

MODEL WATER CURTAILMENT
MEASURES FOR
MUNICIPAL & QUASI-MUNICIPAL
WATER UTILITIES

Oregon Water Resources Department
February 1, 2005



Introduction

The purpose of this document is to assist communities in times of water shortage and comply with provisions of OAR 690 Div 86 sec 160 (Water Management & Conservation Plans) and OAR 690 Div 19 sec 0090 (Drought Mitigation).

Water suppliers that have a comprehensive water curtailment plan in place are ready to deal with a short-term emergency water shortage due to drought, natural disaster or human caused catastrophe. A well prepared curtailment plan helps minimize the impacts of a short-term emergency water shortage by reducing demand and / or finding an alternative supply. Pre-determined conservation measures, a backup supply and intertie with an adjacent water supplier or some combination these measures are important tools water suppliers can use to meet essential water needs.

Suppliers should have ordinances or rules in place before shortages occur. Good curtailment plans contain voluntary and mandatory water use restrictions that are implemented at predetermined levels. These restrictions become progressively severe as the shortage becomes increasingly dire. In cases of a drought (especially one declared by the Governor) in the early stages of a shortage, curtailment plans rely on customers taking voluntary curtailment actions. As the shortage increases curtailment plans require specific curtailment activities and later, under more severe stages of shortages the implementation measures may shut off non-essential uses.

Examples of Triggers for the Mild Stage of Alert

- Supply—Well or surface source drops near a water right conditioned trigger or within 40% of historical low
- Demand—Use equals historic peak for three consecutive days,
- Capacity—Use reaches 60 percent of capacity,

Examples of Triggers for the Moderate Stage of Alert

- Supply— Well or surface source drops near a water right conditioned trigger or within 20% of historical low
- Demand—Use reaches 90 percent ability to refill elevated storage,
- Capacity—Use reaches 85 percent of capacity,

Example of Triggers for the Emergency Stage of Alert

- Supply— Well or surface source drops to a water right conditioned trigger or within 10% of historical low. Catastrophic loss of supply due to spill, loss of power, landslide or earth quake.
- Demand—Not able to fill elevated storage
- Capacity—Use reaches 90 percent of capacity

WATER CURTAILMENT MEASURES

First level of concern -

Voluntary Reduction in Water Use

The governing board (mayor, city council, board of directors) should issue a general request for a voluntary reduction in water use by all water users. The request should be made at a time when there is a strong indication that the water supply will be reduced beyond the capacity to provide adequate service to all water customers.

The request should include a summary of the current water situation, the reason for the requested cutback in use, and a warning that mandatory cutbacks will be required if the voluntary measures do not sufficiently reduce water usage (suggest a percentage reduction).

The request for voluntary reduction of water use should be widely distributed to water users to assure public knowledge of the request. Local radio and TV stations, as well as newspapers, should be asked to run periodic announcements of the request. Announcement of the curtailment should be posted on the agency web site; distributed via mail directly households, or to banks, stores, supermarkets, schools and public buildings. Water conservation suggestions should be posted on your website and included with the announcements and leaflets.

In terms of a long term event such as a drought or sustained turbidity that will interfere with filtration these voluntary measures may not be adequate over time. Media should advise of the possibility of increasing levels of curtailment activities.

WATER CURTAILMENT MEASURES

Second Level of Concern -

Ordinance Prohibiting Times and Types of Outside Water Use

The governing body should pass an ordinance that restricts the irrigation of lawns, gardens and landscaped areas according to odd-even watering days (potentially for only limited hours). Some organizations allow outside watering by assigning specific days each week on odd / even numbered addresses and leave one day per week allowing no watering so that in line reservoirs can catch up.

The ordinance should also prohibit certain outside uses of water, such as car washing, washing down sidewalks or parking lots, filling swimming pools, dust control and other uses. Some communities allow commercial car washing in facilities that recycle the water they use.

The ordinance should discontinue the addition of new water service connections to the water system for the term of the ordinance.

The ordinance should include penalties for violation of the ordinance, including a warning, the installation of a flow restrictor, and the disconnection of water service.

A sample ordinance follows.

MODEL ORDINANCE PROHIBITING NONESSENTIAL USES OF WATER

ORDINANCE NO. _____

An Ordinance of the _____ (agency), Declaring a Water Shortage Emergency, Establishing Rules and Regulations Prohibiting or Limiting Nonessential Uses of Water, and Providing Penalties for Violation Thereof.

The _____ (governing body) of _____ (agency) does enact as follows:

Section 1. Purpose and Intent. The _____ (governing body) of _____ (agency) hereby declares that a water shortage emergency condition prevails within the _____ (agency) due to drought conditions prevailing throughout this region and that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the _____ (agency) to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

In order to conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection, this _____ (governing body) adopts the following regulations and restrictions on the delivery and consumption of water to take effect immediately and remain in effect until rescinded by ordinance.

The specific uses regulated or prohibited in the Ordinance are nonessential, if allowed would constitute wastage of water, and should be prohibited.

Section 2. Definitions. For the purpose of the Ordinance, the following terms have the meaning given:

“Customer” any person using water supplied by the _____ (agency).

“Chief Officer” the _____ (Chief Officer) of the _____ (agency).

“Person” any person, firm, entity, partnership, association, corporation, company, or organization of any kind.

“Water” water from the _____ (agency), unless expressly provided otherwise or required by the contract.

Section 3. Application. The provisions of this Ordinance shall apply to all customers using water provided by the _____ (agency).

Section 4. Regulation of Sprinkling and Watering. No person or customer shall sprinkle, water, or irrigate any shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers, or any other vegetation, except as follows:

a. Such irrigation, sprinkling, and watering shall be permitted by _____ (even-numbered addressed residences or certain locations) on even-numbered days of the calendar.

b. Such irrigation, sprinkling, and watering shall be permitted by _____ (odd-numbered addressed residences or certain locations) on odd-numbered days of the calendar.

Section 5. Nonessential Residential Water Use. The following residential water uses are hereby determined to be nonessential and are prohibited:

a. The use of water to wash any motorbike, motor vehicle, boat, trailer, airplane, or other vehicle, except at a commercial fixed washing facility.

b. The use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts or other hard-surfaced area, or building or structure.

c. The use of water to fill, refill or add to any indoor or outdoor swimming pools or jacuzzi pools except for neighborhood fire control, where the pools have recycling water systems and

evaporative covers, or where the use of the pool is required by a medical doctor's prescription.

d. The use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support fish life.

Section 6. Nonessential Commercial or Industrial Use. The following commercial or industrial water uses are hereby determined to be nonessential and are prohibited:

a. The use of water to serve a customer in a restaurant unless requested by the customer.

b. The use of water for scenic and recreational ponds and lakes, except for the minimum amount required to support fish life.

c. The use of water from hydrants for construction purposes, fire drills, or any purpose other than firefighting.

d. The use of water by a golf course to irrigate any portion of its grounds except those areas designated as tees and greens.

e. The use of water for dust control.

Section 7. Gutter Flooding. No person or customer shall cause or permit water to run to waste in any gutter or drain.

Section 8. Regulation of Applications for New Water Service. No applications for new, additional, further expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or other water service facilities of any kind shall be allowed, approved, or installed.

Section 9. Discontinuance of Service. The _____ (Chief Officer) may, after one warning by certified mail or in person by staff, disconnect the water service of any person or customer whenever he determines that such person or customer has failed to comply with any provisions of this Ordinance. Service so disconnected shall be restored only upon payment of the turn-on charge, hereby fixed at \$10.00 during office hours or \$20.00 after office hours, or as otherwise specified by law, and any other costs incurred by the

_____ (agency) in the discontinuance of service and the giving of suitable assurances to the _____ (agency) that the action causing the discontinuance will not be repeated.

In addition to the foregoing, the _____ (agency) may, prior to restoration of service, install a flow-restrictive device on the customer's service.

Section 10. Variances. The _____ (Chief Officer) may, in writing, grant temporary variances for prospective uses of water otherwise prohibited after determining that due to unusual circumstances to fail to grant such variance would cause an emergency condition affecting health, sanitation, or fire protection of the applicant or the public.

The _____ (governing body) shall ratify or revoke any such variance or adjustment at its next scheduled meeting. Any such variance or adjustment so ratified, may be revoked by later action of the _____ (governing body).

No such variance shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to issuance of said temporary variance.

Section 11. Emergency Ordinance. This Ordinance is hereby declared to be necessary for the immediate preservation of the public peace, health, and safety and shall take effect and be in force upon its adoption by the members of the _____ (governing body). Due to severe drought conditions in the area, it is imperative that this Ordinance become effective immediately to protect existing water supplies for human consumption, sanitation, and fire protection.

Section 12. Ordinance Controlling. The provisions of this Ordinance shall prevail and control in the event of any inconsistency between this Ordinance and any other rules or regulations of the _____ (agency).

Section 13. Severability Clause. If any section, subsection, sentence, clause, or phrase of the Ordinance is for any reason held to be unconstitutional, such decision shall not affect the remaining portions of this Ordinance. The _____ (governing body) of the _____ (agency) declares that it would have passed each

phrase thereof, irrespective of the fact that any one or more such provisions be declared unconstitutional.

Section 14. Publication. The _____ (Clerk's full title) is hereby directed to publish this Ordinance for the period and in the manner required by the _____ (appropriate legal reference).

ORDER PUBLISHED THIS _____ day of _____, 20__.

ADOPTED THIS _____ day of _____, 20__, (by the following vote):

AYES:

NOS:

ABSENT:

Signed: _____

Attest: _____

(Clerk)

WATER CURTAILMENT MEASURES

Third Level of Concern -

Ordinance Prohibiting All Outside Uses of Water

The governing body should pass an ordinance that restricts all outside use of water, including watering lawns, gardens, or other landscaped areas.

The ordinance should follow the same format as the ordinance in Step 2, except for Section 4, which should read as follows:

“Section 4. Prohibition on Sprinkling and Watering. No person or customer shall sprinkle, water or irrigate any shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers or any other vegetation.”

WATER CURTAILMENT MEASURES

Fourth Level of Concern -

Ordinance Reducing All Water Uses

The governing body should adopt an ordinance requiring the mandatory reduction of water usage.

For residential customers, the ordinance would set a maximum daily allotment for the amount of water used per resident. If a residence used more than its allotted number of gallons per day, the resident could have water service disconnected or be fined.

An allotment for commercial, industrial and government water users would be set at 75% of the water used during the same time period of the previous year. In some facilities where the major summer interior water use is for cooling this may mean that reduced hours would be the outcome of this measure.

Along with the implementation of such an ordinance, the agency should make available to the water users, either free or for a nominal fee, water conservation kits (including shower flow restrictors and toilet damming devices) to help reduce the amount of water used.

In catastrophic loss of supply or when a drought declared preference for human consumption is implemented, uses other than for human consumption and emergency services may be the only uses allowed.

MODEL ORDINANCE REDUCING ALL WATER USES

ORDINANCE NO. _____

An Ordinance of the _____ (agency), Declaring a Water Shortage Emergency, Establishing Rules and Regulations for Allocating Available Water Resources, and Providing Penalties for Violation Thereof.

The _____ (governing body) of _____ (agency) does enact as follows:

Section 1. Purpose and Intent. The _____ (governing body) of _____ (agency) hereby declares that a water shortage emergency condition prevails in the area served by the _____ (agency) due to drought conditions and that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the _____ (agency) to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

In order to conserve the _____ (agency) water supply for the greatest public benefit with particular regard for domestic use, sanitation, and fire protection, this _____ (governing body) adopts the following regulations and restrictions on the delivery and consumption of water to take effect immediately and remain in effect until rescinded by ordinance.

The specific uses regulated or prohibited in the Ordinance are nonessential, and if allowed would constitute wasted water, and should be regulated.

Section 2. Definitions. For the purpose of the Ordinance, the following terms have the meaning given herein:

“Customer” any person using water supplied by the _____ (agency).

“Chief Officer” the _____ (Chief Officer) of the _____ (agency).

“Person” any person, firm, entity, partnership, association, corporation, company, or organization of any kind.

“Water” water from the _____ (agency), unless expressly provided otherwise or required by the contract.

Section 3. Application. The provisions of this Ordinance shall apply to all customers using water provided by the _____ (agency).

Section 4. Prohibiting Nonessential Water Use. Uses of water for residential purposes in excess of the following daily usage allotment are determined to be nonessential and are prohibited:

Section 5. Nonessential Residential Uses Defined. Uses of water for residential purposes in excess of the following daily usage allotment are determined to be nonessential:

(1) One or two residential units - Daily usage allotment

- a. One permanent resident _____ gallons
- b. Two permanent residents _____ gallons
- c. Three permanent resident _____ gallons
- d. Each additional permanent resident _____ gallons

(2) Multi-residential units - Daily usage allotment

(Three or more) for each permanent residence _____ gallons

Each customer in whose name water is supplied to a residence, or residences or apartments or other dwelling units, shall upon request of the _____ (Chief Officer) advise the utility under penalty of perjury the number of permanent residents using water supplied to the residence, residences, apartments, or other dwelling units. If the customer fails to advise the _____ (Chief Officer), each residence, apartment or dwelling unit shall be permitted the water allocation herein provided for one permanent resident.

(The usage allotments established for three or more residential units should be based on the number of residential units rather than number of persons because the method of computation of allotments will more accurately reflect the true number of permanent residents living in the units over a period of time in light of the turnover and vacancy rates, the difficulty of ascertaining the true number of permanent residents residing and the available census and other statistical data.)

Section 6. Nonessential Commercial Uses Defined. Uses of water for commercial purposes in excess of the following amounts are determined to be nonessential and are prohibited:

1. The use of water for schools, parks, recreation areas, golf courses, community food gardens, residential gardens, cemeteries, and similar recreation or memorial type facilities in excess of 75% of the amount consumed in (the same time period of the previous year).
2. The use of water for nursery facilities, restaurants, shopping centers, filling stations, health and swim clubs, and all other commercial uses in excess of 75% of the amount consumed in (the same time period as the previous year).

Section 7. Nonessential Industrial Uses Defined. Uses of water for industrial purposes in excess of the following amounts are determined to be nonessential:

1. The use of water for manufacturing, food processing, cooling or cleaning of equipment in excess of 75% of the amount consumed in (the same time period as the previous year).
2. The use of water for agricultural irrigation in excess of 75% of the amount consumed in (the same time period as the previous year).

Section 8. Other Nonessential Uses. All other uses of water not expressly set forth in this Ordinance in excess of 75% of the amount consumed in (the same time period as the previous year) are determined to be nonessential.

Section 9. Determination of Amount of Prior Water Consumption. The amount of water consumed in (the same time period as the previous year) shall

be determined by _____ (agency) from its records. Where no such records exist, the amount shall be the average use of similar existing services as determined by the _____ (agency) from its records.

Section 10. Regulation of Applications for New Water Service. No applications for new, additional, further expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or other water service facilities of any kind shall be allowed, approved, or installed during the time this Ordinance is in effect.

Section 11. Penalties and Discontinuance of Service. Violations of any provision of this Ordinance shall be punished as follows:

First violation
Second violation within 6-month period Fine - _____
Third violation, and subsequent violations Fine - _____

The _____ (Chief Officer) may, after written or personal warning disconnect the water service of any customer that repeatedly violates this ordinance. Water service disconnected shall be restored only upon payment of any turn-on charge and any other costs incurred by the _____ (agency) and suitable assurances that the action causing the discontinuance will not be repeated.

In addition to the foregoing, the _____ (agency) may, prior to restoration of service, install a flow-restrictive device on the customer's service.

Section 12. Enforcement. Each _____ (appropriate law officer) of the _____ (appropriate police force) shall diligently enforce the provisions of this Ordinance.

The _____ (Chief Officer) and all employees of the _____ (agency), Public Works Department, and Fire Department, have the duty and are hereby authorized to enforce the provisions of this Ordinance.

Section 13. Variances. The _____ (Chief Officer) may, in writing, adjust any consumer's usage allotment if it is determined that due to unusual circumstances to fail to do so would cause an emergency condition affecting health, sanitation, or fire protection of the

applicant or the public; and may grant such adjustment in the case of a mixed residential and nonresidential use if it is found that such adjustment is necessary to place an equivalent allotment burden on consumers.

The _____ (governing body) shall ratify or revoke any variance or adjustment. Any variance or adjustment so ratified, may be revoked by later action of the _____ (governing body).

No variance or adjustment shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to issuance of temporary variance or adjustment.

Section 14. Emergency Ordinance. This Ordinance is hereby declared to be necessary for the immediate preservation of the public peace, health, and safety and shall take effect and be in force upon its adoption by the members of the _____ (governing body). Due to severe drought conditions in the area _____ (agency), it is imperative that this Ordinance become effective immediately to protect existing water supplies for human consumption, sanitation, and fire protection.

Section 15. Ordinance Controlling. The provisions of this Ordinance shall prevail and control in the event of any inconsistency between this Ordinance and any other rules or regulations of the _____ (agency).

Section 16. Severability Clause. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be unconstitutional, such decision shall not affect the remaining portions of this Ordinance. The _____ (governing body) of the _____ (agency) declares that it would have passed each phrase thereof, irrespective of the fact that any one or more such provisions be declared unconstitutional.

Section 17. Publication. The _____ (Clerk's full title) is hereby directed to publish this Ordinance for the period and in the manner required by the _____ (appropriate legal reference).

ORDER PUBLISHED THIS _____ day of _____, 20__.

ADOPTED THIS _____ day of _____, 20__, (by the following vote):

AYES:

NOS:

ABSENT:

Signed: _____

Attest: _____

(Clerk)

“Chief Officer” the _____ (Chief Officer) of the _____ (agency).

“Person” any person, firm, entity, partnership, association, corporation, company, or organization of any kind.

“Water” water from the _____ (agency), unless expressly provided otherwise or required by the contract.

Section 3. Application. The provisions of this Ordinance shall apply to all customers using water provided by the _____ (agency).

Section 4. Prohibiting Nonessential Water Use. Uses of water for residential purposes in excess of the following daily usage allotment are determined to be nonessential and are prohibited:

Section 5. Nonessential Residential Uses Defined. Uses of water for residential purposes in excess of the following daily usage allotment are determined to be nonessential:

(1) One or two residential units - Daily usage allotment

- a. One permanent resident _____ gallons
- b. Two permanent residents _____ gallons
- c. Three permanent resident _____ gallons
- d. Each additional permanent resident _____ gallons

(2) Multi-residential units - Daily usage allotment

(Three or more) for each permanent residence _____ gallons

Each customer in whose name water is supplied to a residence, or residences or apartments or other dwelling units, shall upon request of the _____ (Chief Officer) advise the utility under penalty of perjury the number of permanent residents using water supplied to the residence, residences, apartments, or other dwelling units. If the customer fails to advise the _____ (Chief Officer), each residence, apartment or dwelling unit shall be permitted the water allocation herein provided for one permanent resident.

(The usage allotments established for three or more residential units should be based on the number of residential units rather than number of persons because the method of computation of allotments will more accurately reflect the true number of permanent residents living in the units over a period of time in light of the turnover and vacancy rates, the difficulty of ascertaining the true number of permanent residents residing and the available census and other statistical data.)

(3) All irrigation uses, use of water features, filling of pools or ponds, exterior washing of cars, driveways, buildings or other equipment except for the purposes of safety or fire fighting purposes are prohibited.

Section 6. Nonessential Commercial Uses Defined. Uses of water for commercial purposes in excess of the following amounts are determined to be nonessential and are prohibited:

1. The use of water for schools, parks, recreation areas, golf courses, community food gardens, residential gardens, cemeteries, and similar recreation or memorial type facilities for purposes other than human consumption and sanitation.

2. The use of water for nursery facilities, restaurants, shopping centers, filling stations, health and swim clubs, and all other commercial uses for purposes other than human consumption and sanitation.

Section 7. Nonessential Industrial Uses Defined. Uses of water for industrial purposes in excess of the following amounts are determined to be nonessential:

1. The use of water for manufacturing, food processing, cooling or cleaning of equipment for purposes other than for safety, fire protection human consumption and sanitation.

Section 8. Other Nonessential Uses. All other uses of water not expressly set forth in this Ordinance for purposes other than safety, fire fighting, human consumption, livestock watering and sanitation.

Section 9. Regulation of Applications for New Water Service. No applications for new, additional, further expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or other water service facilities of any kind shall be allowed, approved, or installed during the time this Ordinance is in effect..

Section 10. Penalties and Discontinuance of Service. Violations of any provision of this Ordinance shall be punished as follows:

	First violation
Second violation within 6-month period	Fine - _____
Third violation, and subsequent violations	Fine - _____

The _____ (Chief Officer) may, after written or personal warning disconnect the water service of any customer that repeatedly violates this ordinance. Water service disconnected shall be restored only upon payment of any turn-on charge and any other costs incurred by the _____ (agency) and suitable assurances that the action causing the discontinuance will not be repeated.

In addition to the foregoing, the _____ (agency) may, prior to restoration of service, install a flow-restrictive device on the customer's service.

Section 11. Enforcement. Each _____ (appropriate law officer) of the _____ (appropriate police force) shall diligently enforce the provisions of this Ordinance.

The _____ (Chief Officer) and all employees of the _____ (agency), Public Works Department, and Fire Department, have the duty and are hereby authorized to enforce the provisions of this Ordinance.

Section 12. Variances. The _____ (Chief Officer) may, in writing, adjust any consumer's usage allotment if it is determined that due to unusual circumstances to fail to do so would cause an emergency condition affecting health, sanitation, or fire protection of the applicant or the public; and may grant such adjustment in the case of a mixed residential and nonresidential use if it is found that such adjustment is necessary to place an equivalent allotment burden on consumers.

The _____ (governing body) shall ratify or revoke any variance or adjustment. Any variance or adjustment so ratified, may be revoked by later action of the _____ (governing body).

No variance or adjustment shall be retroactive or otherwise justify any violation of this Ordinance occurring prior to issuance of temporary variance or adjustment.

Section 13. Emergency Ordinance. This Ordinance is hereby declared to be necessary for the immediate preservation of the public peace, health, and safety and shall take effect and be in force upon its adoption by the members of the _____ (governing body). Due to severe drought conditions in the area _____ (agency), it is imperative that this Ordinance become effective immediately to protect existing water supplies for human consumption, sanitation, and fire protection.

Section 14. Ordinance Controlling. The provisions of this Ordinance shall prevail and control in the event of any inconsistency between this Ordinance and any other rules or regulations of the _____ (agency).

Section 15. Severability Clause. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be unconstitutional, such decision shall not affect the remaining portions of this Ordinance. The _____ (governing body) of the _____ (agency) declares that it would have passed each phrase thereof, irrespective of the fact that any one or more such provisions be declared unconstitutional.

Section 16. Publication. The _____ (Clerk's full title) is hereby directed to publish this Ordinance for the period and in the manner required by the _____ (appropriate legal reference).

ORDER PUBLISHED THIS _____ day of _____, 20__.

ADOPTED THIS _____ day of _____, 20__, (by the following vote):

AYES:

NOS:

ABSENT:

Signed: _____

Attest: _____

(Clerk)

Helpful references and web pages:

Oregon Water Resources Department <https://www.oregon.gov/owrd/>

- Water Management & Conservation Plans
<https://www.oregon.gov/owrd/programs/planning/W MCP/>
- Drought Mitigation
<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3144>

League of Oregon Cities <http://www.orcities.org/index.cfm>

- Water Management & Conservation Plans Guide book
<http://www.orcities.org/publications/specialPubs.cfm>

Environmental Protection Agency

- Water Security <http://cfpub.epa.gov/safewater/watersecurity/index.cfm>

American Water Works Association

- Water Security <http://www.awwa.org/science/wise/>
- Drought
<http://www.awwa.org/community/links.cfm?FuseAction=Links&LinkCategoryID=2>
- Conservation
<http://www.awwa.org/community/links.cfm?FuseAction=Links&LinkCategoryID=32>