SRP10473

Instream Flow Rights: A Strategy to Protect Arizona's Streams

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WATER RESOURCES
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This paper is part of a series produced by the Arizona Water Resources Research Center (WRRC). The WRRC is a research institution located within the College of Engineering and Mines of the University of Arizona. This series is intended to cover a wide range of water-related issues of broad interest to both professional and general audience readers. The views expressed in each paper, however, are solely those of the author(s), and do not necessarily represent the views of the WRRC, the College of Engineering and Mines, or the University of Arizona.

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Instream flow right: the legal authority to use within the stream channel a flow of water sufficient for the purpose of preserving values and uses such as wildlife, fish, recreation and aesthetics.

INTRODUCTION

Nearly all of Arizona's streams and riparian areas have undergone dramatic changes in the past one hundred years. The Gila and Santa Cruz Rivers, as well as many smaller rivers and streams, once flowed dependably throughout the year. They supported wildlife such as fish, otter, beaver and a wealth of vegetation. Approximately 90 percent of Arizona's streams which formerly flowed throughout the year now flow only part of the year.

Agricultural and mining activities, plus the demands of a growing urban population, led to the depletion of many of the free-flowing streams. Water laws rewarded those who were quickest to divert the water from the channel and put it to "beneficial use."

When surface waters were depleted or insufficient, pumps were used to tap the vast stores of water that had collected underground for thousands of years. Encouraged by laws that supported consumption rather than conservation, extensive pumping lowered water tables and reduced or eliminated inflows from groundwater which constitute the base flow of most perennial streams.

Many people are now seeking ways to protect the remaining free-flowing streams. One way to help protect those streams is to reserve water *in the stream* for the use of the riparian vegetation, fish and wildlife and for the use of people wishing to fish, birdwatch, hike, raft or swim. An instream flow right allows the permit holder to use the water in the stream without diverting or consumptively utilizing it. After it has flowed through the protected area, it is available for downstream users.

This instream flow appropriation is relatively new to Arizona, though more common in other states. Although Arizona has been slow to develop an instream flow permit system, the Arizona Department of Water Resources is in the process of drafting regulations that should accelerate the permit process in the future.

This publication describes instream flow rights and their relationship to other water rights. It briefly explains the process of obtaining an instream flow permit and the process for protesting applications. Five examples of instream flow applications are described. These include Ramsey Canyon, where the Arizona Nature Conservancy's preserve is protected by the first instream flow permit granted. An instream flow right in Oak Creek Canyon could not only preserve valuable habitat, but also benefit the tourism-based economy of Sedona. The Peeple's Canyon example exemplifies an application on a small remote stream; the Cienega Creek example demonstrates issues near a large urban area. In the Aravaipa Creek example we describe the most recent successful instream flow permit application.

It is not the authors' intent to provide legal or technical advice, but to assist the public in understanding instream flow rights and their application in Arizona.

THE BASICS OF INSTREAM FLOW

WHAT IS AN INSTREAM FLOW RIGHT?

An instream flow right is a legal entitlement to use surface water within a specified area of a stream channel for fish, wildlife or recreational uses. This use must be non-consumptive except for the normal needs of wildlife and vegetation. The permit granting the right sets forth the amount of water appropriated and the date of priority. Since no diversion or increased consumption of the water occurs, the water remains in the stream for downstream users. In Arizona, rights to instream flows are governed by the same system of laws that applies to other surface water rights.

WHY IS AN INSTREAM FLOW RIGHT BENEFICIAL?

An instream flow right protects a designated flow, through a specified reach of a stream, from depletion by new water users and is especially important where new upstream uses, developments, diversions or transfers could threaten existing flows.

The benefits of instream flow right include protection of fish and the diversity of plants and animals that live in or along the water, including threatened or endangered species. Various studies have shown that at least half the bird species in Arizona either require or prefer riparian areas for nesting and/or feeding. Further, the instream flow right may help assure a supply of water for recreational activities such as boating, fishing, bird watching, camping and hunting. These recreational opportunities may be important to the economy of a town or business that depends on tourists or visitors attracted by water-based activities. Instream flow rights may even moderate the downstream effects of flooding by supporting riparian vegetation which helps slow water flows. Other benefits may include recharging aquifers, as well as providing for less tangible values such as the spiritual or aesthetic benefits derived from free-flowing surface water.

HOW DO INSTREAM FLOW RIGHTS AFFECT OTHER SURFACE WATER RIGHTS?

Instream flow rights normally do not affect established uses of other right holders since water is neither removed from the watercourse nor is consumption increased. Like any other type of surface water right, an instream flow right may limit new or potential uses of upstream waters. Instream flow rights may also affect any relocation of diversion points. The doctrine of prior appropriation applies in all cases.

PRIOR APPROPRIATION

Arizona's surface water law follows the doctrine of prior appropriation described as "first in time, first in right." Users who take water from a stream and use it beneficially at an early date acquire vested rights which take priority (or have seniority) over later (junior) claims. In times of shortage, senior rights will normally be satisfied before junior rights, whether for instream flow or more traditional uses.

ARE GROUNDWATER RIGHTS AFFECTED BY INSTREAM FLOW RIGHTS?

In Arizona, groundwater use is governed by a system of laws different from the prior appropriation doctrine which establishes surface water rights. Ordinarily, the granting and exercise of a surface water right will not affect holders of groundwater rights.

State laws governing water rights do not necessarily reflect physical reality. In some places, including almost all perennial streams, surface flows directly depend upon the existence of a high water table. In other places, restricted largely to ephemeral and intermittent streams, flows may depend on seasonal precipitation or run-off and have little relationship to the amount of water in the ground.

The courts have recently ruled that groundwater in "subterranean channels" may be appropriated, as well as those waters which cause an immediate and substantial effect on surface flows when pumped or otherwise exploited.

The legal interrelations between instream flow rights and groundwater rights is highly uncertain. It will take further action by the courts and/or the legislature to clarify these issues.

THE BASICS OF THE INSTREAM FLOW PERMIT PROCESS

Anyone wishing to obtain an instream flow right must apply to the Arizona Department of Water Resources (DWR) for a permit. The following information describes the application process as it has functioned since 1979. Because new regulations are currently being developed, some requirements may soon change.

HOW DOES ONE APPLY FOR A PERMIT?

The Arizona Department of Water Resources is the agency responsible for all ground and surface water permitting. Application forms are available from its offices in Phoenix. A small application fee is charged. The application forms are the same as those used for any other type of surface water application (e.g. stock pond, mining).

WHO CAN APPLY?

Previous applicants have been public agencies, county governments, and organizations such as the Nature Conservancy and Sierra Club. DWR has indicated that the new regulations may limit applications to those who own the land on which the claim is made or those who have specific legislative responsibility for wildlife management, such as the Arizona Game and Fish Department.

WHAT INFORMATION IS REQUIRED?

The applicant must supply basic information about land ownership, location, amount of water requested and the proposed use. In addition, instream flow applicants are required to document the amount of water available in the stream and the amount necessary to maintain the stated use. Once an application has been filed with DWR, the applicant is required to give notice to people who may be affected.

WHAT IS INVOLVED IN DOCUMENTING NEED AND SUPPLY?

Documentation of need may include a listing of threatened and endangered species, game species and other wildlife plus a demonstration that those species are dependent on a specified flow for survival. Flow may vary for different months of the year. Where appropriate, the documentation may also include statistics on recreational use—visitor counts, hunting and fishing uses, or surveys. In most cases, professional estimates of resource conditions and values are required to justify the quantity of water claimed.

Documentation of the supply may include stream gauge records, historical evidence of water flows, and/or use of various analytical techniques. DWR is currently developing basic guidelines for the hydrologic assessment process to provide minimum standards for applicants.

HOW WATER IS MEASURED

Water volume is traditionally measured in acre feet (af) while rate of flow is measured in cubic feet per second (cfs). Acre feet per year (af/yr) is a measure of total water used in one year. One af of water equals 325,851 gallons or the amount of water needed to cover one acre to a depth of one foot. A constant flow of one cfs for one day is equivalent to 1.98 af.

Many states quantify both diversion and instream flow rights according to the rate of flow of water (cfs). The cfs allotted for each month usually varies, with more water allocated during the rainy season. In Arizona, flow requests have been made using either or both types of measurement.

WHAT IS THE REVIEW PROCESS?

After DWR receives an application, it is reviewed for technical completeness by the Hydrology Division. If more information is required, the applicant is responsible for supplying it. The application is then examined by the Operations Division to determine whether all requirements are satisfied and all protests resolved before granting "candidate" status. With the assistance of legal counsel, the Operations Division decides whether a permit should be issued.

HOW LONG DOES THE REVIEW PROCESS TAKE?

Approval of the three successful applications for instream permits took four to eight years. Many applications have been awaiting approval for two or four years or even longer. DWR attributes slowness of the process in some cases to the need for further documentation. Supporters of instream flow protection hope that the process will be accelerated once DWR has formally adopted a new instream flow permitting procedure. No state law governs the timeliness of approval.

WHAT IS THE DIFFERENCE BETWEEN A PERMIT AND A CERTIFICATE?

Once a permit has been granted, the applicant (under DWR supervision) monitors the adequacy of the water supply over a period of time to assure that permit conditions are met. If the supply is less than anticipated, the permit amount may be reduced. If DWR determines that the terms of the permit are inappropriate to the claimed use, the applicant may request a continuation in order to modify the terms and retain the priority date. Once DWR is satisfied that everything is in order, a certificate will be issued. In most cases the terms will not then be further modified. No certificates for instream flow rights had been issued as of December 1989.

CAN APPLICATIONS BE PROTESTED?

Anyone may formally protest a permit application by following specific rules. The protestant must show that he or she will be directly harmed if the application is granted. State laws spell out protest procedures which must be properly followed to be valid. Information describing the anticipated injury and documenting the protestant's past and present water usage is required.

If formal protests are filed, DWR requests that the applicant attempt to resolve the issues. If disputes cannot be amicably settled, a public hearing may be required. It has been the practice of DWR to halt the permit approval process until all valid protests (those which meet the criteria) have been withdrawn.

FREE-FLOWING STREAMS AND PERMIT APPLICATIONS

Most of Arizona's riparian areas have lost their free-flowing waters, but some places remain where instream flow appropriation might help save the existing flows and the associated vegetation and wildlife. Other protective measures, such as local zoning restrictions and private or governmental purchase, may also be required to save certain streams.

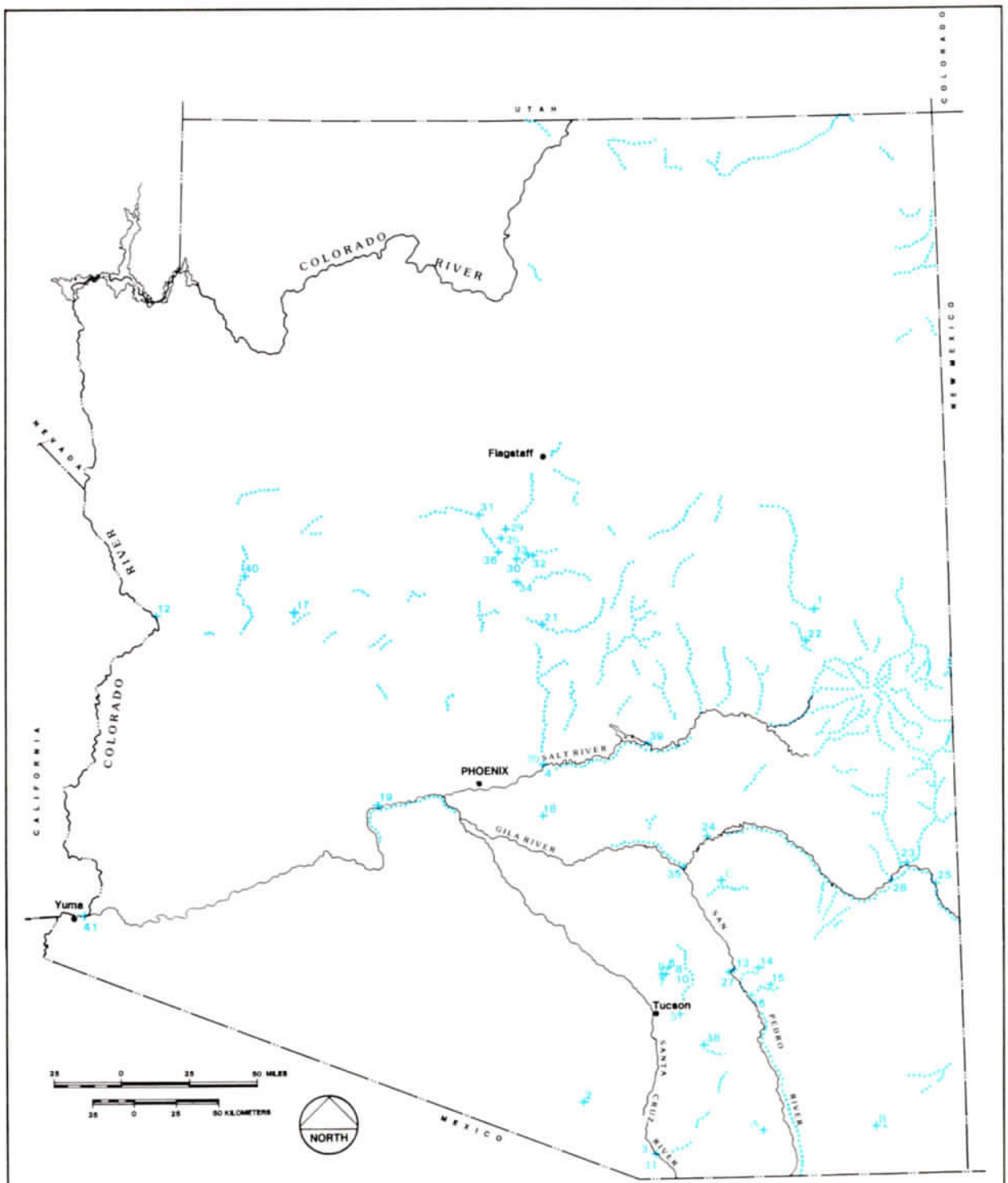
WHERE ARE THE STREAMS LOCATED?

Many of the free-flowing streams, or stream segments that could most benefit from instream flow permits are in the Mogollon Rim area where National Forest lands are interspersed with private lands. The streams support wildlife and vegetation, and are used for recreation and/or have economic value for tourism. According to a U.S. Forest Service survey, 554 perennial streams or stream segments exist in the state. The Arizona State Parks Department's study of Arizona streams and wetlands identified 761 perennial and ephemeral flows (generally, but not totally agreeing with the U.S. Forest Service report). Applications for instream flow rights have been filed on only a few identified stream segments.

The map on page 10 shows the approximate location of major free-flowing streams as well as the location of those stream segments for which instream flow applications have been filed or permits granted. Applications range from watercourses near heavily populated areas (Sabino Creek near Tucson) to remote areas (Wet Beaver Creek in the central mountains).

WHO HAS APPLIED FOR INSTREAM FLOW PERMITS?

Forty six applications were filed from Sept. 1976 to Dec. 1988. Of these, 14 were filed by the Bureau of Land Management (BLM), 14 by the U.S. Forest Service, six by the Arizona State Land Department, five by the Arizona Nature Conservancy, two by counties, and one each by the Sierra Club, Arizona Game and Fish Department and the State Parks Board. An application filed by Huachuca Audubon Society, Sierra Club and Defenders of Wildlife was later transferred to BLM. Another filed by a rancher was transferred to Pima County which bought the land involved.



ARIZONA'S MAJOR FREE-FLOWING STREAMS

INSTREAM FLOW PERMIT APPLICATIONS

(Key to the Map)

A. **Ramsey Creek**, 1.5 mi., Arizona Nature Conservancy, application date 1979; permit granted 1983

B. **O'Donnell Creek**, Arizona Nature Conservancy Permit, application date 1979; permit granted 1983

C. **Aravaipa Creek**, 11.5 mi., Bureau of Land Management, application date 1981; permit granted 1989

1. **Silver Springs**, .2 mi., Arizona Game and Fish Dept., 1976

2. **Thomas Wash**, Arizona Nature Conservancy, 1979

3. **Sonoita Creek**, Arizona Nature Conservancy, 1979, candidate

4. **Verde River**, 50 mi., U.S. Forest Service, 1987, protested

5. **Sabino Creek**, U.S. Forest Service/Sierra Club, 1987, protested

6. **Cargodera Canyon**, .33 mi., Arizona State Land Dept., 1987

7. **Montrose Canyon**, 1 mi., Arizona State Land Dept., 1987

8. **Romero Canyon**, .5 mi., Arizona State Land Dept., 1987

9. **Cargodera Canyon**, .75 mi., Arizona State Land Dept., 1987

10. **Alamo Canyon**, 1 mi., Arizona State Land Dept., 1987

11. **Sonoita Creek**, Arizona State Land Dept., 1987

12. **Bill Williams River**, 15 mi., Bureau of Land Management, 1988

13. **Redfield Canyon**, 36 mi., Bureau of Land Management, 1988

14. **Swamp Springs Canyon**, 2 mi., Bureau of Land Management, 1988

15. **Buehman Canyon**, .5 mi., Bureau of Land Management, 1985, protested

16. **Hot Springs Canyon**, 4.5 mi., Bureau of Land Management, 1988

17. **Peeple's Canyon**, .5 mi., Bureau of Land Management, 1986, candidate

18. **Queen Creek**, 1.5 mi., State Parks Dept., 1987

19. **Hassayampa River**, Arizona Nature Conservancy, 1987

20. **Verde River**, U.S. Forest Service, 1988

21. **East Verde River**, 43 mi., U.S. Forest Service, 1985, protested

22. **Billy Creek**, .5 mi., Navajo County Parks Dept., 1985, protested

23. **San Francisco River**, 1.5 mi., Bureau of Land Management, 1985 protested

24. **Mescal Creek**, 1.25 mi., Bureau of Land Management, 1985, protested

25. **Apache Creek**, Bureau of Land Management, 1985 , protested

26. **Spring Creek**, .85 mi., U.S. Forest Service, 1985, protested

27. **Bass Canyon**, 2.5 mi., Bureau of Land Management, 1988

28. **Bonita Creek**, Bureau of Land Management,1985, protested

29. **Oak Creek**, 67 mi., U.S. Forest Service, 1985, protested

30. **Wet Beaver Creek**, 2.8 mi., U.S. Forest Service, 1985, protested

31. **Sycamore Creek**, 1 mi., U.S. Forest Service, 1985, protested

32. **Walker Creek**, 2.1 mi., U.S. Forest Service, 1985, protested

33. **Red Tank Draw**, 3.28 mi., U.S. Forest Service, 1985, protested

34. **West Clear Creek**, 6.3 mi., U.S. Forest Service, 1985, protested

35. **San Pedro River**, 36 mi., Bureau of Land Management, 1985, protested

36. **Sheepshead Creek**, 6.3 mi., U.S. Forest Service, 1985, protested

37. **East Clear Creek**, 1.25 mi., U.S. Forest Service, 1985, protested

38. **Cienega Creek**, 4 mi., Pima County, 1983, protested

39. **Pinto Creek**, 8.8 mi., U.S. Forest Service, 1983, protested

40. **Francis/Burro/Big Sandy Creeks**, 14 mi., Bureau of Land Management, 1984, protested

41. **Gila River**, 12 mi., Bureau of Land Management, 1988

EXPLANATION OF MAP

All locations on the map and lengths are approximate. An attempt has been made to represent major free-flowing streams, including some ephemeral streams, all shown with blue dotted lines. For a detailed map of the streams, please see map published by the Arizona Game and Fish Department listed in the references.

Information above includes map numbers, name of watercourse, length of stream segment for which application was made (if known), applicant, date of application and status of application if any action has been taken.

WHO HAS PROTESTED APPLICATIONS?

Formal protests were filed on all but 14 applications. One power company protested 13 different applications. An irrigation district protested ten applications. Seven protests came from water companies, four from mining companies and six from land developers. The remaining protests were mostly from local individuals. Of the 69 formal protests recorded, 25 were later withdrawn by the protestants.

Protests generally fall into five categories:

- Downstream surface water users who mistakenly believe their supply will be diminished because the water will be impounded, diverted or consumed by the applicant. They usually do not realize that the new rights will be junior to theirs, that instream flow uses are basically non-consumptive, that the water must stay in the stream, and that they may actually benefit by having water appropriated in the stream, thus protecting their flow from other consumptive users.
- Upstream surface water users who want to protect their ability to expand their water use in the future.
- Downstream users who might plan to change their point of diversion to a location upstream of the proposed instream flow.
- People who want a formal protest on record, believing that a written agreement is necessary to protect their legal rights.
- People who have groundwater pumping rights and fear that granting of new surface water rights could interfere with their right to continue or expand pumping.

WHAT PERMITS OR CERTIFICATES HAVE BEEN GRANTED?

As of April 1990, DWR has granted three permits. The Arizona Nature Conservancy received the first two permits in 1983 (see page 11) BLM received the third in 1989 (see page 11). No certificates have been granted. (See page 7 for an explanation of the difference between a permit and a certificate.)

EXAMPLES OF INSTREAM FLOW PERMIT APPLICATIONS

In this section five examples of instream flow rights applications are described. In 1983, the Arizona Nature Conservancy became the first entity to be granted an instream flow permit in Arizona. This action protected 1.5 miles of Ramsey Creek. The most recent permit was granted in March 1989 to BLM for 11.5 miles of Aravaipa Creek. The other three examples describe applications for which permits have not yet been approved. Peeple's Creek is a small stream in a remote relatively pristine area where the one protest was easily negotiated. Oak Creek is a major tourist attraction and flows through Sedona, a town of 12,000 people. Finally, Cienega Creek, near Tucson, has water rights issues which are complex and which may serve as tests for resolution of difficult unresolved problems.

Many other examples could have been chosen from the 41 applications still pending or from areas where applications have not yet been filed. For example, Sabino Creek runs from the top of Mt. Lemmon, with its recreational facilities and homesites to Sabino Canyon below, a popular Tucson picnicking and hiking area. The Verde River occupies a long stretch with many competing interests, including water and power and recreational demands. Hassayampa Creek has significant riparian values which the Nature Conservancy wants to preserve. Many small creeks have few or no conflicting claims. Amounts of water requested range from .0014 cfs in Billy Creek to 775 cfs in the San Pedro River. Three-fourths of the applications are for less than seven cfs.

The examples described here exemplify the major purposes for which instream flow is desired—preservation of wildlife habitat, recreation, riparian areas and aesthetics. Three of the areas have "Unique Waters" status. The examples include areas in which protests were resolved amicably and those in which resolution has not been reached. They demonstrate the applicability of instream flow rights to streams varying from 1.5 to 67 miles in length and the fact that many diverse parts of the state have streams with instream flow potential.

RAMSEY CANYON PRESERVE

Ramsey Canyon Preserve was established in 1974 when land was willed to the Arizona Nature Conservancy, a private organization dedicated to the preservation of natural diversity. The 280-acre preserve is located in a wooded, sheltered gorge in the Huachuca Mountains in Cochise County. It is bounded on three sides by the Coronado National Forest. Ramsey Creek, a stream that flows year-round within high canyon walls, provides a moist, cool and stable environment for the five major biotic communities found there. Because of its biological

significance, the U.S. Department of the Interior has registered Ramsey Canyon as a National Natural Landmark.

In 1979, in a precedent-setting act, the Nature Conservancy applied for instream rights to 2,856 acre feet of water per year from Ramsey Creek. This amount was believed necessary for protection of the rich mix of wildlife and vegetation supported by the stream. At the same time, the Conservancy filed a claim to instream flows on O'Donnell Creek for their Canelo Hills Preserve, about 40 miles away.

Many residents of the Ramsey Canyon area misunderstood the notice of application, believing that a 200-foot high dam would be constructed to store the quantity of water claimed. They feared that a dam would ruin their water supplies. One woman objected saying, "Ramsey Canyon is one of the prettiest canyons around with lots of wildlife, big trees and flowers which are sustained by Ramsey Creek. A lot of the sycamores are over 300 years old. Every year people come from all around just to see those trees turn brilliant colors in the fall.... I am afraid that if the Nature Conservancy is allowed to put in this dam, it will destroy the wildlife, trees and all the beauty that is fed by this creek."

The protestants also included downstream irrigation users and water companies who feared that their downstream rights would be affected by this novel type of appropriation. DWR held a public hearing in Sierra Vista in May 1981. In opening statements, Conservancy representatives explained that the minimum flow requested in the application would not be diverted from the stream but would flow there to preserve the riparian habitat, that no dam would be built, and that no water would be consumed beyond the requirements of the natural environment. This satisfied most of the protestants, who then withdrew their objections. Some withdrew on the condition that the permit state explicitly that interference with the natural flow would be prohibited, that there would be no degradation of water quality, and that there

would be no consumption beyond that caused by the natural habitat. The Conservancy agreed to all these conditions.

Some of the protestants later petitioned for a rehearing, claiming that a private party had no right to hold an instream flow permit. However, the director of DWR found that their complaints were invalid and denied their request. The permit, providing for a flow not to exceed .48 cfs within the main channel, was granted in 1983, the same year that the O'Donnell Creek permit was approved.

In addition to the environmental and recreational benefits that resulted from the establishment of the preserve and protection of the instream flow, there have been economic benefits to the surrounding communities. The Conservancy records nearly 30,000 visitors to Ramsey Canyon annually. The Sierra Vista Chamber of Commerce estimates that three times that number are attracted to the area by the preserve. Their studies show that as many as 15,000 people stay overnight annually in connection with their visit to Ramsey Canyon.

Since 1981, the Conservancy has monitored stream flow and found that the continuous minimum year round flow request did not accurately reflect the variable flow regime of Ramsey and O'Donnell Creeks. The flow during this period was actually greater than predicted. DWR recently encouraged the Conservancy to apply for an amendment increasing the amount of instream flow to reflect this new information. The Conservancy has requested a permit amendment with varying increased amounts of flow on a monthly basis.

This example illustrates a successful instream flow permit, the first time in Arizona that a right to appropriate water for wildlife and recreational uses without diversion was recognized as legal. It demonstrates how stream preservation may benefit the economic well-being of an area. It also shows how important it is to clearly explain an instream flow proposal and its ramifications to local people early in the process. Of further significance is the fact that a private non-governmental organization was granted the right to appropriate instream flows.

OAK CREEK

Oak Creek originates just south of Flagstaff at a 5,689 foot elevation and flows for more than 67 miles to its confluence with the Verde River at 3,180 feet. Highway 89A travels along the creek for much of its distance, passing through Sedona at 4,300 feet. Oak Creek Canyon occupies a twelve-mile stretch of the creek, traversing eight plant communities. Oak Creek has been declared a "Unique Waters" area by the Arizona Department of Environmental Quality. The area is one of Arizona's major tourist attractions, hosting more than 3 million visitors per year who come to fish, swim, birdwatch, hike and camp. Two state parks feature riparian opportunities. Tourism represents about 75 percent of Sedona's tax base.

Much of the area is managed by the Coconino National Forest, although a considerable amount of private land is interspersed with public lands. In 1985, U.S. Forest Service staff conducted a risk assessment study of streams under its jurisdiction in at attempt to identify those Arizona streams most in need of protection (U.S. Department of Agriculture). As a result the U.S. Forest Service filed instream flow applications on 13 streams, including Oak Creek.

The Oak Creek application was filed in 1985 to protect the creek's flowing water from depletion due to increased population encroachment. (Sedona's resident population increased from 5,368 in 1980 to over 12,000 in 1989.) The U.S. Forest Service requested an instream flow permit to maintain a minimum flow of 6.08 cfs on a 67-mile segment of the creek. The

application applies to the entire stretch and is specifically to preserve the diverse wildlife habitat, including fish.

The heavily wooded areas, especially the riparian areas, support many kinds of wildlife, including river otter, mule deer, bobcat, raccoon, beaver and ringtail. Of the 64 fish species occurring in Arizona, 19 occur in Oak Creek or its tributaries. Three of these are unique to the area. The creek is managed by the Arizona Game and Fish Department as a coldwater fishery and is stocked with two kinds of trout. At least 50 bird species occupy the area, including black hawk, bald eagle, peregrine falcon, osprey and Bill's vireo, all listed as threatened or endangered.

The water rights situation along Oak Creek is unusually complicated. Groundwater and surface water rights are established along the creek, including those held by water companies.

Eight protests to the instream flow application were filed. One man stated that he had prior rights and "If any rights are granted, it should clearly outline and protect prior rights." A water users' association was concerned that its water rights would be jeopardized. A water company's main concern was that the "grant of such appropriative right could then lead to a claim on behalf of the appropriator that there is any linkage between the company's groundwater withdrawals and the surface water of Oak Creek."

Another water users' group protested on the basis of a pre-1917 water right. "We believe any appropriation which would give the Forest Service the right to demand that the waters of Oak Creek not be diverted but left in the natural channel would conflict with our rights. Obviously, if [the company] requires all of the natural streamflow in Oak Creek to satisfy its pre-1917 right, it should be entitled to divert 100 percent of the streamflow without regard to *in situ* right."

Letters from the U.S. Forest Service to the protesters explained that the water would remain in the channel and would be used for protection of wildlife and fish, and that the request was based on the lowest recorded flow levels (1940). Its letter stated, "The amount of water applied for is a quantity that, according to historical streamflow records, poses no threat to existing uses in the drainage." Only one protester responded to this letter, and none of the protests were withdrawn. The U.S. Forest Service is not sure whether this means that the protesters were satisfied or that they continue to protest the application.

At least two protesters claim they would withdraw their protests if assured that their rights would not be affected, there would be no diversions or consumptive use, and that senior rights would be recognized. No hearing or further action on the application has taken place. DWR considers the water quantity documentation incomplete. One U.S. Forest Service spokesman believes the agency has done all it can until DWR provides further direction.

This case exemplifies an unusually complex situation, with many water rights claims already established on a long stretch of a watercourse. It illustrates the possible dilemma posed by a situation in which preservation of the creek's flow is vital to the economic base of the area, yet may conflict with the water demands of a growing population. Resolution of Oak Creek's water problems will be difficult.

PEEPLE'S CREEK

Peeple's Canyon is located in the Poachie Mountains approximately 50 miles west of Prescott, 55 miles northwest of Wickenburg and is managed by BLM. The canyon contains a perennial stream which flows into the Santa Maria River, a tributary of the Bill Williams River. In 1985,

the Arizona Water Quality Control Council formally declared the creek a "Unique Water" deserving of special protection. This designation declares that the canyon is "an outstanding public resource of exceptional significance for biological and recreational value." One guidebook describes Peeple's Canyon as a "true desert oasis featuring lush riparian habitat and gorgeous aquatic scenery deep within a colorful rhyolitic canyon."

The creek provides critical habitat for the Gila topminnow and the desert pupfish, both of which have been reintroduced here. The creek is being considered as a reintroduction site for desert bighorn sheep. Endangered species include the Peregrine falcon, Gilbert's skink and desert tortoise. Game animals in the region include mule deer, javelina, Gambel's quail and two species of doves. Peeple's Canyon and the surrounding wilderness contain at least 292 species of wildlife. The area is rich in archaeological sites.

Peeple's Canyon is within the boundaries of the Arrastra Mountain Wilderness Study Area and is currently managed for multiple use. Upstream areas are considered to have some mineral potential. Several grazing allotments are in the area or nearby.

In March 1986, BLM applied for instream flow rights to a minimum streamflow of .10 cfs (72.40 af.) of water for non-consumptive maintenance of streamflow for fish, wildlife, aesthetic, riparian and recreational uses. Prior to this time, in October 1985, a rancher had applied for 1.68 af of water from South Peeple's Spring for stock watering. This spring feeds the creek.

BLM believed there was sufficient water for both uses, but the rancher disagreed and requested a hearing. Negotiations proceeded between BLM and the rancher. The resulting compromise guaranteed senior rights of .80 af/yr of spring water to the rancher and .10 af of spring water to BLM as junior rights to the rancher's right. In addition, 72.4 af/yr would be available to BLM on the creek itself. This amicable agreement was sufficient to eliminate protests. No other protests were received and the application was granted "Candidate" status for a permit.

As of April 1990, no further action has been taken to grant the permit. DWR states that the water quantity documentation is inadequate. This case demonstrates how negotiation with competing interests can result in a resolution satisfactory to both sides, even though such resolution has not yet resulted in permit issuance.

CIENEGA CREEK NATURAL PRESERVE

Cienega Creek is located southeast of the Tucson urban area and flows northwest into the Pantano Wash through Tucson and finally into the Santa Cruz River. The stream was given the Spanish name "cienega" (meaning marshland) during earlier times when it flowed throughout the entire year. It has been granted "Unique Waters" status by the Arizona Department of Environmental Quality. Though still supporting mesquite and cottonwood-willow riparian habitats along portions of its course, the stream is now perennial along two segments only. One of those is within Pima County's Cienega Creek Natural Preserve and the other further southeast (upstream) near Sonoita.

The Pima County Flood Control District purchased more than 2,000 acres along Cienega Creek, including the northern perennial reach. The purchase was made to provide flood protection downstream by preventing urban encroachment on the lands, preserve the natural qualities of the area, and help assure continued groundwater recharge into the Tucson Basin. The former owner of the land, who had existing stockwatering rights, had filed an application for an instream flow right in 1983. Upon purchase, Pima County transferred the instream application to its name and took over the stockwatering rights.

Two protests were lodged against the instream flow application when it was first filed. One protestant, a company involved in housing development, owns a certificate to divert water downstream of the perennial stream segment in the Cienega Creek Preserve. The company's legal counsel expressed concern that the company's rights to divert or use the water would be injured, even though its claims are senior to those of Pima County. Pima County believes the downstream user would actually be protected by the instream right, as additional water could not be withdrawn upstream by others. This company now believes that its rights would probably not be damaged by the instream flow permit, provided the county agrees not to divert water and to declare that the company's rights will be senior to the county's. The company wants an agreement indicating this intent.

The other protest came from a developer with property upstream. This company intends to build a large planned community and may want to pump additional groundwater in the future to supply water to that subdivision. When the developer presented a revised area plan for approval by the Board of Supervisors, several citizens expressed concern that this pumping would result in a lowered water table and diminished stream flows. Hydrologists argued both sides of the issue. The area plan was approved, but with requirements for groundwater and surface water monitoring as well as reporting of the development's water use.

DWR issued a finding that no direct connection exists between the groundwater which feeds Cienega Creek and the perennial flows downstream in the preserve. However, a subsequent DWR opinion stated that large scale groundwater withdrawals in excess of natural recharge rates could significantly diminish water supplies to the creek. At the present time, the entire Gila River system, in which Cienega Creek lies, is under adjudication. No ruling has been made.

Pima County also requested that the preserve's existing stockwatering rights be converted to instream flow rights for wildlife, recreation, and recharge purposes. Although these rights would supply only a small part of the flows needed, the possibility of converting existing consumptive rights to non-consumptive instream flow rights is significant, especially in water-deficient areas where it is unlikely that new rights will be available. Several issues will need to

be resolved before conversion of existing rights is recognized (see page 23). Cienega Creek may set a precedent in regard to this issue.

DWR has not yet issued an instream flow permit for Cienega Creek Preserve. This case illustrates the complexity of determining water rights in cases where groundwater pumping and streamflow relationships have not been clearly determined either legally or hydrologically.

ARAVAIPA CANYON WILDERNESS AREA

Aravaipa Canyon has long been recognized for its spectacular scenery and important wildlife habitat. The area is nourished by Aravaipa Creek, a tributary of the San Pedro River. It is fed by water from the Galiuro Mountains. Seventeen miles of the stream flow year round through lands encompassed in the 6,700-acre Aravaipa Wilderness Area and through scattered holdings of the Arizona Nature Conservancy and other private landholders.

The area is rich and diverse in riparian habitat and wildlife. BLM, responsible for managing the wilderness area and surrounding federal lands, has determined that the area supports 20 threatened or endangered species including three species of fish, two species of reptiles, 14 bird species and one mammal species. The creek also supports more native fish species than any other stream in Arizona. Over 4,000 visitors came to Aravaipa Canyon in 1988 to enjoy the riparian wilderness experience.

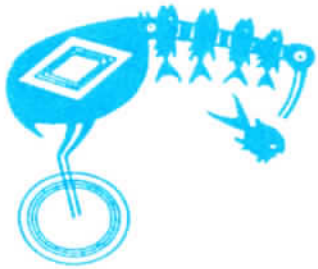
On June 1, 1981, BLM filed a claim to protect the flow on the 11.5-mile stream segment located within the wilderness area. The application sought claim to 3,620 af/yr for recreational purposes and 7,340 af/yr for wildlife. Detailed analyses were provided which supported these claims. Stream flow data were supplied with the application along with habitat simulation. Recreational uses that were documented included birdwatching, photography, swimming, hiking, nature study and similar pursuits.

Two protests were filed, both from a downstream irrigation district. BLM responded by pointing out that the waters of the creek would not be diverted or diminished for downstream users. Instead, downstream uses would be enhanced since the appropriation would help guarantee that at least 10,960 af/yr would flow out of the wilderness area. The irrigation district withdrew its protest on the condition that the permit expressly and unequivocably state that there would be no diversions or impoundments, no consumptive use other than that by the natural habitat, and no interference with prior vested rights as a result of the permitted instream flow.

On March 17, 1989, DWR granted BLM a permit for recreation and wildlife uses, including fish. The permit set forth monthly averages of continuous flows that range from a low of 9 cfs in June to a high of 25 cfs in February. It also specified the conditions requested by the irrigation district. BLM will continue to monitor flows regularly at two stream gauges located at the beginning and ending points of the permitted segment of the creek.

This case exemplifies a successful application process, carried to completion by thorough documentation as well as negotiation with neighboring interests.

UNRESOLVED ISSUES



There are many controversial issues surrounding instream flow rights. Some are being considered by DWR as it develops regulations. Others will need to be resolved by the legislature or in court. The following section does not necessarily address all concerns, but points out issues in need of resolution.

DIVERSION OF WATER

Some people feel that diversion of water from a stream is necessary to claim a surface flow right. However, legislation passed in 1944 and 1962 allowed for the appropriation of water for fish, wildlife and recreational purposes. Supporters argue that it is only reasonable to leave the water in the streambed for such purposes. Some opponents have argued that this is illegal. DWR has granted instream appropriations based on the assumption that use of the water in place is legal. More definitive regulations or granting of additional permits may help settle this issue, although only a court test can finally resolve the matter.

INTERMITTENT OR EPHEMERAL STREAMS

Some watercourses exist where a drought/flow cycle is a part of the natural environment and preservation of the intermittent flows or pools is necessary to protect certain species of wildlife and recreation. As with other claims, the applicant must meet the test of "beneficial use" and demonstrate that sufficient water actually exists to support the uses for which the flow is claimed. Some people question whether it is appropriate to grant instream flow rights on streams that don't always "flow". Adoption of appropriate methodologies for documenting flows and establishing need could help resolve this issue.

WHO MAY BE GRANTED A PERMIT

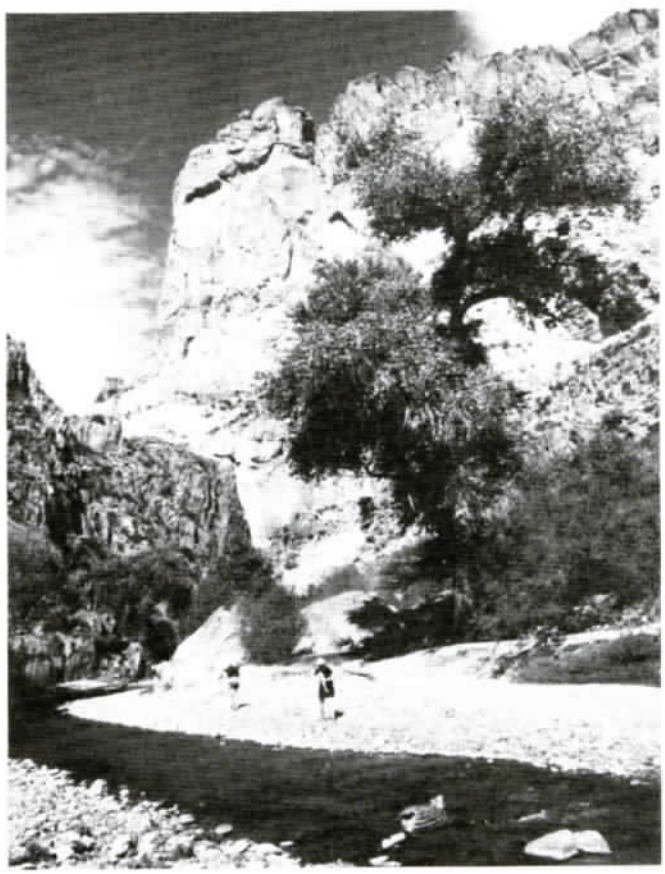
There is no official regulation governing who may receive an instream flow permit if all the requirements are satisfied. DWR, however, has adopted an informal policy that permits may only be granted to governmental agencies with control over the land involved, with jurisdiction over wildlife management on the land

involved (Arizona Game and Fish, for example), or to non-profit agencies which own the land involved (The Nature Conservancy, for example.)

Groups that do not own land such as the Sierra Club have challenged this policy. Some people feel that private landowners should also have this right. Legal action may be required to settle this issue.

DOCUMENTATION

Instream flow applicants have been required to submit much more documentation or justification for their claims than is required of other surface water applicants. The sheer volume of hydrologic and biologic data required can prove formidable to an applicant. The fairness and equity of these requirements are questioned by some people. DWR's task force subcommittees are completing recommendations regarding the very difficult questions related to documenting instream flow requests. Comments received during public hearings that must be held on the proposed regulations may influence DWR's final data requirements.



LENGTH OF THE APPROVAL PROCESS

Some critics believe that the existing permit process takes too long and that DWR, which attributes most of the delays to incomplete data and documentation, should expedite the procedure. Some applicants feel they have received insufficient assistance in determining the necessary documentation. DWR acknowledges that the process has not always taken priority in terms of budget and staff resources. Hopefully, the adoption of rules and regulations will lead to granting of more permits in a timely manner.

PROTEST PROCEDURES

DWR's practice of delaying the permit process until all valid protests are withdrawn is questioned by people who do not believe that protesters should have effective veto power over permits. They point out that some protestants are merely filing protests in order to keep flexibility for future speculative purposes. DWR has the authority to determine that protests are without merit and can proceed to process an application even if protests are not withdrawn, as it did in the case of the Ramsey Canyon application. At issue is whether DWR will continue its current practice of delaying permit progress, placing responsibility on the applicant for resolving differences of opinion.

GROUNDWATER-SURFACE WATER RELATIONSHIPS

Perhaps no instream flow rights issue is more ambiguous than this one. Historically, surface water rights (which include instream flow rights) were not protected against groundwater pumping. However, the courts have recognized recently that some pumping activities can directly and significantly deplete certain stream flows. Further litigation and court action or new legislation is needed before the legal aspects of this issue are settled. The reader is directed to the case study of Cienega Creek (page 18) and to the references at the back of this booklet for more details on this complex issue.

CONVERSION OF EXISTING RIGHTS

Another complex issue is whether existing traditional surface water rights can be converted to instream flow rights. A clause in the Arizona Water Code seems to grant the state or its agents a limited ability to convert rights. Questions arise regarding whether the new instream flow right would retain the original

date of priority and amount of water. This is an unresolved issue for which Cienega Creek and Aravaipa Creek may prove to be test cases.

APPROPRIATION OF SUBSURFACE FLOW

In a very few situations, a clearly defined subsurface flow exists. Whether or not this flow can be appropriated as part of an instream flow appropriation is under discussion. This issue has arisen in the the Nature Conservancy's application for instream flow rights in Hassayampa Creek. Here a clearly defined subsurface flow can be documented.

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1991 UPDATE TO: INSTREAM FLOW RIGHTS - A STRATEGY TO PROTECT ARIZONA'S STREAMS

Barbara Tellman

Since publication of this Issue Paper in April 1990, enough changes have occurred relating to instream flow permitting, that we decided an update paper was needed. This paper contains basic information on new permits granted, new applications and a new draft guidance manual for permit application. DWR is now placing higher priority than previously on developing the instream flow permit process and expects to grant several new permits in 1992.

Permits Granted

In 1991 two additional instream flow permits were granted. In both cases, continuous base flow rates vary by month. A permit was granted to BLM for Peeples Canyon Creek, a tributary of the Bill Williams River in western Arizona. Flow rates designated in the Peeples permit vary from .05 cfs in May to .16 in March. The Arizona Natural Conservancy was granted an instream flow permit for the Hassayampa Nature Preserve near Kingman. In this permit three gaging sites are specified. Continuous base flows at one of the streamgages range from 7.86 cfs in October to 3.12 in December, for example.

Certificates Granted

On November 14, 1990 DWR awarded its first ever instream flow certificate to the Arizona Nature Conservancy for Ramsey Creek. Continuous base flows in the certificate range from .67 cfs in June to 1.26 cfs in September.

Applications Received

As of August 22, 1991, 69 applications had been received, of which five have received permits. The new applications are listed below:

BLM has applied for three permits on the Virgin River and one on Beaver Dam Wash in the Arizona Strip District. BLM has applied for permits on the Babocamari River, Wildcat Canyon and the San Pedro River in the Safford District. The Coconino National Forest has applied for permits for Foster Creek and Jones Creek. The Coronado National Forest has applied for a permit for Miller Canyon Creek in the Huachuca Mountains. The Arizona Nature Conservancy has applied for four permits on Aravaipa Creek and one on the San Pedro River in southeastern Arizona. A total of nine instream permit applications have been received from individual residential landowners for permits on Billy Creek, near Show Low. One individual has applied for a instream flow permit on the San Pedro River. DWR will make a legal determination in the future as to the validity of applications from individual small-lot landowners. One application has been withdrawn.

TABLE 1
APPLICATIONS SUBMITTED SINCE JUNE 1989

45. Virgin River, BLM, 227.27 cfs, 1989.
46. Beaver Dam Wash, BLM, 3.12 cfs, 1989.
47-55. Billy Creek, individuals, approximately 8.83 cfs, 1989.
56. Virgin River, BLM, 230.00 cfs, 1989.
57. Virgin River, BLM, 209.00 cfs, 1989.
58. Miller Canyon Creek, Coronado National Forest, .70 cfs, 1989.
59. Foster Creek, Coconino National Forest, .10 cfs, 1990.
60. Jones Creek, Coconino National Forest, .15 cfs, 1990.
61. Wildcat Canyon, BLM, .63 cfs, 1990.
62. Babocomari River, BLM, 4.50 cfs, 1990.
63. Aravaipa Creek, Arizona Nature Conservancy, 20.58 cfs, 1990.
64. Aravaipa Creek, Arizona Nature Conservancy, 18.74 cfs, 1990.
65. Aravaipa Creek, Arizona Nature Conservancy, 15.48 cfs, 1990.
66. Aravaipa Creek, Arizona Nature Conservancy, 14.41 cfs, 1990.
67. San Pedro River, BLM, 5.10 cfs, 1991.
68. San Pedro River, individual, 14.28 cfs, 1991.
69. San Pedro River, Arizona Nature Conservancy, 11.38 cfs., 1991.
70. San Pedro River, BLM, 18,200* cfs, 1991.

All flow requests are annualized in cfs, although
many requests are for varying flows by month.
*#70 is for a one-time peak flood flow each year.
DWR has not yet determined how to handle this type of application.

Draft Instream Flow Application Guide

DWR has issued a draft version of a "Guide to Filing Applications for Instream Flow Water Rights in Arizona" for public comment. This document stresses the importance placed on stream preservation in Executive Order NO 91-6. The guide specifies minimum criteria necessary for substantiating an instream flow request, but does not mandate the use of any specific technique.

The draft publication outlines the application procedure and then discusses various resource assessment methods. While this document is not in final form, it serves as a useful guide and should be available in final form by 1992.

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