water right uses,
 - Conditions allowing for abandonment of right, and
 - Centralized administration of permits. [I.C. Title 42, Chapters 1-3]

Instream Flow Legal Recognition

- The ISF program in Idaho functions through a minimum streamflow permitting process.
- Historical overview of Idaho’s minimum streamflow program:
 - The issue of instream flows was first addressed by the Legislature in 1964.
 - California and other Southwestern states proposed to lease water from Idaho, which caused concern that out of state demands would compromise instate water use.
 - The Legislature passed an amendment to Idaho’s constitution that created a state water-planning agency to preserve and protect Idaho’s water resources. [Idaho Const. Art. XV, §7] (Beeman 1993)
 - However, any real semblance of an ISF program did not come about in Idaho until 1971.
 - Although in 1925 the Legislature first declared the preservation of certain lakes for scenic beauty, health and recreation to be of beneficial use - it was not until 1971 that the same declaration was made for flowing water.
 - In 1971 the Legislature passed a special law that directed the Department of Parks to appropriate instream water in trust for the public in Malad Canyon. [IC §67-4307] (Beeman 1993)
 - This law was challenged in the State Supreme Court, namely to find if the Department of Park’s appropriation would be valid absent any physical diversion. [*State Dep’t. of Parks v. Idaho Dep’t* 530 P.2d 924 (1974)]
 - The Idaho Supreme Court confirmed that instream flows were constitutional.
 - Following the *Malad Canyon* decision Idaho eventually adopted a formal process through which ISF rights could be evaluated and granted.
 - In 1976 Idaho’s State Water Plans began to incorporate “protected rivers programs”
 - In 1978 Congress passed the Minimum Stream Flow Act, providing specific procedural guidelines for acquiring a minimum ISF right. (Beeman 1993)
 - The 1988 Protected Rivers Act also furthered the use of State Water Plans, requiring the State to prepare a Comprehensive State Water Plan for specific geographic areas. The Act can also in effect prohibit diversion or hydropower construction on a protected reach (a reach designated for natural or recreational purposes) [I.C. §§1734A through 42-1734L]
 - State Water Plans
 - The legislation that has developed Idaho’s basin specific State Water Plan results in recommendations of streams for which minimum streamflow water rights should be pursued.
 - Minimum streamflow water rights are issued a permit by the Idaho Department of Water Resources and the priority date is the date an application for permit is made. (Beeman 1993)
 - To date the Idaho Water Resources Board has adopted nine comprehensive State Water Plans that include protected river reach designations (see IDWR website www.idwr.idaho.gov/waterboard/Planning).
- The legislation for Idaho’s ISF program is codified in Title 42, Chapter 15 [I.C. §§42-1501 to 42-1506]
 - Chapter 15 includes everything from judicial hearings to general administrative processes.



- I.C. §42-1501, Establishing instream flow program (instream use declared beneficial use)
- I.C. §42-1502 Definitions (defining minimum streamflow and instream uses)
- I.C. §42-1503, Application to appropriate - process to appropriate instream rights
- I.C. §42-1504, Placing responsibility to file applications upon the Idaho Water Resources Board
- I.C. §42-1505, Process for establishing priority date for instream rights
- I.C. § 42-1506, Lemhi River, minimum streamflow appropriation
- A minimum streamflow right is issued after the following conditions are established:
 - It must be found to be in the public interest,
 - The right must not adversely affect senior water rights,
 - The right must be necessary for an instream use, and
 - The right must be capable of being maintained. [I.C. §42-1503]
 - Must be the minimum flow or lake level, not the ideal flow or lake level. [I.C. §42-1503]
- Other legal alternatives for acquiring an ISF in Idaho
 - Specific Legislation
 - Since 1925 the Idaho Legislature directed the governor to appropriate in trust for the people... all the unappropriated water of particular rivers and lakes.
 - Considering that much of the water in Idaho south of the Salmon River drainage is overappropriated, this type of legislative enactment is of limited value in the southern part of the State.
 - In 2001, the Legislature created an instream flow right on a fully appropriated river (Lemhi River) and water is supplied from a natural flow water bank.
 - Specific Water Bank Legislation
 - Created by statute in 1979
 - Allows the "rental" of Idaho Water Bank rights for instream uses. [I.C. §42-1763B] (Boyd 2003)

Options Available for Instream Flow Protection

- Minimum stream flow water right (created in 1978)
- Protected River status (Protected Rivers Act 1988) can establish stream reach or sub-reach as natural or recreational river, which prohibits activities. This creates a minimum streamflow without creating a minimum flow water right. Protected River Plans are used as planning vehicle to recommend minimum streamflow applications, part of comprehensive state water planning process (Beeman 1993)
- This river planning bill in 1988 states that minimum flows in the state's rivers are to be fostered and encouraged (Gillilan and Brown, 142)
- Water bank legislation, allows "rental" of Idaho Water Bank rights for ISF purposes.
- It has been suggested that water could be donated to a minimum streamflow permanently, but in the process might be limited to only the consumptive use portion of the water right and may lose its original priority date. The legal mechanisms for such a process have not been developed and no such transactions have yet occurred.

Entities Authorized to Appropriate Instream Flows

- The Idaho Water Resource Board is the only entity that can apply (Beeman 1993, Gillilan and Brown)
- Legislative approval is required to set a minimum streamflow, but this can be achieved either through express approval or through nonaction on a list minimum stream flows set by the IWRB (Beeman 1993)
- Anyone can petition the Idaho Water Resources Board to file application for instream flow water right, but only the IDWR Board can hold that right (I.C. §42-1504)

Entities Authorized to Request/Recommend/Administer Instream Flows

- Idaho Department of Water Resources (IDWR) allocates surface and ground water
- Idaho Water Resource Board (merged with the Department of Water Administration to form IDWR)
- Minimum stream flow water rights are held by the Idaho Water Resource Board in trust for Idaho citizens (I.C. Chapter 15, Title 42). (<http://www.idwr.state.id.us/waterboard/minimum%20stream%20flow.htm>)
- Other state agencies typically request that water board seek minimum stream flow (Beeman 1993)
- As guided by internal policy, the IDWR asks the Department of Fish and Game, the Department of Parks and Recreation, and occasionally the Department of Environmental Quality to review and provide an opinion on the validity and strengths and weaknesses of an application (Robertson 2005).



Processes for Securing Instream Flow Rights or Reservations

- ISF water rights are appropriated for the *minimum* flow or lake level *necessary* (not the most desirable flow or level) to protect instream beneficial uses. [I.C. §42-1501] (Robertson 2005)
- The process of applying for a minimum stream flow right involves cooperation between a variety of agencies as well as different branches of state government.
 - All minimum stream flow water rights approved by the Director of the IDWR must be submitted to the Idaho Legislature by the fifth day of the next regular session. The Legislature has approval/denial power over the application for right. [<http://www.idwr.state.id.us/waterboard>]
 - As required by the Board, all applications are subject to a formal public hearing. Board hearings require public notice and allow opportunity to submit testimony and judicial review. [I.C. §42-1503]
 - Applications must include the following:
 - (a) The name of the stream and legal description of the point on the stream where the minimum stream flow is proposed to be appropriated and determined;
 - (b) The minimum stream flow proposed;
 - (c) The purpose for which the minimum stream flow appropriation is proposed to be made;
 - (d) The period of time or season of the year during which said appropriation is proposed; and
 - (e) Such other information as shall be required by the form furnished by the director. [I.C. §42-1503]

Public Participation

- Any person or entity can make a request to the Idaho Water Resource Board to file an application for stream flow on any water body within the state (however they cannot be held by individuals as new appropriations). (<http://www.idwr.state.id.us/waterboard/minimum%20stream%20flow.htm>) (Robertson 2005)
- “Instream livestock” water rights are available to water livestock directly from a stream (no diversion necessary, only kind of no diversion private entities can hold) (Hecox)

Protected Beneficial Uses of Instream Flows

- Idaho’s ISF program recognizes a wide variety of uses, including recreation and water quality.
- I.C. §42-1501 specifically recognizes “minimum stream flows required for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation and navigation values, and water quality.”
- Gillilan and Brown (1997) consider Alaska, Idaho and Washington as recognizing the broadest array of purposes of instream uses (p119)

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Storage rights can be leased on an annual basis through state’s water banking program. In the water bank is a special section for a natural flow water bank. The federal government (US Bureau of Reclamation) can use this program to augment flows for salmon in the Snake River System. However, the depositor of water cannot specify that the leased use will be for ISF, and the majority of water in the bank is dedicated to irrigation uses.
- The Lenhi River Basin is one exception as established in recent legislation. The amendment to statute, specifically dealt with creating an instream flow water right on a river that falls outside the normal process. The legislation was drafted at the request of local landowners to proactively deal with threatened species (and potential takings) issues. An ISF right was created on a fully appropriated stream (usually water must be available), creating one of the state’s first natural flow water bank (Robertson 2005).
- It has been suggested that water could be donated to a minimum streamflow permanently, but in the process might be limited to only the consumptive use portion of the water right and may lose its original priority date. The legal mechanisms for such a process have not been developed and no such transactions have yet occurred.

Flow Quantification Methods

- Methods are dependent on the stream. They have primarily used PHABSIM, “Wetted Perimeter”, and a modification of the Tennant method.
- The state is required to only apply for the minimum necessary and this is strictly interpreted in practices (Robertson 2005).



Monitoring and Enforcement

- Acceptance is conditioned upon a showing that the proposed right is "capable of being maintained as evidenced by records of stream flows and water levels and the existing or future establishment of necessary gauging stations and bench marks." [I.C. §42-1503(2)(e)]
- Monitoring has been a topic of discussion with IDFG and IDWR; however, to date no formal program exists. Implementation of the Nez Perce water rights settlement agreement may encourage more monitoring.

Record Keeping

- State website has detailed information about number of rights, location, map, etc.
<http://www.idwr.state.id.us/waterboard/minimum%20stream%20flow.htm>

Federal and NGO Involvement

- Idaho is among the second tier of states (Gillilan and Brown 1997) for the most Federal Wild and Scenic River Program
- The State of Idaho, the Federal Government, the Nez Perce tribal committee and other agencies are completing a settlement on the Nez Perce water rights. Through this negotiated settlement, 220 minimum stream flow rights will be decreed by the court, expected in 2005. Over \$193 million is being set aside to realize terms of agreement. Water right priority dates will be 2005.

Statistics

- Number of minimum flows: There are currently 85 licensed or permitted water rights for minimum flows, and 3 for minimum lake levels. This covers over 672 miles of streams, and represents less than 1% of total stream miles in the state (<http://www.idwr.state.id.us/waterboard/minimum%20stream%20flow.htm> and Robertson 2005)
- Stream miles: Protected Rivers statute – according to Beeman 1993 it was 581 miles protected rivers and 247 miles under interim protection..
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: 1978
- Number of employees: 5 -6 FTE

Other

- No additional information.

Web Sites of Interest

- <http://www.idwr.state.id.us/> Idaho Department of Water Resources.
- <http://www.idwr.state.id.us/waterboard/minimum%20stream%20flow.htm> Official site for IDWR, minimum stream flow program.
- <http://www.idwr.state.id.us/waterboard> Idaho Division of Water Resources with direct links to information on Idaho's minimum streamflow program.

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State-by-State Descriptions of Instream Flow Protection
State: Kansas

General Water Rights System

- As with other states near the 100th meridian, Kansas' water law functioned under riparian rules for a long time before switching over to a prior appropriation system. Unlike the drier intermountain states in the West, healthy precipitation patterns in Kansas made switching to appropriation less of a necessity.
- Through Legislative enactment, Kansas eventually came to adopt the prior appropriation doctrine in 1945. [K.S.A. §82a-701].
- Kansas issues water rights through a permit system administered by the State Water Office.
- In addition to the administration of water rights, the State Water Office is responsible for the development of "water management plans." Among other things state "water management plans" are developed to assure that long-term water plans are consistent with the public interest. K.S.A. §74-2608]
http://www.accesskansas.org/kda/dwr/admin_water_laws.htm

Instream Flow Legal Recognition

- ISF protection in Kansas is primarily done through a "minimum desirable streamflow" program. Kansas' ISF program is unique in that it provides protection without vesting an actual right.
- History of Kansas' "minimum desirable streamflow" law:
 - Minimum desirable streamflows were first identified within the State Water Resources Planning Act in 1981. [K.S.A. §82a-928(i)]
 - The 1981 Act established the maintenance of baseline flows as part of the State's long-range water management policy. K.S.A. §82a-928(i) specifically calls for an identification of "minimum desirable streamflows to preserve, maintain or enhance baseflows for in-stream water uses relative to water quality, fish, wildlife, aquatic life, recreation, general aesthetics and domestic uses and for the protection of existing waters rights."
 - Although Kansas' 1945 appropriation law required a "physical diversion" before issuance of permit, the diversion prerequisite was repealed shortly after the Planning Act was passed.
 - In 1984, minimum desirable streamflows were incorporated in Kansas's Water Appropriation Act by way of amendment.
 - The amendment established a priority date of April 12, 1984 for all minimum desirable streamflows identified before 1990.
 - The amendment also required the Chief Engineer to make it an express condition of each and every appropriation right applied for after the effective date (April 12, 1984) that such right be subject to any minimum desirable streamflow requirements identified before 1990. (Rolfs 1993 and KS ISF Fact Sheet)
- Legal effect of minimum desirable streamflow laws:
 - Although a newly created minimum flow law does not create an ISF permit in the strict legal sense, it still provides protection as a statutory deterrent of future appropriation.
 - A distinctive advantage to Kansas' minimum desirable streamflow law is that any minimum streamflow bill that was enacted by the Legislature before 1990 is assigned a 1984 priority date. In effect Kansas' law acts as a reservation of right pre-established in time.
 - Minimum desirable streamflow Legislation does not run senior to pre 1984 rights.
 - Minimum Streamflow Legislation is also junior to any domestic water rights, regardless of priority date. [K.S.A. §82a-703b(a)]
- ISF protection may also occur indirectly as a result of Kansas' Water Assurance Program. [K.S.A. §§ 82a-1330 – 1348]. The Program creates Water Assurance Districts below large federal reservoirs to provide releases to benefit municipal and industrial users downstream. ISFs are benefited through the Program's maintenance of target flows (Rolfs 1993, p14-4). Kansas has an active Assurance Program. Also, through K.A.R. 5-3-15c(1-3), the Chief Engineer is not to approve new applications if it would impair the ability to meet: 1) Minimum Desirable Streamflow, Assurance or Division of Water Resources target flows; 2) demands by more senior rights and permits; and 3) a flow rate that allows water to flow past the first riffle below the point of diversion. These Chief Engineer authorities all give some protection to instream flow and help restore streams that have become overappropriated (Stover 2005).



- A new bill has been introduced in 2005 to update the Water Assurance Program. Through the Irrigation Transition Assistance Program (ITAP), water can be retired resulting in aquifer and/or stream recharge. Certain conditions must be met for the water right retirement as outlined in Article 11 (<http://www.accesskansas.org/ksec/ITAPfinal.pdf>).
- The ITAP regulations, although earlier finalized, may be further modified, per current legislative directive. The bill authorizing this program is currently being worked on at the statehouse. It is currently operating under a proviso that will sunset June 30, 2005.
- An objective in the Kansas Water Plan affects instream flows: "By 2015 achieve sustainable yield management of Kansas surface and ground water sources, outside of the Ogallala aquifer and areas specifically exempt by law." Sustainable yield management would be a goal that sets water management criteria to ensure that long term trends in water use lead to stable ground water and streamflow patterns. It allows for short-term water level or flow variability, that would not exceed a system's natural ability to recover during a wet period, and protects against degradation of the system (Stover 2005).

Options Available for Instream Flow Protection

- Minimum Desirable Streamflow (MDSF)
- This is not a water right, but it has some attributes of a water right. It allows the Chief Engineer to withhold water from appropriation. Any filed by 1990 have a priority date of April 12, 1984 (Kansas avoids takings issue by not including senior rights and all domestic rights are senior to instream flows.)
- Agencies determine and recommend minimum desirable streamflows to Legislature for approval
- Assurance districts (below large federal reservoirs) might inadvertently provide protection by providing releases to benefit municipal and industrial users. (Rolfs 1993)

Entities Authorized to Appropriate Instream Flows

- The State Legislature

Entities Authorized to Request/Recommend/Administer Instream Flows

- After the act in 1981, agencies including Division of Water Resources (DWR), Kansas State Board of Agriculture, Kansas Water Office, Kansas Department of Health and Environment and Kansas Department of Wildlife and Parks met to negotiate minimum desirable streamflow values to recommend to the Legislature.
- The Chief Engineer of the Division of Water Resources, Kansas State Board of Agriculture, is legally charged with administering Kansas Water Appropriation Act
- Through an MOU, the Kansas Water Office monitors streamflows on all streams with minimum desirable streamflows. They notify the Chief Engineer when flows fall below established levels. The KWO can request administration to achieve MDSF, the DWR then administers flows. (Rolfs 1993)

Processes for Securing Instream Flow Rights or Reservations

- Identification of minimum streamflow standards:
 - In response to the 1981 Act, the key water agencies in the State of Kansas now meet regularly to negotiate minimum desirable streamflow values.
 - Negotiations primarily involve the Division of Water Resources, the Water Office, Department of Health and Environment, and the Department of Wildlife and Parks. (Rolfs 1993)
 - Newly identified minimum desirable streamflow values are recommended to the Legislature and included in a State Water Plan. (Rolfs 1993 p14-1)
- Legislative enactment:
 - Once recommended flows are received and approved by the Legislature, "the chief engineer shall withhold from appropriation that amount of water deemed necessary to establish and maintain for the identified water course the desired minimum streamflow." [K.S.A. §82a-703a]

Public Participation

- When setting rules for new programs such as the Irrigation Transition Assistance Program and associated pilot projects, public hearings were held by the Division of Water Resources. The DWR also met with Basin Advisory Committees and the Kansas Water Authority.



Protected Beneficial Uses of Instream Flows

- Kansas protects a wide range of ISF uses including water quality and recreation.
- Kansas ISF policy involves “the identification of minimum desirable streamflows to preserve, maintain or enhance baseflows for in-stream water uses relative to *water quality, fish, wildlife, aquatic life, recreation, general aesthetics and domestic uses* and for the protection of existing water rights.” [K.S.A. §82a-928(i)]

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- 1988 Legislation added authority for the State to purchase water rights in an over-appropriated area on a cost sharing basis. These are then held in ‘custodial care’ of the state. The authorization applies to surface and ground water (Rolf’s 1993). The authority has not been utilized as of 2005. (Stover 2005)
- The DWR has tried to use this authority but no parties have been interested, perhaps due to the valuation of the water right. A bill is in the state legislature as of February 2005 to revise the authority. Some changes are dropping the 20% local match and introducing a bid system. This would allow for water rights to be retired (not transferred). This would be an actual dismissal, taking the water right off the books in an area that is closed so it cannot be reappropriated. The primary purpose of this program is stabilize the aquifer but it could also be used to stabilize stream flows (Stover 2005).

Flow Quantification Methods

- IFIM was used initially. Results have been used to support current techniques to assess fisheries habitat availability at varying flows based on standing crop data and historical flows. (McKinney and Taylor 1988)

Monitoring and Enforcement

- The Chief Engineer of the Division of Water Resources is the person in the State of Kansas legally charged with the administration of the Kansas Water Appropriation Act.
- The Kansas Water Office has agreed to monitor streamflows on all streams with designated minimum desirable streamflows. (Memorandum of Understanding between the Kansas Water Office and the Kansas State Board of Agriculture, Division of Water Resources, dated November 8, 1984.)
- Flow meters required if minimum streamflows designated and it is anticipated there may be administration within near future. This has occurred on 3 streams (as of 1993) (Rolf’s 1993)

Record Keeping

- Minimum desirable streamflows are monitored through a system of real-time gages installed and maintained by the United States Geological Survey (USGS) (Stover 2005).

Federal and NGO Involvement

- Kansas has worked with the federal government to get federal assistance to help stabilize ground water levels and stream flows. The creation of the Ground and Surface Water program within the Environmental Quality Incentives Program (EQIP), administered by the Natural Resources Conservation Service, (NRCS) in the 2002 Farm Bill was partly a result of Kansas’ efforts. Kansas is currently seeking federal funding for the Irrigation Transition Assistance Program that provides grants to irrigators in targeted areas to dismiss their water rights and convert to dryland farming.
- The NRCS EQIP Ground and Surface Water is an important program to upgrade to more efficient irrigation systems or implement dryland practices. Most of the contracts are to priority decline areas in the High Plains aquifer, although a number have also gone to the lower Republican River area.
- Although there are not currently many on-the-ground results, Kansas is working with “KAWS” (Kansas Alliance of Wetlands and Streams), an NGO, to promote protection of playa lakes for the potential recharge benefits to the ground water. Also, Kansas is involved with KAWs for demonstration projects on control of salt cedar (tamarisk) and other invasive phreatophytes. Although a habitat and riparian health issue, it is also a surface/ground water issue, as they are high water consumers with deep root systems (as much as 100’ in depth).



Statistics

- Number of ISF rights: 33 minimum desirable streamflows set on 23 streams.
- Stream miles: No information available
- Total cfs: Varies monthly
- Any of above as percentage of state total miles/flow: No information available
- Year created: 1981
- Number of employees: No employees dedicated only to ISF (Stover 2005)

Other

- No additional information.

Web Sites of Interest

- <http://www.accesskansas.org/kda/dwr/index.html> Kansas Department of Agriculture, Division of Water Resources.
- <http://www.kwo.org/index.htm> Kansas Water Office.
- <http://www.kgs.ukans.edu/HighPlains/atlas/atstrm.htm> "In-Stream Water Resources and Historic Achievement of Minimum Desirable Streamflows (MDS)"; also includes useful links for ISF statistics.
- <http://www.accesskansas.org/kscs/> Link to the Irrigation Transition Assistance Program.

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State-by-State Descriptions of Instream Flow Protection
State: Montana

General Water Rights System

- Like many of the Rocky Mountain States, Montana water rights are allocated through a pure prior appropriation system. Montana's constitution recognizes water rights for any "useful or beneficial purpose." [M.C.A. Article IX, Section 3]
- Montana's current water law has its roots in Common Law. Any new appropriations or changes in water rights are governed by the provisions of its 1973 Water Use Act. [Codified in various sections of M.C.A. Title 85].
 - Establishes Montana's formal permit system.
 - Requires the Department of Natural Resources and Conservation to establish a centralized record system for existing rights and to initiate adjudication of new water rights.
 - Divides administration of water rights to four water divisions, each with a water judge and establishes a water court with a chief water judge. The chief water judge acts as the original adjudicator of water rights and is authorized to issue temporary preliminary decrees for water uses. Preliminary decreed rights are conditioned upon satisfactory resolution of any substantial objections to the claims and issuance of a final decree.
- As of 2001, only 56 percent of the 219,213 pre-1973 claims filed with water courts had been adjudicated (Tarlock, Corbridge and Getches 2002, p. 297). They have yet to go to final decree due to pending resolution of reserved water right compacts.
- Montana's water is significantly overappropriated in most basins, especially east of the Continental Divide. Montana's water law errs on the side of allowing an appropriation, even when that appropriation might affect instream values (Boyd 2003, 1176).

Instream Flow Legal Recognition

- ISF water rights have been recognized in Montana in order to address growing concerns over the dewatering of high quality trout streams.
- ISF water rights were first established through Murphy Rights to prevent new appropriations from interfering with instream flows.
 - The first state effort to protect instream flows in Montana was the legislature's enactment in 1969 of a law allowing the state Fish and Game Commission to file for water rights on unappropriated water of 12 "blue ribbon" trout streams to maintain stream flows necessary for the preservation of fish and wildlife habitat. Known as "Murphy rights" after the principal sponsor of the bill (McKinney 1993 p15-4)
- ISF Reservations
 - A reservation system was codified in Montana's 1973 Water Use Act [§85-2-316, M.C.A.]. Also in this year the legislation authorizing the Murphy Rights was repealed (though those rights remain valid) (McKinney 1993 p15-4).
 - Water may be reserved for existing or future beneficial uses in the basin where it is reserved [§85-2-316, M.C.A.]
 - Reservations, unlike conventional appropriations, are subject to mandatory 10 yr review. The Department of Natural Resources and Conservation (DNRC) has the ability to extend, revoke, or modify the reservation. [§85-2-316(3)(4)(a), M.C.A.]
- Montana's current ISF program relies heavily on water rights leasing.
 - The temporarily changed rights protect flows at the former point of diversion, while only the amount historically consumed is protected below the point of diversion (Boyd 2003, p1176).
 - Sections 85-2-408, 85-2-439, and 85-2-436 allow an individual, association, partnership, corporation, or the Montana Department of Fish Wildlife and Parks (DFWP) to temporarily change an appropriation right to "maintain or enhance instream flow to benefit the fishery resource." [§85-2-408, M.C.A.]
 - Private Leasing [§85-2-408, M.C.A.] (reauthorized and expanded in 2005)
 - For a general conservation project, water can be made available for up to 30 years, while conservation projects on the Upper Clark River Basin may only last for up to 10 years.
 - All private leasing arrangements involve limited agency discretion. The DNRC receives applications and must accept leasing arrangements after an applicant shows the following:
 - Proof by a preponderance of evidence that the proposed change will not adversely affect existing



- rights, and
 - Conservation is needed to maintain or enhance instream flows to benefit fishery resources.
- Once the above is proven and the application provides public notice and comment, the terms and lease interests remain with the individual deal makers (Boyd 2003, p.177)
- Leases by the Montana Department of Fish, Wildlife, and Parks [§85-2-436 M.C.A.]
 - Agency Leasing may last for up to 10 years (with the possibility for renewal)
 - The DFWP provides an annual report on leasing activity to the Environmental Quality Council
 - The Montana legislature has been hesitant to permanently enshrine leasing options (Boyd 2003).
- Montana's Recreational Waterway Program
 - In 1972 the Montana DFWP created the Recreational Waterway Program through administrative rule-making procedures. The Program serves primarily to identify the state's most valuable streams and rank them according to certain criteria (Gillilan and Brown 1997, p159). Please note that the current status of this program is currently unclear.
- Dewatering of rivers is still a great point of contention in Montana law.
 - The Montana Supreme Court has reaffirmed the right of irrigators to dewater a river by taking two-thirds of a drought-stressed flow, over the objections of environmental groups. [*Baker Ditch Co. v. District Ct. of the 18th Judicial Dist.*, 824 P.2d 260 (1992)]
 - Emergency drought plans and the state's strong public trust should nonetheless make the decision less effective in practice.

Options Available for Instream Flow Protection

- Instream flow reservation, to a maximum of 50% of the average annual flow of the stream, as shown by stream gauge records (Covell 1998).
- "Murphy Rights" from a statute passed in 1969 allowing Fish and Game Commission to file for water rights on 12 "blue ribbon" trout streams. Statutory authority for these rights is no longer applicable (these were not revoked, but new ones cannot be created under this authority).
- Montana Water Use Act 1973 established a process for agencies to reserve water for future diversionary and consumptive uses as well as for maintaining stream flows for protection of existing water rights, aquatic life, and water quality.
- These reservations are supposed to be reviewed every 10 years. They can be extended, revoked or modified. Instream reservations can be modified every 5 years. If the total amount is not needed for the original purpose and someone else can show its need outweighs, the DNRC can reallocate excess to another qualified applicant.
- Public interest criteria could be used to condition appropriations to protect instream values, but only for very large appropriations (not yet used).
- In adjudications proceedings, the DFWP can represent the public by establishing public recreational use of water prior to 1973 (McKinney 1993).
- Montana has successfully negotiated informal agreements with dam operators for voluntary releases (Gillilan and Brown 1997, p160)
- Various leasing arrangements are possible (see box above).
- Basin closures are possible under State Law.

Entities Authorized to Appropriate Instream Flows

- Federal and state agencies and any political subdivision of the state including conservation districts and municipalities including Montana Fish, Wildlife & Parks may reserve water (Covell 1998, McKinney 1993, Gillilan and Brown 1997).
- Any public or private entity can lease water for instream purposes (Gillilan and Brown 1997).

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Department of Natural Resources and Conservation (DNRC) is the agency that processes and issues instream flow reservations.
- The Reserved Water Rights Compact Commission is the state agency identified to negotiate with federal agencies on federal reserved water rights (McKinney 1993).



Processes for Securing Instream Flow Rights or Reservations

- Procedurally, applications for instream flow reservations are processed in the same manner as applications for water permits (Covell 1998). However, applications for reservations require much more in the way of supporting information.
- Applicants for water reservations must include a description of the purpose, a quantification of the purpose, an analysis of the need, a quantification of the amount of water requested as well as the amount available, proof that the reservation is in the public interest, and a management plan. [§85-2-316, M.C.A.] [ARM 36.16.104] (McKinney 1993)
- The DNRC processes the application through the procedures outlined in §§85-2-307 through 85-2-309, M.C.A.
- Notice Requirements: In general, the DNRC requires applicants to publish the facts of the application in a newspaper and directly notify any water user that may be affected by or interested in the proposed reservation.

Public Participation

- Public participation sought in development of State Water Plan (McKinney 1993)
- The DNRC requires the applicant to publish the facts of the application in a newspaper and directly notify any water user that may be affected by or interested in the proposed reservation.
- Any public or private entity can lease water for instream purposes (Gillilan and Brown 1997)

Protected Beneficial Uses of Instream Flows

- Montana's Water Use Act expressly defines beneficial use as "including but not limited to agricultural (including stock water), domestic, *fish and wildlife*, industrial, irrigation, mining, municipal, power, and *recreational* uses. For the purpose of these rules, the term beneficial use includes the maintenance of a minimum flow, level, or quality of water." §36-16.102(3), §2-15-3302 M.C.A.
- ISF protection through private leasing arrangements is limited to benefiting fisheries. [§85-2-408, M.C.A.]
- *Water quality* is recognized in §85-2-316(1), M.C.A. However, Montana's statutory construction only allows for water quality uses to be recognized for reservations, not water leases.

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- "In the 1980s and 1990s the Montana Legislature created laws that allow individuals with water rights on streams which by nature involve taking water out of the streams for irrigation or other uses to convert their water right to in-stream use. Any conversion to an in-stream use requires a temporary change authorization from the DNRC and must benefit fisheries.
- The DFWP is working with senior water right holders who no longer wish to use all of their appropriated water to help develop salvage water projects, assess water savings, and assist with the necessary authorizations to change the water rights involved in a leasing agreement (<http://www.fwp.state.mt.us/habitat/waterleases.asp>).
- The Water Leasing Program, created in the HB 707 in 1989 is a temporary program leasing program. The DFWP can lease water rights to maintain or enhance streamflows for benefit of fisheries. The DFWP submits potential reaches to the DNRC, which can then declare a reach eligible for leasing if necessary. Once designated, the DFWP must prepare and submit application for lease authorization to the DNRC with specific information. The right then proceeds through the same change of use procedure as all changes of water rights.
- Originally, only the DFWP could lease water for ISF purposes, but it may accept contributions from public or private entities. Funds for leases come largely from a program called Future Fisheries. This was then amended in 1995 to allow individuals and private groups to lease water for instream use (Hecox).

Flow Quantification Methods

- Wetted Perimeter Analysis is the unofficial standard (Schenk 2004).

Monitoring and Enforcement

- Under Montana's temporary lease program the applicant must pay all "costs associated with installing measuring devices, measuring flows, and providing measurement records..." [§85-2-439(2), M.C.A.]
- Under Montana's reservation system, monitoring must be addressed in the applicant's management plan. The applicant must outline a strategy for monitoring instream flows. [ARM 36.16.106(2)]
- The monitoring program is dependent on the U.S. Geological Survey system of real-time gauges. These don't



cover all the water on which Montana has instream flow reservations: there are many small streams without good gauging information. However, virtually all of main streams and rivers, especially those with junior users who could potentially call, have gauges. In 2003 staff looked last at where additional gauges would make a difference. Virtually no sites were found as all those with junior water users are covered.

- The DFWP monitors gauges, snow pack, surface water supply index and other indicators to determine how flows may be affected in the summer season. If instream rights are likely to suffer, they will send a warning letter prior to June 1 to potentially over 500 water users explaining that their water right may be called. As stream levels dip below reserved levels, DFWP will make calls. In 2004 they had close to 150 calls and roughly 200 in 2003.
- Other enforcement activities include objections to new water right applications that will adversely affect their reservations. It is difficult to know to what extent calls for water are being respected by affected water users. Another enforcement model is seen in Blackfoot River Basin where there is a cooperative model with the local watershed group. The local users developed a drought contingency plan, designed to "share the pain" of drought. This is preferred to water calls and may be more beneficial than traditional approaches (Schenk 2004)

Record Keeping

- Montana has a database that will show if a reservation is established on a stream when searched by stream name (and provides information on fisheries and studies on the stream). There is not a central web-based site where this information can be searched but staff is working on developing this (Shenk 2005).

Federal and NGO Involvement

- Federal agencies may apply for instream flow reservations (Covell 1998).
- Quantification, or the determination of the size of a federal reserved water right for the state adjudication process, requires the Montana Reserved Water Rights Compact Commission (RW RCC) to reach a negotiated settlement with the federal agency holding the water right about the purpose for which the specific federal reserve was created. The parties must then come to agreement as to how much water is necessary to satisfy the purpose of the reserve. The resulting agreement must be signed by the negotiating parties, the appropriate federal officials, pass through the Montana legislature, (and the U.S. Congress, in some cases) and go to the Water Court for incorporation into a final decree for the specific water basins involved. (<http://www.dnrc.state.mt.us/rwrcc/index.htm>)
- Montana Water Trust: "MWT was established in September 2001 and is dedicated to working cooperatively with farmers, ranchers and other landowners in Montana to develop voluntary, market-based agreements that restore and protect tributary flows to benefit Montana's native fish species. The MWT works only with willing water right holders and acquires consumptive water rights for conversion to instream water rights through water donations, leases and water saving improvements.
- The MWT is part of a consortium of water trusts (Oregon Water Trust and Washington Water Trust) and other organizations located in the Pacific Northwest who are working together to restore tributary flows throughout the Columbia Basin." <http://www.montanawatertrust.org/>

Statistics

- Number of ISF reservations: 431 stream reaches on 347 streams, 2 lakes and 1 wetland (Schenk 2005).
- Stream miles: 2477 (McKinney and Taylor 1988)
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: Murphy Rights established in 1969, Current reservation system in 1973
- Number of employees, 2 at Montana Fish, Wildlife & Parks
- Instream flows have been reserved on approximately 99 stream segments in the Yellowstone River Basin. The 99 stream segments constitute a total of about 2,078 stream miles, or approximately 12.5% of the total stream miles in the state.

Other

- For an historical overview and legal analysis of Montana's Instream flow recognition of recreational uses, see Brian Morris' article, *When Rivers Run Dry Under a Big Sky: Balancing Agricultural and Recreational Claims*



to *Scarce Water Resources in Montana and the American West*, 11 STENVLJ 259(1992).

- Several basins have been closed to new appropriations including the Bitterroot and Upper Missouri.

Web Sites of Interest

- <http://www.dnrc.state.mt.us/cardd/strmpmt/stream.htm> Stream Permitting Page for DNRC.
- <http://www.dnrc.state.mt.us/wrd/home.htm> DNRC Water Rights Bureau home page.
- <http://www.dnrc.state.mt.us/wrd/home.htm> Water Rights in Montana.
- <http://www.montanawatertrust.org/index.html> Montana Water Trust.
- <http://www.cbwtp.org/library/MTinstreamFlowProtection.htm> Montana Instream Water Right Law and Policy.

Sources

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State-by-State Descriptions of Instream Flow Protection
State: Nebraska

General Water Rights System

- Like other states lying on the 100th meridian, Nebraska's water rights system follows both prior appropriation and riparianism.
 - The riparian doctrine became part of Nebraska law when the territorial legislature adopted the common law of England in 1866.
 - Nebraska continued to follow riparianism shortly after gaining statehood in 1867.
 - By 1877 Nebraska began to switch over to prior appropriation. Laws passed in 1877 had provided for limited prior appropriation rights for power purposes to support Nebraska's then thriving mill industry.
- Today, Nebraska's constitution and water code strongly endorse prior appropriation principles.
 - Article XV, of the Nebraska Constitution states, "The necessity of water for domestic use and for irrigation purposes in the State of Nebraska is hereby declared to be a natural want."
 - Article XV, Section 6 declares, "The right to divert unappropriated waters of every natural stream for beneficial use shall never be denied except when such denial is demanded by the public interest."
 - All water right permits are assigned a priority date based on the date an applicant makes a diversion of water. [N.R.S. §46-235]
- Although Nebraska water law currently follows prior appropriation, riparian landowners never lost their ability to assert future needs for water in Nebraska (Gillilan and Brown 1997, p27).

Instream Flow Legal Recognition

- Instream legislation was passed in Nebraska in 1984. Instream legislation followed successful environmental litigation under NEPA and ESA federal statutes in the 1970's. In order for Nebraska to overcome tough federal standards, which indefinitely stalled water projects on the Platte River, Nebraska was forced to adopt an ISF protection program (Aiken 1993).
 - Nebraska's 1984 ISF legislation general provisions:
 - The 1984 legislation authorized agencies to obtain ISF rights from the Department of Water Resources (now the Department of Natural Resources), the state's central water administrative agency.
 - The original 1984 legislation authorized the Nebraska Natural Resources Commission to obtain instream appropriations. [N.R.S. §46-2, 108] The ISF statute was amended in 1985 to change ISF appropriation authority to the Natural Resource Districts and the Game and Parks Commission (Aiken 1993).
 - An "instream appropriation" is defined as the "undiverted application of the waters in a natural stream within or bordering upon the state for recreation or fish and wildlife purposes." [N.R.S. §46-2, 108]
 - Before approving an instream appropriation, the DNR Director must make the following findings:
 - Unappropriated water is available (at least 20% during the time period right is requested),
 - Appropriation is necessary to *maintain* the instream use or uses,
 - ISF appropriation will not interfere with senior uses, and
 - ISF appropriation is in the public interest. [N.R.S. §46-2, 115] (Covell 1998)
- Although Nebraska's statutes provide for many of the same features as a traditional ISF program, Nebraska' statutes are also unique and generally more limiting.
 - Transfer for ISF protection was previously unavailable in Nebraska: "natural flow surface appropriations can be purchased for use only in the same river basin and only for the same purpose as the original appropriation. Thus, instream flow proponents cannot purchase senior irrigation direct flow appropriations and confer them to instream appropriations and convert them to instream appropriations." (Aiken 1993 p16-9). New legislation, LB 962, which went into effect July 16, 2004, allows for transfer to instream flow purposes on a temporary basis, up to 30 years. The right remains the property of the original owner but is leased to the Game and Park Commission or to the Natural Resource District for instream flow purposes. Such leases can be extended (France 2005).
- Legal Recognition
 - Overall, Nebraska's instream appropriation statutes have been strengthened by legislative oversights as well as through generally sympathetic administrative and judicial interpretations (Gillilan and Brown 1997) (for a more detailed historical description see Aiken 1993 p16-5).



- A 1997 amendment requires the DNR Director to hold a hearing every fifteen years from the date of granting an ISF permit. The Directory has discretion to modify or cancel the ISF right under review [N.R.S. §46-2, 112] (Covell 1998). This requirement was amended in 2004 to say that review is sufficient; hearings may be held but are not required (France 2005).

Options Available for Instream Flow Protection

- Instream flow appropriation.
- Under LB 962 initiated in 2004, it is possible to transfer a water right for flow augmentation in a specific stream reach for any instream uses the DNR has determined, through rules and regulations, to be a beneficial use. Transfers can also occur to increase the frequency with which a diversion rate or rate of flow specified in another valid appropriation is achieved. The Department's rules specify such uses must be for purposes of water quality maintenance or water necessary for compliance with compacts, decrees or other state contracts (See N.R.S. §46-290(5) and Title 457 N.A.C. 9) (France 2005).

Entities Authorized to appropriate Instream Flows

- The Natural Resource Districts (NRDs) and Nebraska Game and Parks Commission (GPC) are the two entities that can hold an instream flow appropriation (Aiken 1993).

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Department of Natural Resources grants ISF appropriations (after finding that there is unappropriated waters, that the requested ISF is necessary, that it won't interfere with senior surface water rights, that the rate and timing is minimum necessary, and that it is in public interest) (Covell 1998)
- The Department of Natural Resources Surface Water website states it has jurisdiction over all matters pertaining to ... instream flows including administration and granting of water rights.

Processes for Securing Instream Flow Rights or Reservations

- Although Nebraska's statutes prominently feature the word *minimum*, the state supreme court has ruled that the quantity appropriated for instream purposes does not need to be the absolute minimum required to allow the use, but rather the amount needed to maintain the existing level of use. [*In Re Application A-16642*, 463 N.W.2d 591 (Neb. 1990)] (Gillilan and Brown 1997)
- Since *In Re Application A-16642*, it remains uncertain whether amounts are limited by plain meaning of Nebraska's statutory language, which limits the amount of water "necessary to provide adequate instream flows." [N.R.S. §46-2, 110]
- Most of the legal process for acquiring an ISF permit is outlined in N.R.S. §§46-2, 107-119. In Nebraska the applicant of an ISF appropriation bares a fairly high burden of proof. Among other things, they must hold a public hearing and conduct studies on the ISF appropriation in the affected area before an application is filed with the DNR. [N.R.S. §46-2, 110] (Aiken 1993)

Public Participation

- The public can comment during review of instream flow water rights. Notice of a pending review must be published in the area where the right is located once a week for 3 weeks (France 2005).

Protected Beneficial Uses of Instream Flows

- Recreation and fish and wildlife are expressly permitted ISF uses. [N.R.S. 46-2, 108]
- Beneficial uses for transferred water rights include water quality maintenance and water necessary for compliance with compacts, decrees or other state contracts.

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- New legislation, LB 962, which went into effect July 16, 2004, allows for transfer to instream flow purposes on a temporary basis, up to 30 years. The right remains the property of the original owner but is leased to the Game and Park Commission or the natural resources district for instream flow purposes. For a new instream flow reach or purpose, the requirements of the original instream flow appropriation would need to be met. However,



the law also allows others to transfer rights to augment the flow of an existing instream appropriation. In the second type of transfer, the requirements of the instream flow laws were met under the original appropriation(s) being augmented (France 2005).

Flow Quantification Methods

- No listed methods.

Monitoring and Enforcement

- Instream flow water rights on the Platte River are monitored regularly and enforced when necessary. Another water right is located on a small creek where there are not many other appropriations that would threaten it, so although enforcement has not been necessary, monitoring through stream gages continues.
- Nebraska uses a combination of U.S. Geological Survey and state gages (France 2005).

Record Keeping

- Searchable database on line where you can find water rights for instream uses,
<http://dnrdata.dnr.state.ne.us/SWR/MainSearch.aspx>

Federal and NGO Involvement

- Federal agencies have been involved with instream flow needs through endangered species issues on the Platte.

Statistics

- Total number of ISF appropriations: 9 appropriations within 3 sets of water rights (France 2005).
- Stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: 1984 (Aiken 1993; Covell 1998)
- Number of employees: no dedicated FTE

Other

- For a description of Wyoming, Nebraska, and Colorado's cooperative agreements on the Platte river see Aikens article, *The Proposed Nebraska New Depletions Plan*. The cooperative agreements address how the three states plan to satisfy federal ESA instream requirements on the Platte River.

Web Sites of Interest

- <http://dnr.state.ne.us/docs/surface.html> Department of Natural Resources Surface Water.
- <http://www.ngpc.state.ne.us/default.asp> Nebraska Game and Parks Commission.
- <http://www.dnr.state.ne.us/> Department of Natural Resources.

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- Above Web sites

**State-by-State Descriptions of Instream Flow Protection**
State: Nevada**General Water Rights System**

- Nevada's water rights system follows the prior appropriation doctrine, as with the other intermountain Western states. Nevada's system of prior appropriation developed after statehood in 1864. Early court decisions occasionally favored riparian doctrine; however, prior appropriation has been the basis for decisions since a Nevada Supreme Court decision in 1885 (*Adams vs. Jones*). The Water Law of 1905 established procedures for appropriating surface water based on prior appropriation for beneficial use, and it remains the basis for all subsequent surface and underground water laws.
 - Nevada's appropriation statute generally states, "[s]ubject to existing rights, and except as otherwise provided in this section, all water may be appropriated for beneficial use as provided in this chapter and not otherwise." [NRS §533.030(1)]
 - Nevada's water law is set forth in Nevada Revised Statutes (NRS), Chapters 532 through 538 and Chapters 540, 543, and 544.
 - Nevada's statutory system of water rights follows the basic tenets of traditional prior appropriation.
 - The State Engineer must approve an application if it is complete and fees are paid unless there is no water available at the source, it conflicts with existing rights, it threatens to be detrimental to the public interests, or it threatens protectible interests in domestic wells (NRS 533.70).
 - All water rights are treated like real property and thus may be conveyed by deed. However, rights can be lost by abandonment or forfeiture if the right is not used for 5 years.
- Although a physical point-of-diversion is required, the point-of-diversion in a few ISF instances has been assigned an in situ location.

Instream Flow Legal Recognition

- All of Nevada's ISF protection is done through the permit approval processes.
 - ISF legislation in Nevada has not been introduced or even considered (Gillilan and Brown 1997).
 - Nevada courts have affirmed agency decision to appropriate instream flow rights. [*Nevada v. Morros*, 766 P.2d 263 (Nev., 1988)]
 - *Morros* dealt specifically with the granting of a permit to the Bureau of Land Management by the Nevada State Engineer for appropriative rights to protect fish, wildlife, and recreational values.
 - The holding in the *Morros* case was made through interpreting the statutory definition of "beneficial use" from NRS §533.030. (Gillilan and Brown 1997)
- Instream flow protection is indirectly available through private transfers of rights.
 - This is made possible because Nevada may allow an in situ point of diversion of water to secure a water right.
 - After a transaction is made, the owner retains the legal interest and control of the water right (Boyd 2003, p1199).
 - Permanent and temporary transfers can be made [NRS §533.345(4)]

Options Available for Instream Flow Protection

- Permitting of ISF rights is allowed through the permit approval process.

Entities Authorized to Appropriate Instream Flows

- Any "person" meaning an individual, group of individuals, organization, corporation, government agency, etc. may appropriate water for instream flow purposes (NRS 0.039, 533.010, and 533.325)

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Division of Water Resources (DWR) (the State Engineer's Office) is involved with instream flow water rights. The DWR approves ISF permit requests.



Process for Securing Instream Flow Rights or Reservations

- The process is currently established mostly under the theory that transfers and appropriations for ISF uses are identical to the ordinary process of water rights administration. With more use, the process of establishing ISF rights should become more defined (Boyd 2003).

Public Participation

- Nevada is one of three western states that explicitly allows private individuals to apply for ISF rights. As of the writing of Gillilan and Brown's book, no instream flows had been granted to a private individual or nonprofit (local, federal, and state agencies are the only agencies who have received ISF water rights). It is possible that in the past 10 years ISF rights have been granted to private individuals, but this information

Protected Beneficial Uses of Instream Flows

- Beneficial uses in Nevada include recreation and wildlife.
- Recreational uses are expressly permitted in statute. [NRS §533.030(2)]
- "Fish" is an implicit water use in Nevada. [See *State v. Morros*] In *Morros*, wildlife watering was extended to also include water for fish.

Existence of Acquisition Program

- There is no formal acquisition program, but water rights can be transferred for instream use.

Flow Quantification Methods

- Flow quantification must meet the standards set forth in the permit terms.

Monitoring and Enforcement

- Monitoring must meet the standards set forth in the permit terms. Rights are protected by the standards and mechanisms in place on the individual stream system. USGS gauging stations and/or water masters maybe be available depending on the stream system. Additional terms may be imposed.

Record Keeping

- Permit and permit maps are available. Over 73,000 permit files exist and thousands of claims of reserved and vested water rights. Instream flow status could be determined from these files given the beneficial uses and whether it is an in situ use, but this information is not currently available in a searchable on-line database.

Federal and NGO Involvement

- The Nevada v. Morros case was the second major case protecting the right of the federal government to establish water rights under state law (Gillilan and Brown 1997).

Statistics

- Number of rights: Approximately 11 on the Truckee River and its tributaries as of June 2003. Additional ISF may exist and are in the public record, including numerous claims of reserved rights which remain to be adjudicated. (Suchsland 2005)
- Number of stream miles: Not available (though can be calculated from public record).
- Total cfs: Not available (though can be calculated from public record).
- Any of above as percentage of state total miles/flow: Not available (though can be calculated from public record).
- Year created: 1988 (Gillilan and Brown, as a result of the Nevada v. Morros case)
- Number of employees: No full-time state employees working on instream flow issues (handled by DWR employees as part of normal water permitting duties)

Other

- No further information.



Web Sites of Interest

- <http://dcnr.nv.gov/nrp01/env06.htm> Nevada Natural Resources Status Report.
- <http://water.nv.gov/> Department of Conservation and Natural Resources, Division of Water Resources.

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- Suchsland, Kurt (May 2004, May 2005) Department of Conservation and Natural Resources, Division of Water Resources. Personal Communication.
- Above Web sites



State by State Descriptions of Instream Flow Protection
State: New Mexico

General Water Rights System

- Along with Arizona, New Mexico was admitted to the Union in 1912.
- New Mexico adopted a prior appropriation scheme through legislative enactment upon statehood. [NMSA Title 72]
 - New Mexico's surface and ground water codes, adopted in 1907 and 1938 respectively, was amended in 1985 to require public welfare considerations in all water transfers and new appropriations.
 - "All natural waters flowing in streams and watercourses, whether such be perennial, or torrential, within the limits of the state of New Mexico, belong to the public and are subject to appropriation for beneficial use..." [NMSA §72-1-1]
 - "Priority in time shall give the better right." [NMSA §72-1-2]
 - "Beneficial use shall be the basis, the measure and the limit of the right to the use of water." [NMSA §72-1-2]

Instream Flow Legal Recognition

- New Mexico was one of the last Western states to recognize instream flows as a beneficial use. Recently, the state has allowed water rights to be used to increase stream flows to benefit riparian habitat and endangered species.
- The New Mexico Office of the State Engineer has concluded that its statutory authority allows water rights to be beneficially used for instream uses provided that:
 - Water rights appropriations and changes must be consistent with "public welfare," [NMSA §72-5-6]
 - An actual diversion is not statutorily required for an appropriation of water, and
 - The State Engineer has broad authority in the issuance of permits for any purpose or use recognized as beneficial to the state. [NMSA §§72-5-6, 7] (Covell 1998)
- The State Engineer's interpretation of law:
 - For many years the State Engineer took the position that actual diversion of water was required in order to appropriate a water right.
 - The current State Engineer's position is that under appropriate circumstances, the purpose and place of use of an existing water right can be changed and applied to an instream use. [Based on a 1998 memorandum from the State Engineer Legal Division] (Covell 1998)
 - Permits have been granted for the use of water to benefit fish and wildlife in association with endangered species and interstate compact issues on the Rio Grande and the Pecos River (Medley 2005).
 - This determination is supported by a New Mexico Attorney General Opinion, which concludes that the law "permits the State Engineer to afford legal protection to instream flows for recreational, fish or wildlife, or ecological purposes." [NMAG OP. No. 98-01]
 - The Opinion is careful to limit the determination to water right transfers and not new appropriations, because New Mexico is fully appropriated.
 - The Opinion finds that New Mexico law does not require an "actual diversion" in order to validate a water right.
- In New Mexico, "[a]n owner may lease to any person all or any part of the water use due him under his water right..." [NMSA §72-6-3(A)]

Options Available for Instream Flow Protection

- According to an Attorney General Opinion [NMAG OP. No. 98-01], nothing in state law, the New Mexico constitution, or surrounding state cases precludes the transfer of an existing surface water right to an instream flow use. To date (2005), the Office of the State Engineer (OSE) has not yet received an application to permanently transfer an existing surface water right to an instream use (Guevara 2003). However temporary and emergency permits have been granted for fish and wildlife purposes in association with endangered species and interstate compact issues.
- Potential means available for providing water for instream uses include (DeYoung 1993):
 - A 1991 amendment allows water users to be exempt from forfeiture of a right when rights are acquired and placed in a water conservation program approved by State Engineer



- Placement of water in the Strategic River Reserve. The 2005 New Mexico state legislature passed legislation, and provided \$2.8 million to create and fund the "Strategic River Reserve." This allows the New Mexico Interstate Stream Commission to lease or purchase water rights from willing sellers, obtain rights to store water, and accept donations of water rights to help endangered species and their habitat, and to meet Interstate Compact obligations. No transfers have occurred to date, but regulations for the implementation of the program are currently being developed
- Public welfare considerations may be used to limit water rights transfers

Entities Authorized to Appropriate Instream Flows

- New appropriations for instream purposes of use are not considered possible as the state is already entirely appropriated (Guevara 2003).

Entities Authorized to Request/Recommend/Administer Instream Flows

- New Mexico Office of the State Engineer (OSE) oversees appropriations and transfers.

Process for Securing Instream Flow Rights or Reservations

- At this time, no clear precedent has been set.
- However, if the State Engineer were to issue a permanent water right permit for an instream use, it would follow that the same procedures for a transfer to a traditional use would apply to an instream use transfer application. [NMSA §72-5-24]

Public Participation

- Unknown

Protected Beneficial Uses of Instream Flows

- Recreational, fish or wildlife, or ecological purposes (according to the Attorney General Opinion No. 98-01)

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Anticipated acquisition through the Strategic River Reserve Program
- Application for change of place and purpose of use of an existing water right to instream uses if statutory criteria are met. The AG Opinion No. 98-01 concluded that NM law "permits the State Engineer to afford legal protection to instream flows for recreational, fish or wildlife, or ecological purposes." Concludes that the Constitution and statutes do not require actual diversions or impoundments and that recreational, fish and wildlife, and 'ecological' uses will be found as proper beneficial uses. (Covell 1998; Guevara 2003)

Flow Quantification Methods

- Unknown

Monitoring and Enforcement

- Both the State Engineer and Attorney General indicate that if approval of an instream use application were to occur, it would be conditioned on use of continuous gaging (Guevara 2003).
- Therefore it appears that if a permit change to an instream use would be issued by the State Engineer, it would place a burden of monitoring upon the applicant (although in practice this has yet to occur).

Record Keeping

- Not applicable (records of permits are available from the Office of the State Engineer for the existing permits).

Federal and NGO Involvement

- Interest from Federal agencies on the Gila National Forest has increased interest in instream flows in the state.
- Federal entities have worked with the state to operate the permits for instream uses on the Rio Grande and Pecos River.



Statistics

- Number of water rights permits for instream uses: No permanently transferred water rights. At least two permits have been granted for the temporary and emergency use of water for to meet endangered species flow requirements on the Rio Grande and Pecos River.
- Stream miles: Approximately 250 miles
- Total cfs: Unknown
- Any of above as percentage of state total miles/flow: 0
- Year created: 2003 and 2004 (AG Opinion 1998).
- Number of employees: None dedicated full-time to instream flow water rights

Other

- Legislation introduced in 2003 set out guidelines for the creation of a State Water Plan. "The bill called for public involvement, an inventory of water quality and quantity, water budgets, and a recognition between water and land use while considering the state's customs, traditions, and livelihoods. The Interstate Stream Commission (ISC) in cooperation with the Office of the State Engineer developed the plan. Section C. 8 of the Plan recognizes the importance of promoting river and watershed restoration and compliance with the federal endangered species act and provides policy statements for the acquisition and use of water to meet these goals.
- Discussion of the application of TMDLs as both an opportunity and challenge can be found in "Opportunities and Challenges of Implementing TMDLs in States with No Instream Flow Programs" (Guevara 2003).

Web Sites of Interest

- <http://www.seo.state.nm.us/> New Mexico Office of the State Engineer and Interstate Stream Commission.
- <http://www.ose.state.nm.us/water-info/NMWaterPlanning/state-water-plan.html> State Water Plan.

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State-by-State Descriptions of Instream Flow Protection
State: North Dakota

General Water Rights System
- Like other states lying on the 100th meridian, North Dakota's water rights have historically followed both prior appropriation and riparianism systems. - From 1905 to 1963, the State Engineer used both the riparian and prior appropriation doctrines as a basis for granting and regulating water permits. Although North Dakota began using the prior appropriation doctrine exclusively as the foundation for establishing water rights in 1963, vestiges of riparianism still exist in North Dakota's water code. [See for example NDCC §89-03-01-01.2, requiring water right applicants to have interest in land or intent to acquire interest in land before being eligible for a water right]. - North Dakota's current water rights system is codified in Title 61, Chapter 01-39. - North Dakota's general water policy proclaims, "all waters within the limits of the state from the following sources of water supply belong to the public and are subject to appropriation for beneficial use..." [NDCC §61-01-01] "Priority in time shall give the superior water right." [NDCC §61-04-06.3] "Beneficial use shall be the basis, the measure, and the limit of the right to the use of water." [NDCC §61-04-01.2] - North Dakota water law also entails a variety of public interest requirements. [e.g., NDCC §61-04-01.1, proclaiming "beneficial use" to be a purpose consistent with the best interests of the people of the state] - North Dakota does recognize fish, wildlife and recreational uses of water [NDCC §§61-04-02 and 61-04-01.1(4)]. However, such expressed recognition does not translate into an <i>instream</i> flow water right. ISF uses to date have not satisfied the State's physical diversion requirement in NDCC §89-03-01-07.
Instream Flow Legal Recognition
- North Dakota does not have statutory protection of instream water uses. - ISF protection is limited to indirect instruments made possible by public interest considerations made by the state engineer (McKinney and Taylor 1988). - According to current law, a water permit can be secured only for beneficial uses in connection with constructed works (i.e. physical diversion). [NDCC §61-04] (McKinney and Taylor 1988, White 2005)
Options Available for Instream Flow Protection
- No specified methods for instream flow protection - The State must consider public interest criteria when issuing a permit (Goff 2004) [ND §61-04-06]. - The only means of releasing flows for instream benefits is in association with a physical diversion structure (White 2005).
Entities Authorized to appropriate Instream Flows
Not applicable
Entities Authorized to Request/Recommend/Administer Instream Flows
Not applicable
Processes for Securing Instream Flow Rights or Reservations
Not applicable
Public Participation
Not applicable
Protected Beneficial Uses of Instream Flows
Not applicable



Acquisition Program (or other capacity for transfers or conversion of existing water rights)
▪ Not applicable
Flow Quantification Methods
▪ Multiple methods have been reviewed but no specific methods have been formally adopted, especially as instream flow rights are not currently granted (White 2005).
Monitoring and Enforcement
▪ Not applicable
Record Keeping
▪ Not applicable
Federal and NGO Involvement
▪ Not applicable
Statistics
▪ Number of ISF rights: None ▪ Stream miles: None ▪ Total cfs: None ▪ Any of above as percentage of state total miles/flow: 0 ▪ Year created: Not applicable ▪ Number of employees: None
Other
▪ No additional information.
Web Sites of Interest
▪ http://www.swc.state.nd.us/ North Dakota State Water Commission. ▪ http://www.swc.state.nd.us/WaterLaws/ndwatpolicy.pdf North Dakota Water Resources Programs. ▪ http://www.state.nd.us/gnf/ North Dakota Game and Fish Department.

Sources

- Gillilan, David M. and Thomas C. Brown. (1997) *Instream Flow Protection: Seeking a Balance in Western Water Use*. Island Press, Washington, D.C.
- Goff, Karen (May 2004) State Water Commission. Personal Communication.
- White, Robert (February 2005) State Water Commission. Personal Communication.
- Above Web sites



State-by-State Descriptions of Instream Flow Protection

State: Oklahoma

General Water Rights System

- Oklahoma's water right system follows fairly closely with the California system. Like California, Oklahoma maintains a blend of both riparian and prior appropriation laws.
 - Prior to statehood in 1907, Oklahoma adopted both doctrines for the purpose of regulating the use of surface water.
 - In 1963, Oklahoma's legislature attempted to grandfather riparian rights through an adjudication process, and to prohibit future riparian claims.
 - Nonetheless, attempts to change over to a pure prior appropriation have been resisted and riparian law still remains part of the system.
 - The Oklahoma Supreme Court declared unconstitutional the 1963 amendments to the extent that they altered traditional riparian rights. [*Franco-American Charolaise, Ltd. V. Oklahoma Water Resources Board*]
- In Oklahoma the Water Resources Board is the main administrative agency that facilitates Oklahoma's water rights system. The Board's duties include the following:
 - Determining and administering water rights;
 - Encouraging conservation and development of water resources;
 - Coordinating local, state, and federal water activities; and
 - Establishing and administering water quality standards (McKinney and Taylor 1988).

Instream Flow Legal Recognition

- Oklahoma provides little if any instream flow (ISF) protection
- The closest legislative recognition of ISF protection is through the Scenic Rivers Act.
 - Oklahoma's Scenic Rivers Act prohibits the construction of large dams on designated rivers without legislative approval. The Act does not state explicitly whether water is reserved for ISF purposes (Gillilan and Brown 1997, p159).
- Also minimal flow requirements in streams to protect domestic and stock-watering uses may indirectly protect ISF over a temporary period of time (Gillilan and Brown 1997, p143).
- Overall, Oklahoma lacks a comprehensive law that expressly recognizes ISF rights. Nevertheless, the Oklahoma state attorney general's office has determined that there probably is no legal barrier to an ISF right (Gillilan and Brown 1997, p116).
- Oklahoma has yet to issue an ISF water right.

Options Available for Instream Flow Protection

- No statutory or administrative protection of ISF water rights exists.
- Oklahoma may indirectly protect through domestic and stock-watering uses. Administrative agencies require at least minimal flows in streams to protect domestic and stock-watering uses that exist downstream (Gillilan and Brown 1997).
- Oklahoma Scenic Rivers Act prohibits construction of large dams on designated rivers without legislative approval. As of March 1995 one has been established on the Illinois River and some tributaries, in well-watered part of state where there is little diversion pressure. In practice, this may only apply to large hydropower facilities. The pertinent legislation does not explicitly state if water is reserved for instream flow purposes (Gillilan and Brown 1997).
- Through the rules related to the Scenic Rivers Act, the Oklahoma Water Resources Board has self imposed a threshold to assure that waters are not withdrawn to an extent that would adversely affect fisheries. These are self-imposed measures in the Water Board rules (Smithee 2005).

Entities Authorized to Appropriate Instream Flows

- The Oklahoma Water Resources Board is responsible for reviewing water projects and water rights.



Entities Authorized to Request/Recommend/Administer Instream Flows
▪ Not applicable
Processes for Securing Instream Flow Rights or Reservations
▪ Not applicable
Public Participation
▪ Not applicable
Protected Beneficial Uses of Instream Flows
▪ Although Oklahoma does not have an enumerated list of permitted water uses, it appears that the uses of recreation and fish and wildlife are implicitly recognized. [OK ST §110.2 on permissible uses for water storage projects]
Acquisition Program (or other capacity for transfers or conversion of existing water rights)
▪ Not applicable
Flow Quantification Methods
▪ IFIM and Montana methods (McKinney and Taylor 1988).
Monitoring and Enforcement
▪ Not applicable
Record Keeping
▪ Not applicable
Federal and NGO Involvement
▪ Not applicable
Statistics
▪ Number of ISF rights: None ▪ Stream miles: None ▪ Total cfs – None ▪ Any of above as percentage of state total miles/flow: None ▪ Year created: not applicable ▪ Number of employees: None
Other
▪ “Oklahoma has not yet experienced problems with dewatered rivers to the same degree as the other western states and still has substantial quantities of unallocated storage water, but instream issues are likely to become more important in the future.” (Gillilan and Brown 1997, p116) ▪ The Oklahoma Department of Wildlife and Conservation has had preliminary discussions with the Oklahoma Water Resources Board about recognizing ISF water rights claims, but no applications have yet been made (Gillilan and Brown p116). ▪ The state is currently reviewing the applicability of instream flow quantities to efforts to protect water quality (Smithee 2005).



Web Sites of Interest

- http://www.owrb.state.ok.us/news/news2/pdf_news2/pres/HouseEnv_NR%20Comm_2003.pdf Power Point presentation about Oklahoma Water Resources Board.
- <http://www.owrb.state.ok.us/index.php> Oklahoma Water Resources Board home page.
- http://www.owrb.state.ok.us/supply/ocwp/pdf_ocwp/7issues&prob.pdf Water Related Issues and Problems.
- <http://www.owrb.state.ok.us/news/news2/newsletters.php> Oklahoma Water Resources Board.

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- Gillilan, David M. and Thomas C. Brown. (1997) *Instream Flow Protection: Seeking a Balance in Western Water Use*. Island Press, Washington, D.C.
- McKinney, Mathew J. and Jonathan G. Taylor (October 1988), *Western State Instream Flow Programs: A Comparative Assessment*, Instream Flow Information Paper No. 18, Biological Report 89(2), US Department of the Interior, Fish and Wildlife Service, Research and Development, Washington, D.C.
- Smithee, Derek (February 2005). Oklahoma Water Resources Board. Personal Communication.
- Above listed Web sites



State-by-State Descriptions of Instream Flow Protection
State: Oregon

General Water Rights System

- Like other water-rich states in the Northwest, Oregon was one of the last Western states to adopt the modern doctrine of prior appropriation. Large amounts of rainfall did not necessitate a quick transition from riparianism and holding on to riparian law made sense from the standpoint of continuing to meet the expectations of early riparian water users.
 - Prior appropriation was not recognized until 1880. The 1880 Oregon Supreme Court decision, *Lewis v. McClure*, 8 OR. 273 (1880) established that riparian rights in Oregon were subject to prior valid appropriations on the public domain.
 - Prior appropriation effectively took complete hold of Oregon's water law in 1909. In *Hough v. Porter*, the court held that federal land patents granted after 1877 carried no riparian rights - because the 1877 Desert Land Act established a prior appropriation system. The overall effect of the *Hough* decision was to preserve riparian rights on the minority of lands granted to the state and public before 1877.
 - Only riparian rights for domestic use and stock watering remained unaffected by the decision (Kaufman 1992).
- Oregon's prior appropriation system
 - Most water rights are issued by permit, rather than by decree. Pre-1909 rights, which have been adjudicated in court, are exceptions.
 - Permits are issued in Oregon, provided that use is for a beneficial purpose without waste and water is continually used (water right is subject to forfeiture after five years of non-use) (Water Resources Division, "Water Rights in Oregon")
- Localized Management, permissible uses are determined locally through water use classifications.
 - Local basin programs determine classifications.
 - The Oregon Water Resources Commission has developed basin programs in 18 out of 20 of the state's major basins. (Water Resources Division, "Water Rights in Oregon")
- Conservation program (also plays major role in Oregon's ISF program)
 - Oregon passed a law in 1987 that allows a water user to submit an allocation of conserved water proposal to the Oregon Water Resources Commission. If the proposal is approved and the conservation measures are implemented, the law authorizes the water user to keep up to 75% of the conserved water for additional use, sale, or lease, with a minimum of 25% of conserved water going to the state. The exact percentage depends upon the amount of non-reimbursable state and federal funding.

Instream Flow Legal Recognition

- Oregon's laws on ISF rights are extensive and protective. Statutorily, ISF water rights can be obtained in four major ways:
 - Conversion of prior minimum streamflows to instream rights
 - In 1955, the Oregon legislature established an administrative process to establish minimum flows [O.R.S. 536.310(7)]
 - Between 1955 and 1988, 547 minimum flows were established under this program.
 - Minimum perennial stream flows were established as administrative rules rather than water rights. Like water rights, the flows have priority dates and are subject to the same variations in water availability as other appropriations.
 - Among other things, 1983 legislation directed the departments of Fish and Wildlife and Environmental Quality to submit a list of up to 75 of their highest priority streams with applications for minimum stream flows (Mattick 1993).
 - Important 1987 legislation, responsible for the creation of the Instream Water Rights statute, directs the Water Rights Commission to convert existing minimum streamflows to instream water rights [O.R.S. §537.346].
 - Application by the Department of Fish & Wildlife, Department of Environmental Quality, or the Parks and Recreation Department for rights
 - The 1987 Instream Water Rights statute established Oregon's current ISF program and a means by which agencies are able to apply for new ISF rights.



- The statute:
 - The entire ISF Rights Statute can be found in O.R.S. §§537.332-360
 - O.R.S. §§537.332 through 537.343 provide a detailed process by which designated state agencies can request instream flows.
- Before filing an application, an agency must first establish administrative rules on the minimum flow requested [O.R.S. §537.338] (Note: often criticized as being slow) (Kaufman 1992)
- Allocation of Conserved Water to instream flow rights
 - An approved allocation of conserved water rewards an individual with up to 75% of the conserved water for additional use, sale, or lease, with a minimum of 25% of conserved water going to the state. The exact percentage depends upon the amount of non-reimbursable state and federal funding.
- Transfer, gift, acquisition
 - “Any person may purchase or lease all or a portion of an existing water right or accept a gift of all or a portion of an existing water right for conversion to an in-stream water right.” [O.R.S. §537.348]
 - Oregon law also allows supplemental groundwater rights to be substituted for a primary surface water right. [O.R.S. §540.524]
- In addition to the 1987 ISF Water Rights Statute, the Oregon Water Resources Department (WRD) has a long list of rules on ISF rights. [O.A.R. 690.077.0000-0100]
 - The codified section on ISF rights can be found in the In-Stream Water Rights statute, enacted in 1987. [O.R.S. §§537.332 to 537.360]
 - ISF rights have the same legal status as other water rights [ORS §537.350]
 - However, ISF rights may be subordinated by multipurpose storage projects, municipal uses by municipalities, or hydroelectric projects. [O.R.S. §537.352]
 - ISF rights are also subject to emergency water shortage regulations [O.R.S. §537.354] (Covell 1998).
- Oregon allows the Water Resources Commission to withdraw waters in all streams from future appropriation when it is in the “public interest.” [O.R.S. §536.410]

Options Available for Instream Flow Protection

- The Scenic Waterways Program (1970) covered 1,100 miles of stream and 6,672 acre lake by limiting impoundments and diversions for certain rivers.
- 1987 legislation established instream water rights, with the same status of all other water rights. However, future municipal purposes can gain precedence over ISF rights applied for by state agencies (Mattick 1993).
- The 1987 legislation created multiple ways to create water rights: 1) conversion of minimum perennial streamflows adopted under the 1955 Act; 2) application by the Department of Fish and Wildlife, Department of Environmental Quality, and/or Parks and Recreation Department for new instream water rights; permanent transfers of existing water rights to instream use; 4) time-limited transfers and temporary leases to instream use; and, 5) all or a portion of an allocation of conserved water to instream use.
- Instream Leasing. “This program provides a voluntary means to aid the restoration and protection of streamflows. This arrangement provides benefits both to water right holders and to instream values by providing water users with options that protect their water rights while leasing water for instream benefits.” <http://www.wrd.state.or.us/programs/stewardship/index.shtml> Short-term instream leases can be for 1 to 5 years in duration, with renewability.
- Allocation of conserved water, “The law allows a water user who conserves water to use a portion of the conserved water on additional lands, lease or sell the water, or dedicate the water to instream use.” <http://www.wrd.state.or.us/programs/stewardship/conserved.shtml> If a conservation proposal is approved by the Water Resources Commission and measures are implemented, the water user receives up to 75% of the conserved water for additional use, sale, or lease, with a minimum of 25% of conserved water going to the state. The exact percentage depends upon the amount of non-reimbursable state and federal funding. The conserved water (both the ISF and water for new use) has a priority date of either the same as the original right, or 1 minute later than original right, at the applicant’s request. (Approximately 35 applications have been submitted, with 15 completed) Rice 2005).
- Drought response leases can be established. O.A.R. 690-019-0058.



Entities Authorized to Appropriate Instream Flows

- The Department of Fish and Wildlife, the Department of Environmental Quality and the State Parks and Recreation Department are the three agencies that can apply for new water rights. The rights are then held in trust by the WRD.
- Prior to 1987, the Water Resources Commission could establish minimum perennial streamflows on its own motion, but this option was eliminated with the option of creating instream water rights.

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Scenic Waterways are administered primarily by the State Parks and Recreation Department with involvement by Division of State Lands, Oregon State Marine Board and WRD.
- The Department of Fish and Wildlife, Department of Environmental Quality and the State Parks and Recreation Department can apply for ISF water rights (Mattick 1993). The request is made to the Water Resources Commission. The Water Resources Department (WRD) holds instream water rights (Mattick 1993).

Processes for Securing Instream Flow Rights or Reservations

- O.R.S. §§537.332 through 537.343 provide the process by which designated state agencies can request instream flows.
- As mentioned in the "legal recognition" section, the application process is scrutinized for creating too much delay from time of filing to final appropriation. The rulemaking process in general creates substantial public involvement, but this is at the cost of delaying final appropriation.

Public Participation

- 1992 rules amended to ensure all persons or groups had a fair and equal opportunity to express public interest concerns during review of applications.
- Individuals can acquire water rights and convert them to ISF water rights (which are then held in trust by the WRD) (Mattick 1993).

Protected Beneficial Uses of Instream Flows

- Protected uses include: "fish life, wildlife, fish and wildlife habitat", "water quality standards", and "recreation and scenic attraction" [O.R.S. §537.336]
- Since the adoption of the ISF Water Rights statute in 1987, recreational instream use has been an expressly recognized ISF use. A recreational right may be applied for by the Department of Parks and Recreation for a quantity that provides a desirable level for recreation and scenic attraction. [O.R.S. §537.336(3)]

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Acquisition methods exist in Oregon and include transfers, leases and conserved water projects. Leases are limited to 5 years with the option to renew. The majority of transfers are permanent transfers.
- Any entity can purchase, lease or receive as a gift any water right for instream use, but the converted use must be held in trust by WRD (Rice 2004).

Flow Quantification Methods

- IFIM, associated versions, and the Oregon method are all used.
- Flows are quantified to meet the following goals:
 - "[c]onservation, maintenance and enhancement of aquatic and fish life, wildlife, and fish and wildlife habitat."... Department of Fish & Wildlife
 - "[t]o provide *desirable levels* for 'recreation and scenic attraction'"... Parks and Recreation Department
 - "[q]uantity *necessary* for pollution abatement"... Department of Environmental Quality [O.R.S. §537.336]



Monitoring and Enforcement

- The WRD actively monitors and protects instream flows throughout the state.
- To prioritize monitoring, the WRD works with the Department of Fish and Wildlife to determine critical streams and rivers for monitoring and measure flows in most sensitive areas.
- When instream flows are not being met, the water master is authorized to shut off junior users (French 2004).

Record Keeping

- The WRD has a database which they describe as follows: "The new WRIS (Water Rights Information System) is a warehouse of information pertaining to water right applications, permits, certificates, transfers, leases and related information. What we hope to provide is a relatively straightforward interface to very complex information." Includes mapped information. <http://www.wrd.state.or.us/waterrights/wris.shtml>

Federal and NGO Involvement

- The Oregon Water Trust, an NGO focused on instream flow water rights, was founded in 1993, and works throughout the state to restore streamflows.
- Several basin-specific organizations exist that work with instream flow issues, such as the Deschutes River Conservancy and the Klamath Basin Rangeland Trust.
- Federal rights determined through adjudication proceedings.

Statistics

- Number of ISF rights: 1550 permanent appropriations. 30 instream transfers; 15 allocations of conserved water; and 280 instream leases (Rice 2005)
- Oregon has 12,000 names streams and 1,400 named lakes
- Oregon rivers carry 66 million acre-feet annually (statewide average)
- Number of stream miles: 114,500 miles
- Total streamflow restored: 90 cfs from instream transfers; 14 cfs from allocations of conserved water to instream use; and 380 cfs from short-term instream leases
- Year created: Most authors think Oregon was the first to protect ISF uses. In 1915 they took measures to protect waterfalls along Columbia River Gorge (Gillilan and Brown 1997). Administrative process for minimal flows created in 1955 statutes, 1970 Scenic Waterways program, ISF water right recognized as a beneficial use in 1987 (Mattick 1993).
- Number of Employees: Approximately 3 FTE (with more staff involved part time at different agencies)

Other

- Water availability is not a factor when reviewing applications for ISF, if the minimum flow exceeds available quantity of water. It is seen as a goal rather than mandate (Gillilan and Brown 1997 p130)
- Instream water rights are limited to not more than the 50% exceedance flow for a given month, except where period flows are significant for the public use of the ISF. O.A.R. 690-077-0015.
- ISF rights can be subordinated to multipurpose storage projects, municipal uses by municipal applicants, hydroelectric projects can take precedence. However does not apply to ISF rights obtained by conversion of minimum perennial stream flows or rights obtained by conversion of other rights (Covell 1998)



Web Sites of Interest

- <http://oregon.gov/OWRD/> Water Resources Department.
- http://oregon.gov/OWRD/mgmt.shtml#Changing_Water_Rights Water Management Programs.
- http://oregon.gov/OWRD/mgmt_leases.shtml Instream Leasing Program.
- http://oregon.gov/OWRD/mgmt.shtml#Water_Conservation Conserved Water Program.
- <http://oregon.gov/OWRD/PUBS/aquabook.shtml> Water Rights Book from 2002.
- <http://oregon.gov/ODFW/> Department of Fish and Wildlife.
- <http://oregon.gov/DEQ/> Department of Environmental Quality.
- <http://oregon.gov/OPRD/> Parks and Recreation Department.
- <http://oregon.gov/OWEB/> Oregon Watershed Enhancement Board.
- <http://www.owt.org> Oregon Water Trust.
- http://arcweb.sos.state.or.us/rules/OARS_600/OAR_690/690_077.html Instream Water Rights.
- <http://www.waterwatch.org/index.html> WaterWatch.

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- Kaufman, Joseph Q. (Spring 1992) "An analysis of developing instream water rights in Oregon," *Willamette Law Review*, vol. 28, no. 2 pp. 285-332.
- Rice, Robert D. (September 2004, May 2005) Oregon Water Resources Department. Personal Communication.
- Above listed Web sites



State-by-State Descriptions of Instream Flow Protection
State: South Dakota

General Water Rights System

- South Dakota was admitted to the Union with North Dakota in 1889. South Dakota's water rights system upon statehood was carried over from territorial law and involved a mix of both riparian rights and appropriative water rights. These principles were, by legislative enactments over a series of many years, replaced by a system that is today almost entirely a prior appropriation system.
- Water in South Dakota is owned by the people of the state and not by private individuals. The right to use water may be obtained under State Law [SDCL §§46-1-1, 46-1-3, and 46-5-5]. It also has authority to confirm or "validate vested rights" (riparian rights and groundwater rights) that were developed and used before 1955 so long as those rights remain continuously in use.
- The Water Management Board has the responsibility for approving or denying permit applications.
- An application for a permit is presented to the State Water Management Board. The Board considers four items:
 - Availability of the water,
 - Impact on existing rights,
 - Public interest, and
 - Beneficial use. [SDCL. § 46-2A-9]
- Where South Dakota law is silent:
 - South Dakota law does not expressly enumerate beneficial uses of water.
 - Nor does South Dakota require a physical diversion of water in order for it to be beneficially used.
 - Under SDCL §46-1-6(3), a "beneficial use" is: any use of water within or outside the state, that is reasonable and useful and beneficial to the appropriator, and at the same time is consistent with the interests of the public of this state in the best utilization of water supplies[.]

Instream Flow Legal Recognition

- Although South Dakota has no special enabling legislation for instream flow (ISF) protection, ISF protection has nonetheless been recognized and instream flow permits approved by the Water Management Board.
- In the 1990's, administrative initiative and judicial affirmation established ISF uses in South Dakota (Gillilan and Brown 1997 p114).
- Administrative initiative by the Water Management Board
 - The Water Management Board has granted two permits to the Division of Wildlife, Game, Fish and Parks for what are essentially instream purposes. Water in both of these cases was granted by the Board for fish, wildlife, and aesthetic purposes.
 - The Water Management Board has also granted a change-of-use request on a water right held by a private organization that wanted to convert part of its water right to instream use.
 - Both of these permitting initiatives were within the Board's authority. Although instream use for fish and wildlife are not expressly permitted in statute, they are not expressly prohibited either (Gillilan and Brown 1997 p114).
- The Water Management Board's permitting decisions were affirmed by the South Dakota Supreme Court in *Dekay v. United States Fish and Wildlife Service*, 524 N.W. 2d 855 (S.D. 1994).
 - In *Dekay*, the court affirmed the Board's decision to grant a permit for a water right to support habitat at the LaCreek National Wildlife Refuge.
 - The court ruled that no diversion was necessary to secure a water right in South Dakota and that the maintenance of vegetation to support wildlife constituted a beneficial use of water under state law (Gillilan and Brown 1997 p115).

Options Available for Instream Flow Protection

- South Dakota has not specifically referred to "instream rights" but the Water Management Board has granted permits to the Division of Wildlife, Game, Fish and Parks, the South Dakota Parks and Wildlife Foundation, and the Tacoma Park Association essentially for instream purposes. South Dakota courts have determined that a diversion is not necessary (in relation to the U.S. Fish and Wildlife Service) and that wildlife support is a beneficial use.



- South Dakota may indirectly protect instream flows through domestic and stock-watering uses. Administrative agencies require at least minimal flows in streams to protect domestic and stock-watering uses downstream (Gillilan and Brown 1997).
- Website (http://www.state.sd.us/denr/des/waterrights/wr_permit.htm) on Using Water in South Dakota lists "Recreation use" and "Fish and wildlife propagation" as uses requiring a permit (and by inference considered beneficial).

Entities Authorized to Appropriate Instream Flows

- Although who is eligible has not been specifically identified or explicitly determined, the Division of Wildlife, Game, Fish and Parks, the Tacoma Park Association, the Homestake Mining Company (through a transfer of existing right to the State); and U.S. Fish and Wildlife Service have been granted permits for instream purposes.

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Water Rights Division of the Department of Environment and Natural Resources. The Water Rights Division recommends approval or refusal for permits. If no one contests, the Division can issue a permit in house. If it is contested, that goes to the Board, where it can be appealed.
- The Water Management Board is a quasi-judicial board that hears any contested ISF cases.

Processes for Securing Instream Flow Rights or Reservations

- Study results are used in conjunction with historical flow measurement to determine and justify baseline maintenance flow regimes (McKinney and Taylor 1988).

Public Participation

- There are no explicit rules for who can apply for rights or transfers. To date, permits have been issued to state and federal agencies and a private company.

Protected Beneficial Uses of Instream Flows

- The State Supreme Court holding in *Dekay* has recognized instream uses for fish, wildlife, aesthetics, and fish and wildlife habitat.
- Although other ISF uses (including water quality and recreation) are not expressly prohibited by statute or rule, they have yet to be recognized or addressed by the Board or by South Dakota's courts. Recreation has been recognized by the Board.

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- A transfer of existing right has been authorized to instream flow purposes for a private company (Gillilan and Brown 1997 p145) (Duvall 2005)
- Agricultural uses (irrigation) can only be transferred to other irrigation uses or to domestic uses or uses within a water distribution system.
- Industrial and hydropower uses have been transferred to instream flow use.

Flow Quantification Methods

- IFIM, sag tape for cursory surveys, passage flows or minimum flows needed for specific recreational activities. (McKinney and Taylor 1988)

Monitoring and Enforcement

- The state responds to complaints that are lodged regarding those rights.

Record Keeping

- No specific records are kept on instream flows rights.



Federal and NGO Involvement

- A federal entity has applied for and received a permit (U.S. Fish and Wildlife Service).

Statistics

- Number of ISF rights: 6 (including one transfer) (Duvall and Gronlund 2005)
- Stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: No information available.
- Number of employees: No dedicated full-time staff.

Other

- No added information.

Web Sites of Interest

- <http://www.state.sd.us/denr/denr.htm> South Dakota Department of the Environment and Natural Resources.
- <http://www.state.sd.us/denr/des.htm> Department of Environment and Natural Resources, Division of Environmental Services.
- <http://www.state.sd.us/denr/des/waterrights/waterprg.htm> Water Rights home page for DES.
- <http://www.state.sd.us/denr/des/waterrights/summary.htm#Ownership> Summary of SD water laws and rules.
- <http://www.state.sd.us/denr/des/waterrights/wmb.htm> Water Management Board.
- <http://www.sdgfp.info/Index.htm> Game, Fish and Parks.

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- Above Web sites



State-by-State Descriptions of Instream Flow Protection
State: Texas

General Water Rights System

- History of Texas' prior appropriation system:
 - The water rights system in Texas is unique in that the State adopted prior appropriation through specific adjudicatory acts.
 - Claims to water rights in Texas were based on a conflicting admixture of civil law, common law and prior appropriation rules (Kaiser and Binion 1998).
 - Water rights claims based on civil law, riparian law and the prior appropriation system exceeded the amount of water available in the River and the state filed suit to have a court determine the efficacy of these competing water rights claims. [*Texas v. Hidalgo County, WCID No. 18*, 443 S.W.2d 728]
 - In 1967, the Texas Legislature finally merged these divergent water law regimes through the Water Rights Adjudication Act. [V.T.C.A. §11.301 to .341] (Kaiser and Binion 1998)
 - Through the Act, the Texas Water Commission quantified, prioritized and converted all known rights to a prior appropriative right.
 - The Act, however, did not specifically address ISF rights as part of the permit process.
- Texas' current water rights system
 - "The waters of the state are held in trust for the public, and the right to use state water may be appropriated only as expressly authorized by law." [V.T.C.A. §11.0235(a)]
 - "As between appropriators, the first in time is the first in right." [V.T.C.A §11.027]
 - A "water right" in Texas is defined as "a right acquired under the laws of this state to impound, divert, or use state water." [V.T.C.A. §11.002(5)]
 - The Texas Commission on Environmental Quality (TCEQ), formally the Texas Natural Resource Conservation Commission (TNRCC), is the agency entrusted with the authority to administer state water rights.

Instream Flow Legal Recognition

- In 1985, the legislature began to recognize environmental flow needs.
 - Legislation followed concerning the maintenance of freshwater flows in the estuarine areas of the state.
 - Protection was believed to be necessary - particularly since the Texas Water Adjudication Act was silent on protective measures for environmental flows.
 - The 1985 Legislation requires considerations for quality of bays and estuaries. [V.T.C.A., Water Code §§15.3041 & 11.147(c)]
 - §15.3041(a) reserves five percent of water in any reservoir within 200 river miles from the coast. The reservation is appropriated to the Parks and Wildlife Department for use to make releases to bays and estuaries and for instream uses.
 - §11.147 requires the TCEQ to consider water quality of bays and estuaries whenever a permit is issued within 200 river miles of the coast.
- The TCEQ is obligated to give preference to applications for most every use before recreation. [V.T.C.A., Water Code §11.024]
- Senate Bill 1 (1997) was a wide-scale reorganization of water management in Texas. Included in this law was recognition that water is necessary to meet certain environmental needs (NAS 2005).
- Senate Bill 2 (2001) initiated an instream flow program by directing the TWDB, TPWD and TCEQ to "jointly establish and continuously maintain an instream flow data collection and evaluation program." They were further instructed to conduct studies to determine flow conditions in rivers and streams to maintain a "sound ecological environment" (NAS 2005).
- Note that Texas statute does not authorize the granting of permits specifically for instream flow water use. The instream flow program, created through passage of Senate Bill 2, is for the quantification of flows required to maintain a sound ecological environment and these flows are considered by TCEQ during permit application deliberations (Austin 2005).



Options Available for Instream Flow Protection

- Through Senate Bill 2 (2001), the TWDB, TPWD and TCEQ were granted authority to establish an instream flow program. This was to be accomplished through basin studies and the process was articulated in two documents. The *Texas Instream Flow Studies: Programmatic Work Plan* (PWP) and *Texas Instream Flow Studies: Technical Overview* (TOD). The PWP outlines the background, purpose and a basic methodology proposed for Texas' instream flow program, and the TOD outlines the technical details for determining instream flow needs (NAS 2005).
- Texas does not yet recognize instream flow rights even though no legal obstacle seems to prevent it (as in Arizona and South Dakota). Included among beneficial uses "...recreation and pleasure,...public parks,... and game preserves" and for "other beneficial uses." Also, a diversion is not required "...to impound, divert, or use water". However, no statutes or court cases clarify the granting of instream flow permits and to date, none have been granted.
- Senate Bill 3, which addresses environmental flow needs, has been adopted by the Senate and is now being considered by the Texas House of Representatives.

Entities Authorized to Appropriate Instream Flows

- No entity can appropriate instream flow. However the Texas Commission on Environmental Quality (TCEQ), the state's water permitting agency balances competing needs when considering permit applications, including environmental flow needs for streams and rivers.

Entities Authorized to Request/Recommend/Administer Instream Flows

- Texas Commission on Environmental Quality (TCEQ) is the state's water permitting agency.
- Texas Parks and Wildlife Department (TPWD), Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ) and other stakeholders work jointly to recommend environmental flow needs through basin studies.

Processes for Securing Instream Flow Rights or Reservations

- As related to bays and estuaries, the TCEQ must consider conditions "necessary to maintain beneficial inflows to any affected bay and estuary system." [V.T.C.A., Water Code §11.147]
- The TCEQ considers the following when determining if a bay or estuary is adversely affected by a new appropriation or changed use:
 - (1) the need for inflows, based on available information;
 - (2) the ecology and productivity of the estuary system;
 - (3) the expected effects on the public welfare of not including conditions;
 - (4) the amount and use of water requested and the needs of those who would be served by the applicant;
 - (5) the expected effects on the public welfare of the failure to issue all or part of the permit being considered; &
 - (6) the statutory list of water use preferences [V.T.C.A., Water Code §11.147(c)]
- As outlined in the *Texas Instream Flow Studies: Programmatic Work Plan* (PWP) and *Texas Instream Flow Studies: Technical Overview* (TOD), TCEQ, TWDB and TPWD work jointly with other agencies and local stakeholders to determine instream flow needs for streams across priority basins (six were identified in the PWP with four back-up basins in case of difficulties with one of the original six). These documents can be reviewed at http://www.twdb.state.tx.us/instreamflows/pdfs/Programmatic_Work_Plan.pdf and <http://www.twdb.state.tx.us/instreamflows/pdfs/TechnicalOverview-Draft080803.pdf>.

Public Participation

- Stakeholders are to be identified and involved in basin instream flow studies.

Protected Beneficial Uses of Instream Flows

- V.T.C.A. §11.023 includes the following ISF uses within Texas' overall list of beneficial uses of water:
 - navigational,
 - recreation and pleasure,
 - public parks,
 - and other beneficial use.



- Under the basin studies, instream beneficial uses are considered to include recreation needs, aesthetics, physical processes, and channel maintenance (Austin 2005).

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Texas created a Water Bank in 1993 to help facilitate the transfer of water permits. In 1997 the Water Trust was created as part of the Water Bank. The Water Trust is dedicated for the holding of water rights dedicated for environmental needs. (If a water permit holder wants to sell a water right, it would go into the Water Bank rather than the Water Trust). These have not been used extensively (Austin 2005).

Flow Quantification Methods

- Staff is currently digesting the results of the National Academy of Science review to finalize decisions on the methodologies to use. Currently, Texas uses the Lyons method. This is a variation of Tennant method developed for Texas. SB 1639 was been fairly critical of the Lyons method and a suitable replacement will likely be chosen in the near future (Austin 2005).

Monitoring and Enforcement

- Texas does not currently have a state-wide enforcement or monitoring mechanism for instream flow protection. Some areas of the state have a water master that checks water quantities in relation to water permits and has enforcement authority. If a complaint is filed with a regional office of TCEQ, enforcement measures may also be taken.

Record Keeping

- Information will be made available to the public through web sites and public meetings. Senate Bill 3, if passed, will make significant changes to record keeping.

Federal and NGO Involvement

- Federal and nonprofit organizations will likely participate in the basin studies as stakeholders.

Statistics

- Number of ISF rights: Instream flow protection created through conditioning of other water withdrawals so this and following statistics not applicable.
- Stream miles: See above
- Total cfs: See above
- Any of above as percentage of state total miles/flow: See above
- Year created: 2001 for environmental flows and 1985 for estuary flows
- Number of employees: 9 – 10 total (3 – 4 at TWDB, at least 2 at TCEQ and 4 at TPWD)

Other

- To date, studies have been conducted on the Colorado, Guadalupe, Sulphur and Brazos rivers, however the methodology outlined in the PWP and TOD has not yet been implemented on a Texas river. Staff is currently working on the Lower Sabine, the Middle and Lower Brazos and the San Antonio River. Planning is still in the early stages, focusing on contacting stakeholders and organizing sources of data and data needs (Austin 2005). Please note that bays and estuaries freshwater inflow needs have been addressed in a program in place since 1985. Studies of the major estuaries are now complete.

Web Sites of Interest

- <http://www.twdb.state.tx.us/instreamflows/index.html> Texas Instream Flow Program.
- http://www.tceq.state.tx.us/subject/subject_water.html TCEQ water-related page.
- <http://www.tnrcc.state.tx.us/permitting/waterperm/wrpa/envflow.pdf> Document prepared for Commissioners on how environmental flows are considered in permitting process.
- <http://www.twdb.state.tx.us/instreamflows/pdfs/Enviro%20Flows043004.pdf> Letter describing history and nature of Texas ISF.



- http://www.twdb.state.tx.us/instreamflows/pdfs/Programmatic_Work_Plan.pdf Programmatic Work Plan.
- <http://www.twdb.state.tx.us/instreamflows/pdfs/TechnicalOverview-Draft080803.pdf>, Technical Overview Document.
- <http://www.tpwd.state.tx.us/> Texas Parks and Wildlife.
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- Above listed Web sites



State-by-State Descriptions of Instream Flow Protection
State: Utah

General Water Rights System

- History before prior appropriation:
 - Before adopting a pure prior appropriation system in 1880, Utah's water rights were governed by local laws through the Mormon's distinctive community-based system.
 - The Mormon's early law did not rely on the chronology of diverted water uses to determine right. The early Mormon system relied upon principles of equity during times of shortage and distributed water through cooperative arrangements within Utah's irrigation communities (Gillilan and Brown 1997, p30).
 - Prior Appropriation
 - The water rights system drastically changed since 1880, when legislation created county water commissioners. County water commissioners were created to administer a prior appropriation system within their respective jurisdictions.
 - The system was centralized when the Utah State Engineer's Office was created in 1852, serving as the chief water rights administrative office.
 - A complete "water code" was enacted in 1903.
 - The current revised version is in Utah Code, Title 73
 - Utah's code mirrors many of the same prior appropriation provisions of other Rocky Mountain States such as: beneficial use, preferred uses, and abandonment principles.
- [<http://www.waterrights.utah.gov/wrinfo/default.htm>]

Instream Flow Legal Recognition

- Most of Utah's ISF program is codified in UCA §§73-3-3 and 73-3-8.
 - In 1986, the Utah General Assembly enacted UCA §73-3-3, which recognized instream flows as a beneficial use, not subject to diversion requirement (McKinney and Taylor 1988, p39).
 - UCA Section 73-3-3(11) gives the Division of Wildlife Resources (DWR) and Division of Parks and Recreation (DPR) the power to acquire instream flow rights through private donations.
 - UCA §73-3-3(11)(f) provides the DWR and DPR may
 - (i.) Purchase water rights for the purposes provided in Subsection (11)(a) only with funds specifically appropriated by the Legislature for water rights purchases; or
 - (ii.) Accept a donated water right without legislative approval.
 - Government agencies may not appropriate unappropriated water for the purpose of providing instream flows; they may only acquire previously consumptive rights by donation. [UCA §73-3-3(11)(g)]
 - A transfer of consumptive right in Utah only requires two findings.
 - The agency receiving the donation finds that the water is necessary for statutory instream uses and
 - A finding by the state engineer that the transfer complies with ordinary transfer criteria. [UCA §§73-3-3(11)(a) and 73-3-8] (Boyd 2003)
 - Once donations applications are received by an agency, proposed donations are then subject to protest by other water rights holders on public interest grounds (Boyd 2003).
 - Unlike many other Western states, Utah still lacks a clear legislative statement recognizing the importance of instream flow rights to the preservation of riparian ecosystems in the state.

Options Available for Instream Flow Protection

- The Division of Wildlife Resources and Parks and Recreation can file for temporary (up to one year) or permanent changes for instream flow rights. Change applications can be filed on rights presently owned by either division, perfected water rights purchased by either division through funding provided for that purpose, or acquired by lease, agreement, gift, exchange, or contribution, or on appurtenant water rights acquired by either division with acquisition of real property. Legislative approval required before either division can purchase water rights specifically for ISF purposes. The right retains the priority date of the original right.
- ISF rights cannot be appropriated from unappropriated water (Covell 1998; Holden 1993).
- As of a 1971 amendment, the State Engineer can reject application to appropriate water or limit extent of appropriation if approval of full amount would unreasonably affect public recreation or natural stream environment (however this power is rarely exercised).



- Evaluation of stream channelization must consider effects on public recreation, aquatic wildlife and the natural stream environment.
- A 1989 court decision directed the State Engineer to apply the same investigation for permanent water right changes as for new appropriations (hence the public recreation and natural stream environment considerations) (Holden 1993).

Entities Authorized to Appropriate Instream Flows

- The Division of Wildlife Resources (DWR) and Division of Parks and Recreation (DPR) can file for temporary or permanent changes for instream flow (to date the DWR holds all ISF water rights in Utah) (Bradwisch 2005).
- The State Engineer has legal power through application approval process to preserve water for natural flows by withholding approval or rejecting applications that would unreasonably affect public recreation or natural stream environment.

Entities Authorized to Request/Recommend/Administer Instream Flows

- The State Engineer, Division of Water Rights approves water rights.
- The full legislature must approve funds for the DWR and DPR to purchase water rights for ISF purposes (Bradwisch 2005; Gillilan and Brown 1997). To date, no request for purchase has been made (Bradwisch 2005).

Processes for Securing Instream Flow Rights or Reservations

- ISF water rights in Utah are granted when the "reasonable preservation or enhancement of the natural stream environment" requires a right. [UCA §73-3-3(11)(a)(3)]
- Applications for permanent or temporary changes to instream purposes must include:
 - A legal description of the instream flow reach and
 - Appropriate studies, reports, or other information as required by the State engineer. The studies must demonstrate "necessity" and "benefits to the public" (public interest). [UCA §73-3-3(11)(e)]

Public Participation

- Individuals can acquire a water right and transfer it to the divisions listed above for conversion to ISF, but cannot apply independently of those divisions (Gillilan and Brown 1997).

Protected Beneficial Uses of Instream Flows

- Utah's statute on permanent and temporary changes of water rights allows a change of use for the following instream purposes:
 - (i) the propagation of fish,
 - (ii) public recreation, or
 - (iii) the reasonable preservation or enhancement of the natural stream environment [UCA §73-3-3(11)(a)]

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Transfers are the only means to dedicate water right to ISF.
- The State Legislature's approval is necessary for purchase of a water right.
- Individuals can donate a water right to the divisions, which will then apply to state engineer to make the change (Gillilan and Brown 1997).
- Short-term leases are starting to be used in Utah. In the St. George area on the Santa Clara River, in relation to threatened and endangered species, water is being leased in conjunction with the Shivwits Band of the Paiute Indian Tribe of Utah. Funds for these leases do not require legislative approval (Bradwisch 2005).

Flow Quantification Methods

- Methods prescribed in U.S. Forest Service Handbook for determining channel maintenance flows, such as the USFS IFG-2 and IFG-4, and Montana methods (McKinney and Taylor 1988).
- No particular method is required per state statutes (Bradwisch 2005).

**Monitoring and Enforcement**

- In addition to the other requirements of this section, an application filed by either division shall:
 - (i) Set forth the legal description of the points on the stream between which the necessary instream flows will be provided by the change; and
 - (ii) Include appropriate studies, reports, or other information required by the state engineer that demonstrate the necessity for the instream flows in the specified section of the stream and the projected benefits to the public that will result from the change. [UCA §73-3-3 (11)(e)]
- Once an ISF water right is established, monitoring takes place through visual review (there are no active gages on the 4 established ISF water rights).

Record Keeping

- The State Engineer keeps information on ISF with all other water rights (Bradwisch 2005).

Federal and NGO Involvement

- No significant involvement at this time.

Statistics

- Number of ISF rights: 4 (Bradwisch 2005)
- Stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: 1986 amendment to water code recognized ISF as beneficial use not subject to diversion
- Number of employees: No full-time dedicated staff (Bradwisch 2005)

Other

- No additional information.

Web Sites of Interest

- <http://www.wildlife.utah.gov/> Division of Wildlife Resources.
- <http://parks.state.ut.us/> Division of Parks and Recreation.
- <http://www.water.utah.gov/> Division of Water Resources.
- <http://www.water.utah.gov/WaterPlan/Default.htm> Water Plan, 2001.
- <http://www.nr.utah.gov/divide/divisions.htm> Utah Department of Natural Resources List of Divisions & Offices.
- <http://www.wildlife.utah.gov/news/02-07/drought.html> Information on ISF and drought issues.

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- Above Web sites



State-by-State Descriptions of Instream Flow Protection

State: Washington**General Water Rights System**

- In the early years of Washington's water law, both riparian and appropriative rights were granted by the State.
- In 1917, the State Water Code was passed (RCW 90.03.005-.610), establishing appropriation as the exclusive means for granting rights to surface water. In 1945, Washington's appropriation doctrine was extended to include ground water.
- In addition to establishing the appropriation doctrine, Washington's Water Code provides for:
 - A centralized water right administration by the state through a permit system;
 - Public notice requirements;
 - Required findings before issuance of a permit including: the proposed water right is for a beneficial use, water is available, no impairment to existing rights, and water right is not detrimental to the public interest;
 - Required existing riparian users to put water to beneficial use before 1932.
- Washington's water rights system today is still considered to be dualistic. Although the 1917 Water Code prospectively eradicated riparian rights, existing riparian rights granted prior to 1917 are still recognized.
- See also Washington State Water Law A Primer, <http://www.ecy.wa.gov/pubs/98152>

Instream Flow Legal Recognition

- Generally, protection of instream flows in Washington can be achieved either through direct or indirect agency action. Specifically, protection may be achieved either by an administrative rulemaking or by denying or conditioning a new appropriation.
- Early Legislation
 - Instream flow protection statutes have been in place in Washington State for over half a century.
 - Washington's earliest instream flow legislation came out of a concern that reduced stream flows were adversely impacting fish populations as well as the health of Washington's commercial fishing industry.
 - In 1949, the legislature declared that a permit could be denied if issuance might result in lowering flow below supportable levels for fish and game populations. [RCW 75.20.050]
- Washington created a minimum-flow program in 1967.
 - The Minimum Water Flows and Levels Act set forth a process for protecting instream flows by the department of ecology, "whenever it appears to be in the public interest."
 - Among other things, the Act provides that the Department of Ecology must develop a state water plan, consult with the Department of Fish and Wildlife, and conduct public hearings. [RCW 90.22.010] [From WA Primary Statutes and Legal Basis Relating to Instream Flows]
- In 1974 Washington's Water Resources Act authorized the state's Department of Ecology to establish "base flows" in all of the state's perennial streams. [RCW 90.54.020] The Water Resources Act is a more comprehensive law than the 1967 Act and provides specific direction to Ecology for developing a statewide water resources program. The Act declares the following policy:
 - Beneficial uses of water are to include instream uses in addition to traditional consumptive uses,
 - Water for future uses are to be allocated to achieve "maximum net benefits" for the people of the State, and
 - The State shall vigorously represent its interests before federal and regional authorities.
- Effects of 1974 Water Resources Act
 - Under the 1974 Water Resources Act, Ecology has developed both basin management and instream resource protection plans.
 - In 1979, Ecology began the Washington Instream Resources Protection Program, intended to focus on the establishment of instream flows
- Although Washington's minimum flows are created by administrative rule, they function in law more like an appropriation. Washington amended its state water code in 1979 to clarify that minimum flows established by administrative rule are appropriations (Gillilan and Brown 1997). The instream rule-making process follows the procedures found in most types of rulemaking, including notice, hearings, and a public comment period.
- Washington has a Trust Water Rights program. This program was developed by the State's Department of Ecology in 1991. It provides resources to facilitate voluntary transfer of water and water rights, including conserved water (Gillilan and Brown 1997).



Options Available for Instream Flow Protection

- Minimum flows are set through administrative rule-making procedures.
- Washington administers these flows by closing streams to further appropriation when availability falls below defined minimum flow. Where there is enough water, permits are conditioned to require diversion or storage to cease when streamflow falls below established minimum flow.
- Washington's Water Code was amended in 1979 to clarify that minimum flows are appropriations.
- Through a Trust Water Rights program, adopted in 1991, ISFs can be enhanced by using water saved through conservation (Gillilan and Brown 1997) and other willing transfers.

Entities Authorized to Appropriate Instream Flows

- The Department of Ecology

Entities Authorized to Request/Recommend/Administer Instream Flows

- The Department of Ecology establishes minimum flows on its own accord or after request from the Department of Fisheries and Wildlife.
- Individuals can donate rights to state and specify that they be used for instream purposes under the state's Trust Water Rights program, also administered by Department of Ecology (Gillilan and Brown 1997).

Processes for Securing Instream Flow Rights or Reservations

- Field results are discussed with state fish and wildlife agencies, Indian tribes, and other interests. Recommendations are received and considered. Optimum habitat protection flows are proposed where hydrologically reasonable. 90% of maximum habitat is used as objective as a minimum flow. The flows are frequently set at the "optimum" level for parts of the year depending upon a stream's hydrology and the value of the fishery produced there (McKinney and Taylor 1988).

Public Participation

- Because flows are set as part of administrative procedure, public notice and hearings happen during the establishment stage (Gillilan and Brown 1997).
- Given problems in shutting off junior appropriators, much more extensive public notification and involvement procedures were developed for enforcement of minimum flows with public notice and semi-monthly newsletters to appropriators, etc. (Slattery and Barwin 1993).

Protected Beneficial Uses of Instream Flows

- Washington's Minimum Flow Program protects a variety of instream uses.
 - RCW 90.22.010 states, "The department of ecology may establish minimum water flows or levels... for the purposes of protecting *fish, game, birds or other wildlife resources, or recreational or aesthetic values* of said public waters..."
 - RCW 90.22.010 also provides that the department of ecology may establish minimum flows, "if the department of ecology finds it necessary to preserve *water quality*."

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Individuals can donate rights to the State and specify that they be used for instream purposes under the State's Trust Water Rights program, administered by Department of Ecology.
- Through the Trust Water Rights program, adopted in 1991, instream flows can be enhanced by using water saved through conservation. It was developed to help facilitate voluntary transfer of water and water rights, including conserved water (similar to Oregon). It authorizes the temporary or permanent transfer of water or water rights to the State for a variety of uses including ISF, through purchase, lease or gift. For conserved water, this allows water that would normally be required to be relinquished under waste and beneficial use laws can be managed through the Trust Water Rights program. The program was designed in part to encourage conservation and ISF by making transfer to state a condition of federal or state aid given to water users to implement conservation (Clifford 2004; Gillilan and Brown 1997).



According to the Washington Water Acquisitions Program website (<http://www.ecy.wa.gov/programs/wr/instream-flows/wacqstra.html>):

- "...Washington Water Acquisition Program, a voluntary initiative that offers monetary compensation to water-right holders who are willing to revert all or a portion of their right back to the state to benefit salmon. The Department of Ecology (Ecology), which manages state water supplies, will hold the water in trust to restore stream flows.
- Acquiring water rights is one of many ways to help restore stream flows across the state. As outlined in this document, the Washington Water Acquisition Program strategy provides a framework that links different approaches and guides future water-rights acquisitions.
- Water-right holders who choose to participate in the program can sell, lease or donate all or part of their right. The program is focused on increasing stream flows in 16 basins or "watersheds" across the state experiencing chronic water shortages. While each basin is unique with its own distinctive set of issues, all water-rights acquisitions need to be undertaken in a consistent fashion to ensure fish actually benefit and the public gets the best possible investments." An analysis of the Success of the Acquisition program is available at <http://www.ecy.wa.gov/programs/wr/instream-flows/Images/pdfs/Water%20and%20Trust%20Report.pdf>

Flow Quantification Methods

- Various methods are used depending upon the location. The IFIM and PHABSIM are often used. The State has also modified methodologies to fit local realities (Beecher 2004).

Monitoring and Enforcement

- Adequate enforcement has caused the greatest trouble for Washington's ISF program (Slattery and Barwin 1993 p20-7).
- The state does have gaging stations established for instream flow and works with the USGS on certain streams. Coverage is not complete but has been expanded in the past years.
- The state does enforce its instream flows against junior appropriators (Bolender 2005).

Record Keeping

- A Water Rights Tracking system has been developed (<http://www.ecy.wa.gov/programs/wr/rights/tracking-apps.html>) to allow tracking of Trust Water Rights. It is not clear if previously existing water rights will be incorporated (or are incorporated) into this document.
- Washington Department of Ecology is creating a database to track Trust Water Rights, with an anticipated completion of Fall 2005 (Adelsman 2005).

Federal and NGO Involvement

- The State of Washington works with the Washington Water Trust. It's mission is as follows: "The Washington Water Trust (WWT) is a private, nonprofit organization established in 1998 to restore instream flows in Washington's rivers and streams. WWT works to benefit water quality, fisheries and recreation in Washington's rivers and streams by acquiring existing water rights from willing sellers through purchase, lease or gift.
- The Water Trust works cooperatively with farmers, ranchers, irrigation districts, tribes, public agencies, land trusts, and other non-governmental organizations to accomplish its stream restoration goals. The Water Trust works on small streams and tributaries where returning a small amount of water to the stream can have a significant benefit." http://www.thewatertrust.org/whoweare/whoweare_mission.html

Statistics

- Number of ISF rights: 180 streams are conditioned with instream flows. Instream flow closures have been set in 20 water basins (Bolender 2005). Additionally, there are 23 1-year leases, 41 2 to 5-year leases, 14 10 to 20-year leases, 8 permanent trust water purchases and 4 donations (other Trust Water Rights exist but a full accounting has not yet been finalized) (Adelsman 2005).
- Number of stream miles: No information available
- Total cfs: No information available
- Any of above as percentage of state total miles/flow: No information available
- Year created: In 1949 the State Fisheries Code was amended so that water rights could have low flow



conditions attached or denied per needs of good or game fish populations in stream; in 1967 the Minimum Water Flows and Levels Act authorized the Department of Ecology to establish minimum water flows and levels by administrative rule when requested by other agencies or on own initiative (only 1 min flow established); the Water Resources Act of 1974 was a more comprehensive law, requiring base flow in all perennial streams, etc. (Slattery & Barwin 1993).

- Number of employees: Approximately 12 FTE between the Departments of Ecology and Fish and Wildlife.

Other

- No additional information

Web Sites of Interest

- <http://www.ecy.wa.gov/programs/wr/instream-flows/isfhtm.html> Department of Ecology's central page for instream flow.
- <http://www.ecy.wa.gov/programs/wr/instream-flows/wacq.html> Washington Water Acquisition Program.
- <http://wdfw.wa.gov/> Washington Department of Fish and Wildlife.
- <http://www.thewatertrust.org/> Washington Water Trust.
- <http://www.ecy.wa.gov/programs/wr/rights/tracking-apps.html> Water Rights Tracking System.
- <http://www.ecy.wa.gov/pubs/0411011.pdf> Analysis of Water Banks in the Western United States.
- <http://www.ecy.wa.gov/programs/wr/instream-flows/Images/pdfs/Water%20and%20Trust%20Report.pdf> Analysis of success of the Acquisition Program.

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- Above Web sites



State-by-State Descriptions of Instream Flow Protection

State: Wyoming**General Water Rights System**

- Since becoming a state in 1890, Wyoming established a prior appropriation system of water rights.
- The Constitution recognizes both prior appropriation and the public right to water.
 - “Priority of appropriation for beneficial uses shall give the better right. No appropriation shall be denied except when such denial is demanded by the public interests.” [Wyo. Const. Art. VIII, §3]
 - “The water of all natural streams, springs, lakes or other collections of still water, within the boundaries of the state, are hereby declared to be the property of the state.” [Wyo. Const Art. VIII, §1]
- Wyoming passed a comprehensive water rights act immediately upon achieving statehood. Wyoming’s current water rights law is codified in W.S. Title 41. Wyoming’s water code contains all of the basic provisions for a prior appropriation system including:
 - A means by which water courts can adjudicate existing rights of a stream. [W.S. §§41-4-310 to 316]
 - The establishment of a centralized administration through the State Board of Control for issuance of water right permits.
 - Basis of approval through the State Engineer.

Instream Flow Legal Recognition

- Basic authority for ISF protection is rooted in the state constitution.
- Wyoming’s ISF was enacted when, in the absence of action by the legislature, local conservation groups sponsored an initiative to get the instream flow issue on a Wyoming general election ballot, pressuring the legislature to act (McKinney and Taylor 1988).
- In 1986, the State of Wyoming enacted an instream flow law. The codified version is found in Title 41, Chapter 3, Article 10.
 - In general, Wyoming’s ISF program requires the Wyoming Water Development Commission to file an instream water right *sua sponte* or upon recommendation from the State Game and Fish Commission.
 - Specifically, Wyoming’s ISF program allows for obtaining current day priority instream appropriations and administration through the following statutory provisions:
 - Storage of water for a recreational pool or release for instream flows is declared a beneficial use. [W.S. §41-3-1001] (Fassett 1993)
 - The Game & Fish Commission may submit annual recommendations of segments of streams in need of ISF protection. [W.S. §41-3-1003(b)]
 - The Game & Fish Commission will help in administration of the ISF rights it has filed for.
 - The Game & Fish Commission shall construct any measuring device the state engineer considers necessary for the administration of an instream flow right. [W.S. §41-3-1003(a)]
 - Fees and costs of the commission associated with permit applications and adjudication of water rights shall be borne by the Game & Fish Commission. [W.S. §41-3-1003(c)]
 - The Game and Fish Commission shall report to the water development commission the need to regulate a stream to protect the priority of an instream flow right. [W.S. 41-3-1008(a)]
 - Creation of ISF rights through donation
 - Specific authority allows the state to acquire any existing water rights by voluntary transfer or gift for the purpose of establishing instream flow uses. [W.S. §41-3-1007]
 - Changes from a consumptive to an instream use is limited to the historic amount consumed and must not interfere with or impair the value of existing water rights. Changes must also consider the potential effect upon Wyoming’s apportioned water protected by various river basin compacts and U.S. Supreme Court decrees.
 - To emphasize the “voluntary” nature of such acquisitions, the law specifically denies any power of condemnation to the State Game and Fish Commission or the purchase of existing rights for instream flow purposes [W.S. §41-3-1009] (McKinney and Taylor 1988).
 - Any such change of use requires that the Game and Fish Commission act as the petitioner on behalf of the party donating the water right and assume all costs associated with the change. Any water rights changed to instream flow use would retain the priority date of the original water right.
 - Note that no water rights have gone through this process.



Options Available for Instream Flow Protection

- The state can appropriate new water rights or can receive as a voluntary transfer or gift an existing right for ISF purposes.

Entities Authorized to Appropriate Instream Flows

- State of Wyoming
- Three agencies are involved in appropriation. The Wyoming Game and Fish Department acting on behalf of commission initiates ISF application by identifying stream, stream segments, times of year, and quantity of water needed. Game and Fish prepares an application and provides this to the Water Development Commission. The Commission either accepts or modifies the application and submits it to the State Engineer. The applicant is the Water Development Commission (Annear 2005).

Entities Authorized to Request/Recommend/Administer Instream Flows

- No single agency has sole responsibility for ISF program
- The Game & Fish Department (WGF) identifies priority streams, prepares biological assessments and makes ISF recommendations to the Water Development Commission Under present law, WGF is the only agency that may initiate actions to acquire a water right for instream flow purposes. The law also has been strictly interpreted to mean that only the State of Wyoming (not the WGF) may own an instream flow right. There are instances where other entities and agencies have been issued water rights for various "in channel purposes". For example, the U.S. Forest Service was issued a water right for Wild and Scenic purposes on the Clarks Fork of the Yellowstone. Basin Electric Power Cooperative was allowed to change the use of a portion of their storage water in Greyrocks Reservoir to "fish and wildlife" and protect the water in the channel of the Laramie River from the base of the dam to its confluence with the North Platte. As part of the Bighorn River adjudication, the U.S. Forest Service was issued in channel water rights for some 230 streams on U.S. Forest Service property. The U.S. Bureau of Reclamation releases water for instream flow from Kortes, Grey Reef and Glendo reservoirs to maintain minimum flow levels at all times of year. And the U.S. Bureau of Land Management has been issued numerous in channel flow rights for stock water on some of the lands they administer. These rights are not referenced as instream flows, thus allowing these agencies and organizations to retain ownership of these water rights.
- The Water Development Commission applies to State Engineer for ISF water right then prepares hydrologic analyses.
- A public hearing is required where information presented and opportunity for comment is provided. Information from the hearing is factored into the State Engineer's decision.
- The State Engineer studies all materials provided and makes a determination on the feasibility of the application and has authority to approve application. He may also modify the application.

Process for Securing Instream Flow Rights or Reservations

- The direct (instream) flows are quantified to provide "[t]he *minimum flow necessary* to maintain or improve existing fisheries." [W.S. §41-3-1003(c)]
- The general process:
 - (1) The Game and Fish Department working on behalf and at the direction of the WGF Commission conducts fishery studies, in part to estimate the "minimum flows necessary" for a right. Game & Fish then reports the information to the Wyoming Water Development Commission (WWDC).
 - (2) The WWDC files the application with the State Engineer for appropriation. [W.S. 41-3-1003(c)]
 - (3) The WWDC analyzes the amount of natural flow available for instream flow purposes, whether storage is required, or a combination thereof.
 - (4) The State Engineer awards an appropriation date for the ISF right, that is the same date as the day upon which the application is received and accepted. The State Engineer may condition the instream flow permit to require a later review of the continuation of the permit, to provide for measuring devices, or other limitations as may be necessary.
 - (5) Although the permit is deemed completed 30 days after the permit is granted, formal adjudication by the Wyoming State Board of Control is not to be completed for at least three years. (Fassett 1993)



Public Participation

- Public hearing is required where information is presented and the public has an opportunity for comment before State Engineer's approval [W.S. 41-3-1006(e)] (Hecox)

Protected Beneficial Uses of Instream Flows

- Wyoming is unique in having an ISF program with only one protected use
- The only recognized ISF use in Wyoming is to "establish or maintain new or existing fisheries" if the instream water is from storage in a reservoir [W.S. §41-3-1001(a)] or to "maintain or improve existing fisheries" if the water is from direct, unappropriated flow [W.S. 41-3-1001(b)]

Acquisition Program (or other capacity for transfers or conversion of existing water rights)

- Water rights can be transferred to ISF. This can only be done as voluntary transfer or gift; no condemnation or purchase is possible. Two requests have been made to change the use of existing water rights to in channel purposes, but both applicants sought to retain ownership of the rights and did not want to transfer their rights to the State. The Board of Control ruled that although neither party called the new use "instream flow", that the Board inferred that was their real intention and thus denied the requests because only the State of Wyoming can hold an instream flow right.

Flow Quantification Methods

- PHABSIM with a tendency to rely on the hydraulic simulation component referred to as IFG-4, a habitat maintenance procedure described by Barry Nehring and based on IFG-1 output, HQI, Tennant method. (McKinney and Taylor 1988). Wyoming also incorporates water temperature data with the above models. In recent years, Wyoming has included a method to identify instream flows for channel maintenance and long-term habitat protection, though to date the law has been interpreted to deny this type of recommendation.
- Legislation does not specify methodology. While the State Engineer can conduct any additional tests, he has always deferred to recommendation provided by the Game and Fish Department and the WWDC feasibility report. A combination of methods are used by Game and Fish, including PHABSIM.
- Flows that vary throughout the year can be filed. Statute allows for flows to maintain or improve fisheries.

Monitoring and Enforcement

- By law the State Engineer may condition ISF permit's to place monitoring requirements on an individual. (Fassett 1993) [W.S. 41-3-1003(a)].
- Otherwise, monitoring duties are conferred upon the Game and Fish Department. [W.S. §41-3-1003(a)]
- To date, no call for regulation of an ISF right has been issued, although statute allows for such protection. A call for regulation would proceed as follows: the Game and Fish Department would ask the Water Development Commission to act on its behalf. The Board of Control would then regulate the river accordingly.
- Wyoming Game and Fish does monitor some streams to assist the SEO and Board of Control with approval and adjudication decisions as well as a part of developing their own instream flow recommendations, but the state has only a few permanently recording gages on most instream flow segments. With some exceptions, most of ISF filings are on public land above irrigation ditches so are not threatened by water withdrawals or flow modification (Annear 2005).

Record Keeping

- <http://seo.state.wy.us/PDF/IFAPSSHweb.pdf> listing of instream flow applications from State Engineer's website in conjunction with all other water rights.
- The Game and Fish Department is currently creating a web page to show in map format where ISF segments are located. From this map there will be links to files with information about each stream segment (Annear 2005).



Federal and NGO Involvement

- In 2001, a “Wild and Scenic Water Right” was issued on the Clarks Fork. In this case, the State issued a water right to the US Forest Service, though this is considered a special case and is not the general rule on appropriations (Annear 2005).
- Instream flows provided by the U.S. Bureau of Reclamation below Kortess and Grey Reef are congressionally mandated, but the BOR refers to them as “water management” flows, not instream flows. The small release from Glendo Reservoir in the winter is likewise a voluntary release by the BOR that is considered a water management practice, not an instream flow.
- Trout Unlimited is active in Wyoming with the Wyoming Water Project.

Statistics

- Total number of ISF Water Rights: 97 filings (approximately 40 approved, 4 adjudicated) (Annear 2005)
- Stream miles 417.29 (<http://seo.state.wy.us/PDF/IFAPPSSHweb.pdf>)
- Total CFS: Not a meaningful parameter as Wyoming grants instream flow rights with different quantities at different times of year for most streams
- Percentage of state total miles/flow: Total stream miles is state = 21,643; ISF miles = 1.9%
- Year created: legislation enacted in 1986
- Number of employees: 2 FTE

Other

- Holders of other water rights can recover all litigation costs from holder of instream flow right if that right has caused them harm (Gillilan and Brown 1997) [W.S. 41-3-1010] As a prior appropriation state, it is impossible for any right to cause injury to any senior rights and juniors can not claim injury from a senior. This section of the law has never been tested.
- Wyoming’s Game and Fish Department has written and placed extensive informational documents on their website (<http://gf.state.wy.us/fish/watermangtISF/index.asp>).

Web Sites of Interest

- <http://gf.state.wy.us/index.asp> Wyoming Game and Fish.
- <http://seo.state.wy.us/> Wyoming State Engineer’s Office.
- <http://seo.state.wy.us/PDF/IFAPPSSHweb.pdf> Table of applications and permitted rights.
- <http://seo.state.wy.us/PDF/b849r.pdf> overview from 2003 of WY water rights.
- <http://wwdc.state.wy.us/> Wyoming Water Development Commission.
- <http://gf.state.wy.us/fish/watermangtISF/index.asp> Water Management and Instream Flow.

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