



Water Sources and Uses in Curry County July 2006

The purpose of this information is to update LWVCC's Water Sources and Uses Position (1993) so that members may better address evolving issues before municipal and county agencies and governments. This study draws on Water Sources and Uses, LWVCC, 1993, Water Resources in Oregon, LWVOR, 1984 and Water Currents in Oregon, LWVOR, 1985.

Introduction

Under Oregon law, all water is publicly owned. With some exceptions, users must obtain a permit or water right from the Oregon Water Resources Department to use water from any source. Municipal users pay for the infrastructure that delivers water to them, not for the water.

Any discussion of water rights in Curry County quickly becomes complicated due to changeable stream flow, which depends upon rainfall, and rainfall along the South Coast varies from year to year. Therefore, all water users face a challenge in maintaining a balance between water requirements for population and natural resources. For example, average rainfall in Brookings is 81 inches a year, with variations between 46 and 112 inches recorded. As rainfall varies, so does stream flow in Curry County water sources.

Water rights are allocated by Oregon Water Resources Department (OWRD) for domestic, industrial, commercial and agricultural uses. A water right specifies the location, type, amount to be allowed used and the priority date for each water right.

Water rights are further classified as Surface or Ground, as well as Permitted or Certificated.

Water is allocated by OWRD based on a system called prior appropriation, meaning the first owner of a water right allocation is forever first in line for available water.

Due to various factors, the total amount of water rights granted may actually exceed the amount of water available in river, streams and lakes. Not all water rights allocated may be used on a regular basis. For example, on the Chetco River, water rights of 1276.8012 cubic feet per second have been granted. During wet winter months, there is often more than enough water to meet permits granted. In the dry summer months, there may not be adequate water.

This is not an unusual situation; the waters of many western rivers, streams and lakes have been overallocated—i.e. more water permits have been given than water in the river.

Oregon State Agencies with water-related authority

Water Policy Review Board and Water Resources Department (OWRD)
Environmental Quality Commission and Department of Environmental Quality (DEQ)
Fish and Wildlife Commission and Department of Fish and Wildlife (ODFW)
Land Conservation and Development Commission and Department of Land Conservation and Development (DLCD)

Water Providers in Curry County

Langlois
City of Port Orford Water System
Nesika Beach/Ophir
City of Gold Beach Water System (also serves Wedderburn)
City of Brookings Water System
Harbor Water People's Utility District

Selected Sources

Brookings Water System Master Plan and Water Conservation Master Plan, prepared by HGE Inc., Coos Bay, OR, May 2000
Report of City of Gold Beach Water Master Plan, Dyer Partnership Engineers and Planners, Inc., Coos Bay, Oregon. December 2004, amended September 2005.
Report of City of Port Orford Water System Master Plan, completed by SHN Consulting Engineers & Geologists, Inc, Coos Bay, OR, June 2005.
Water System Master Plan, Harbor Water People's Utility District, prepared by Dyer Partnership Engineers & Planners, Inc. Coos Bay, OR, December 2000.
Water Master Plan, Nesika Beach, Ophir. SHN Consulting Engineers & Geologists, Inc., Coos Bay, OR, 2000, amendments 2004.
Water Resource Department, An online Introduction to Oregon's Water Law and Water Right System, <<http://www.wrd.state.or.us/publications/aguqbook02>>

Stream Flow Gauges for Curry County

Agency	Site Number	Site Name	From	To	Count
USGS	14327150	Sixes River At Sixes, OR	1967-10-01	1970-06-30	1004
USGS	14327250	Elk River Above Anvil Creek, Near Port Orford, OR	1986-10-01	2001-09-30	3066
USGS	14327300	Elk River Near Sixes, OR	1967-10-01	1970-06-30	1004
USGS	14372300	Rogue River Near Agness, OR	1960-10-01	2004-09-30	16071
USGS	14378200	Illinois River Near Agness, OR	1960-10-01	1981-11-03	7704
USGS	14400000	Chetco River Near Brookings, OR	1969-10-01	2004-09-30	12784
USGS	14400200	Winchuck River Near Brookings, OR	1977-01	1978-01	Not available online

Glossary of Terms

Extraction: the method by which water is removed from a surface or ground water source.

Ground water: Water lying under the surface of the land. A ground water right refers to water from ground water sources only.

Minimum Perennial Stream Flow (MPSF) also called **Minimum Instream Flow:** A level of stream flow necessary to support aquatic life and to minimize pollution. Use of water under rights and permits with priority dates junior to the priority date of the MPSF is curtailed when the stream flow is below the specified MPSF level. Use of water under rights and permits with priority dates senior to the MPSF priority date is not affected.

Overappropriation: The granting of so many water rights on a stream or other body of water that if all of them were exercised to the maximum at any one time all the water in the stream would be used up.

Prior Appropriation: The doctrine used in the West to establish water rights. Basically, "first in time, first in right".

Priority Date: The date on which a water right takes precedence over all rights issued after that date. For an appropriate water right, it is the date of application for the initial permit to appropriate water. For a MPSF, it is the date of application or recommendation to the Water Policy Review Board.

Riparian: refers to land bordering a stream, lake or tidewater.

Surface water: Water which remains on top of land, such as a river or lake. A surface water right refers to water from surface water sources.

USGS: United State Geological Survey.

Water rights: Water rights permit allows an entity to remove water for a limited amount of time. When the time limit has expired, an extension must be filed for the water right. If the water is converted to a certificate, the water right is said to be 'perfected' and extensions are no longer required.

Watershed: the land area drained by a river and its tributaries

Langlois Water System

Milt Nelson of LWVCC interviewed Dave DiRusso, one-man employee for Langlois Water District and Dan Heinzman, Board member, on April 21, 2006.

This unincorporated town created a community water system in 1954. It was a cooperative until the municipal water district was formed in 1970, providing structure and a tax base. Starting with 40 connections and growing to 77 by 1970, 115 connections are served today. Total population is estimated at 250 houses and up to 500 persons.

There are approximately 2.5 miles of pipe, 2600 ft of 8 inch, the balance 4 inch and 2 inch. The district plans to extend a new 12 inch line from one end of town to the other to provide for future growth and assure the ability to fight fire. There is no information about unaccounted water loss. A single tank stores 100,000 gallons of water. Hypo-chlorination is used. DiRusso claims the best tasting water in Curry County

A water right, senior to any other, is for Floras Creek and allows pumping of at least 1 million gallons per day, which would be 1.35 cubic feet per second. Average bill per month is \$35 for a base rate of 9,000 gallons. Cost rate is \$.008 per gallon beyond 9,000 gallons. Schools in the community use 10 percent of all water on days they operate. There are few commercial accounts.

The water district board has yet to be convinced to approve infrastructure expansion plans. DiRusso believes there will be a spike in new housing and population in 5 to 10 years. When that occurs, financing a sanitary sewer system will be a major challenge. All properties today are on septic tanks.

Port Orford Water Master Plan, 1998, 2003, 2005

The city of Port Orford had an existing Water Master Plan in 1998. In 2003, Port Orford completed a revised plan which addressed future water system needs inside the city limits. A new plan update was completed June 2005 and adopted in November 2005. It addressed further needs in the Urban Growth Boundary and components of the water distribution system inside the city limits. This 2005 Plan included a comprehensive schedule of upgrades with piping sized to handle future growth to the year 2025 and funding needs together with recommended priorities.

This plan satisfies Oregon Health Division requirements for a city this size (OAR 333-061-060). The area boundaries are defined by the Urban Growth Boundary. This is a seacoast town ranging from sea level to 225 feet elevation atop Coast Guard Hill. Population is 1200 (July 2002), with average growth of 1 percent per year. It is estimated to increase to 1.05 percent.

.Port Orford has water rights on Hubbard Creek, Garrison Lake and Gold Run Creek. The primary source is a dam impoundment on Hubbard Creek, which has supplied all water 1998-2002. Siltation of the reservoir caused by logging is being handled by incremental annual dredging using city staff. The entire watershed is now in the ownership of the city. Future siltation has been mitigated by this action. Garrison Lake has not been used since the mid 1990s. The original lake intake was in a marshy area. Relocation to a deeper level was not successful. Ocean overtopping has increased salinity levels, creating a lagoon. A new lake outlet project led by Oregon State Parks Department may halt ocean. A possible relocation of the intake to a level above salinity-

compromised water may be possible. Gold Run Creek has a completely silted-up impoundment. Investigation of tapping Elk River to the north has been rejected because low summer flows make this source useless in the period of heaviest demand.

Water is currently sold to residences and commercial users. The latter serves an equivalent population of 1700. At the 1 percent growth rate, base population would grow to 2060 in 20 years, 4500 in 50 years. Given a sound distribution system (15 percent loss to leakage, 10 percent being the target), 140,000 gallons per day of raw water and 124,000 gallons per day of treated water is required at present. The current loss rate is 30 percent, requiring 180,000 gallon per day of raw and 160,000 gallon per day of treated water.

Port Orford Water Rights Summary

Location	Permit #	Certificate #	Magnitude	Priority Date
N. Fork Hubbard Cr	69194		3.2 Acre feet	01/01/93
N. Fork Hubbard Cr	S32982	42379	.50 cubic feet per second	03/20/68
N. Fork Hubbard Cr	S47688	65322	.75 cubic feet per second	07/15/83
Garrison Lake	S42566	65199	1.00 cubic feet per second	04/25/77
Gold Run Creek	S12266	11810	1.00 cubic feet per second	08/20/36

Water usage needs by 2025 are projected at 260,000 gallon per day of treated water, and 280,000 gallon per day to service the Urban Growth Boundary Area. At that point, Hubbard Creek will be maxed out. To reach that level, three possible projects would be:

- 1) Raise the level of the existing dam to provide a one-month reserve supply,
- 2) Build a second impoundment farther up the creek and/or
- 3) Build the infrastructure to draw water from Garrison Lake. This could be drawn from above the Arizona Street causeway or use nano-filtration, (not reverse osmosis which has been suggested).

To deal with the high loss rate, new meter installation and leak detection programs are necessary. The present main 1 million gallon storage tank needs upgraded pumps. A second 200,000 gallon tank on Deady Street needs repair, but for a modest cost could store untreated water. Service to the Urban Growth Area will require a third storage tank on Hensley Hill on property not yet purchased.

Even though recent improvements were made to the water treatment facility during construction of the ocean outfall sewerage discharge, the city has the last gas chlorination system in Curry County. This system is expensive, and although cheaper alternatives exist, there is an up-front cost to be amortized in five to ten years depending on the system chosen. Future extension of service to portions of the city not yet filled in by development and extension of service to the Urban Growth Area will require larger water mains in core areas and smaller water mains in the areas not yet served. Sizing standards are based not on what it takes to deliver water to users but the ability to fight fire in each area.

All the relevant information of the current and future situation appears to be in the Water System Master Plan. There are detailed cost estimates for each of the projects listed above. The formidable problem for the city and its representative council is funding. The report suggests the projects which could be partially funded by grants. However, the current political climate suggests a declining availability of funds. The projects together will require many millions of dollars. Nanofiltration alone is estimated at \$7.7 million (not included in the table below). Inching up on the funding problem begins by city staff managing to replace a few meters per year (each costing \$8 thousand), gradually dredging the Hubbard Creek Reservoir, and testing old meters as they are replaced to detect calibration errors (rather than leakage).

Funding is being sought to study Garrison Lake problems, but available grants are for environmental issues, not water supply. It is estimated to take five to eight years before any use of lake water is possible. The decision about which system to choose will be delayed until more is known about the lake. The residents will be retiring bonds for 33 more years for a dune sewer discharge installation in 1993 which has been completely destroyed by ocean incursion.

Bonds for 40 years for the ocean sewer outfall are another part of sewer and water bills which are already high. The most promising grant source for one type of project speaks of \$500,000 in grants and \$500,000 in loans. The current city council states that developers should pay for new development infrastructure. However, there are no system development charges on the books at present, and changes to the comprehensive plan to require developers to pay these costs have yet to be proposed.

Source

Report of City of Port Orford Water System Master Plan, completed by SHN Consulting Engineers & Geologists, Inc., Coos Bay, Oregon 97420-2219, June 2005, available in Port Orford Library.

Gold Beach/Wedderburn Water Plan

Gold Beach City has several strong factors in the face of development pressures in central Curry County.

- Their water right is 9 cubic feet per second, of Rogue River Water far exceeding the amount required to service their customers. Gold Beach has never withdrawn sufficient water from the river to threaten the viability of anadromous fish. To date, our research has not discovered whether there are measuring devices for total flow of the Rogue River above or below the water intake facilities. ·

They have two treatment plants which are used alternately. They almost never need to operate both simultaneously. Water is metered both before and after leaving the treatment plant(s).

- Their infrastructure is in relatively sound condition. The city was unable to calculate the loss rate in their system for some time due to inaccurate data sets. When they corrected this, they got a rate as low as 7%, but other rates are wildly higher. A 10% rate is the ultimate standard from the Water Resources department, 15% is acceptable.

- They are able to supply water to Wedderburn across the Rogue River and the Jerry's Flat area up the south bank of the Rogue, bringing in additional revenue from the sale of that water.
- They are well prepared to handle development pressure because their Water Master Plan referenced above is based on calculating System Development Charges (SDCs) based on definitions in Oregon Law.

Their key difficulty is an expensive (\$9 million) reconstruction of their sewage disposal system, which is related to but does not otherwise detract from their water system. Jeff Denney reports he suggested long ago that the City Council set up sinking funds in the face of the sewer problems he said he knew were coming. Paying for this problem will be a major strain on the community. Another problem is the occasional turbidity flare-up in flood or near-flood incidents, making the water unsafe to drink or only safe with boiling. Denney reports he is working on changes in valves between the intake and the treatment plant(s) to slow the flow of water. This could allow the turbidity to settle out.

The total cost of replacing parts of their infrastructure as they age and anticipating the need for new capacity are reflected in the Water System report, but is included with the method used to determine SDCs (System Development Charges). The plan estimates extend ahead to the year 2020.

Oregon law allows a municipality to calculate SDCs in two ways. A charge is levied based on a fair share by new development to repay current rate payers and creating a fair allocation of charges to reimburse current rate payers as they service debt on the current system. Components of the system have been rated by the engineers to establish a percentage of replacement cost, so that SDCs are lessened when only 25% of one component, such as water lines is a proven amount of equity. Another component may be quite new and have 75% equity so the SDC portion on that component is higher.

The second way is charging for adding additional capacity, with costs shared by new and existing rate payers. SDCs may not be higher than 80% for that share of the cost, and can be lower, as existing rate payers benefit from the increased capacity. The two methods together applied to all components of the system (total infrastructure) add up to the full SDC.

When the calculations are made, measurable factors are relied upon. For instance, a new school would require lots of water. SDCs for either attachment to existing infrastructure or a site requiring extension of the current system, calculates square feet of class room space which can be compared to square footage of similar structures. Comparing number of students to be served is highly variable and does not lend itself to a fair comparison, according to Oregon State law.

In addition to the factors explained above, water EDUs (equivalent dwelling units) are based on peak capacity of meters, whereas wastewater EDUs are based on actual water flowing to the sewage treatment plant. These factors are treated in relationship to one another to refine the cost distribution to current service users and SDCs.

The Water System document lists total population served within and outside the city limits. The report used a 1.5% growth factor. However, the 2000 census yielded an exact population number, which made it possible to determine a growth rate of 1.33.

City population was 2044 in 2005. The report breaks down in some detail commercial accounts and public facilities by type, such as restaurants, motels, local and county government

facilities and types of businesses such as gas stations, office buildings, and groceries. These are sized and used to calculate water use (usually exceeding domestic use) to arrive at equivalent population in the city (2852 in 2005) and total equivalent population in the service area (3729 in 2005). In this way, EDUs are derived as water charges are determined for the total of debt service, current water service and anticipated costs of planned extensions of the system. The share to be charged as SDCs are then factored.

Total water infrastructure assets are currently \$4,308,846. Percentage of SDC equity is 95.17%, split between a reimbursement portion of \$1,837 per hook-up and an improvement portion of \$566, yielding a total SDC hook-up charge of \$2,403. Total gallons of water sold in February were 17,966,910 gallons. 91.5% serviced Gold Beach, .052% serviced Wedderburn and .033% serviced Jerry's Flat.

Nesika Beach/Ophir Water Plan

Our researcher has been unable to consult the single copy of the Water Master Plan for Nesika Beach/Ophir Water District due to time constraints. The interview with Allen Wagner yielded the following information.

The District holds two water rights on the north bank of the Rogue River being used together. A senior water right is for .5 cubic feet per second, and a right junior to other rights is .2 for a total of .7 compared to 9.0 for Gold Beach. Attempts to receive an additional water right on the Rogue have been unsuccessful. A recent water right has been approved from a stream on the north end of the system. Because the system is linear, making looping rare, having inputs from both ends of the system will be a big advantage.

The well for the Rogue intake was recently moved, with the new caisson well being sound and accommodating chlorinating facilities and corrosion control not available with the old well. Water is metered both upon entering and leaving the treatment plant. Water loss rate, when measured has varied dramatically, being as low as 12% and as high as 40% (15% is the Water Resources Department recommended average rate, see Gold Beach report).

Total population served is 1,440. In February, 2,730,000 gallons of water were sold to 517 hook-ups representing 565 EDU (equivalent dwelling units). That amount is 14 percent of the total Gold Beach February sales. System Development Charges (SDCs) are established in Nesika Beach/Ophir. An existing meter replacement program installs 50 new touch read meters each year. A water conservation plan has been approved by the State Water Resources Department. Storage capacity only extends to one and one-half days. This causes a moratorium on use from hydrants which are saved solely to fight fires.

The advantage of a small system with infrastructure components known intimately by the single superintendent/worker is offset by aging of the infrastructure. This will lead to heavy cost to refurbish and upgrade. Total cost of this is predicted to double the charges currently being paid.

Sources

Interviews with Public Works Director Jeff Denney of the City of Gold Beach and Allen Wagner of Nesika Beach

Report of City of Gold Beach Water Master Plan, Dyer Partnership Engineers and Planners, Inc., Coos Bay, Oregon. December 2004, amended September 2005

(A copy of the Dyer report on Nesika Beach/Ophir Water Plans was not available in the Curry County Library in Gold Beach)

Water District plus data on February 2006 water sold to rate payers provided by Shirley Walker who assists the City Manager of Gold Beach.

Brookings-Harbor Water Uses

Factors to consider:

- 134 water rights have been issued on the Chetco River, of which 8 are ground water, 70 domestic, 33 irrigation, and 5 municipal. This review will focus only on the municipal water rights.
- The total amount of water rights granted on the Chetco is 1276.8012 cubic feet per second. Not all water allocated by permit is used on a regular basis. In the winter months, more than enough water is available to meet needs. In the late summer months, river flow may be inadequate for permitted uses and aquatic life. As the waters of many western rivers have been overallocated—i.e. more water permits have been given than water in the river, this is not unusual.
- Any discussion of water rights and uses on the Chetco is made more difficult by the fact that river flow depends upon rainfall, and rainfall in the Chetco River watershed varies from year to year. Average rainfall in Brookings is 81 inches a year, with variations between 46 and 112 inches recorded. “Maintaining a healthy balance between the water requirements for population growth and the water requirements of anadromous fish runs” (LWVCC position) is a difficult task.
- At present, Brookings and Harbor Water have more than adequate water rights to meet the needs of development proposed within the next 20 years, although questions remain regarding water availability in the summer (dry) months and costs of alternatives and/or stream augmentation.

The Chetco River

For the Brookings and Harbor communities, the sole municipal water source is the Chetco River. The City of Brookings has 20 cubic feet per second of water from the Chetco River with two water permits (S27610, S31293) being used at the current water intake structure.

Brookings also has a certified ground water right (G5601) located where the city’s water intake was prior to 1989 (river mile 3.1). In 1989, Brookings moved its water intake upriver, installing a Ranney-type Collector intake structure at the confluence of the North Fork of the Chetco with the

Chetco main stem, near river mile 5.3. This was done because of infusion of salt water into the city water system during low flows in 1987.

Brookings has the following water rights:

Source	Permit	Cert.	Priority Date	Status (Non-Cancelled)	Amount in cubic feet per second	Active
Chetco River	S27610		1961	NC	4.0	Used
Chetco River	S31293		1966	NC	10.	Used
Chetco River	G5601	64614	1972	NC	6.	Not used
Ferry Creek	R41870		1966	NC	167.4 acre feet	Used 2004
Ferry Creek	S41871		1966	NC	167.4 acre feet	Used 1995
Joe Hall Creek	S4674	4953	1920	NC	2.5	Not used
Ransom Creek			1948	NC	.53	Unknown

Harbor Water PUD has four permits on the Chetco River, which is its sole water source. At present 10.5 cubic feet per second of water rights are in use.

Harbor Water Rights:

Source	Permit	Priority Date	Status (Non-Cancelled)	Am in cubic feet per second	Active
A Well	G3240	1966	NC	3.5	Used
One Well	G9438	1980	NC	7.0	Used
Chetco River	S31365	1966	NC	3.5	Not used
Chetco River	S43837	1978	NC	7.0	Not used

*NC stands for Non-Cancelled

According to the Harbor Water Master Plan, Harbor drew its water from the Chetco using surface water permits from the 1960s to 1982, when the Ranney-type Collector was constructed at river mile 3.4. When Harbor began using the Ranney Collector, ground water permits were obtained, as the collector was considered a groundwater source. At present, Harbor's water is considered "groundwater with possible surface water influence".

Ranney Collectors

Both Brookings and Harbor extract water from the Chetco River through use Ranney collectors which are essentially central wells with six to eight lateral arms extending outward, between 28 to 30 feet below the intake structure on the Chetco River. For Brookings, three pumps (two on standby) can divert up to 2.3 million gallons per day (MGD) for approximately 6050 people. Average daily water use had been about 1.83 cubic feet per second from October 2003 to September 2004. Brookings peak water use has increased since that time, with actual usage in dry months given as 2.72 cubic feet per second during September 2006.

Brookings' water is treated at a plant on Joe Hall Creek, then pumped to treated water storage tanks. The treatment plant has three pumps, two of which are in use, one is on standby. Brookings sends out billings to 2,691 users inside the city limits, 300 users outside (June 2006 figures).

Water for Brookings, though it is classified by the Oregon Department of Health as groundwater, is chlorinated and treated. An annual Consumer Confidence Report (CCR) is sent to Brookings water users each May.

Brookings has a flow meter located on the intake at the water treatment plan, and the entire system uses telemetry to monitor use.

Harbor's Ranney collector on the Chetco has four pumps, each with 2.4 million gallon capacity, that alternate to produce water for approximately 3000 people. 1560 billings are sent out. Average daily demand for Harbor is 1.2 million gallons a day in the summer (just under 1.9 cubic feet per second) and .9 million gallons a day in the winter. Harbor uses two water meters—both at the point of extraction--as required by Oregon law.

Harbor chlorinates its water though it is not currently required to do so. Harbor does not use a treatment plant, as its water is tested for purity and listed from a groundwater source.

The combination of water use by Brookings and Harbor exceeds the 5.1 cubic feet per second limitation agreement with Oregon Department of Fish and Wildlife during dry summer months when river flow drops below 80 to 100 cubic feet per second. League was told this 'agreement' was verbal only. In addition, League realizes that the water volume readings are recorded 10.7 river miles upstream from the municipal intakes (at 3.4 and 5.3 river miles). Several streams feed into the Chetco River between the river gauge and municipal intakes.

Water Rates

Brookings and Harbor employ different methods of charging residential customers for water. Harbor uses a 'flat' water rate schedule while Brookings recently changed to a 'graduated' rate structure, i.e. consumers pay a higher rate for water use above the average. This form of fee structure encourages water conservation.

In Brookings, customers pay for water through a utilities charge which includes water, sewer and streets. An average monthly bill for water service, inside the city limits, is \$18.05 plus a \$2.50 system replacement fee (SRF) for water. City hydrants are not metered.

In Harbor, users pay a base charge of \$11 for the first 2000 gallons used monthly, then pay a lower rate for additional water used. This type of water charge benefits those who use water for gardens in the summer months. Water service costs average \$14 a month for residential users. All water use in the district is metered.

Sewer costs for Harbor are handled through the Harbor Sanitary District. As Harbor is unincorporated, the county maintains roads.

Unaccounted-for Water Loss

According to the Brookings Water System Master Plan, a yearly average of 17 percent of the water treated is 'unaccounted for'. Put another way, a monthly average of between 12 and 27 per cent of the water diverted from the Chetco River and treated at the Brookings Water Treatment Plant does not end up flowing through water meters. This amount of water loss has been a matter of concern and a leak detection program had been set up. Two major leaks were located and repaired. In March 2005, the amount lost to leakage was reduced to 15 percent. The water loss is a "paper loss", according to Wilcox. As meters get older they tend to read low. The meter at the

treatment plant is accurate; the “loss” is what is metered at residential meters. Brookings is in the midst of replacing older meters. Harbor has struggled with unaccounted-for water in the past. According to Dave Van Cleave, Harbor Water Superintendent, at one time the District had water losses as high as 30 percent. Figures at present are between 10 and 15 percent. Harbor measures the water as its intake point with two types of meters as well as metering all user outlets. In addition, Harbor has installed a system of locks on public hydrants, limiting water losses from that source.

Water Storage

Brookings currently has almost two million gallons of storage, with a 2 million gallon storage tank in the design stage. This additional storage is to be constructed in East Harris Heights.

Harbor currently has 2.06 million gallons of water storage in tanks. Harbor recently added two stainless steel 10,000 gallon storage tanks at Crown. The district now can supply 20 pounds per square inch pressure to all areas in the district.

Minimum Perennial Stream Flow (MPSF)

Converted by Water Law to Instream Water Rights

In April of 1964, instream water rights of 80 cubic feet per second year round were established for the Chetco River from the confluence of the North Fork with the main stem upstream to Glen Brook, to be administered by ODFW.

By 1980, seasonal variables in minimum stream flows for the entire Chetco River were set as follows (all flow listed as cubic feet per second):

Jan 1 - May 31	Jun 1 - Jun 15	Jun16-Jun30	Jul 1 - Sept 30	Oct 1 - 15	Oct 16 - Dec 31
350 CFS	200 CFS	100 CFS	80 CFS	200 CFS	450 CFS

"In 1990, ODFW requested that the instream rights be increased from 80 to 100 cubic feet per second. That request was denied by Oregon Water Resources Department based on their water availability analysis which concluded that the extra 20 cubic feet per second was not available" (Todd Confer, ODFW Fish Biologist, Gold Beach).

Instream water rights, according to Oregon’s water laws, are based on seniority as all other water rights are. Therefore, Brookings and Harbor’s water rights have seniority over most instream water rights on the Chetco. According to Supplemental Findings by the city’s consultant for the UGB Amendments in 1995, “for half of the years measured, the Chetco did not have enough water to sustain anadromous fish for three months (August, September and October). ... Instream water rights might require the City’s (Brookings’) and (Harbor) PUD’s permits to be restricted because of minimum stream flows for fish.”

In addition, the Chetco River is listed as “water impaired” due to temperature—and this condition applies to the river upstream (in the Siskiyou National Forest), before any water withdrawals occur.

After ODFW applied for additional instream water rights, Brookings, as a part of completing Periodic Review, agreed to limit water use to a daily average of 5.1 cubic feet per second “when

the three-day average in-stream water flow falls below 80-100 cubic feet per second” (Brookings Ordinance 02-O-553).

Brookings completed a Water Conservation Management Plan in 2002, which called for regional water planning should water withdrawal threaten fish resources. Harbor, however, has agreed to no restrictions on water use, according to Van Cleave. The Harbor Water Master Plan states “instream water rights are in effect during the months of July, August, and September. According to (Harbor) District personnel, the instream water rights have not created a significant problem for the District.”

At present Harbor does have a water curtailment plan but no enacting ordinance, according to Jackie Adams, Harbor Water Office Manager. Such an ordinance would need to be adopted if a water emergency should occur.

How much water is actually used?

Brookings’ water use is metered at the water treatment plant at Joe Hall Creek. Peak daily use was cited as 2.72 cubic feet per second during September 2006, with peak hour use per individual given as 742 gallons.

Harbor reports that water withdrawn from the Chetco averages between .9 and 1.2 million gallons a day with heaviest use in the summer months. Total water use, then, by these two municipal users ranges between 3 to 5 cubic feet per second daily, while together the two municipal users have water rights totaling 40.5 cubic feet per second.

Trying to ascertain just how much water is being withdrawn from the Chetco is difficult. Stream flow on the Chetco River is measured by a USGS water gauge 10.7 river miles up the Chetco River at Second Bridge, well above the intakes for these two communities. Water flow in the Chetco is variable, with highs during rainy winter months averaging 2000 cubic feet per second and lows during summer months between 80 to 100 cubic per second. Most recently a low of 54 cubic feet per second was recorded during October 1992. A view of the results of this gauge can be viewed at <http://waterdata.usgs.gov/or/nwis/uv?site_no=14400000>.

Documents from UGB Needs Assessment state that the Chetco Watershed Council was to add additional gauging stations in the lower reaches of the Chetco. At this time, however, one gauge (located on the Harbor Water Intake) measures water level, not volume.

A statement from the 1995 document, which reads, “At this time, ... accurate records of stream flow at or below the city’s and PUD’s water intake wells do not exist,” remains true today.

The need for an additional water flow (volume) gauge on the lower Chetco, below the Brookings and Harbor water intakes but above tidal influences, seems clear.

Conclusion

Brookings and Harbor have adequate water rights for the next 20 years. Assurances as to stable accessibility and cost, particularly during times of low flow dry summer months, are difficult to give.

Questions Answers as to the costs of maintaining and expanding the current water systems are problematic. At present, Brookings is facing significant expense to maintain and upgrade the water system infrastructure to serve current users.

Governmental officials say new costs will be borne by new users. Water rates have recently increased for many, however, and more rate hikes may be coming. In communities where over half are living on retirement and/or fixed incomes, such increases may cause ill feelings, endanger community-building efforts and reduce the affordability of housing in the area.

Some changes have already been made—Curry County has created a riparian zone along the river, Brookings and Harbor have taken steps to create adequate water storage, and Brookings has completed an extensive leak detection program to deal with water loss and begun needed upgrades on their current water system. What more could be done?

1. Additional metering of river flow, particularly in the lower Chetco, is needed. As the Curry League's position on Water Sources and Uses states: "Accurate information about the amount of water available is essential before long-range plans can be developed. . . .Routine measurements at various strategic locations on the rivers and their tributaries."

"Maintaining a healthy balance between the water requirements for population growth and the water requirements of anadromous fish runs"—also from League's position, will perhaps be the most difficult task, one that will need the most effort and continued monitoring.

2. For a start, it seems essential that Brookings and Harbor adopt a coordinated, regional approach to water uses on the Chetco River. Brookings Ordinance 02-O-553, adopted in 2002, may not be adequate to deal with low flow conditions, particularly if a coordinated agreement as to the amount of water that can be safely extracted from the Chetco is not reached. Brookings and Harbor Water must work together to establish curtailment plans and water use standards which all who live in the Chetco Basin can recognize as fair and equitable to all.
3. Public awareness of the impacts of water consumption should be increased and a water conservation program initiated.

Sources

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