

APPENDIX A

Report of the July 3, 2002 Workshop

APPENDIX A

REPORT OF JULY 3, 2002 WORKSHOP

IMPLEMENTING WATER ALLOCATION AND WATER USE MANAGEMENT ON A WATERSHED BASIS

Grand River Conservation Authority (GRCA), Cambridge, ON

1.0 OVERVIEW OF THE PROCEEDINGS

Purpose

The one-day workshop held at GRCA was designed to review and gather additional input for the demonstration project, “Framework for Implementing Water Allocation and Water Use Management on a Watershed Basis in Ontario”.

Attendees

Twenty-four participants represented Conservation Ontario, Credit Valley Conservation, Grand River Conservation Authority, Long Point & Region Conservation Authority, Toronto & Region Conservation Authority, Region of Waterloo, Region of York, University of Guelph, University of Waterloo, Ministry of Agriculture & Food, Ministry of Environment, Ministry of Natural Resources. John Kinkead attended as the lead consultant and technical writer for the demonstration project. See participants list attached.

Facilitator

Lorraine Holding, Consultant

Process

Prior to the workshop, participants received three documents for review: “A Summary of Current Water Allocation Program Issues in Ontario”; “Preliminary Assessment of Current Ontario practices, Program Issues, and Enhancement Possibilities” (the matrix); “An Interjurisdictional Review of Water Allocation Programs and Policies – 2002”.

The facilitator designed a participative discussion process for the workshop, including guidelines for the designated discussion leader and flipchart recorder for the two pre-assigned breakout groups. Two opportunities were included for hour-long discussions, followed by reports to the plenary sessions. The plenary group discussed two additional questions at the end of the day to give further input to John Kinkead.

Agenda

Participants introduced themselves and shared one characteristic/habit that they brought to the workshop. Several expressed their practical focus.

The facilitator outlined the breakout group discussion process and managed the agenda timing. Each group focused on eight program components in the matrix (approximately fifteen minutes per component). For each component, the group reviewed the related issues/concerns for validity, completeness and level of priority. They also reviewed the potential enhancement options for relevancy to the three scenarios, and added other options. Participants also had individual worksheets to record additional comments and indicate preference of the options related to the three scenarios and possible timing of implementation (combined perspective of urgency and do-ability within one year, within two to three years, and more than three years).

After each breakout group session, the discussion leaders (Bruce Mitchell and John Fitzgibbon) summarized the key preferences for potential enhancement options. A few general comments expressed were:

- ❑ There is potential for contradictions between various program components and enhancement options.
- ❑ Surface and groundwater are not dealt with separately.
- ❑ Tensions may occur between users regarding equity of solutions/options.
- ❑ There is a progression from voluntary to regulatory solutions/options.
- ❑ There is a continuum of responses (e.g. drought contingency; Ontario Low Water Response Plan).
- ❑ Shared funding is required between the province and others. What would a user fee model look like?
- ❑ Data collection is important, identifying who will collect the data for what purpose(s). Good content is required from the monitoring/analysis of data.

Participants discussed two questions to conclude the workshop:

- ❑ What two actions would you want to ensure happen? (Short-term or longer-term)
- ❑ Overall, what is a key impediment to change?

The facilitator led a quick verbal workshop evaluation:

- ❑ What tangible outcomes have developed today? What one word would describe today's workshop? (Productive; many flipcharts of input for the matrix; lots of ideas and experience shared; groups were well-balanced and good size for discussion.)
- ❑ What could have improved today's workshop? (More time; group wanted to go to "details level" of implementation rather than focus at higher level.)
- ❑ What final comments do you have for John about this project? (Don't lose the practical ideas/comments shared at the meeting; incorporate the ideas into the matrix; circulate a summary from this meeting; circulate the draft chapters of the report to the workshop participants; connect this project report into overall watershed planning.)

John Kinhead closed the workshop by summarizing the next steps towards finalizing the project report.

2.0 IDENTIFICATION OF PRIORITY ACTIONS AND CHALLENGES

Introduction

At the conclusion of the reports from the afternoon breakout sessions, all attendees were invited to suggest what they felt were top priority actions for advancing water allocation on a watershed basis in

Ontario. They were then asked to identify the key impediments or challenges to be overcome in getting to an effective allocation system.

Priority Actions

- ✓ Expand on current resourcing, i.e. build-in the necessary expertise and capacity for an effective watershed-based allocation system.
- ✓ Explore and identify innovative funding/financing solutions to solve the current under-funding problems.
- ✓ Develop water budget models and undertake supply-demand analyses for priority watersheds and aquifers, i.e. those facing the greatest existing and/or potential pressure.
- ✓ Undertake long-range planning regarding future water needs/demands in all known or suspected growth areas.
- ✓ Integrate water allocation planning into watershed management planning and land use planning initiatives.
- ✓ Establish legislated authority for the preparation and use of water allocation plans.
- ✓ Ensure adequate monitoring and reporting of actual takings by permitted users.
- ✓ Improve the currency, accuracy and accessibility of the water allocation/taking database.
- ✓ Build on the Local Water Response teams model used in the Ontario Low Water Response Plan to assist in managing allocation issues in high-risk, high-conflict areas.
- ✓ Establish adequate permit enforcement capacity and demonstrate preparedness to use it.

Key Impediments to Change

- ❑ Lack of appreciation for the seriousness and urgency of water allocation issues among the general public, decision-makers and politicians.
- ❑ Common perception that the province's water supplies are limitless.
- ❑ Failure to accept/endorse measures for recognizing the true value of water, which in turn contributes to continued inefficient use.
- ❑ Competition with other government programs and priorities for the dollars needed to upgrade current system.
- ❑ Expected government and stakeholder resistance to measures that would legally prescribe the designation of priority among uses.
- ❑ Fear that the scope and complex nature of water allocation and other water-related issues will hinder agreement on, and implementation of, the required actions by governments.
- ❑ Lack of public/government appreciation that continued allocation system under-funding is likely to lead to the escalation of user conflicts, to more widespread water shortages, and to higher costs, i.e. avoiding the problems would be far less expensive and disruptive than remedying them through new and/or retrofit public and private water-servicing infrastructure initiatives.

3.0 SUMMARY OF ISSUES & IDEAS FROM BREAKOUT SESSIONS

Introduction

In each of the breakout sessions, participants discussed current issues and deficiencies in the existing water-takings planning and approval process and put forward suggested options for enhancing the process. In doing so they were invited to consider, revise and expand on the issues and options relating to each process component as presented to them in the matrix sent out prior to the workshop. The following is a condensed record of discussions and suggestions. Note: The order in which the components are

presented is not intended to denote any agreed upon sense of priority with respect to implementing suggested improvements.

Designating Priorities of Use: General

- Support the application of a province-wide system of water-use priorities in allocation decision-making, whereby highest priorities are universally protected while some local discretion is possible with respect to less important uses.
- Water use priorities need to be recognized in long-term allocation/supply planning to avoid an automatic first come, first serve approach to permitting.
- System of use priorities could be different in long-range allocation planning sense than in emergency response sense.
- Maintenance of minimum environmental flow requirements on a watershed/reach specific basis should be recognized as a priority within the permitting process.
- More discussion (and information) is needed on defining sustainable takings from ground water sources, e.g. should any amount/level of ground water “mining” be permitted?

Designating Priorities of Use: Drought

- Must have contingency plans in place before drought occurs.
- Should be a provincially established protocol for setting use priorities in event of drought.
- Protection of minimum environmental flows tailored to watercourse reach and time of year should be high priority.
- Permit holders and other users need to understand up-front that their taking can be restricted in order to protect other uses/users.
- Ensure all permits provide for temporary reductions in allowable takings.
- Support continued use/refinement of the Low Water Response Plan and use clear thresholds in moving between response levels and in applying restrictions.

Drought-Contingency Preparedness

- Require a drought contingency plan be put in place for high-risk watersheds/subwatersheds/aquifers.
- Require individual water users to develop their own drought contingency plan as a permit application/approval condition.
- In drought-prone areas, search out water users operating without the required permit and require them to make immediate application.
- Incorporate guidance details in permit for how permit holder would be expected/required to reduce taking.
- If users know the “rules of the game” upfront, there should be less conflict and better results in dealing with drought.
- Work with intermittent users such as golf courses and crop irrigators to identify the potential for off-line storage and coordinated taking schedules to reduce overlapping instantaneous demand.

Minimum Environmental Flow Requirements

- There should be a province-wide protocol for determining minimum environmental flow requirements on a watershed basis.
- The protocol should differentiate between drought and non-drought conditions and provide for flexibility in setting requirements on reach by reach and season by season basis. In the absence of

locally available information, a standardized provincial minimum return flow formula could be prescribed.

- Identify minimum flow requirements on a season by season basis, i.e. the summer may not be the only critical period from an environmental-needs perspective.
- Ongoing Gartner Lee study for MOE intended to provide more specific direction on EF requirements.

Institutional Arrangements: General

- Need to acknowledge that required capacity for proper allocation decision-making does not currently exist individually or collectively within MOE, CAs or other agency, i.e. additional program resources are required.
- Establish capacity within and give authority to CAs for defining sustainable allocation limits and for completing the watershed-based technical reviews of permit applications. Retain actual permitting authority within MOE.
- Find and support new funding mechanisms for building the additional capability and capacity both within MOE and CAs.
- Examine CA capabilities together with ongoing/anticipated allocation issues on a watershed by watershed basis in determining the type and degree of capacity enhancement required. Consider the Fisheries Act reviews agreements set up between DFO and individual CAs as a possible model.
- Consideration needs to be given to putting similar arrangements (watershed-based with separation of approvals and review-coordination roles) in place for areas outside of CA jurisdiction.
- Need also to consider and institutionally link water-allocation decision-making to other planning and regulatory processes dealing with water-related matters such waterpower, navigation, and aggregate extraction.

Institutional Arrangements: Contingency Situations

- Generally encourage and support local stakeholders in solving local problems.
- Use Local Water Response Teams to guide and oversee local stakeholder groups.
- Transform LWRTs into more proactive bodies, i.e. give them a role in contingency planning and problem avoidance, not just response.
- Provide provincially recommended supported best management practices for avoiding and mitigating water use conflicts and define the bottom line, but let local groups work out how they get there.
- Focus on expectations and results as a way of moving forward from reactivity to proactivity.

Compliance and Enforcement

- Note that new MOE drinking water regulations play a role in how municipal water taking/allocation is enforced.
- Important that new and renewed water-taking permits be complete and accurate with respect to specific allocation provisions and restrictions.
- Permit enforcement should be the responsibility of the permitting authority, i.e. MOE, so as not to add to or conflict with CAs role in technical review, coordination and facilitation.
- Ensure that allocation limits specified in permits accurately reflect the actual water needs, i.e. require users to undertake and defend an analysis of their expected water use needs for the permit duration period.

- Establish improved measures for identifying and reporting permit violations, e.g. require regular user reporting and independent audit of actual takings.
- Speeding up the permit application review and approval process, together with beefing up enforcement capability, would result in greater user cooperation and stronger compliance.

Program Resourcing

- Need to find ways of streamlining the allocation process, e.g. focus more resources on critical watersheds and large volume or dominant uses.
- Identify efficiencies that could be realized through integrating water allocation program needs with other watershed management programs such as source protection planning.
- Improving water supply and water use data collection and management systems would increase program efficiency. What role can/should the Water Resources Information Program (WRIP) play?
- Improve enforcement of permit requirements and use fines collected to fund program improvements.
- Consider the opportunities associated with various combinations of potential program funding mechanisms, e.g. charges based on volumes taken/consumed, permit application/approval fees, provincial taxes, local property taxes, and/or a “water trust” similar to the Forest Regeneration Trust.

Long-Term Water Supply/Use Planning

- Public interest in long-term water supply issues often comes to light after the Environmental Assessment Act (EAA) required planning has been completed.
- Wastewater management planning should be undertaken in parallel/conjunction with water supply planning because their watercourse/watershed impacts are linked.
- The water supply planning and land use planning processes need to be better linked.
- Water use/demand planning should deal with entire watershed, i.e. not just the municipally serviced portion, and should include all significant self-serve water use sectors. Determination of the environmental flow needs also needs to be built into the planning process.
- Province needs to provide better guidelines on the expected outcomes, contents and process of watershed-based water supply planning and should provide a legislative basis/requirement for such planning. The planning horizon should include “hard numbers” out to at least 20 years and scenario projections out to 50 years.
- As a first priority this kind of comprehensive planning should be initiated for those aquifers, watersheds or portions thereof known or projected to be under supply-demand stress.
- Long-term water supply planning should as a matter of principle require users to examine alternate sources of supply.

Water Conservation and Water Use Efficiency

- Local water users should complete conservation plans as an integral component of Levels 1 and 2 of the Low Water Response Plan.
- Conservation management should be standard operating practice and staggering of demand needs to be factored in.
- While the intensity of conservation management effort by individual users and groups of users should reflect the availability/source of supply, all users should participate, i.e. wise and responsible use.

- Enhance promotion of conservation planning and use of best practices. There is a role here for the province, CAs and the regulated communities/sectors.
- Look at moving toward mandatory conservation planning, perhaps tied to PTTW.
- Consider financial incentives to assist self-serve users, e.g. crop irrigators, with conservation planning.
- Require high consumptive uses/users, e.g. irrigators, to prepare water conservation targets and plans. Ensure that municipalities have bylaws and enforcement capacity in place to restrict lawn-watering and other consumptive outdoor uses.
- Promote local demonstration of high-efficiency water use technologies and practices among high-consumptive users.

Water User Outreach and Education

- Focus more effort on educating young people around water and wise use.
- Use state of the watershed reports to inform people of current and potential conditions and to make the aware of where their water supply comes from.
- Look at both supply-management and demand-management.
- Get industry and institutional users educate workers about water use and conservation.
- Set up a water use best-practices guidance/information centre and make information user-friendly and accessible.

Permitting Content/Process Issues

- Accuracy and accessibility of permit and permit compliance information/ data are important.
- General lowering of current 50,000 L/day permit application trigger may not be practical/necessary everywhere but should be considered in sensitive areas.
- Long-term water supply planning should consider all takings.
- In areas where supply is less than or equal to demand, consideration should be given to require permitting of all users.
- Incorporate a supply reserve within watershed to accommodate future growth, i.e. give security and permitting priority to needs/uses identified through long-term growth and allocation planning. Use a precautionary approach in approving new allocations and tie it to the level of confidence in information on the potential magnitude and variability of supply and demand.
- Use permit duration as hedge against over allocation concerns, e.g. 1-2 years duration for controversial uses such as water bottling, up to 5 years for most surface water takings, and up to 10 years for ground water takings.

Metering, Monitoring and Reporting of Takings

- Basic data requirements for water budget analyses include water-taking dates, rates, total volume, source, location, and consumption.
- Annual reporting frequency OK for non-critical areas.
- Encourage legally non-permitted uses to also monitor and record their takings.
- Incorporate specific monitoring and reporting requirements in all permits and enforce compliance.

Determining Availability and Variability of Supply

- Critical to establish and maintain good surface and ambient ground water monitoring networks.
- Require “hard” estimates of actual takings with proper identification of source of supply.

- Develop and assess long-term records of climate and flow to quantify potential variability.
- Develop good estimates of “safe yield” from specific supply aquifers.
- Incorporate a broad set of indicators for monitoring environmental flow requirements.

Use of Water Budget Analyses and Other Tools

- Development of sound watershed-based and aquifer-based water budget analyses is critical to long-term water supply/allocation planning.
- Need to improve understanding of aquifer systems and surface-ground water interactions.
- Good information on actual water takings is critical to constructing, running, and having confidence in the models.
- The modeling effort needs to reflect the nature and urgency of the water use issues in the area.

**WATER ALLOCATION & WATER USE MANAGEMENT WORKSHOP
JULY 3, 2002**

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APPENDIX B

Key Water Management Legislation with Application in Ontario

APPENDIX B

SUMMARY OF EXISTING WATER LEGISLATION WITH APPLICATION IN ONTARIO¹
Water Quality and Quantity and Water-Related Land Management

WATER QUALITY

Legislation by function	Administering agency	Description of legislation	Implementing agency
Provincial			
Ontario Water Resources Act	MOE	<ul style="list-style-type: none"> allows for the regulation of water supply allows surveillance and monitoring of all surface and ground water in Ontario regulates sewage disposal and controls water pollution allows MOE to construct and operate wastewater facilities or require it be done by an industry or municipality 	MOE
Environmental Protection Act	MOE	<ul style="list-style-type: none"> forbids discharge of any contaminant to the environment in amounts exceeding regulations prohibits discharge of any substance likely to impair the environment requires spills of pollutants be reported and cleaned up promptly and establishes a liability on the party at fault 	MOE
Environmental Assessment Act	MOE	<ul style="list-style-type: none"> requires environmental assessment of any major public or designated private undertaking 	MOE
Pesticides Act	MOE	<ul style="list-style-type: none"> controls use of chemicals for the destruction of plant and animal pest and investigates possible harmful effects of pesticides on the environment 	MOE
Conservation Authorities Act	MNR	<ul style="list-style-type: none"> establishes Conservation Authorities with the mandate to operate dams for water quality enhancement, undertake water quality surveys and comment on planning documents 	CAs
Lakes and Rivers Improvement Act	MNR	<ul style="list-style-type: none"> ensures proposed water works do not adversely affect water quality or cause undue erosion and silting 	MNR
Planning Act	MMAH	<ul style="list-style-type: none"> guides municipal planning activities (e.g. requires local governments to assess the impact of a proposed subdivision on existing water supplies) 	Municipalities, MMAH
Municipal Act	MMAH	<ul style="list-style-type: none"> grants municipalities the power to pass bylaws that prohibit the injuring or fouling of drains and sewer connections 	Municipalities, MMAH

¹ Adapted from Ontario Low Water Response document as available at www.mnr.gov.on.ca

Legislation by function	Administering agency	Description of legislation	Implementing agency
Federal			
Fisheries Act	DFO	<ul style="list-style-type: none"> protects fish habitat by prohibiting habitat disturbance and deposition of deleterious substances in water frequented by fish 	DFO, MNR
Environmental Contaminants Act	EC, HWC	<ul style="list-style-type: none"> prevents dangerous contaminants from entering the environment 	EC, HWC
Canada Shipping Act	Transport Canada	<ul style="list-style-type: none"> controls pollution from ships by imposing penalties for dumping pollutants or failing to report a spill 	Transport Canada
Canada Water Act	EC	<ul style="list-style-type: none"> authorizes agreements with provinces for designation of water quality management areas and other projects 	EC
Canadian Environmental Protection Act	EC	<ul style="list-style-type: none"> controls manufacture, transportation, use, disposal of chemicals and wastes not adequately regulated by other legislation 	EC
Pest Control Products Act	Agriculture Canada	<ul style="list-style-type: none"> regulates products used to control pests via registration according to prescribed standards 	Agriculture Canada

WATER QUANTITY

Legislation by function	Administering agency	Description of legislation	Implementing agency
Provincial			
Conservation Authorities Act	MNR	<ul style="list-style-type: none"> authorizes Conservation Authorities to prohibit or regulate fill, construction and watercourse alteration allows for construction and maintenance of flood and erosion control structures 	CAs
Lakes and River Improvement Act	MNR	<ul style="list-style-type: none"> empowers MNR to regulate the construction and operation of water works requires that new water works be approved 	MNR
Public Lands Act	MNR	<ul style="list-style-type: none"> authorizes MNR to construct and operate dams and acquire land for their purposes authorizes power generation projects on Crown land 	MNR

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Legislation by function	Administering agency	Description of legislation	Implementing agency
Municipal Act	MMAH	<ul style="list-style-type: none"> • allows municipalities to enact bylaws for the construction, repair and maintenance of drains • prohibits the injury or fouling of drains in rivers • empowers municipalities to pass bylaws governing the construction and maintenance of dams and the straightening of water courses for flood protection 	Municipalities, MMAH
Public Utilities Act	MMAH	<ul style="list-style-type: none"> • empowers municipalities to acquire and operate water works and divert a lake or river for their purposes 	Municipalities, MMAH
Ontario Water Resources Act	MOE	<ul style="list-style-type: none"> • requires the issuance of a permit for the taking of more than a total of 50, 000 litres of water in a day from a ground or surface source of supply • allows the MOE Director to refuse to issue, cancel, impose terms and conditions in issuing a permit or alter the terms and conditions of a permit after it is issued. • requires the issuance of a permit for the construction of a well • allows municipalities to establish or replace water works with ministerial approval 	MOE
Federal			
Fisheries Act	DFO	<ul style="list-style-type: none"> • protects fish habitat by prohibiting habitat disturbance • ensures construction of a fishway around any obstruction in a waterway 	DFO, MNR
Navigable Waters Protection Act	DFO	<ul style="list-style-type: none"> • prohibits dumping of wastes that may interfere with navigation • prohibits construction in navigable waters 	DFO
Canada Water Act	EC	<ul style="list-style-type: none"> • authorizes agreements with provinces for the delineation of flood plains and hazardous shorelines for flood and erosion control 	EC
International Rivers Improvement Act	External Affairs EC	<ul style="list-style-type: none"> • prohibits damming or changing the flow of a river flowing out of Canada 	EC

WATER-RELATED LAND MANAGEMENT

Legislation by function	Administering agency	Description of Legislation	Implementing agency
Provincial			
Drainage Act	OMAF	<ul style="list-style-type: none"> facilitates construction, operation and maintenance of rural drainage works provides legal mechanism where riparian landowners can drain their lands and divide the costs among themselves 	OMAF, municipalities
Tile Drainage Act	OMAF	<ul style="list-style-type: none"> provides for low interest loans to farmers from municipalities for tile draining their property 	municipalities, MMAH
Planning Act	MMAH	<ul style="list-style-type: none"> provides for and governs land use planning deals with provincial administration in land use planning and local planning provides for development of statements of provincial interest to be regarded in the planning process 	municipalities, MMAH
Public Lands Act	MNR	<ul style="list-style-type: none"> authorizes MNR to manage and control activities on Crown land 	MNR
Mining Act	MNDM	<ul style="list-style-type: none"> registers mining lands and lands forfeited to the Crown exempts lands and mining rights from taxes 	MNDM, MNR
Beds of Navigable Waters Protection Act	MNR	<ul style="list-style-type: none"> declares the beds of navigable waters as the Crown's responsibility 	MNR
Public Transportation and Highway Improvement Act	MTO	<ul style="list-style-type: none"> requires a permit for any work carried out within the right-of-way of a provincial highway 	MTO
Conservation Authorities Act	MNR	<ul style="list-style-type: none"> empowers Conservation Authorities to manage, regulate or acquire floodplains, hazardous shorelines and conservation lands 	
Environmental Assessment Act	MOE	<ul style="list-style-type: none"> requires environmental assessment of any major public or designated private undertaking 	MOE
Federal			
Fisheries Act	DFO	<ul style="list-style-type: none"> controls erosion and sedimentation for the purpose of fish habitat preservation 	DFO, MNR

EMERGENCIES

Legislation by function	Administering agency	Description of Legislation	Implementing agency
Emergency Plans Act	EMO	<ul style="list-style-type: none"> may take action and make such orders as he or she considers necessary to implement the emergency plans to protect property and health, safety and welfare of inhabitants of the emergency area. 	MNR, Municipalities

MNR - Ontario Ministry of Natural Resources
 MOE - Ontario Ministry of the Environment
 EC - Environment Canada
 DFO - Fisheries and Oceans Canada
 HWC - Health and Welfare Canada
 MTO - Ontario Ministry of Transportation
 MNDM - Ontario Ministry of Northern Development and Mines
 OMAF - Ontario Ministry of Agriculture, Food and Rural Affairs
 EMO - Emergency Measures Ontario

APPENDIX C

**Section 34 (Water Taking Permits)
of the Ontario Water
Resources Act**

APPENDIX C

Section 34, Taking of Water² Ontario Water Resources Act (OWRA), R.S.O. 1990, as amended

Interpretation

34. (1) In this section, reference to the taking of water for use for domestic or farm purposes means the taking of water by any person other than a municipality or a company public utility for ordinary household purposes or for the watering of livestock, poultry, home gardens or lawns, but does not include the watering or irrigation of crops grown for sale.

Idem

(2) In subsection (4), the reference to the taking of water for the watering of livestock or poultry does not include the taking of surface water into storage for the watering of livestock or poultry.

Taking of water regulated

(3) Despite any general or special Act or any regulation or order made thereunder and subject to subsection (5), no person shall take more than a total of 50,000 litres of water in a day,

- (a) by means of a well or wells that are constructed or deepened after the 29th day of March, 1961; or
- (b) by means of an inlet or inlets from a surface source of supply, where the inlet or inlets is or are installed in the source of supply or is or are enlarged after the 29th day of March, 1961; or
- (c) by means of a structure or works constructed after the 29th day of March, 1961 for the diversion or storage of water; or
- (d) by any combination of the means referred to in clauses (a), (b) and (c),

without a permit issued by a Director.

Where taking of water interferes with other person's interest in water

(4) Despite any general or special Act or any regulation or order made thereunder, where the taking of water for any purpose, other than the taking of water by any person except a municipality or company public utility for use for ordinary household purposes or for the watering of livestock or poultry and other than the taking of water by any person for firefighting, interferes, in the opinion of a Director, with any public or private interest in any water, the Director may, by notice served on or sent by registered mail to the person who is taking or is responsible for the taking of water that so interferes, prohibit the person from so taking water without a permit issued by the Director.

Application to domestic and farm use

(5) Subsection (3) does not apply to the taking of water by any person for use for domestic or farm purposes or for firefighting.

Permit

(6) A Director may in his or her discretion issue, refuse to issue or cancel a permit, may impose such terms and conditions in issuing a permit as he or she considers proper and may alter the terms and conditions of a permit after it is issued.

Flowing or leaking of water from well, etc., regulated

(7) Where the flowing or leaking of water from a well, or the diversion, flowing or release of water from or by means of a hole or excavation made in the ground for any purpose other than the taking of water, interferes, in the opinion of a Director, with any public or private interest in any water, the Director may, by notice served on or sent to the person who constructed or made such well, hole or excavation or to the registered owner of the land in which such well, hole or excavation is located, require the person or owner to stop or regulate such flowing, leaking, diversion or release of water in such manner and within such time as the Director may direct, or require such person or owner to take such measures in relation to such flowing, leaking, diversion or release of water as the notice may require.

Offences

(8) Every person who contravenes,

² Source: Ontario e-Laws at www.gov.on.ca

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- (a) subsection (3) or (4);
- (b) a notice served on him, her or it or received by him, her or it or on his, her or its behalf under subsection (4) or (7); or
- (c) any of the terms and conditions of a permit issued by a Director,
is guilty of an offence. R.S.O. 1990, c. O.40, s. 34.

APPENDIX D

Water Taking and Transfer Regulation

- O. Reg. 285/99

APPENDIX D

ONTARIO REGULATION 285/99³ UNDER THE ONTARIO WATER RESOURCES ACT *No Amendments*

WATER TAKING AND TRANSFER

This Regulation is made in English only.

GENERAL

1. The purpose of this Regulation is to provide for the conservation, protection and wise use and management of Ontario's waters, because Ontario's water resources are essential to the long-term environmental, social and economic well-being of Ontario. O. Reg. 285/99, s. 1.

PERMITS FOR TAKING WATER

2. (1) A Director who is considering an application under section 34 of the Act for a permit to take water shall consider the following matters, to the extent that each is relevant, in accordance with the procedures set out in the Ministry of the Environment publication entitled "Permits to Take Water, Guidelines and Procedures Manual, 1999", as amended from time to time:

1. Protection of the natural functions of the ecosystem.
2. Ground water that may affect or be affected by the proposed surface water taking, if the application is for a permit to take surface water.
3. Surface water that may affect or be affected by the proposed ground water taking, if the application is for a permit to take ground water. O. Reg. 285/99, s. 2 (1).

(2) A Director who is considering an application under section 34 of the Act for a permit to take water shall consider the interests of persons who have an interest in the taking, to the extent that those interests are relevant. O. Reg. 285/99, s. 2 (2).

(3) A Director who is considering an application under section 34 of the Act for a permit to take water may consider the following matters in accordance with the procedures set out in the Ministry of the Environment publication entitled "Permits to Take Water, Guidelines and Procedures Manual, 1999", as amended from time to time:

1. Existing and planned livestock uses of the water.
2. Existing and planned municipal water supply and sewage disposal uses of the water.
3. Existing and planned agricultural uses of the water, other than livestock uses.
4. Existing and planned private domestic uses of the water.
5. Other existing and planned uses of the water.
6. Whether it is in the public interest to grant the permit.
7. Such other matters as the Director considers relevant. O. Reg. 285/99, s. 2 (3).

(4) A Director who is considering an application under section 34 of the Act for a permit to take water shall ensure that Ontario's obligations under the Great Lakes Charter with respect to the application are complied with. O. Reg. 285/99, s. 2 (4).

(5) Subject to subsection (4), a Director who is considering an application under section 34 of the Act for a permit to take water may ensure that governmental authorities for other jurisdictions are notified of the application and consulted, even if notification and consultation are not required by the Great Lakes Charter. O. Reg. 285/99, s. 2 (5).

(6) A Director who is considering an application under section 34 of the Act for a permit to take water may require the applicant to,

- (a) consult with other persons who have an interest in the taking, including governmental authorities for other jurisdictions;
- (b) provide the Director with information on the interests of and responses of the persons consulted under clause (a); and
- (c) provide the Director with such other information as is specified by the Director. O. Reg. 285/99, s. 2 (6).

(7) In this section,

³ Source: Ontario e-Laws at www.gov.on.ca

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“Great Lakes Charter” means the Great Lakes Charter signed by the premiers of Ontario and Quebec and the governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin on February 11, 1985. O. Reg. 285/99, s. 2 (7).

WATER TRANSFER

3. (1) For the purposes of this section, Ontario is divided into the following three water basins:
1. The Great Lakes-St. Lawrence Basin, which consists of Lake Ontario, Lake Erie, Lake Huron, Lake Superior, the St. Lawrence River and the part of Ontario the water of which drains into any of them, including the Ottawa River and the part of Ontario the water of which drains into the Ottawa River.
 2. The Nelson Basin, which consists of the part of Ontario the water of which drains into the Nelson River.
 3. The Hudson Bay Basin, which consists of the part of Ontario, not included in the Nelson Basin, the water of which drains into Hudson Bay or James Bay. O. Reg. 285/99, s. 3 (1).
- (2) No person shall use water by transferring it out of a water basin. O. Reg. 285/99, s. 3 (2).
- (3) Subsection (2) does not apply to water that is used in the water basin to manufacture or produce a product that is then transferred out of the water basin. O. Reg. 285/99, s. 3 (3).
- (4) For the purpose of subsection (3), potable or other water is not a manufactured or produced product. O. Reg. 285/99, s. 3 (4).
- (5) Subsection (2) does not apply to water that is being transported and that is necessary for the operation of the vehicle, vessel or other form of transport that the water is being transported in, including water that is for the use of people or livestock in or on the vehicle, vessel or other form of transport. O. Reg. 285/99, s. 3 (5).
- (6) Subsection (2) does not apply to water packaged in a container having a volume of 20 litres or less. O. Reg. 285/99, s. 3 (6).
- (7) Subsection (2) does not apply to an undertaking that commenced before January 1, 1998 if the amount of water transferred out of a water basin by the undertaking in any calendar year after December 31, 1997 does not exceed the highest amount of water transferred out of the water basin by the undertaking in any calendar year after December 31, 1960 and before January 1, 1998. O. Reg. 285/99, s. 3 (7).
- (8) Subsection (2) does not apply to water taken pursuant to the order of the Lieutenant Governor in Council dated October 2, 1913 respecting the Greater Winnipeg Water District. O. Reg. 285/99, s. 3 (8).

APPENDIX E

Permit to Take Water Program: Generic Conditions

APPENDIX E

GENERAL CONDITIONS APPLIED TO ALL OWRA s. 34 PTTW PERMITS

DEFINITIONS

- 1 a) "Director" means a Director, Section 34, Ontario Water Resources Act, R.S.O. 1990.
- 1 b) "Ministry" means Ontario Ministry of Environment.
- 1 c) "Permit" means this Permit to Take Water No.92-P-3078 including its schedules, if any, issued in accordance with Section 34 of the Ontario Water Resources Act, R.S.O. 1990.
- 1 d) "Permit Holder" means Horseshoe Valley Resort Ltd.

GENERAL CONDITIONS

- 2. This Permit shall be kept available for inspection by Ministry staff.
- 3. The Director may, from time to time, where a situation of interference or anticipated interference with water supplies exists, or in a situation requiring information on water takings for purposes of water resource inventory and planning, give written notice to the Permit Holder to undertake any of the following actions. The Permit Holder shall comply with any such notice:
 - (a) To establish and maintain a system for the measurement of the quantities of water taken;
 - (b) To operate such a system and to record measurements of the quantities of water taken on forms provided by the Director, with such frequency or for such time periods as the Director may specify;
 - (c) To return to the Director records made pursuant to clause 3(b) at such times or with such frequency as the Director may specify; and
 - (d) To keep records made pursuant to clause 3(b) available for inspection until such time as they are returned to the Director pursuant to clause 3(c).
- 4. The Permit Holder shall immediately notify the Director of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint.
- 5. For Surface-Water Takings, the taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.
- 6. For Ground-Water Takings, if the taking of water is forecast to cause any negative impact, or is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent the forecast negative impact or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of so doing.
- 7. The Permit Holder shall report to the Director any changes of address or telephone number, or change of ownership of the property for which this Permit is issued and shall report to the Director any changes in the general conditions of water taking from those described in the permit application within thirty days of any such change. The Permit Holder shall not assign his rights under this Permit to another person without the written consent of the Director.

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8. This Permit does not release the Permit Holder from any legal liability or obligation and remains in force subject to all limitations, requirements, and liabilities imposed by law. This Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

9. The Permit Holder must forthwith, upon presentation of credentials, permit Ministry personnel, or a Ministry authorized representative(s) to carry out any and all inspections authorized by Section 15, 16 or 17 of the Ontario Water Resources Act, R.S.O. 1990, Section 156, 157 or 158 of the Environmental Protection Act, R.S.O. 1990 or Section 19 or 20 of the Pesticides Act, R.S.O. 1990.

10. The construction of any obstruction to the natural flow of the watercourse is prohibited without authorization by the District Offices of the Ministry of Environment and the Ministry of Natural Resources as well as authorization by the local Conservation Authority.

11. The Director may, during times of drought or water shortage in the locality of the taking, give notice to the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the notice to the Environmental Review Tribunal under the Ontario Water Resources Act, Section 100(3).

12. The permit does not abrogate the Permit Holder's responsibility to comply with all applicable legislation, including O. Reg. 285/99, which provides, among other things, that no person shall use water by transferring it out of a water basin (as defined in the Regulation) in a container having a volume greater than 20 litres. The Regulation divides Ontario into three water basins, being the Great Lakes-St. Lawrence, the Nelson and Hudson Bay Basins.

April 10, 2002

APPENDIX F

Permit to Take Water Program: Special Terms and Conditions

APPENDIX F

SPECIAL TERMS AND CONDITIONS THAT MAY BE INCLUDED IN OWRA s. 34 PTTW PERMITS

INTERFERENCE

- a) **<for riparian takings>** The taking of water shall be carried out in such a manner that streamflow is not stopped or is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream or watercourse.
- b) **<for on-stream ponds>** The taking of water into storage and subsequent or simultaneous withdrawals from storage shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.
- c) **<for non-riparian takings>** This permit does not confer upon the permittee any riparian rights that the permittee would not have under the existing Common Law.

Note to Reviewer:

A person who takes water from, a stream which borders or passes through his property has certain rights to the use of the stream called riparian rights under Common Law. In contrast, a person who takes water from a stream which does not border or pass through his land has no such riparian rights. For example, he may have verbal or written agreement with a riparian neighbour to pump water across the neighbour's property. A permit issued to authorize such a taking should not contain the non-riparian special condition described above.

- d) **<for most takings>** If the taking of water under this permit interferes with the use of water by other persons, the terms and conditions of the permit may be altered.
- e) **<for GW takings>** If the taking of water under this permit is forecast to interfere seriously or is observed to interfere seriously with other water supplies obtained from any adequate sources that were in use prior to the date of this permit, the permittee shall take such action as will make available to those affected a supply of water equivalent to their normal takings under terms and conditions that the Director, OW-RA §34, deems fair or shall reduce the rate and amount of taking so as to prevent the forecast interference or alleviate the observed interference. Pending permanent restoration of affected water supplies, the permittee shall provide to those affected sufficient potable, temporary water supplies to meet their normal requirements.
- f) **<for GW renewals>** If the taking of water under this renewal permit is forecast to interfere seriously or is observed to interfere seriously with other water supplies obtained from any adequate sources that were in use prior to the date of the original permit, the permittee shall take such action as will make available to those affected a supply of water equivalent to their normal takings under terms and conditions that the Director, OWPA §34, deems fair or shall reduce the rate and amount of taking so as to prevent the forecast interference or alleviate the observed interference. Pending

permanent restoration of affected water supplies, the permittee shall provide to those affected sufficient potable, temporary water supplies to meet their normal requirements.

- g) **<for recreational storage>** The taking of water into storage shall be carried out in such a manner that streamflow is not stopped or is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream or watercourse.

1. OTHER RIPARIAN CONDITIONS

1a) The permittee may pump water from this watercourse at rates up to the following schedule:

Effective Dates	Flow (m3/s)	Flow (MIGD)
Date 1 – Date 2	Rate 1	Rate 1a
Date 2 – Date 3	Rate 2	Rate 2a
Date 3 – Date 1	Rate 3	Rate 3a

Provided that the following water quality/quantity conditions are maintained:

- i. dissolved oxygen levels in the watercourse at Location _ are greater than 6 mg/l for X% of the time over any 24 hour period and greater than 5 mg/l at the lowest point during the same 24-hour period and
- ii. cfs streamflow is maintained past the _____ outfall and provided.....

1.b) The permissible water taking from the waterbody for this permit is identified by month in Schedule A. Please note that permissible water taking rates change monthly and reflect low flow conditions during ...

MONTH	ML ³ /DAY	MIGD
January	rate 1	rate 1a
February	rate 2	rate 2a
March	rate 3	rate 3a
April	rate 4	rate 4a
May	rate 5	rate 5a
June	rate 6	rate 6a
July	rate 7	rate 7a
August	rate 8	rate 8a
September	rate 9	rate 9a
October	rate 10	rate 10a
November	rate 11	rate 11a
December	rate 12	rate 12a

1. c) If the taking of water under this permit interferes with the natural function of the stream or use of water by other persons, the permittee shall reduce the rate and amount of taking so as to alleviate the interference according to the following schedule. Rate # 1 shall apply provided the taking is less than x% of the streamflow at the point of taking. The taking shall be reduced sequentially through rates #2 to #5 until such a condition exists.

Withdrawal Rates		
Rate Number	Amount (LPM)	Amount (IGPM)
1.	Q ₁	Q ₂
2.	$\frac{3}{4}$ Q ₁	$\frac{3}{4}$ Q ₂
3.	$\frac{1}{2}$ Q ₁	$\frac{1}{2}$ Q ₂
4.	$\frac{1}{4}$ Q ₁	$\frac{1}{4}$ Q ₂
5.	0	0

2. OTHER ON-STREAM POND CONDITIONS

- a) The pond is to be used and operated in such a manner as to avoid water quality degradation and downstream impact in the receiving waters.
- b) The taking of water into storage for this location shall be strictly through the confinement of waters by the control structure in place on this property and shall not be supplemented by water redirected or imported from a location not specified in the Terms and Conditions Particulars of this permit

3. OTHER GENERIC SPECIAL CONDITIONS

- a) If the taking of water under this permit interferes with the taking of water by other persons, the terms and conditions of the permit with regard to the amount, rate and period of taking may be altered.
- b) If permanent interference is caused by the dewatering the permittee shall restore the affected water supplies of those well users permanently affected by the dewatering.

4. RECREATIONAL TAKINGS

- a) At such time that flows are present in the watercourse upstream of the pond, the taking of water into storage shall be carried out in such a manner that water quality in the stream below the point of taking is not adversely affected through a change in temperature and/or nutrient level and that streamflow is not stopped or is not reduced below a rate necessary to satisfy both downstream uses of water and the natural functions of the stream or watercourse.

5. SUBMISSIONS and MONITORING

- a) The permittee shall submit to the Director, an annual monitoring report which presents and interprets the monitoring data. The report shall be submitted to the Director by March 31 of each year and include the monitoring data for the 12 month period ending December 31 of the previous year.
- b) The permittee shall submit to the Director, for his approval, a detailed plan to measure local surface water flow in the area at locations specified in Special Condition #x and upon approval the permittee shall implement the plan.

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- c) The permittee shall submit to the local MNR office, for the approval of the Ministry of Natural Resources, a detailed plan for a Quantitative Fisheries Survey in the area of the permitted taking.
- d) The permittee shall submit to the Director within ___ days of the issuance of this permit, a detailed study plan designed to measure and quantify the short-term and long-term impacts of the ground water taking on area surface waters (including wetlands). The plan shall include, at a minimum: the installation and monitoring of streambed piezometers, short-term testing, long-term monitoring and a schedule for reporting the results of the study.
- e) The permittee will submit to the Director within 12 months of the issuance of the permit, a report which details the results of the approved study referenced in Condition #x.
- f) The permittee shall submit to the Director a report prepared by a qualified hydrogeological consultant which includes interpretation and recommendations, documenting all well interference complaints and water supply activities.

For large municipal, industrial and commercial takings where metering is required:

- g)
 - i. The rates and amounts of water taken from each source shall be monitored by a flow-measuring device.
 - ii. Flow records shall be made on a daily basis. The flow device(s) shall be installed and operating prior to the taking of water.
 - iii. The flow records shall be kept available at all times for inspection by Ministry staff and submitted to the MOEE Regional Office by March 31 of each year for the previous calendar year.
- h) The permittee shall ensure that static levels in all wells within X metres of this taking are measured on a quarterly basis. Measurement shall begin prior to the commencement of water taking and shall continue for a period of two years. Results shall then be submitted to the Director.
- i) The permittee shall identify all wells within X metres of this taking and shall ensure that static levels in all wells within Y metres of this taking are measured on a quarterly basis. Measurement shall begin prior to the commencement of this taking and shall continue for a period of two years. A list of the wells to be monitored shall be submitted to the Director prior to the commencement of taking. Monitoring results shall be submitted to the Director upon completion of the monitoring program or upon request.
- j) The permittee shall measure and record water levels in monitoring wells ___ through ___ inclusive at intervals of _____ and maintain a record of water volumes pumped. The permittee shall submit a report documenting the above to the Director no later than March 31 for the previous 12 month period ending December 31 of the previous year.
- k) The permittee shall complete a well survey before taking under this permit commences. The well survey shall include, but not be limited to, identifying accessible wells for obtaining static water levels along _____ Road and _____ Road at _____ intervals for a period of one year. The permittee shall submit a listing of accessible wells to the Director within _____ weeks of the issuance of this permit. Bi-weekly water level measurement at well _____ shall begin prior to the commencement of water taking. Annual records of well measurements and water takings, identifying times and amounts, shall be submitted to the Director.

For irrigation takings of ground water and surface water:

- l) The pumping rate, total number of hours of pumping and the total volume of water taken shall be recorded on a daily basis during irrigation. This data to be submitted to the Director by the end of the irrigation season for each year the permit is valid.

- m) The permittee shall monitor the network of stream bed piezometers installed along _____Creek (as indicated in Figure __) throughout the pumping period.
- n) The pumping rate, pumping duration, volumes of water taken shall be recorded on a daily basis.
- o) The permittee shall monitor ground water levels in all available monitoring wells and in a representative number of accessible nearby domestic wells within the anticipated cone of influence during the pumping test.

For mine dewatering

- p) Water samples are to be taken from the discharge water on a weekly basis. the samples are to be analyzed for the following parameters: conductivity, pH, iron, arsenic, copper, nickel, zinc, lead, cadmium, sulphates, chlorides, hardness, ammonia, nitrates, suspended solids
- q) The results of the analysis are to be reported to the Manager, MOE District Office within weeks of sampling.

For ground water takings for all types of uses:

- r) The water level in the production well shall be recorded on a (daily, weekly, biweekly, monthly) basis.

For pit and quarry dewatering

- s) Prior to taking water the permit holder shall carry out either i or ii:
 - i. Attempt to measure and record the static water level of all private wells within (500) meters from the dewatering site.
 - ii. Install observation wells between the dewatering site and any residential area within X meters. These wells shall be constructed so that they are suitable for the measurement of any drawdown resulting from this water taking. The water levels in the observation wells shall be measured and recorded on a (weekly, biweekly, monthly) basis.

For short-term takings; construction dewatering, road dust control

Ground water

- t) Background water levels in the local wells that could be potentially interfered with by the dewatering must be established prior to this taking.

Short-Term Takings

- u) Local residents must be made aware of the potential of well interference as the result of this taking.
- v) Temporary water supplies must be provided to those well users whose wells are affected by the taking.
- w) The constant rate pumping test shall be limited to a maximum duration of X hours and at the stated maximum rate of X litres per minute (__ IGPM) as indicated on the permit.

6. OTHER LAWS

Compliance with the Ontario Water Resources Act §52 and §53:

- a) Prior to the taking of water the Permit Holder shall ensure that the works complies with Section 52 of the Ontario Water Resources Act, R.S.O., 1990.
- b) Prior to the taking of water, the Permit holder shall ensure that the discharge complies with Section 53 of the Ontario Water Resources Act, R.S.O. 1990.

Compliance with other legislation:

- c) The construction of any obstruction to the natural flow of the watercourse is prohibited without the authorization of the District Offices of the Ministry of Environment and the Ministry of Natural Resources as well as authorization of the local Conservation Authority.
- d) Prior to the taking of water under this permit, the Permittee shall ensure that any and all applicable permits or authorizations are obtained from Federal and Provincial Agencies having legislative mandates in water resources management.
- e) This permit does not exempt the permittee from the requirements of other legislation, such as the Lakes and Rivers Improvement Act and the Fisheries Act. The permittee is advised to consult with the local offices of the Department of Fisheries and Oceans, the Ministry of Natural Resources, the Ministry of Agriculture, Food and Rural Affairs and the Niagara Escarpment Commission as well as the local Conservation Authority to determine their requirements.

7. DISCHARGES

- a) The force of water discharged should not produce scouring of any stream channel or ditch. An energy dissipation device (splash pad or other flow dissipation device) installed at the discharge will help prevent erosion.
- b) The water discharged should not contain any suspended solids or oil and grease. If such contamination occurs, the permittee shall take all reasonable measures to remove or otherwise treat these contaminants prior to discharge to the receiver.
- c) Prior to discharge to a watercourse, all water shall be satisfactorily treated so as to minimize impacts on downstream water quality and uses.
- d) The discharge area shall be protected against scouring and erosion by appropriate means.
- e) Prior to return to a watercourse, all water shall be satisfactorily treated so as to minimize impacts on downstream quality and uses.

For discharges of cooling waters or from hydrostatic testing:

- f) Discharge must meet or exceed MOEE water quality guidelines and must not elevate temperature of the receiving water body by more than 10°C above ambient temperatures.

For mine dewatering

- g) If the results of the analyses exceed the Mineral Mining Effluent Guidelines on three consecutive samples an Ontario Water Resources Act approved treatment facility will be required before further water can be taken under the authority of this permit.
- h) If there are no exceedances of the Mineral Mining Effluent Guidelines after X weeks of sampling, the sampling frequency schedule may be altered.

- i) Condition i does not apply to Ammonia. If the concentration of ammonia exceeds 10 mg/L on three consecutive samples the permit holder shall provide a report explaining the reasons for the elevated concentrations and the proposed remediation action.

For spills

- j) If a pump is placed on the ground it shall be protected against spills by constructing an impervious dyke capable of containing all fuels and lubricants used in the pump operation or maintenance.

For heat pumps

- k) The discharge from this taking shall be directed to a recharge well. The screen on the recharge well shall be installed in such a manner that all recharge water is returned to the same water-bearing layer from which it is taken.
- l) The addition of any chemicals to the water taken under this permit is prohibited.

8. CHLORINATION

For zebra mussel control

- a) The chlorine delivery system must always be shut down before the water pumps are turned off so as to prevent a chlorine discharge from the intake to the receiving water.
- b) The proponent must ensure that at all times, the equipment and appurtenances related to zebra mussel control are properly operated and maintained.
- c) Chlorination shall only be carried out when raw water temperatures exceed 12°C or when zebra mussel veliger larvae are present.
- d) The proponent shall operate the chlorination system so that the maximum total chlorine residual in the discharge from the pumping station is limited to between 0.5 mg/L and 1.0 mg/L.

APPENDIX G

Research Questionnaire for Review of Practices in Other Jurisdictions

APPENDIX G

JURISDICTIONAL RESEARCH QUESTIONNAIRE

INVESTIGATION OF WATER ALLOCATION AND WATER USE MANAGEMENT ISSUES, SYSTEMS AND PRACTICES IN OTHER JURISDICTIONS

1. Legal Framework

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

Is ownership of water vested in right of the province/state?

What other relevant legislation/ regulation(s) exist and for what purpose?

2. Scope of Allocation Program

Is surface water and/or ground water included in permitting/licensing?

What uses are included/excluded?

Is there a de minimus volume/rate exemption?

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

Do you have a basic working definition/description of your allocation process? Describe.

- Any administrative procedure that causes rights to water to be assigned to individual users is an allocative process whether or not it “manages” water or accounts for availability and conflict. We want to know what that administrative procedure is.

3. Legislated and Other Assignment of Priority Among Uses

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- Distinguish between the prior appropriation regime which establishes outright ownership of the resource and permitting mechanisms which prioritise users based on a first-come first-served principle.

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- Note any relevant definitions of priority uses. I.e. what is the difference between irrigation and agricultural water use?
- When is the priority ranking applied—only during emergencies or when permit approval decisions are made?

4. Program Administration and the Decision-making Process

Who is/are the responsible government department(s) and/or agency (ies)

Is permitting/licensing handled centrally, regionally or locally?

How are availability of supply and allocation limits determined?

Example:

-Use of watershed/aquifer water budget models and analysis;

-Consideration of existing uses, future demand, and other factors such as climate change/variability and instream/inlake uses/users

- Are they proactively assessing water availability? If so, how?
- Ask specifically about the use of water budgets and water balance equations, including whether or not they use computer models and/or manual computations, the name and description of models and/or equations used, the scale of application (watershed vs. source by source)
- If they don't use water budgets, ask if/how they use streamflow, groundwater well (other?) data

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

5. Permit or Licence Duration/Review/ Revision/Renewal/Revocation

What mandatory provisions and powers exist?

- Ask about the transfer and/or trading of permits and/or of portions of allocations in permits. I.e. does the jurisdiction have a mechanism for the formal or informal transfer/trade of water allocations from one individual to another? Is there a formal trading program that allows for the buying and selling of permits, where the permit is treated as an asset? Are there any provisions for the temporary transfer of water? Are applications for reserve allocations that are speculative in nature, allowed?
- Background: trading of allocations can create an economic incentive to use water more efficiently by allowing those who hold permits, but are not using or benefiting from their water allocation, to sell their entitlement to persons who need water. In times of water scarcity, this means that water moves to its highest value use.

What are the applicant's rights of appeal?

6. Application Fees and Water Use Charges

Are there application fees? Describe.

Are there ongoing charges? Describe.

- Ongoing charges can have several forms—volumetric based on permit amount, volumetric based on actual use, fixed, two-part (fixed charge + volumetric charge), seasonal or peak volumetric charges,
- Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes? Describe.

7. Regulation of Water Diversion and Bulk Export

What is permitted / not permitted?

How is it regulated?

- Who regulates and how is it enforced?

8. Monitoring and Reporting

What uses/users are covered/ not covered?

- What (if any) users are required to monitor water use/diversion/in take.

What is the form and frequency of monitoring?

- What is typically monitored and how often? I.e. rate of pumping, volume of water withdrawal daily/weekly/annually etc.

What is the form and frequency of reporting and to whom?

Is auditing carried out? Describe.

- Under what circumstances is auditing carried out? I.e. when investigating a complaint vs. a spot inspection

How are data managed and by whom? Obtain an example copy of database report for a typical permit/licence (i.e. information field contained within database).

- What data pertaining to water allocation, is being collected and by whom? I.e. record of actual takings, record of non-compliances, any other monitoring data. Is this data stored electronically?

Are monitoring data readily accessible to other agencies and the public?

9. Enforcement and Conflict Resolution Processes

Who enforces?

How are conflicts between users and/or violations of permits/licences/approvals identified? (I.e. on a primarily reactive or proactive basis)

- Are water budgets used to proactively identify future water conflicts?

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- In times of water shortage, is there a mechanism in place that allows the regulating authority to enforce the reduced takings of all/any users? I.e. ON licence conditions specify threshold streamflow rates. If the streamflow at the source reaches this threshold rate, the user must cut his/her rate of water use.
- Are there any mechanisms in place that allow for the re-allocation of water in times of water shortage? If so, what uses/users receive priority? How is this decision made?
- How does the allocation process under stress, differ from the allocation process under normal water conditions?

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- Types of voluntary mechanisms include—informal negotiations between permit officers and users, mediation or adjudication of conflicts by a tribunal of volunteers, resolution of water allocation conflicts by a local water users group that is responsible for management of the water allocation for an area (this approach used in rural China)
- Are there any local level, voluntary conflict resolution plans in place? i.e. ON has the MNR Low Water Response Plan. MNR and MOE responsible for monitoring low water conditions and for informing CA and MNR district offices of potential low water conditions. Upon notification, CAs and MNR verify this data with their own monitoring networks and confirm a Level 1 (warning) condition (there are 3 condition levels). A local Water Response team is then established to address the situation.

10. Water Conservation and demand management policies, regulations and outreach programs

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

11. Summary of Current Allocation Issues/Concerns based on government and/or external reviews? Specify.

12. Is Your Allocation Program under Review? What Changes are being contemplated/underway?

APPENDIX H

**Jurisdictional Review and Comparison
of Water Use Allocation
and Management Practices**

FINAL DRAFT

APPENDIX H

ALBERTA (FINAL DRAFT)

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- New licensing system has been in place since 1999
- previous licensing system was in effect 1931-1999 and between 1894-1931 when it was federal legislation under the Northwest Irrigation Act.
- Approvals are issued for any construction activity that takes place in or near a water body.
- Licences are issued for the diversion of water from a water body or from groundwater

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- The Water Act (this is a new Act, authorized in 1996 and in force as of Jan. 1999, to replace the old 1931 Water Resources Act)
- Water (Ministerial) Regulation AR 205/98
- Water (Offences and Penalties) AR 193/98
- Water (South Saskatchewan Basin Water Allocation Regulation AR 307/91

Is ownership of water vested in right of the province/state?

- yes

What other relevant legislation/ regulation(s) exist and for what purpose?

- Irrigations District Act: provides for the formation, dissolution and governance of irrigation districts. These districts are recognized as independent corporations responsible for managing the water within them. Districts are licensed with a block of water and they decide how that water is distributed within the district.
- Apportionment agreements, allowing a certain amount of flow across the Albertan border to Saskatchewan, Manitoba and Montana, must be heeded (*There is an apportionment agreement in place between Alberta, Saskatchewan and Manitoba entitled "Prairie Provinces Master Agreement on Apportionment"*) and a Treaty between Alberta and the United States entitled "*Treaty between the United States and Great Britain Relating to Boundary Water, and Questions arising between the United States and Great Britain*)(Personal communication by email, Ian Rudland 2002)
- Environmental Protection and Enhancement Act: promotes the protection, enhancement and wise use of the environment

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both are included in licensing

What uses are included/excluded?

- Farmers diverting less than 6250 cubic metres of water for the purposes of raising animals or applying pesticides to crops, statutory household use, fire-fighting, wells equipped with hand pumps, operating an alternate watering system and using surface water for livestock that are generally grazed, are exempted from obtaining a license

Is there a de minimus volume/rate exemption?

- No, anyone not exempted by the *Water Act* Regulations requires a licence regardless of quantity (personal communication by email, Ian Rudland 2002).

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- yes
- the new Act recognizes existing water licence holders and protects traditional agricultural uses of water through a voluntary registration process that “grandfathers” the rights according to the date when the water was first used

Do you have a basic working definition/description of your allocation process?

Section (2) Water Act

The Water Act declares as its purpose, “*the conservation and management of water, including the wise allocation and use of water, while recognizing (a) the need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future; (b) the need for Alberta's economic growth and prosperity; (c) the need for an integrated approach and comprehensive, flexible administration and management systems based on sound planning, regulatory actions and market forces; (d) the shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making; (e) the importance of working co-operatively with the governments of other jurisdictions with respect to trans-boundary water management; (f) the important role of comprehensive and responsive action in administering this Act*”.

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

- yes

Do certain types of uses have priority over others?

- household users have priority over ALL other users
- (27) A person who diverts water for household purposes has priority over a person who is entitled to divert water (i) pursuant to an approval, licence or registration, or (ii) that is authorized under this Act other than pursuant to section 21.
- Household purposes are defined as: human consumption, sanitation, fire prevention and watering of animals, gardens, lawns and trees.
- This right applies to a maximum of only 1250 m³ of water per year per household
- The Act also provides a process for registration of traditional agriculture uses based on the date when the water use first started. This allows farmers to have priority among themselves according to the priority number assigned to their registration. Registration holders could have priority over some licence holders. (Traditional agricultural user is a person who owns or occupies farm land on January 1, 1999, user is entitled to use up to 6250 cubic metres, anything over this and the user must apply for a water licence under the Act. However, the Act specifies that traditional agricultural users must apply for registration within 3 years of the authorization of the Act) (Canadian Cattlemen Magazine, 1999)
- It is not mandatory that an agricultural user using up to 6250 cubic metres register his water use, however, there are no priority rights associated with this exemption and future owners of that land will be prevented from getting a registration (Canadian Cattlemen Magazine, 1999)

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)?

- Alberta Environment administers the Water Act

Is permitting/licensing handled centrally or locally?

- regionally

How are availability of supply and allocation limits determined?

- availability of water supply is estimated using a variety of data networks including a hydrometric network measuring streamflow, lake levels and sediment data; a meteorological network collecting climate data such as precipitation etc.; a groundwater observation well network monitoring water levels and water quality
- in the case of groundwater, availability of water is estimated based on what the driller finds after various pump tests. A licence will be issued for ground water if the new well proves up and there is no interference to existing users. Usually a water well driller is knowledgeable about ground water availability in a certain area (personal communication by email, Ian Rudland 2002).
- in deciding how much water can be allocated, AB Environment determines the amount necessary for the aquatic environment, for apportionment agreements with Montana and Saskatchewan, and for existing licence holders. This amount is then subtracted from the total available water in the system. The remainder is available for further allocation. The amount of water available for allocation each year differs depending on weather conditions. Once all of the available water is allocated, a moratorium is then placed on the water resource and no further water is allocated. (Alberta Environment, 2002a)
- Where a basin is heavily licensed, a computer model is used to determine the amount of surface water available for further licensing. The 2 methods used by AB ENV are the Tennant Tessman method and the Fish Rule Curve which both allow for some protection of the aquatic environment. Where a drainage basin is not heavily allocated, computer modeling is not used. Further restrictions are typically attached to the licence, allowing the licensee to ONLY take water from the source when the flow is above a specific threshold rate of flow (personal communication, Ian Rudland email May 12 2002).
- total available water is typically calculated on a drainage basin basis
- unfortunately, some basins in southern Alberta have been over allocated and AB ENV is currently trying to claw back water for instream use. The dept. does this by cancelling licences that are no longer in use and by reserving up to 10% of an allocation when a licence is up for transfer (personal communication, Ian Rudland email May 12, 2002).
- in southern Alberta, where it is particularly dry and basin water supplies are almost fully allocated, the South Saskatchewan River Basin Agreement regulates the use of water for irrigation. The maximum volume of water that an irrigation district may divert and use under license is determined by the Controller of Water Resources through this Agreement. This volume is determined in accordance with the following criteria: a) water required at the farms; b) canal losses within the district; c) evaporation for district reservoirs; d) water flows returning to rivers. Section 7 of the Agreement also states that, "*any licence issued in accordance with this Regulation may contain conditions limiting the amount of water that may be diverted and used when necessary to maintain minimum instream flows.*" Minimum flow rates are then listed for the Waterton River, Belly River and St. Mary River.
- AB ENV uses "Agricultural Feasibility Reports" to assess how much water should be allocated and the environmental impacts of most irrigation projects. The development of the report is the responsibility of the applicant and a qualified professional engineer or agrologist.
- applications are reviewed for hydraulic, hydrologic and hydro-geological effects, effects on the aquatic environment and on public safety, effects on other licensees (new water allocations must not impact existing licenses), household and other water users and soils where irrigation, is involved (AB Env., 2002c)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- the availability of supply and of potential impacts is made by both the applicant and the licensing agency

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- after Alberta Environment receives an application, they may refer the application to other agencies that have interests in the project
- notification may also be required in the form of a public notice in appropriate newspaper(s) or postings at specified location(s) (AB ENV, 2002c)
- concerns received from the public or other agencies must be resolved before a licence is authorized
- a statement of concern must be submitted within 30 days of the last showing of the notice

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- *licence duration*: all licenses are issued with an expiry date, its length dependant upon the type of project and the terms and conditions specified in the regulations
- *licence renewal*: when a licence expires, licence holder is required to apply for a renewal
- *licence transfer*: the new Act provides the ability to transfer an allocation of water under a licence to a new or alternate user in an area where the allocation of water has reached its limit. The transfer of an allocation of water is a completely voluntary event with a willing buyer and a willing seller. The following control methods are used: transfer must first be authorized in a water management plan or through an order of Cabinet, it must be reviewed by the Government, Government may withhold a percentage of the water being transferred for the aquatic environment (AB ENV, 2002e)
- *licence cancellation*: an authorization may be cancelled if there is a serious situation of non-compliance, the non-compliance has caused or has the potential to cause a significant adverse effect to the environment or to public safety or the licensee abandons the project (AB ENV, 2000)

What are the applicant's rights of appeal?

- *an applicant may submit an appeal to the Environmental Appeal Board*

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- There are no application or processing fees (personal communication by email, Ian Rudland, 2002)

Are there volume charges? Describe.

- there is a one time licence fee charged to users that divert in excess of 62,000 m3 of water annually
- \$90 for 62,500-75,000 m3 of water and \$1500 for over 12,500,000 m3 of water (see below)
- a licence fee is assessed and obtained prior to the issuance of the licence
- Fee Schedule is as follows:

Annual Diversion (m3)	\$ Fee
0 to 62 500	0
62 501 to 75 000	90
75 001 to 87 500	105
87 501 to 100 000	120
100 001 to 112 500	135
112 501 to 125 000	150

Source: Alberta Environment, 2002c

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

- *No, all licence fees collected go to the government's general revenue account (personal communication, Ian Rudland, 2002)*

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- the exporting of water outside of Canada is prohibited
- if in the future there is a proposal to amend this, the Act will ensure that a public review of the proposal takes place (Alberta Environment, 2002b)
- new inter-basin transfers of water are also prohibited

How is it regulated?

- Through the *Water Act* and regulations

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- most licensees are required to monitor and collect water use information as specified in the terms and conditions of their licence
- whether or not a specific undertaking is assigned a monitoring/reporting condition in the licence, is dependant upon the type of undertaking and user. The concern lies predominantly with the irrigation districts, large municipalities and industrial users (pers. Comm. By phone, Ian Rudland 2002)

What is the form and frequency of monitoring?

- Licensees are typically asked to monitor the number of hours he/she is using water and dates when withdrawal is taking place
- metering is not usually required for small undertakings/uses
- larger users typically have metering in place to calculate how much water they are removing from the water source
- There is no standard form to report water usage, it could be by letter, fax or even by telephone. Frequency of monitoring would be determined in the terms and conditions of the licence. (personal communication by email, Ian Rudland, 2002)

What is the form and frequency of reporting and to whom?

- an "Agricultural Feasibility Report," may be required with initial application for an irrigation project involving agricultural crop production. "*These reports are used to determine water requirements for irrigation projects and to determine if the water (surface or ground) and the soils are suitable for irrigation purposes.*" (Alberta Environment, 2002g). Please refer to the terms of reference, Guideline for Preparing Agricultural Feasibility Reports For Irrigation Projects, for further detail.
- A report outlining water availability and indicating potential adverse effects on the source of water supply, neighbouring lands, works and water supply and the aquatic environment may be required with the licence application (AB Env., 2002c). Typically, this type of report is asked for during ground water testing and from applicants initiating large surface water projects, such as oil sand or industrial projects. The water well drillers do this type of analysis automatically, without instruction from AB ENV. For larger projects, AB ENV will typically hold a meeting with the applicant before they submit

their application, to discuss exactly what type of information the Ministry requires and how this information can be obtained (personal comm by email, Ian Rudland May 12 2002).

- licensees are required to submit a water use report to the department of Alberta Environment if requested to do so
- licenses may include conditions requiring the user to submit water monitoring data, quantities of water diverted, investigation of users impacted by the diversion, monitoring of nearby sources (AB Env., 2002c)
- municipalities and industry are typically required to submit water use record annually

Is auditing carried out? Describe.

- not currently

How are data managed and by whom?

- data are managed by Alberta Environment
- an Environmental Management System manages information on the licences issued, flow rates, predicted flow rates, and how much water each licensee is actually using (Chatten interview, 2001)
- the terms/conditions of a licence and all monitoring data are contained within separate databases

Are monitoring data readily accessible to other agencies and the public?

- monitoring data is not currently accessible to the public, although Alberta Environment does offer an on-line Approval/Authorization/Notice of Decision Viewer. This allows people to view documentation for Approvals, Licences, Registrations issued under the *Water Act* and *Environmental Protection and Enhancement Act*. Although monitoring data for a specific licence is not available on this site, license conditions for monitoring may be. (see example)

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Alberta Environment enforces the Water Act and its regulations

How are conflicts and/or violations identified?

- compliance is typically assessed on a reactive basis, not by conducting proactive inspections, establishing targets or goals for compliance assessments to be performed annually (AB ENV, 2001)
- reactive reports of non-compliance include public complaints/reporting, compulsory reporting, observations by AENV staff and formal requests for investigation made in accordance with legislation (AB ENV, 2000)
- however, a proactive compliance assessment plan for evaluating compliance with the Water Act is evolving
- a total of 124 field inspections of activities carried out under the Water Act and 117 compulsory report reviews are targeted for compliance evaluation for the 2001-2002 fiscal year (AB ENV, 2001)

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- the Water Act does allow for a Legislative Order in times of emergency
- 105 (1) *If an inspector or investigator or the Director is of the opinion that an activity, diversion of water or operation of a works (a) occurred, occurs or may occur, and (b) caused, causes or may cause an immediate and significant adverse effect on the aquatic environment, human health, property or public safety, the inspector, investigator or Director may take any emergency measures that the inspector, investigator or Director considers necessary to prevent immediate and significant damage to the aquatic environment, human health, property or public safety. (2) Subsection (1)*

applies whether or not the activity, diversion of water or operation is authorized by an approval, licence or registration and whether or not the approval holder, licensee or traditional agriculture user is or was in compliance with the approval, licence, registration or this Act.

- 107(1) *The Lieutenant Governor in Council may, when satisfied that an emergency related to water exists or may exist, declare an emergency relating to all or any part of Alberta. (2) Notwithstanding anything in this Act or any approval, preliminary certificate, licence or registration under this Act, if an emergency has been declared under subsection (1), the Director may issue a water management order to any person (a) suspending the operation of all or part of any approval, preliminary certificate, licence or registration, (b) suspending a diversion of water, (c) designating the purposes for which, and the volumes in which, water may be diverted or used, and (d) ordering or containing any of the measures or provisions referred to in section 99, with respect to the area of the Province affected by the declaration.*
- Once an emergency has been declared, the cabinet then dictates who will be allocated water based upon intergovernmental drought action contingency plans. These plans are mainly focused on the agricultural sector. (Chatten interview with ?, 2001)
- However, since the new Act has been in place, the Minister's emergency powers and the drought contingency plans have not been used (personal communication by phone, Ian Rudland 2002)
- AB ENV typically initiates sharing of water between users, based on priority

The following penalties can be applied (AB ENV, 2000):

- 1. Remedial Order: i.e. enforcement orders, eviction orders, stop orders
- 2. Written Warning
- 3. Administrative Penalty: a monetary penalty assessed by the dept.
- 4. Cancellation/Suspension/Restriction of Authorization
- 5. Prosecution
 - a) specified penalty violation tickets – violator may plead guilty and pay a penalty without a court appearance
 - b) mandatory court appearances

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- in drought situations, Albertans have often worked together to share water
- Senior licence holders will often assign some of their water allocations to junior licence holders (Alberta Environment, 2002a)

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

Important water conservation and sustainability components in the Act include:

- section 15(1) of the Act states that the Director may establish a Water Conservation Objective pertaining to the amount and quality of water the Director deems necessary for the protection of the natural environment, management of fish and wildlife, protection of other instream uses
- section 9. the development of a provincial water management planning framework to ensure the sustainability of Alberta's water supply. This framework will allow for the development of water management plans addressing local and regional issues.
- Section 8. The development of a provincial strategy for protecting and conserving Alberta's aquatic environments will also be a crucial part of this framework (AB ENV, 2002b)
- The Framework for Water Management Planning and The Strategy for the Protection of the Aquatic Environment came into effect on January 1, 2002
- other initiatives include the promotion of water conservation techniques within the various sectors i.e. AB ENV encouraging irrigators to invest in irrigation equipment that conserves water, through educational campaigns and the development and distribution of educational materials

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- extreme variability in water supply (loss of economic opportunities in some parts of the province due to lack of water supply), water demand exceeding water supply in the dry areas, uncertain groundwater yield in many places (and a lack of knowledge and understanding of these resources), and increasing water quality concerns (Alberta Environment, 2002).
- Certain basins are nearing the limits of water allocation – particularly during dry periods (AB Env., 2002d)
- Rapid industrial, agricultural and municipal growth putting increasing pressure on water supplies
- Recent consecutive years of drought conditions
- Concern about whether flows can be maintained so as not to harm the aquatic environment
- Concern about meeting all water sharing agreements

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- the province's review of its water management policy and legislation began in 1991, the new Act came into force Jan. 1 1999
- Water for Life: Alberta's Strategy for Sustainability is currently underway, the strategy will identify short, medium and long-term plans to effectively manage the quantity and quality of the province's water systems and supply. The goal is to have an action-oriented water strategy that identifies specific activities and initiatives, in place by fall 2002 (ABENV, 2002f).
- The development of water management plans is underway in some watersheds, according to The Framework for Water Management Planning (i.e. South Saskatchewan River Basin Water Management Plan)

References:

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FINAL DRAFT

Alberta Environment. 2002g. Guideline for Preparing Agricultural Feasibility Reports for Irrigation Projects. May 2002. Environmental Assurance Regulatory Assurance Division.

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**BRITISH COLUMBIA
(FINAL DRAFT)**

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- A water licensing and approval system is used
- Water licenses are legal documents specifying the terms and conditions of water use
- Water approvals are permits issued to authorize short-term use of water for periods of less than one year
- Some water applications on sources with ample water and which will cause little impact to fish habitat can be processed under a "quick licensing" scheme. To be eligible for this process, an application must not be for an "excluded" stream and must either be:
 - For domestic purpose with a volume not exceeding 500 gallons a day, or
 - For irrigation or "minor agricultural" use with an allocation volume not exceeding 2,500 gallons/day or 1 acre-foot/year, and
- If the works will cross, flood or otherwise affect another person's land, the landowner(s) must provide prior written consent. (LWBC, 2002 <http://lwbc.bc.ca/water/general/apply.html>)
- Legislation on the allocation of water has been in effect since 1859 (Chatten interview, 2001)

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- 1996 Water Act
- Water Regulation 204/88: reduces the number of activities that require an official approval under the Water Act

Is ownership of water vested in right of the province/state?

- Yes

What other relevant legislation/ regulation(s) exist and for what purpose?

- 1995 The Water Protection Act: prohibits bulk diversion of water between major watersheds in BC
- 1997 Fish Protection Act: ensures that fish and fish habitat will be protected and sustained for future generations by providing comprehensive and practical tools to protect water flows and habitat needs for fish
- Drinking Water Protection Act (2001)

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- Only surface water. Groundwater is not included.

What uses are included/excluded?

- All surface water uses must be licensed or approved. However, it is not an offence to use unrecorded water for domestic needs, mineral prospecting or firefighting. Unrecorded water is water in a stream that is neither licensed nor reserved for other purposes (i.e. Instream purposes).

- However, part 7 of the Water Regulation, concerning changes in and about a stream, reduces the need to obtain formal licences and approvals for many routine works, while ensuring the highest level of protection for water resources
- Formal approvals are only required in cases involving complex work and for the short-term diversion of water. The construction of a dam also requires a licence.
- Under the regulation, routine works may be carried out without a formal licence or approval, provided that the general conditions, the specific conditions for the type of project listed in the Regulation and notification requirements are met. A Notification form with an appropriate sketch plan must be filled out by the applicant and forwarded to the nearest regional office. (Reg. User Guide, 2001)
- The following works require notification:
 - Installation, maintenance or removal of stream culverts
 - Construction, maintenance or removal of docks, wharves or piers
 - Restoration or maintenance of stream channels
 - Construction, maintenance or removal of flow or water measuring devices
 - Cutting of annual vegetation
 - Removal of beaver dams
 - Construction, maintenance or removal of temporary diversions
 - Etc.

Is there a de minimus volume/rate exemption?

- No

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted? If so, what proportion of current water users may have been grandparented?

- No, all previous licensees are subject to the current legislation

Do you have a basic working definition/description of your allocation process?

- No formal definition, however, wise water use and, "first in time, first in right," are fundamental concepts behind Land and Water BCs water allocation process (pers comm by phone, Glen Davidson and Mike Collett 2002)

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the water allocation system.

- Yes

Do certain types of uses have priority over others?

- If 2 licences are issued on the same date for the same water source, priority is determined according to the ranking of the purposes of each licence
- From highest to lowest rank, these are: domestic, waterworks, mineral trading, irrigation, mining, industrial, power, hydraulic king, storage, conservation, conveying and land improvement purposes
- The rights exercisable under 2 licences taking precedence from the same date and authorizing the diversion of water from the same stream for the same purpose have equal precedence in law.

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- The Water Management Branch of Land and Water BC (a crown corporation) administers the Water Act and the Water Regulation. The Branch oversees water licensing and allocation in BC. It is responsible for some water inventory work, assessing water availability for allocation purposes, allocation decisions and regulation and enforcement of licences.
- However, several other Ministries are also responsible for water management in BC. The Ministry of Water, Land and Air Protection administers the Water Protection Act and focuses on water quality, while the Ministry of Sustainable Resource Management serves as the inventory branch of the BC government. It is the agency responsible for carrying out water surveys and monitoring the levels of both surface and groundwater in BC.

Is permitting/licensing handled centrally or locally?

- Regionally

How are availability of supply and allocation limits determined?

- When assessing the availability of supply for a particular purpose, stream flow measurements (obtained from the Ministry of SRM water monitoring network) are averaged over the previous 5 years to determine average flow. An on-site assessment of streamflow may also take place (streamflow typically measured at lowest flow in July/August). The amount of water allocated to existing licensees and to instream needs at the source is subtracted from the average flow to determine total availability. The licence may be granted if water is available at the requested level without interfering with the instream needs of the aquatic environment and the requirements of other users. (personal communication by phone, Glen Davidson and Mike Collett 2002)
- Land and Water BC, in cooperation with the DFO are currently working on a set of guidelines to help officials calculate the instream water needs of the aquatic environment (pers comm by phone, Glen Davidson and Mike Collett 2002).
- Computerized water budget models are not currently used, all assessments are made by manual computation
- water availability is typically assessed on a source by source basis, although in the more populated areas of the province i.e. Vancouver Island, availability is assessed on a watershed basis (pers. Comm by phone, Glen Davidson and Mike Collett 2002)
- in considering applications for a water licence, officials must ensure that an allocation is used for beneficial purposes, that it is developed in a timely manner and that the licensee continues to make regular beneficial use of the water.
- Future water demand is considered in the assessment of municipal or water district applications
- when considering notifications under the Water Regulation, a habitat officer from the Ministry of Land, Water and Air Protection, must determine whether or not the applicant has ensured that all water quality objectives have been met, that all existing water uses are protected; life, property and the environment are not endangered; changes are completed without delay to preserve the nature of the stream; etc.
- a habitat officer may also set conditions pertaining to the timing of the work, in-stream flow requirements, material removal, fish and wildlife protection or salvage etc. (Reg. User Guide, 2001)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- the determination of supply and potential impacts is made by either the applicant or Land and Water BC, depending on the type of project and water use
- For instance, applicants for waterpower projects are required to submit an assessment of water availability and potential impacts with their applications. Land and Water BC base their decision on this information. Please see attached Development Plan Template for Waterpower Projects, for further details. However, for smaller users, Land and Water BC will usually assess water availability and impacts on their own (pers. Comm by phone, Glen Davidson and Mike Collett 2002)

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

Section 3. 204/88 "At a time or times the comptroller or regional water manager considers appropriate during consideration of an application for a licence, notice of the application shall be given to

- (a) any licensee or applicant for a water licence whose rights will not be protected by the precedence of his licence or application,
 - (b) any riparian owner whose rights may be prejudiced by the granting of the application,
 - (c) any owner whose property may be physically affected by the applicant's works, and
 - (d) any other person, agency or minister of the Crown whose input the comptroller or regional water manager considers advisable.
- applicants may be required to post signed copies of the application at specified locations or to post notice of the application in an appropriate newspaper(s)
 - any objections to the granting of the licence must be made within 30 days of the posting of the notice
 - The comptroller or the regional water manager has overall authority to decide whether or not the objection warrants a hearing, and he or she must notify the objector of his or her decision.
 - If the comptroller or the regional water manager decides to hold a hearing, the applicant and objectors are entitled to be notified, to be heard and to be notified of his or her decision following the hearing

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- *Licence duration:* no expiry date
- *transfer of land:* on the sale or transfer of land associated with a water licence, the water rights automatically pass to the new owner of the land
- *transfer of appurtenancy:* all or part of the rights and obligations granted and imposed under a current licence, approval or permit, may be transferred to a new user by the comptroller or regional water manager
- *licence revision:* amendments to a licence may be granted to authorize additional or other works, transfer the water rights to another property, divide and reassign water rights to land within the original appurtenancy of the licence, change the purpose for which the water is used; or extend the time to make use of water or to complete construction of works. (LWBC, 2002 <http://lwbc.bc.ca/water/general/rights.html>) The comptroller or regional manager may amend a licence after notice has been given to all persons whose rights would be affected, after consideration of any objections filed and after notifying the objectors of the decision.
- *licence cancellation:* a licence may be cancelled or suspended, in whole or in part, for non-compliance with the conditions of a licence, late or non-payment of water rental invoice, not making beneficial use of the water, etc.

What are the applicant's rights of appeal?

- if the application is rejected or the applicant objects to the terms of the granted licence, the applicant may appeal the decision to the Environmental Appeal Board.
- the applicant must commence the appeal within 30 days of the appeal notice being given

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- for domestic use (including watering a garden up to ¼ acre in area) there is a one-time application fee of \$100
- for irrigation purposes: \$100-\$400
- industrial purposes: \$150-\$10 000
- mineral trading purposes: \$400

- land and river improvement purposes: \$150
- conservation purpose: \$150
- mining and hydraulicking purposes: \$150-\$2000
- storage purposes: \$150-\$2000
- waterworks and conveying purposes: \$150-\$10 000
- power purposes: \$100-\$10 000
-

Are there volume charges?

- when a water licence is issued water rentals are assessed.

Please see attached for complete rate schedule:

- domestic use: annual water rental fee of \$19.00 for 1000 gpd or less, \$9.50 each additional 500 gpd or fraction thereof
- waterworks: annual fee of \$51-\$285
- industrial: annual fees vary depending upon daily volume of water use and purpose of water use
- agriculture: annual fees vary depending upon daily volume of water use and purpose of water use i.e. for irrigation purposes – annual rental fee for 40 acre feet per year or less is \$22, \$1.50 for each additional 2 acre feet per year or fraction thereof
- power: annual rental fee for RESIDENTIAL power use is \$50 for each licence
- storage (for non-power useage): annual fee of \$11 for 2000 acre feet per year or less, \$5.50 for each additional 1000 acre feet per year or fraction thereof
- land and river improvement: annual rental fee of \$38 for each licence
- conservation: annual fees vary depending on quantity and purpose of water use

Depending on the annual rental payable, clients are billed:

- twice a year if the annual rental is over \$10 000
- once a year if the annual rental is over \$50 but less than \$100
- once every 3 years if the annual rental is \$50 or less

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

- Most of the money generated from application and water rental fees comes from waterpower projects. This money is generally directed into the BC general revenue account. Fees collected from other users are typically used for cost-recovery purposes. (pers comm by phone, Glen Davidson and Mike Collett 2002)

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- the 1995, Water Protection Act, prohibits the bulk removal of BC water to locations outside of the province, except in the following situations:
 - the user is registered with the Comptroller of Water Rights; or
 - the user removes water in containers of 20 litres or less; or
 - the user obtained the water outside of the province; or
 - the user intends to carry the water in vehicles, vessels or aircraft for the use of persons and animals while in transit across BC's borders
-
- the Act also prohibits the large-scale diversion of water between major watersheds of the province. A large-scale project is defined as a project that diverts or extracts 10 cubic metres per second of water or more. Projects that were already built or were under construction when the Act came into effect, are excluded from this prohibition.
- The prohibition does not apply to small-scale projects or to the transfer of water by large-scale projects within major watersheds, however, the Environmental Assessment Act covers these.

How is it regulated?

- a comprehensive registration system has been established to define and limit the quantity of bulk water being removed from BC
- surface water licensees and groundwater users, who removed water in bulk prior to June 1, 1995, are permitted to continue provided they have registered with the province
- Comptroller of Water Rights may penalize users in non-compliance with this Act in the same manner carried out under the Water Act

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- a licensee may be required to keep records of the diversion and use of water, if directed by the Regional Water Manager and/or the Comptroller of Water Rights. Records must be produced for inspection when required. Any licensee may be requested to complete a Beneficial Use Declaration form to provide a detailed summary of how the water licence is being used. (LWBC, 2002 <http://lwbc.bc.ca/water/general/rights.html>) Section 22.01 of the Water Act provides for the declaration of beneficial use.

What is the form and frequency of monitoring?

- very few licensees have metering requirements attached to their licence. However, this is a common requirement for larger users like municipalities and industrial users. (pers comm by phone, Glen Davidson and Mike Collett 2002)

What is the form and frequency of reporting and to whom?

- municipalities, industrial users and water districts must submit monitoring reports annually (pers comm by phone, Glen Davidson and Mike Collett 2002)

Is auditing carried out?

- not regularly
- only in response to a complaint, application for licence amendment etc.(pers comm by phone, Glen Davidson and Mike Collett 2002)

How are data managed and by whom?

- administrative licensing data is entered into a database by regional staff in the process of reviewing the licence application. Spatial information from Land and Water BC's provincial mapping system, GOAT (Geographical Oracle Access Tool), an Arc-info/Oracle database, accompanies the review. (pers comm by phone, Glen Davidson and Mike Collett 2002)
- monitoring data is not included in this database, kept in hardcopy format within the licensees file
- Data storage is centralized and shared internally through databases

Are monitoring data readily accessible to other agencies and the public?

- no

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces? (pers comm by phone, Glen Davidson and Mike Collett 2002)

- Land and Water BC regulates and enforces the Water Act and the Water Regulation

- Staff from the Water Management Branch of Land and Water BC work with conservation officers from the Ministry of Water, Land and Air Protection to investigate reports of non-compliance
- Conservation officers have extensive powers to enforce (e.g. investigate, fine and make arrests etc.) various environmental and resource use legislation, including the Water Act and Regulation (pers comm. By email, Mike Collett May 17 2002)
- In addition, Subject to section 39 of the WA the water comptroller, engineer and water bailiffs have the authority to regulate and make orders with respect to the diversion, rate of diversion, storage, carriage, distribution and use of water. They have the power to inspect, regulate, close or lock any works; order the construction, installment and maintenance of any measuring device; etc.
- a water bailiff may be asked by Land and Water BC to regulate water flow in the field, on their behalf, however the water bailiff lacks the power to enforce regulations
- Water Use Communities manage their own water use and are therefore responsible for regulating and enforcing compliance with licence conditions

How are conflicts and/or violations identified (i.e. on a reactive or proactive basis)?

- Conflicts and/or violations under the Water Act are primarily identified on a reactive basis, through complaints of non-compliance
- non-compliance with part 7 of the Water Regulation (changes in and about a stream) is primarily identified through spot inspections, ongoing project monitoring and notification from the person undertaking the works. (Water Reg. User Guide, 2001)

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- To date, BC has been fortunate in not having to declare a provincial emergency for drought conditions (pers comm., email by Mike Collett May 17 2002)
- It is probable that, under the Emergency Programs Act, water rights could be suspended. However, this is not a viable option as the province would face significant compensation challenges after the fact.
- Drought planning in BC is typically restricted to the local level, i.e. municipalities

However, according to Al Zackodnik, Manager of the Fort St. John Office LWBC, the following steps might be taken in a drought situation:

Unofficial quote, *"I suspect that if the drought was severe enough, the legislature would write a new piece of legislation for the occasion. Similar to what was done in Kamloops in 1974 when the City staff was on strike and a known flood was coming. The legislature wrote the "Kamloops Emergency flood control Act" which was in place from May 1974 until July 1974 and allowed the Province to build dykes in the name of the City. IE the City owned the dykes after they were built. In severe droughts, the Federal Fisheries Act takes precedent for protection of fish flows, but again Fisheries has to invoke the requirement and would likely face compensation suits. We (LWBC) would not necessarily invoke the requirement in the first instance, again knowing that whomever makes this move would face some compensation challenges.*

How would BC manage a severe drought? Starting with Municipalities we would make sure they had their own drought plan, namely a conservation program that was tiered IE tiers that get increasingly restrictive as to what the water could be used for and how much could be used, when; and a plan for alternative supply.....hauling, use of groundwater. We would enter into a joint public education and awareness program and regularly communicate through the media, newspaper, radio and TV. We would expand out from the center to include singular water licensees. We would educate on the priority system and how we would be regulating water use. Starting with soft regulation moving to harder regulation with the passage of time and urgency of the situation. We would walk the streams to identify water users that did not have licenses and have unauthorized works shut down and or removed. We would educate licensees in knowing how much the volume of water on their licenses translated into, in practical terms, to avoid over-diversion. We would enlist the cooperation of stream stewardship groups to help with the education process.

If the drought progressed in severity we would hold public meetings on a watershed basis or more likely a sub basin basis. This would be to see what compromise those with the rights would be willing to make to those without rights. It would be to get buy in on recreational use of the water or non use, use of the reservoir, access issues, water quality control issues caused by high temperatures and low volumes etc.”

- the following penalties may be applied:

- a person who commits an offence under section 41 of the WA is liable on conviction to a fine of not more than \$200 000, and if the offence is a continuing one, to a fine of not more than \$200 000 for each day the offence is continued, or to imprisonment not exceeding 12 months, or to both a fine and imprisonment

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- Water Use Communities typically deal with conflicts well through the coordinated efforts of all community users (pers comm by phone, Glen Davidson and Mike Collett 2002)

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- development of A Water Conservation Strategy for BC and a Water Use Efficiency Catalogue was initiated in 1997
- The strategy describes various economic tools to promote water conservation, including water pricing
- The goal of the strategy is to, “*identify and promote supply and demand-side management measures for use by municipalities, water purveyors, drawers and users throughout the province, while recognizing regional differences.*”
- The Water Use Efficiency Catalogue is a compilation of water conservation activities underway or planned throughout BC
- The Ministry of Land, Water and Air Protection promotes water conservation to specific users through educational campaigns (pers comm by phone, Glen Davidson and Mike Collett 2002)

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

Key allocation challenges, as indicated in BC MELP’s A Freshwater Strategy for British Columbia, 1999, include:

- meeting the needs of fish and other aquatic life when making water allocation decisions and ensuring that needs are being met through monitoring and assessing progress
- preventing over-allocation or degradation of water resources
- assessing and balancing the supply and demand for water
- improving knowledge about the occurrence and flow of surface and groundwater

Other challenges include (BC MELP, 1997)

- increasing demand for water as a result of population growth and economic development, particularly waterpower projects
- dealing with decreases in water availability as a result of seasonal and climatic conditions
- increasing competition for decreasing resources
- staff and program cuts to ministries administering Water Act and other water management responsibilities i.e. budgets at the Ministry of Water, Land and Air Protection will be slashed by 24% over the next 3 years, while staff and budgets at the Ministry of Sustainable Resource Management are being cut by 36% (Sierra Club, 2002)

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- allocation program is constantly under review, processes for allocating water are currently being looked at, application fees and water rental fees are currently being reviewed with the intention of reducing the number of use categories listed in the current fee schedule (pers comm by phone, Glen Davidson and Mike Collett 2002)
- Over the past several years, the BC government has made significant changes to water resource policies, legislation and guidelines based on comments/recommendations received in response to the 1993 discussion paper, Stewardship of the Water of BC.
- The 1999, Freshwater Strategy for BC provides an overview of the future direction of water management in BC and outlines the following planned initiatives/programs:
 - prepare policies and procedures for consideration of fish and fish habitat in water allocation and licensing decisions
 - improve water supply and demand information
 - improve data sharing with other government departments through the Water Information Sharing Project. The WINS project provides for the placement of spatial water licensing info (i.e. water licence diversion points) on FTP (File Transport Protocol) sites that are accessible by other agencies, local governments and industries. By transferring this data to spatial file viewers (GIS) these groups can obtain a spatial overview of water licensing in BC (pers communication by email, Mike Collett 2002)
 - quick licensing (a streamlined licensing process that ensures faster processing times for low-impact, low-volume water users) came into effect in 2000
 - develop groundwater protections legislation
 - enhance aquifer and well record inventory, database processing and accessibility

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**MANITOBA
(FINAL DRAFT)**

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water use license system in use since 1894 (The Northwest Irrigation Act of 1894) (Manitoba Conservation, 2002)

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- legal instrument used to regulate water use and allocation in Manitoba is The Water Rights Act (current version proclaimed in 1988)
- preceded by 3 earlier Acts, the first passed in 1930, followed by those passed in 1954 and 1972 (all essentially amending the previous Act)

Is ownership of water vested in right of the province/state?

- all property in, and all rights to the use or diversion of all water in the province are vested in the Crown in the right of Manitoba

What other relevant legislation/ regulation(s) exist and for what purpose?

- The Water Power Act: establishes provincial ownership of all provincial water powers.
- The Water Resources Administration Act: sets out responsibility for the provincial waterway system, designated flood areas, and all water control works
- The Environment Act: provides licensing authority, a framework for assessment, as well as comprehensive tools to protect, maintain, and restore the quality of all environmental components, including water
 - Users of any type whom divert less than the threshold amounts described in Manitoba Regulation 164/88 of the Environment Act do not require an Environment Act Licence
- The Conservation Districts Act: provides for the conservation, control and prudent use of natural resources through the establishment of conservation districts
- Water Resources Conservation and Protection and Consequential Amendments Act: prohibits bulk transfer of water out of Manitoba basins (Manitoba Conservation, 2001)

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

A person is exempt from permitting in the following situations:

- a person who uses water for domestic purposes
- a person who constructs a well to obtain water for domestic purposes
- a person exercising a right under any other Act of the Legislature or any Act of the Parliament of Canada

- “domestic purposes” defined as: the use of water from a source other than a municipal or community water distribution system at a rate of not more than 25, 000 litres per day, for household and sanitary purposes, for watering lawns and gardens, and for watering livestock and poultry

Is there a de minimus volume/rate exemption?

- domestic use rate less than 25, 000 litres per day

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- No
- In the Water Rights Act, there is no reference to and no provision for grandparenting of any exemption of water takers. The Act has been rewritten several times, and the revised Act always superceded the former Act. As an example, under the former Act, some licences had been issued into perpetuity. The current Act provides for a maximum term of 20 years for a water use licence. Accordingly, any licensees holding licences into perpetuity are being contacted and are required to apply for a renewal licence, if they are still using water. The current Act’s provisions always apply. (personal communication, Ray Bodnaruk 2002)

Do you have a basic working definition/description of your allocation process? Describe.

- no formal description/definition although the attached flow chart illustrates the licensing procedure of Manitoba Conservation

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

- yes
- Licenses have precedence in relation to one another according to date of submission of application for each license. Precedence, which applies only once a license has been issued, establishes the licensee’s right to use water from a source without interference relative to other junior licensed users of water from that same source (water rights based on seniority)

Do certain types of uses have priority over others? Describe (quote any policies, regs etc).

- The following priorities of use DO NOT override principle of first in time, first in right
 1. domestic
 2. municipal
 3. agricultural
 4. industrial
 5. irrigation
 6. other
- priorities of use apply: when 2 applications are received on the same day, if both licenses are issued the higher priority use receives precedence; in a fully allocated situation, a new license could be issued by displacing an existing license for a lower priority use, subject to compensation by the new licensee; in reserving water from a source for future high priority uses
- under the Water Rights Act, the Minister may reserve an allocation of water if deemed to be in the interest of the province. However, the Minister would normally reserve water only for future domestic/municipal supply.

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- Water Rights Act is administered by the province, through the Manitoba Water Branch (MWB) of Manitoba Conservation
- Administration of Act comprises 2 separate program areas – water use licensing and water control works licensing
- Water use licensing administered by Water Licensing Section
- Manitoba Conservation also administers The Water Power Act, The Water Resources Administration Act, The Environment Act
- Activities and objectives of the licensing section are further supported by the Groundwater Management Section, the Surface Water Management Section and the Water Planning and Development Section of the MWB

- it should be noted that many other government departments play an active role in water management
- i.e. Manitoba Intergovernmental Affairs, administers the Conservation Districts Act
- Manitoba Agriculture and Food, Manitoba Transportation and Government Services, municipal governments, Prairie Farm Rehabilitation Administration (PFRA), Environment Canada, DFO, conservation districts

Is permitting/licensing handled centrally or locally?

- centrally
- central administration allows for consistent implementation of policies, procedures, management of database, training of staff etc. (personal communication, Ray Bodnaruk 2002)

How are availability of supply and allocation limits determined?

- central licensing administration includes the establishment and management of water budgets
- using computer models and manual computations, water budgets are determined for aquifers and individual water sources based on hydrologic and hydrogeologic data and in consideration of existing uses, variability of supply, instream uses
- climate change is not currently considered in water budget models, however, the Licensing section is prepared to address situations with various licensing strategies
- existing water allocations on the source are summed and compared to the amount of available water estimated in the water budget
- a Water Rights Licence may be issued if the following conditions are met:
 - there is enough available water to generally supply all of the user's water needs in at least 8 of 10 years (for some uses, such as irrigation), up to every year (for uses where guaranteed, continuous supply is essential), without interfering with other uses/users and instream needs (personal communication, Ray Bodnaruk 2002)
 - if all other licensing conditions are met (personal communication, Ray Bodnaruk 2002)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- availability of supply is determined by Manitoba Water Resources Branch, Manitoba Conservation
- potential impacts are determined by the Water Branch if the proposed use/project is fairly straight forward and projected impacts are clearly insignificant
- with more complex uses/projects, particularly those which may be locally contentious, those with potentially significant impacts, and those that require comprehensive analyses the applicant is instructed to hire a consultant in order to carry out an engineering analysis of hydrologic or hydrogeological regime changes, potential physical impacts, and proposed mitigation measures (personal communication, Ray Bodnaruk 2002)

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- 6(3) *Where, by reason of the scope and nature of the use, diversion or control of water or the construction, establishment, operation or maintenance of works or water control works proposed in an application for a license and their possible impact on other persons, the minister so directs, the applicant shall, forthwith after submitting the application, publish or cause to be published in a newspaper having general circulation in the area affected, a notice of the application, and the notice shall state*
 - a) *the nature of the licence applied for*
 - b) *that any person wishing to object to the application may do so in writing to the minister within 15 days of the publication of the notice; and*
 - c) *any other information or particulars that the minister may require*
- 6(4) *Upon expiry of the 15 days provided in subsection (3) in respect of any application, and before the minister determines whether or not to grant the application, a public hearing shall be held before the Municipal Board at which any person may make representations, either himself or through counsel, for or against the application*
- proposals for development may also be viewed and commented upon on MB's Environmental Approvals website
- The Act's provisions per Section 6, in reality, are virtually never used (personal communication, Ray Bodnaruk 2002)
- environmental licensing, under the Environment Act, includes a similar public input procedure to the process outlined above, although it is more extensive. Since those individuals applying for larger water uses/projects need to acquire both an Environmental and Water Rights Licence, the public consultation associated with the environmental licensing process is considered to more than adequately meet the public input requirements that would otherwise be required per Section 6 of the Water Rights Act.
- for smaller water uses not requiring an Environment Licence, the Water Licensing Branch will send a notice of application to those interests whom may be affected by the application, i.e. other agencies, local governments, conservation districts, Department of Fisheries and Oceans (DFO), etc.
- Comments and concerns may be considered in the licensing decisions or for describing licence terms and conditions. Where a concerned party has its own jurisdiction to address the concern, e.g. DFO legislation in respect to harmful alteration, disruption, or destruction of fish habitat, the party is then responsible for contacting the applicant directly for project information or to specify measures to mitigate the impacts. The water rights licence would be issued with a clause requiring that all other regulatory requirements be met. Licensing action would not be held for situations where it is clear that the potential impact can be properly and easily mitigated to comply with the requirements of the other jurisdiction (eg., fish screens on intake pipes, stream bank erosion protection, etc.).

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- Duration: a license for water use may be issued for up to 20 years (Manitoba Conservation, 1999)
- Renewal: licenses that are renewed in accordance with the regulations retain their original precedence. The licensee must apply for a renewal no earlier than 365 days before the licence expires and no later than 90 days before its expiry. A licence will only be renewed if the purpose of water use, any water works, and the amount of water used remain unchanged. If project works or water use changes are required, then an amended licence or a new licence would be considered if sufficient water is available in the source to accommodate any increased water needs and if all other licensing conditions can be met. (personal communication, Ray Bodnaruk 2002)
- Transfer: where an estate or interest in land associated with a license is transferred, the license expires automatically as of the date of the transfer unless the new owner requests a transfer of the license. A transferred license retains its precedence in addition to retaining other conditions such as

volume and rate of withdrawal from source etc. The authority to transfer a licence remains with the Minister.

- Cancellation of licence: 14(1) in a situation where an application for water use is made in an area where all the water available for use or diversion has been allocated to other uses, the minister may issue the licence to the applicant if the purpose for which the applicant will use the water is higher in priority than the purpose of one or more of the other licences
- In this situation, the minister may cancel or restrict the rights under the licence of any one or more of those licensees ranking lower in priority than the applicant (these licensees are entitled to receive compensation from the applicant, for any loss or damage suffered as a consequence of the cancellation or restriction. An agreement on compensation must be reached between the two parties before the licence could be cancelled.)
- In addition, if a breach of permit conditions is suspected, the minister may also suspend a licence or permit for any stated period of time or until the condition is met
- Where in the opinion of the minister it is in the public interest to do so, a licence may be cancelled whether or not it has first been suspended 19(1)
- 19(2) a licence can not be cancelled until after notice and a hearing
- however, section 19(2) is rarely applied, refer to Section 9 of this report for further details concerning enforcement procedures and penalties
- *amendment*: licences must be amended if a change in works or water use is required
- 15 where a licensee fails to use or divert water for the purposes specified in the licence, or fails to use or divert water to the extent authorized in the licence, the minister may amend the licence to reduce the amount of water that may be used/diverted

What are the applicant's rights of appeal?

- 19(3) the notice shall require the licensee *to attend before the Municipal Board, upon a day specified in the notice which shall not be less than 30 days after the date of service of the notice, to show cause why the licence or permit should not be cancelled*

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- There is a one-time Water Rights Licence fee of \$50, submitted with the licence application.
- There is a one-time Environment Licence application fee of \$250 for class 1 developments and \$2500 for class 2 development (steam plants for power and water treatment plants) (164/88)

Are there volume charges?

- annual fee rates, based on volume, are specified for industrial and other purposes and are only charged to industrial users whose licenses have been renewed since 1988
- fees are as follows:
- First 100 dm³ - \$ 1 per dm³
- 100-500 dm³ - \$1.25 per dm³
- 500-10,000 dm³ - \$1.50 per dm³
- 10,000-20,000 - \$1.75 per dm³
- 20,000-100,000 dm³ - \$2.00 per dm³
- >100,000 dm³ fixed by regulation
- a Water Rights Act regulation establishes these fees

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

- no, fees are directed into general provincial revenue (personal communication, Ray Bodnaruk 2002)

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- water export is not addressed in the Water Rights Act, although the MB government has a policy opposing interbasin transfers, "*transfer of untreated water across the Continental Divide (to or from the Hudson Bay drainage area) shall be opposed. Transfers within the Hudson Bay drainage area shall be minimized and only considered after a complete assessment of the environmental, social, and economic impacts on the donor and receiving basins*"
- the recently passed Bill 6 Water Resources Conservation and Protection and Consequential Amendments Act (2000) prohibits the bulk transfer of water out of Manitoba basins
- Within the Assiniboine River sub-basin, transfers exist from the Assiniboine River to the LaSalle River (water supply) and from the Assiniboine River to Lake Manitoba, via the Portage Diversion (flood control for Winnipeg). Other diversions from the Assiniboine River have been proposed (Manitoba Conservation, 1999)

How is it regulated?

- it has not yet been determined which Branch of Manitoba Conservation will administer Bill 6 Regulations are being developed to better facilitate the administration of Bill 6.

MONITORING AND REPORTING *(all information courtesy of Ray Bodnaruk, 2002)*

What uses/users are covered/ not covered?

- a licence condition established in the early 1990s, specifies that all water users are required to install monitoring devices and to submit water use records on an annual basis (typically before February 1)
- particular attention is paid to the irrigation industry
- Before the 1990s, many licences were issued without a condition requiring the monitoring and reporting of water use
- About half (roughly estimated) of all current users have a monitoring and reporting condition attached to their licence
- The Water Branch is currently developing a water use monitoring and reporting strategy

What is the form and frequency of monitoring?

-

What is the form and frequency of reporting and to whom?

- reporting of water use should include rate of pumping and weekly volume of water use data
- data is reported to the Water Licensing Section of Manitoba Conservation
- collected data is used to keep track of resource use and to verify the anticipated environmental impacts or the effectiveness of environmental measures associated with the project

Is auditing carried out?

- Auditing is currently carried out on an issue/site specific basis
- Currently working on a strategy that would include compliance monitoring.

How are data managed and by whom? Obtain an example copy of database report for a typical permit/licence.

- monitoring data are managed by the Water Licensing Section of Manitoba Conservation

Are monitoring data readily accessible to other agencies and the public?

- not currently, although that is the intent when the monitoring and reporting strategy is formally implemented

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Manitoba Conservation

How are conflicts and/or violations identified?

- through complaints to Manitoba Conservation and during water use audits

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- regulatory powers are available and are used if required
- current licence conditions indicate that in an emergency situation, the Minister may enforce reduced water takings on all users
- 23 (1) of Water Rights Act. Penalties for non-compliance of a provision within the Water Rights Act or its regulations; an order made under the Act; or a condition of a licence issued under the Act include:
 - upon conviction, the person may be fined not more than \$10, 000 and/or may face imprisonment for not more than 3 months
 - where the person is a corporation, a fine of not more that \$25 000 may be applied
- in reality, these types of penalty provisions are rarely used (personal communication, Ray Bodnaruk 2002)
- typically, a notice of violation is issued, stating that the user must either comply or risk cancellation of the licence
- compliance is usually attained through assertive direction and cooperation. Accordingly, the preferred approach is to correct the problem (personal communication, Ray Bodnaruk 2002).

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when? (personal communication, Ray Bodnaruk 2002)

- the Water Licensing section is currently investigating the viability of co-management arrangements with specific water user groups (i.e. irrigators association)
- this would allow these user groups to police themselves and to manage their rationing of water on their own terms
- this type of arrangement may be provided for in new water legislation

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- The Manitoba Water Policies address both conservation and demand management issues
- I.e. the objective of Manitoba's Water Conservation Policies is, "*To conserve and manage the lakes, rivers, and wetlands of Manitoba so as to protect the ability of the environment to sustain life and provide environmental, economic, and aesthetic benefits to existing and future generations*"
- Policy 4.1 of the Manitoba Water Policies associated with the issue of Water Supply states, "*Demand management programs shall be implemented to conserve water and reduce the requirements for new water supply infrastructure*"
- Policy 4.2 states, "*Irrigation, industrial, and other development proposals involving direct or indirect water use shall consider impacts on existing potential water uses as well as impacts on the environment*"

- None of these policies are backed by legislation
- demand management strategies are currently being investigated for consideration in new water legislation, for example, water pricing, where revenues are directed back into water management activities, will be considered closely
- in a situation where it has been determined that a user is not using water as licensed or is using much less water than has been allocated to him or her, the user will usually agree to his or her own licence being cancelled or to have the allocation reduced
- to ensure that the appropriate amount of water is allocated to a particular licence applicant, a situation-specific questionnaire must be completed by the applicant (i.e. separate questionnaire for agricultural users, groundwater users, irrigators etc.)

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS?

Manitoba Conservation review of current system identifies the following issues:

- allocating water within the framework of Manitoba's Water Policies
- prioritizing amongst users
- incorporating ecosystem needs
- integrating quality and quantity
- assessing intra basin transfers
- addressing the impacts of other activities in the watershed, both within Manitoba and in other jurisdictions
- a shortage of resources dedicated to the maintenance of provincial works, data collection and analysis, enforcement, and resource protection programs

(Manitoba Conservation, 2001)

Other issues include (personal communication, Ray Bodnaruk 2002)

- backlog of licence applications
- the establishment of a water pricing strategy
- consistency in policy/procedure/staff training
- increasing demand for water supply (caused primarily by expansion of processing industry, the production of hogs and the irrigation of potatoes)
- increasing number of water sources approaching full allocation
- calculation of instream flows, hydrology and integration of information from other aquatic departments and agencies
- water budget refinement

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- Yes
- The need for changes to the Water Rights Act and Regulations has been the subject of considerable debate for over a decade
- the development of a Strategic Water Plan for Manitoba is currently underway
- a review of Manitoba's Water Policies, coupled with the input obtained from various public reviews 1990-2002, forms the groundwork in the development of this Strategic Plan
- the Plan will be comprised of four components, which will be carried out concurrently, including:
 - a) a provincial water strategy that encompasses Issue-Specific Provincial Strategies
 - b) the development of Watershed Management Planning initiatives and guidelines
 - c) a legislative review resulting in a Legislative Framework that is more comprehensive
 - d) a plan for the Financial Underpinnings of the Strategic Plan (development of a water financing strategy)

The following changes have been proposed:

FINAL DRAFT

- the drafting of new water legislation, consistent with Manitoba's Water Policies, to ensure effective and appropriate allocations are made amongst the various users and uses
- the review of water rights licensing in order to assure the most effective and efficient process as possible
- the incorporation of all uses and users into aquifer, basin, and watershed based management plans
- the integration of water quantity and quality in use and allocation decisions
- the inclusion of requirements to sustain life within the ecosystem as a priority allocation in legislation
- the negotiation of agreements with appropriate agencies to co-operatively manage local water resources
- to conduct water use monitoring
- the establishment of water management business and decision making units based on watershed and basin boundaries

The following changes are underway:

- management plans for aquifers, river systems, lakes and the Assiniboine River Basin are planned and/or underway
- aquifer plans have been completed for the Winkler Aquifer (March 1997) and the Oak Lake Aquifer (March 2000), planning for the Assiniboine Delta Aquifer is currently underway
- the Dulpin Lake Management Plan is complete, Boyne Management Plan is currently underway
- in 2000, The Water Resources Conservation and Protection Act was proclaimed with the intent of ensuring that any removal or diversion of water from MB's water basins is not carried out in quantities that, individually or cumulatively, could have significant adverse effects on MB's water resources or impact its ecology
- January 2001, premier of MB signed an agreement with governor of Missouri, to work co-operatively in opposition to transfers of water from the Missouri River system to the Hudson Bay Drainage Basin
- Manitoba Conservation is currently developing Instream Flow Needs (IFN) to ensure that ecological integrity is maintained. Its purpose is to ensure the allocation of water to conservation and that systems are managed within normal flow variability. Models are under development for representative rivers and streams, with calculations utilized to adjust quantities or water removed for domestic, industrial, or irrigation purposes

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ONTARIO

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- a water taking permit issued through The Permit to Take Water program (PTTW)

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- s. 34, Ontario Water Resources Act (1990), primary authorization in 1961
- O. Reg. 285/99, OWRA : establishes criteria for MOE staff to consider before issuing a PTTW (1999)

Is ownership of water vested in right of the province/state?

- no

What other relevant legislation/ regulation(s) exist and for what purpose?

- *Conservation Authorities Act: empowers CA's to construct works or structures, to control surface flows, to regulate and restrict uses of water, to prohibit or regulate construction or placing of fill in floodplains or the alteration of river channels*
- Lakes and Rivers Improvement Act: allows for the regulation of dams, diversions and other works on lakes and rivers by the MNR
- 1909 (Canada-US) Boundary Waters Treaty: outlines principles and guidelines for the management of boundary and transboundary waters by Canada and the United States, with the primary objective of preventing or resolving disputes regarding the water quality and quantity of shared water resources
- 1950 Niagara River Treaty: addresses water diversion for power purposes by Canada and the US in the Niagara River
- 1985 Great Lakes Charter: specifies consultation process requirements for diversions of water from the Great Lakes
- Environmental Bill of Rights: ensures that most applications for PTTW are placed on the Environmental Registry for public comment/approval
- Drainage Act: contains provisions that pertain to allocation of ground water

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- only the taking of water, "by an individual for ordinary household purposes, livestock watering and fire fighting," is exempt from permitting

Is there a de minimus volume/rate exemption?

- other takings of less than 50, 000 litres/day are exempt from permitting unless specifically required by the Ministry of Environment

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- yes
- those taking water, using works created prior to 1961, do not require a water taking permit

Do you have a basic working definition/description of your allocation process? Describe.

- According to the MOE, Permit to Take Water Program: Guidelines and Procedures Manual, “*The main purpose of the permit legislation is to control the taking of water to promote its efficient development and beneficial use. The permit mechanism, with its associated General Terms and Conditions, is utilized to prevent water-supply interference problems where possible, and to resolve them when this is not the case.*”

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

- no

Do certain types of uses have priority over others?

-Provincial policy is “*to ensure the fair sharing, conservation and sustainable use of the surface and ground waters of the province*”.

-The provincial guideline for the issuance of permits states that “*water takings will be controlled to prevent interference with other uses of water wherever possible and to resolve such problems as they do occur*”.

Further elaboration of the guideline states that “*When evaluating the relative priority of uses in an area where there is insufficient water to meet established and new uses, the taking of water for private domestic and farm purposes is considered the most important use, generally followed by municipal water supply. The taking of water for industrial, commercial and irrigation purposes is regulated by the availability of the supply, the efficiency of use, and established uses in an area. The use of water for pollution control, flood control, fire protection, recreation, wildlife preservation and the protection of habitats are also important considerations*”.

-Other relevant provincial guidelines state that:

(i)“*Surface and groundwater withdrawal, and the discharge of water to surface water bodies, will be controlled to assist in maintaining or restoring water quality for the protection of aquatic ecosystems and recreation and to provide for downstream withdrawal uses*”.

(ii)“*All reasonable and practical measures should be taken to conserve the quantity of surface and ground water to sustain ecosystem integrity and to maximize its availability for existing or potential uses*”.

(MOE, 1994)

- O. Reg. 285/99 states that a Director considering an application under section 34 of the Act for a permit to take water shall consider the protection of the natural functions of the ecosystem
- with respect to ground water takings, priority of time is a basic consideration in assessing ground water interference problems (MOE, 1999)

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- the Ministry of the Environment is responsible for administering the OWRA
- other responsible agencies include the Conservation Authorities (implement CAA), Ministry of Natural Resources (administers LRIA, CAA), DFAIT (1909 Treaty),

Is permitting/licensing handled centrally or locally?

- permits distributed regionally

How are availability of supply and allocation limits determined?

- applications for water permits are assessed on the basis of the availability of the supply, the use to which the water is to be put, the effects of the proposed taking on existing uses and the environment, interrelationships between water quantity and quality and between surface and groundwater
- as mentioned above, instream/inlake uses are also considered when determining allocation limits and the assignment of Special Conditions
- availability of supply is estimated by the applicant and is sometimes accomplished through the development of water budgets. For example, in the GTA guide the MOE requires individuals applying for a permit on a pond/lake source to provide a water budget for the catchment if the main source of water supply to the pond/lake in question is runoff.
- Availability of supply and allocation limits are determined by the MOE after consideration of hydrological and/or hydrogeological reports developed by the applicant:
- For takings from groundwater, a permit applicant is required to submit a hydrogeological report on the potential impact of the proposed water taking on the groundwater resources and existing uses, with a statement explaining how the determination/assessment was made
- for surface water resources, the Ministry requires the applicant to include an assessment of historic water flow at the point of taking in a stream/river source etc., or an assessment of area, depth, volume, seasonal fluctuations and whether water levels are controlled by dams in a lake source, with application for a PTTW (MOE, Guide for Applying for Approval of Permit to Take Water)
- A monitoring and evaluation report also required by the MOE, including a contingency plan for mitigation of any interference with established groundwater users, circumstances that will trigger the implementation of the contingency plan, and an evaluation of the potential impacts to the groundwater
- in determining an allocation limit, the Ministry may conduct a detailed study of the water taking. A pre-permit investigation may include the collection and analysis of field data. The investigation would typically be detailed in a report with conclusions as to limitations to be imposed on permit conditions (MOE, 1999)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- Applicant is required to include an assessment of the availability of supply and of potential impacts on other uses/users and the environment, with application for a PTTW. Most required data for these assessments can be obtained by the applicant through Environment Canada, Conservation Authorities and other agencies responsible for the control of waterways. It is recommended that applicants retain the services of a qualified consultant with specialization in aquatic ecology and hydrology to prepare these reports.
- the applicant is obliged to estimate impact and propose impact mitigation. Applicant must be able to demonstrate that his/her water taking will not interfere with downstream flow requirements for aquatic life and habitat needs plus the requirements of other existing downstream users (GTA guide, 1999).
- for a detailed account of the supporting documentation required by the Ministry from the applicant, please refer to "Applying for Permits to Take Water From Surface Water Sources in the Greater Toronto Area." Information requirements are listed by source of water taking (river/stream vs. pond/lake) and proposed water taking. It should be noted that applicants are required to estimate the minimum in-stream flow that should be maintained at the site.
- a pre-permit investigation may be required, where MOE staff study the proposed water taking through the collection and analysis of field data. This investigation is then documented in a report with conclusions as to limitations to be imposed on permit conditions (MOE, 1999)
- the MOE is obliged to evaluate the degree of impact due to water taking

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval?

- applications for most permits are posted on the internet under the Environmental Bill of Rights, Environmental Registry
- public comment period is 30 days

- depending on the nature of comments received, the applicant may be required to conduct further consultations on any issues deemed to require additional attention prior to the making of a decision

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- 34 (6) A Director may in his or her discretion, issue, refuse to issue or cancel a permit, may impose such terms and conditions in issuing a permit as he or she considers proper and may alter the terms and conditions of a permit after it is issued
- **permit duration:** an expiry date is specified on most permits, although the duration of permits varies, in part, on the level of concern associated with the water taking (GTA Companion Guide, 1999)
- the majority of permits issued have expiry dates, some lasting between 5-10 years
- **permit revision:** permit holders are required to request an amendment to a permit if their water needs increase or if they are planning a significant change to their water-taking operation. If a permit holder is found to be taking significantly less water than authorized by the permit, the Director may issue a notice reducing the amount of water authorized by the permit.
- **permit renewal:** process followed is similar to the original application process, permit holders must convince Ministry that their continued use of the resource will not detrimentally affect the environment or interfere with the needs of other users (MOE, 2000: In Brief)
- **permit cancellation:** a permit may be cancelled if permittee fails to comply with permit terms and conditions

What are the applicant's rights of appeal?

- *individuals whom are refused a PTTW, or dispute a condition imposed on their PTTW are issued a Notice of the action, together with written reasons for the action, from the Director*
- *the individual may appeal to the Environmental Review Tribunal to request that the denial be overturned (ECO, 2001)*
- the affected party may appeal to the ERT within 15 days after service of a Notice from the director, and require a hearing by the Environmental Appeal Board
- the permittee must submit a Notice of Appeal to the Director and to the Environmental Appeal Board
- the Environmental Appeal Board then sets a hearing date, listens to arguments of the permittee and of the Director, and may then confirm, alter or revoke the Notice (MOE, 1999)

APPLICATION FEES AND WATER USE CHARGES

Are there application fees and are these fees charged each time an existing licence is renewed?

- no

Are there volume charges? Describe.

- no

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes? Describe.

- NA

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- OWRA regulation 285 ensures that large volumes of water cannot be removed from a major water basin, including the Great Lakes – prohibits water transfers outside a basin in containers with a capacity greater than 20 litres (MOE, 2000 : In Brief)
- Bill C-6, An Act to amend the International Boundary Waters Treaty prohibits the removal and transfer of more than 50, 000 L/day of boundary waters outside the basin in which the boundary waters are located

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- new groundwater permit applicants must submit a report containing the details of a program to monitor and evaluate the actual impacts of water taking on *groundwater resources* with their application

What is the form and frequency of monitoring?

- most PTTWs carry conditions requiring the holder to perform certain monitoring functions and/or maintain a record of water use that the Ministry can view upon request (MOE, 2000 : In Brief)

What is the form and frequency of reporting and to whom?

-

Is auditing carried out? Describe.

-

How are data managed and by whom? Obtain an example copy of database report for a typical permit/license.

- data are managed by the MOE
- permit metadata from MOE Central region was originally stored in an automated data processing system known as the “Water Taking Information System”. This centralized database has since been replaced by local systems. However, as of 1998 the information in the centralized db had not been imported into the local systems. Hard copy files containing the application, supporting documentation, technical reviews and the issued permit are maintained by the MOE (MOE, 1998)
- the MOE is obliged to maintain records for at least 10 years and in specific cases up to 50 years

Are monitoring data readily accessible to other agencies and the public?

- MOE is obliged to provide public access to records for investigations, research and information (MOE, 1998)(how accessible is this info?)

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- MOE
- Offence Notices (tickets) under the Provincial Offences Act are issued by designated Provincial Officers and trained staff of the Investigations and Enforcement Branch

How are conflicts and/or violations identified?

- Reliance upon permit holders experiencing water shortages, public complaints, information from associated government offices etc.
- May also learn of a conflict/violation through field investigations
- interference may sometimes be predicted before the issuance of a permit, based on information obtained in prior testing (i.e. information found in a consultant's report). If this is the case, a permit may be issued with a Special Condition requiring specific preventative action and/or the measurement and ongoing monitoring of water levels by the permittee. (MOE, 1999)

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- In cases where the potential for serious interference between existing and new water uses exists, the Ministry may issue new users with permits that include Special Conditions. These conditions might include: a requirement to cut back water use once a certain threshold flow rate has been reached (surface water) or once a minimum well level has been reached (groundwater) (MOE, 1999)
- Where the taking of water, except exempted uses, interferes with any public or private interest in water, the Director may prohibit the interfering user from so taking water without a permit issued by the Director (34.4 OWRA)
- when water shortages occur, restrictions may be imposed by the ministry after it has consulted with other relevant government agencies, including the MNR, Ministry of Agriculture, Food and Rural Affairs and the federal government (MOE, 2000 : In Brief)
- the applicant is obliged to restrict water taking if required by the MOE (Issues Analysis, 1998)
- any person who is found to be violating any of the terms and conditions of a permit, failing to comply with a director's notice to stop taking water, taking more than 50, 000 litres of water/day without a permit, is guilty of an offence 34(8)
- penalties range from a written warning, amendment or cancellation of a permit, refusal to issue a permit, issuance of a Notice, issuance of an on-the-spot \$305 Provincial Offences ticket, to court prosecution with fines upon conviction of up to \$20, 000 for a first offence and \$200,000 for a subsequent conviction (MOE, 2000 : In Brief)

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- in May 2001, MNR introduced a plan called the Ontario Low Water Response: intended to ensure provincial preparedness, to assist in co-ordination and to support local response in the event of a drought (MNR, 2001)
- Local Water Response Teams, established by local CAs if Level 1 conditions are confirmed, and made up of local water users, managers and representatives from key provincial ministries, (WRTs) are a vital component of the plan.
- The location of potential local water shortages is determined/monitored by the team and water conservation efforts are encouraged through public awareness and education
- teams make recommendations about water allocation if there are serious concerns about water supply and demand
- Currently, 24 of these teams are already in place, or being formed across the province. (MNR, 2001a)
- When a watershed enters a Level III condition, water allocation and water restriction priorities are implemented. Water uses are classified as essential, important or non-essential.
- Essential: water for drinking and sanitation, health care, public institutions, public protection, basic ecological functions
- Important: activities critical to industrial processes, commercial facilities and key agricultural crops. Priorities between these activities/groups will vary between watersheds.
- Non-essential: private swimming pools, lawn watering, public and private fountains, vehicle washing

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- In early 1992, the Ministry of Natural Resources launched a "Water Efficiency Strategy for Ontario."
- promoted the principle that the users of water resources should pay the full cost for the water and wastewater treatment.
- provided for educating the consumer on water conservation matters.
- Despite the fact that the strategy underwent extensive consultation during its development, the strategy has not been implemented. The province does not have an operative programme to promote and achieve water conservation. (McCulloch P. and P. Muldoon, 1999)
- Provincial guideline states, "*explicit statements respecting water conservation should be incorporated into appropriate planning documents and all parties proposing or reviewing proposed projects in such areas should ensure that appropriate conservation measures are undertaken.*" (MOE, 1994)
- The GTA guide requires all applicants to demonstrate that water conservation measures will be implemented. Examples include: computerized irrigation systems with moisture sensors and efficient sprinklers; re-use of on-site water; use of low-maintenance, drought-resistant turf etc.

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

Based on external review, the current allocation issues are identified:

- Uncertain access to water during shortage and increasing competition between users caused by a lack of consideration for cumulative user impacts
- Difficulty tracking, assessing and managing water resources, due in part to inconsistent use of various units used to specify water quantities and flows on permits, and a frequent lack of streamflow data
- a threat to public accountability and transparency as a result of inaccuracies and omissions in the Registry notices for PTTWs, and because the actual PTTWs often omit or misrepresent crucial information (ECO, 2001)
- threat to ecosystem protection as MOE staff issue permits for new water takings without access to fully complete or accurate information on existing water takings (ECO, 2001)
- inequity during times of water shortage
- inadequate monitoring and enforcement of the water taking permit program due to a lack of MOE resources i.e. personnel, finances etc. (Kreutzwiser, 2001 <http://www.uoguelph.ca/rwmg/sshrc01.htm>)
- ambiguous priorities for water use, uncertain ability of the Permit program to adapt to changing water demands and supplies, unclear water allocation rules, inadequate information on water supplies, especially ground water (Kreutzwiser, de Loe and Benninghoff, 1999)
- the following key issues were identified in the report, "Redefining the Permit to Take Water Program," prepared by the Technical Services Section, Standards Development Branch MOE
- permit application process is outdated and assumes hard copy filing and map information
- evaluation of permit applications requires historical information on local water resources and existing uses. In most cases this information is out of date, requiring the applicant to conduct a field survey for the application. Long term trends of ground water levels are also not available.
- Staff expertise in both hydrology and hydrogeology is needed in the evaluation of an application.
- Continual and overlapping re-assessment of regional water availability and supply, and water use capacities by applicants could be avoided by providing for a single agency to prepare water resource maps useful for all government agencies.
- Exemptions for bottled water, aquaculture, habitat alteration and stream flow augmentation or restorations are inferred from the legislation and there is concern that these consistently large, long-term water users should not be exempt.
- Water use has become more varied within communities and the classification of takings requiring permits is not current.
- Exempt water taking uses (farm, household and stock watering) represent significant local water use and potential for water use interference.

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- in response to the above concerns, a number of efforts have already been implemented including:
- to clarify existing goals, policies etc. revisions to the Permit to Take Water Program Guidelines and Procedures Manual have been made by the MOE (Kreutzwiser, de Loe and Benninghoff, 1999)
- to address concerns regarding the lack of information on water supplies, the MOE launched the Provincial Groundwater Monitoring Network in October 2000
- intent of the network is to provide information for decision-making on water takings, drought management, protection of groundwater quality, land use planning, and related health and safety issues (ECO, 2001)
- to better estimate water availability in the permit process, the MOE, in cooperation with the MNR, is currently funding both the Grand River Conservation Authority and the Credit Valley Conservation Authority in the development of water budget pilots for each respective watershed. These budgets are intended to form the technical basis for provincial decision making related to water use, and may serve as examples that could be implemented in other areas throughout the province. (GRCA, 2001)

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**QUEBEC
(INCOMPLETE DRAFT)**

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- Certificate of authorization from Minister

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- water taking is authorized under the Quebec Environment Quality Act (Loi sur la qualité de l'environnement), R.S.Q., c. Q-2.
- Loi sur le régime des eaux, L.R.Q., ch. R-13
- Quebec Civil Code:

Is ownership of water vested in right of the province/state?

- surface water is considered to be public property, ground water and springs on private lands are not

What other relevant legislation/ regulation(s) exist and for what purpose?

-

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- landowners may capture as much groundwater as they desire, provided they do not interfere with other uses/users

What uses are included/excluded?

- Section 22 of the Environment Quality Act states that authorization from the Minister must be obtained before starting any activity or work in a constant or intermittent watercourse, in a lake, pond, marsh, swamp or bog
- occasional uses of water do not require authorization (i.e. irrigation of cultivated land during a drought)
- installation of a domestic water intake specifically authorized by a municipality does not require authorization from the government

Is there a de minimus volume/rate exemption?

-

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted? If so, what proportion of current water users may have been grandparented?

-

Do you have a basic working definition/description of your allocation process? Describe.

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- based on riparian rights

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- no

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- the Ministry of the Environment and Wildlife administers the Environment Quality Act

Is permitting/licensing handled centrally or locally?

-

How are availability of supply and allocation limits determined?

-

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

-

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

-

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOCAION

What mandatory provisions and powers exist?

Certificate transfer: A certificate of authorization issued under section 22 is non-transferable, except where the Minister authorizes the transfer on such conditions as he shall determine

What are the applicant's rights of appeal?

- *any order made by the Minister may be contested by the applicant before the Administrative Tribunal of Quebec*
- 98. The proceeding must be brought within 30 days of notification of the contested decision
98.1 The applicant shall, within 15 days after filing his motion at the secretariat of the Tribunal, publish a notice in two consecutive issues of a daily newspaper circulated in the region contemplated by the contested decision
98.2 The Minister shall, upon receiving copy of the motion, forward a copy to every person or municipality having transmitted to him observations in writing pertaining to the contested decision.
In the case where more than one municipality or more than 25 persons have transmitted observations in writing to him, the Minister, instead of transmitting copy of the motion to them, may cause a notice respecting the motion to be published in a daily newspaper circulated in the territory of the region concerned by the contested decision.

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

-

Are there volume charges?

-

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- to date, regulation of water diversion and the bulk export of water has not been an issue (primarily because a specific market has not yet been identified)

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- monitoring of water use is not required

What is the form and frequency of monitoring?

-

What is the form and frequency of reporting and to whom?

- Section 22. The Minister may require from the applicant any supplementary information, research or assessment statement he may consider necessary to understand the impact the project will have on the environment and to decide on its acceptability

Is auditing carried out?

-

How are data managed and by whom?

-

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

-

How are conflicts and/or violations identified?

-

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- 106. an individual that contravenes section 22 of the Act is liable to a fine of not less than \$600 nor more than \$20 000 for the first offence; and of not less than \$4 000 nor more than \$40 000 for a second or subsequent conviction.

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

-

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

-

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- Some problems of over-use exist, mainly a result of insufficient water flows and conflicts over use
- Inclusion of navigation, flood control, protection and restoration of water resource and environment, and climate change in notion of water management in Quebec
- Conservation of water
- Lack of data and information on groundwater
- Need to monitor both surface and groundwater resources
- The creation of a groundwater management policy that encompasses and prioritizes uses

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- surface water is widely available in Quebec and interference between water users is infrequent, however, the following questions were contemplated in the 1999 report, "Water Management in Quebec":
 - in the event of a conflict, should certain uses be given priority over others?
 - What criteria should be used to determine the instream flow requirements of a healthy aquatic environment?
 - Is it advisable to tighten up controls on water use considering Quebec's abundant water resources?
 - Is it appropriate to require that all groundwater users be subject to a priori authorization in order to monitor impact on the resource?
 - Is it appropriate to include a mechanism for public consultation in a groundwater authorization process?
 - In consideration of the principle of sustainable development and responsible use of the water resource, would it be appropriate to question the level of drinking water consumption in QC?
 - Should Quebec consider prohibiting or restricting massive water exports, either in the form of watercourse diversions or bulk transportation?
 - Should measures be introduced to restrict foreign acquisitions of Quebec's water resources?
-
- government initiated a pilot project on integrated water management by drainage basin in 1996
- committee of 23 representatives from the area formed by the Chaudiere River basin was established to draft initial water guidelines and propose a strategy for implementation (Ministry of the Env., 1999)

CONNECTICUT (DRAFT)

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water diversion permitting system

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Connecticut Water Diversion Policy Act (22a – 365 through 22a-379) adopted in 1982

Is ownership of water vested in right of the province/state?

-

What other relevant legislation/ regulation(s) exist and for what purpose?

- State Plan for Conservation and Development
- Water Quality Standards
- Flood Management Act
- Water Supply Planning Process
- Inland Wetland and Watercourses Act
- Aquifer Protection Act
- Endangered Species Act

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- (Sec. 22a-377 Diversion Act). The following diversions are exempt from the permitting requirement
 - o (1) One or more wells joined in one system whose combined maximum withdrawal will not exceed fifty thousand gallons of water during any twenty-four-hour period;
 - o (2) the maximum withdrawal of fifty thousand gallons of surface water during any twenty-four-hour period;
 - o (3) discharges permitted under the provisions of section 22a-430;
 - o (4) a storm drainage system which collects the surface water runoff of an area of less than one hundred acres;
 - o (5) water for fire emergency purposes;
 - o (6) diversions within, extensions and relocation of water supply system distribution mains,
 - o (7) roadway crossings or culverts which allow for continuous flow or passage of an existing watercourse, and
 - o (8) diversions directly related to routine maintenance and emergency repairs of dams.

Is there a de minimus volume/rate exemption?

- as stated above, withdrawals of less than 50,000 gallons in any one 24-hour period are exempt from the permit process

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- yes, the Diversion Act includes a provision exempting ground and surface water diversions existing prior to and on July 1, 1982 from the permitting regulation. However, registration of these activities, with the DEP, within a year of that date, was required.
- Registrants were required to identify the location, capacity, frequency, and rate of withdrawal of the diversion, and to provide a description of the water use and distribution system. Registered diversions may continue indefinitely, regardless of their environmental effects and impact on surrounding uses/users. (DEP, 2000)
- Under the Act, 1842 diversions were registered with the DEP and 364 diversion permits currently exist (2000). Therefore, the vast majority of water diverted in Connecticut is grandfathered.

Do you have a basic working definition/description of your allocation process? Describe.

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

- principles of prior appropriation are applied in the permitting process. Diversion permit applications are considered on a first-come, first-serve basis within the context of existing permitted and registered diversions (DEP, 2000)

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- the Diversion Act does not contain regulatory authority for prioritizing water amongst competing users (DEP, 2000)

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- the Connecticut Department of Environmental Protection regulates the diversion of water
- other water management authorities are distributed among the following agencies: the Office of Policy and Management (OPM); the Department of Public Health (DPH) and the Department of Public Utility Control (DPUC)

Is permitting/licensing handled centrally, regionally or locally?

- Centrally

How are availability of supply and allocation limits determined?

- Quantity of water withdrawals and water supply in Connecticut are unknown.
- (22a-373 Diversion Act), when making a decision on a water diversion permit application, the Department must consider the following factors: the environmental effects of the proposed diversion, the need for the diversion, consistency with long-range water resource management, consistency with the state Plan of Conservation and Development, that proper management and use of Connecticut's state resources will not be impaired.
- Availability of supply and allocation limits are determined after consideration of an Engineering Report/Hydrogeologic Report, an Environmental Report, an Alternatives Assessment, and a Long-range Water Conservation Plan, which are to be prepared and submitted by the applicant with the permit application.

- Water available for new diversions in a basin is limited by the amounts claimed by registered diversions

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- Applicants must evaluate the effect of the proposed diversion on other water uses, including instream uses. A comparative analysis of the costs, feasibility, and impacts of the proposal in comparison to alternative means of obtaining water, including conservation measures, must also be developed by the applicant.
- Please see the DEP document, "Instructions for Completing a Permit Application for Programs Administered by the Inland Water Resources Division," for a complete description of the supporting documentation required for inclusion with the permit application.

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- The applicant must publish notice of the permit application immediately after submission of the application to DEP. The notice must be published in a newspaper of general circulation in the area(s) that may be affected by the diversion described in the notice.
- (22a-370 Diversion Act) the applicant must notify the chief executive officer of the towns or towns in which the proposed diversion will take place, within 10 days of filing the application
- Upon notifying the applicant that the application is complete, "*the commissioner shall immediately provide notice of the application and a concise description of the proposed diversion to the Governor, the Attorney General, the speaker of the House of Representatives, the president pro tempore of the Senate, the Secretary of the Office of Policy and Management, the Commissioners of Public Health and Economic and Community Development, the chairperson of the Public Utility Control Authority, chief executive officer and chairmen of the conservation commission and wetlands agency of the municipality or municipalities in which the proposed diversion will take place or have effect, and to any person who has requested notice of such activities.*"
- *The commissioner shall hold a public hearing before approving or denying an application, except that, when the commissioner determines that the proposed diversion (1) is necessary, (2) will not significantly affect long-range water resource management or the environment, and (3) will not impair proper management and use of the water resources of the state, he may waive the requirement for a hearing after publishing notice of his tentative decision regarding the application and of his intent to waive the requirement for a hearing in a newspaper having general circulation in the area where the proposed diversion will take place or have effect; provided the commissioner shall hold a hearing upon receipt, within thirty days after such notice is published or mailed, of a petition signed by at least twenty-five persons. If a hearing is to be held, the commissioner, at the applicant's expense, shall (A) cause notice of the time, date and location of the commencement of the hearing, a concise description of the proposed diversion, and the commissioner's tentative determination regarding the application to be published at least twice at intervals of not less than two days and not less than twenty days prior to the commencement of the hearing in a newspaper having a general circulation in the area where the proposed diversion will take place or have effect, and (B) provide the same notice to the officials listed in subsection (d) of this section not less than twenty days prior to the commencement of the hearing.*

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- *permit duration:* commissioner may issue a permit with an expiry date

- *review and revocation of permits:* The commissioner may periodically investigate and review permitted diversions. If he determines that there is any violation of the terms, limitations or conditions of the permit, he may suspend or revoke the permit.

What are the applicant’s rights of appeal?

- (22a-374) Any person or municipality aggrieved by a permit decision, or by the return of an application by the commissioner as incomplete, may appeal to the Superior Court

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- (22a-372 Diversion Act) Each application for a permit shall be accompanied by a fee as follows:

Water Use (Consumptive or nonconsumptive) and Withdrawal Amount (gallons/day)	Application Fee (USD \$)
Consumptive 50 000 – 500 000	1200
Consumptive 500 000 – 2 000 000	2500
Consumptive 2 000 000 +	4000
Nonconsumptive uses where the tributary watershed area above the point of diversion is ½ square mile or smaller	1200
Nonconsumptive uses where the tributary watershed area above the point of diversion is ½-2 square miles	2500
Nonconsumptive uses where the tributary watershed area above the point of diversion is 2 + square miles	4000

Are there ongoing charges? Describe.

- (22a-379) *each person or municipality holding a diversion permit authorizing a consumptive use of waters of the state shall pay an annual fee of five hundred dollars to the commissioner.*

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- Interbasin transfers may be permitted, subject to the findings of an Environmental Impact Report
- (22a-369 Diversion Act) *“In the case of a proposed interbasin transfer the commissioner may request the applicant to file an environmental impact report on the transfer which (A) considers the effect of the transfer on present and future water uses in the proposed donor basin; (B) includes a plan for meeting water supply needs and demands in the donor basin for a minimum of twenty-five years; and (C) analyzes the alternative solutions to the water supply or wastewater problem including comparative cost analysis of the proposed transfer relative to alternative measures. In making such request, the commissioner shall indicate which aspect of such report enumerated in subparagraphs (A), (B) and (C) of this subdivision requires the submission of the environmental impact report with the application.”*

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- registered users are not required to report on the amount of water that they use or plan to use
- (22a-373) The commissioner may grant a permit application upon such terms, limitations or conditions, including, but not limited to, provisions for monitoring, schedule of diversion, duration of permit and reporting as he deems necessary to fulfill the purposes of the Act
- permit applicants are required to include a description of, "how withdrawals and consumptive use of water will be metered, measured, or controlled, including details on the equipment to be utilized, the specific flow measurements to be taken and the criteria to be utilized for such measurements if a meter is not used"(DEP Permit Instructions).

What is the form and frequency of monitoring?

-

What is the form and frequency of reporting and to whom?

-

Is auditing carried out?

-

How are data managed and by whom?

-

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Department of Environmental Protection

How are conflicts between users and/or violations of permits/licences/approvals identified? (I.e. on a primarily reactive or proactive basis)

- (22a-375 Diversion Act) the commissioner may periodically review permit diversions. He may suspend or revoke the permit if he finds the permittee to be in violation of the terms, limitations or conditions of the permit.
- The DEP conducts inspections of permitted water uses

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- (22a-378 Diversion Act) (a) *If a water supply emergency has been declared by the Governor or otherwise according to law, the commissioner shall have the power to: (1) Temporarily suspend a permit for diversion or impose conditions upon permit holders without a hearing for a period of thirty days, which period may be extended once for a similar period. If the commissioner determines that it is necessary to extend a temporary suspension or the conditions imposed upon a permit holder, he shall, upon written request from the permit holder, hold a hearing on such determination within ten days of the extension order; (2) with the approval of the Governor, authorize a person or municipality, without hearing and notwithstanding any provisions of sections*

22a-365 to 22a-378, inclusive, or the general statutes or any special act to the contrary, to divert such quantities of water as the commissioner deems necessary and proper to ease emergency conditions for a period of thirty days, which period may be extended twice for like periods except that the commissioner shall not authorize a diversion if such diversion would adversely impact an area where a public drinking water supply emergency has been declared pursuant to section 25-32b. In taking such action, the commissioner shall consult with the Commissioner of Public Health and such other state agencies and municipal officials as he deems necessary and advisable.

(b) Any person who during the course of a water supply emergency declared in accordance with subsection (a) of this section violates the provisions of any order issued pursuant to subsection (a) of this section or who impedes, interferes with or obstructs any lawful water supply emergency activities pursuant to subsection (a) of this section, shall be fined not more than one thousand dollars or imprisoned not more than one year, or both, for each offense.

- in a drought situation, regulated water supply companies may issue either voluntary or mandatory conservation notices to their customers. The implementation of mandatory water restrictions can carry penalties for non-compliance (DEP press article, 2002)

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- Connecticut has only recently announced its first Drought Advisory (state issued advisory), the least severe of 4 increasing drought level classifications. This announcement calls for the voluntary conservation of water by water supply companies and all residents (DEP press article, 2002).

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- (22a-369 Diversion Act) all permit applicants must submit a long-range conservation plan along with their application. The plan shall provide for “(A) *the identification of and cost effectiveness of distribution system rehabilitation to correct sources of lost water*(B) *measures which encourage proper maintenance and water conservation;* (C) *a public information program to promote water conservation, including industrial and commercial recycling and reuse and* (D) *contingency measures for limiting water use during seasonal or drought shortages;*”
- Department of Public Health requires conservation plans as part of the water supply plan prepared by largest public water suppliers

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- Diversion Act does not contain regulatory authority for prioritizing water amongst competing users, for reserving allocations of water for future needs, or for the environment and aquatic resources.
- Gap between water supply planning process and permitting of new water supplies: water supply plans are developed without the benefit of a comprehensive allocation framework and without data on how much water is available for allocation within a particular basin. Data for a detailed environmental assessment on the potential source of supply are not collected until long after the water supply plans have been drawn up and the Diversion permit application has been submitted. At this point the water company has usually invested considerable capital into a particular site and it is too late to realistically evaluate alternatives to the proposed supply source.
- Insulation of registration from regulations: Legislation authorizes registered diverters to continue to use water at any time consistent with and up to the full capacity of their registration, with no regulatory review of environmental effects (WPC, 2002). No procedure to review, modify or retire unused or inactive registrations filed in 1983.

FINAL DRAFT

- In some drainage basins over allocation is a major concern
- Inadequate diversion program funding
- Incomplete scientific information on watershed hydrology
- Incomplete data on water withdrawal, therefore quantity of water withdrawals in state is not known.
- No long-range plan for the statewide management of water resources
- There is no integrated state-wide policy that requires all major water users to consistently implement conservation measures

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

The Department has proposed to develop and implement a comprehensive water allocation system. The main points of the proposal are listed below:

- research watershed hydrology (relationship between rainfall, storm water runoff, ground and surface water flow), develop water use inventories, for improved water use management and planning
- allocate water through "apportionment", where available water is apportioned among competing uses, taking into account the stream flow needed to support aquatic life and other instream needs. Department would apportion available water in advance of any diversion permit, then allocate the applicant some percentage of the amount apportioned for the applicant's type of use.
- Establish priority diversions within the apportionment allocation method, in consideration of present and future water needs
- Develop an allocation for the environment that provides for seasonally-variable environmental needs: through the development of instream flow standards for all Connecticut water bodies. Water users would then be required to restrict or cease consumptive uses when flow reached specified threshold levels. See attached pages 29-30 of the Report for further details on how these standards might be developed. NB: the department proposes that water would be apportioned to further consumptive uses only AFTER the instream flow allocation has been reserved for the environment. However, criteria would also be developed to allow for additional diversion to meet priority water needs in emergency situations.
- Encourage development of alternative water supplies and supply sharing: proposal to adopt policies that encourage the development of class B water sources (fishable, swimmable, but not drinkable) for non-potable uses (industrial use, power plant cooling water and irrigation).
- Modify registration program by requiring registrants to renew their registrations every 5 years, and to retire diversions for which the need no longer exists.
- Establish authority to assess the environmental effects of registered diversions and to order mitigation measures.
- Address unauthorized water diversions, monitor existing permit holders for compliance and strengthen enforcement tools
- Establish a process for watershed closure, where a moratorium may be placed on additional consumptive withdrawals in a watershed
- Establish registration renewal and transfer fees to support program functions and to partially fund the hiring of additional staff to review applications
- Develop a comprehensive water conservation policy that would require: a) implementation of cost-effective water conservation measures prior to requesting a new source b) conservation practices to be implemented by all diverters.

The following changes/recommendations are underway:

- A Water Planning Council has been established in legislation (Public Act 01-177), and is comprised of the chairperson of the Department of Public Utility Control, Department of Environmental Protection, Office of Policy and Management and the Department of Public Health. The Water Planning Council is charged with addressing issues involving the water companies,

FINAL DRAFT

water resources and state policies regarding the future of the state's drinking water supply. The Act identified 11 issues to be investigated. These include:

1. the financial viability, market structure, reliability of customer service and managerial competence of water companies;
2. fair and reasonable water rates
3. protection and appropriate allocation of the state's water resources while providing for public water supply needs;
4. the adequacy and quality of the state's drinking water supplies to meet current and future needs;
5. an inventory of land and land use by water companies;
6. the status of current withdrawals, projected withdrawals, river flows and the future needs of water users
7. methods for measurement and estimations of natural flows in Connecticut waterways in order to determine standards for stream flows that will protect the ecology of the state's rivers and streams;
8. the status of river flows and available data for measuring river flows;
9. the streamlining of the water diversion permit process
10. coordination between the DEP, PUC, DPH in review of applications for water diversion;
11. procedure for coordination of planning of public water supply systems

The document, "Water Planning Council Issues Work Plan, January 28, 2002," outlines each of these issues, including a summary describing the current situation, points of consideration associated with the issues, and possible areas of investigation. The WPC intends to report their findings and proposed legislative changes to the General Assembly by January 1, 2003.

In addition, the state is currently drafting a Drought Management Plan. This plan will include criteria for indicating drought severity and appropriate management actions based on the declared severity of the drought. Drought conditions will be classified in level of severity as Advisory, Watch, Warning and Emergency. Conservation measure will vary between these classifications, from voluntary to mandatory conservation measures (DEP press article, 2002).

References:

Connecticut Department of Environmental Protection. 2000. Report to the General Assembly on State Water Allocation Policies Pursuant to Public Act 98-224.

Connecticut Department of Environmental Protection. 2001. Instructions for Completing a Permit Application for Programs Administered by the Inland Water Resources Division. Bureau of Water Management DEP-IWRD-INST-100.

Connecticut Department of Environmental Protection. 2002. State Issues Statewide Drought Advisory. April 3, 2002. <http://www.dep.state.ct.us/whatshap/press/2002/mf0403.htm>

State of Connecticut. Substitute Senate Bill No. 1319. Public Act No. 01-177 An Act Establishing a Water Planning Council.

Water Planning Council. Water Planning Council Issues Work Plan. January 28, 2002.

**GEORGIA
(DRAFT)**

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- permitting system

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- O.C.G.A. 12-5-20 Georgia Water Quality Act, enacted in 1964
- Georgia Department of Natural Resources, Rule 391-3-6, Rules and Regulations for Water Quality Control
- O.C.G.A. 12-5-90 Georgia Ground Water Use Act, enacted 1972
- Georgia Department of Natural Resources, Rule 391-3-2, Groundwater Use

Is ownership of water vested in right of the province/state?

- no, groundwater belongs to the landowner, as does running water
- water rights are property rights in the state of Georgia

What other relevant legislation/ regulation(s) exist and for what purpose?

- O.C.G.A. 12-5-23 authorizes DNR to manage water uses in State
- O.C.G.A. 12-5-31

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- all withdrawals (surface and ground) greater than 100, 000 gpd per day require a permit

Is there a de minimus volume/rate exemption?

-

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- there is a grandparenting exemption for some agricultural users of water. In 1988, legislation was enacted to establish a permit mechanism for agricultural water uses. This law directs EPD to issue permits for the withdrawal or diversion of water in excess of 100, 000 gpd for farm uses occurring prior to July 1, 1988. Any applications based upon withdrawal or diversions in excess of 100,000 gpd for farm uses occurring or proposed to occur on or after July 1, 1988, are subject to evaluation and classification pursuant to same withdrawal rules as all other users.

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- no, system based on riparian rights

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- according to 391-3-6-.07(8) when there are competing applications for water from the same surface source, and the source is insufficient to supply all applicants, the following order of priorities shall prevail:
 - A. emergency facilities for essential life support measures
 - B. domestic and personal uses, including drinking, cooking, washing, sanitary and health
 - C. farm uses
 - D. industrial uses (including those industries on public water systems)
 - E. other uses such as lawn sprinkling, non-commercial car washing, garden watering etc.
 - F. outdoor recreational uses

Competing applications or users within the above categories will be assigned a priority ranking after consideration of the factors listed below in 391-3-6-.07(7). In the event 2 or more competing applicants or users qualify equally under the priority rating, the Director will grant permits to such competing applicants, or modify the existing permits of users, for use of specified quantities of surface water on a prorated or other reasonable basis in those situations where such action is feasible, provided, however, that the Director will give preference to an existing use over an initial application.

- according to 391-3-6-.07(7), in situations involving competing uses, existing or proposed, for a supply of available surface water, the Division shall consider:
 1. Number of persons using the particular water source and the object, extent and necessity of their respective withdrawals or uses;
 2. Nature and size of water source;
 3. low flows during droughts of record;
 4. any water quality of the water source which would adversely affect its availability or fitness for use;
 5. the probable severity and duration of low flows, poor water quality or other impairments of the water source which would adversely affect its availability or fitness for use
 6. the injury to public health, safety or welfare which would result if such impairment were not prevented or abated;
 7. the kinds of businesses or activities to which the various uses are related and the economic consequences;
 8. the importance and necessity of the uses, including farm uses, claimed by permit applicants and the extent of any injury or detriment caused or expected to be caused to other water uses;
 9. diversion from or reduction of flows in other watercourses;
 10. the prior investments of any person in lands, and plans for the farm usage of water in connection with such lands, which plans have been submitted to the Director within a reasonable time after July 1, 1988; provided that the granting of such a permit shall not have unreasonably adverse effects upon other water uses in the area, including potential as well as present use;
 11. the varying circumstances of each use.
- these priorities may also be considered and/or implemented by the Director in the event of a dire water shortage emergency

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- Georgia Department of Natural Resources, Division of Environmental Protection

Is permitting/licensing handled centrally, regionally or locally?

- centrally

How are availability of supply and allocation limits determined?

- water availability and allocation limits are based on info submitted by applicant, including any hydrogeologic reports, well pumping tests, water conservation plans, long term water needs etc.

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- To avoid potential groundwater draw down effects, if an application for a very large use of groundwater is received, the EPD can take certain steps to possibly contain drawdowns effects. Permittee may be required to model the hydrogeologic impacts.
- Prior to full scale production of a well field, well pumping tests run at or near actual production rates may be required of the applicant. These may give the permittee and the EPD some real idea of the amount of water that may be pumped safely, without endangering other users nor drawing down the aquifer too greatly (EPD, 2001).

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

-

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOCAION

What mandatory provisions and powers exist?

- *duration of surface water permits:* 391-3-6(9) permits granted for 10-20 year periods
- *duration of ground water permits:* permits granted for less than 10 years
- *exception:* permits for farm use carry no expiration date and need not be renewed. They are also transferable to subsequent owners of the land.
- *Permit revocation:* 391-3-6(11) any permit granted for withdrawal of surface water may be revoked, in whole or in part, permanently or temporarily, for the following reasons: willful violation of a condition in a permit; nonuse of the water supply allowed by a permit for a period of 2 consecutive years or more; with the written consent of the permittee; any false statements in a permit application or report.
- *Permit modification:* 391-3-6(11) any surface water permit may be suspended or modified if the Director should determine that the quantity of water allowed under the permit is greater than that needed by the permittee for the particular use upon which the application for a permit was based, or would prevent other applicants from reasonable use of surface waters, including farm use. Director may also modify a farm use permit if he should determine through inspection, investigation, or otherwise that the quantity of water allowed under the permit would prevent other applicants from reasonable use of surface waters for farm use;

What are the applicant's rights of appeal?

-

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

-

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- interbasin transfers of water are permitted, however, in consider of such a permit the Director shall be bound by the following requirements (391-3-6(14)):
 - A. Director shall give due consideration to competing uses and applications for permits which would not involve interbasin transfer of water and shall endeavor to allocate a reasonable supply of surface waters to such users and applicants
 - B. A press release regarding the proposed issuance of a permit for interbasin transfer of surface water shall be given to newspapers of general circulation in the area which would be affected by such issuance.
 - C. Press release shall be issued at least 7 days before issuance of the permit
 - D. If the Director determines sufficient public interest exists, he shall hold a hearing somewhere within the area affected prior to the issuance of the permit.
 - E. A public advisory regarding the proposed issuance of a new permit shall be provided to one or more newspapers of general circulation in the area of the applicant.

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- All permitted water users (except farm users) are required to submit water use or diversion reports, therefore, monitoring of water use/diversion by permittees is required
- all surface water applicants (except for farm uses) shall monitor instream flow below the point of withdrawal in accordance with their low-flow monitoring plan, which outlines the applicant's procedure to monitor and protect instream flow (391-3-6(9)).

What is the form and frequency of monitoring?

- *surface water*: volume of water use/diversion daily
- *ground water*: monthly quantity of water used or withdrawn from aquifer, average hours pumped per day, static and pumping levels of each aquifer utilized and the date the water levels are measured; for nonconsumptive use, the amount of water returned to the aquifer or ground water system from which the water is withdrawn

What is the form and frequency of reporting and to whom?

- 391-3-6-.07(15e) except for farm uses, surface water permittees shall submit annually to the Division a report of water use for the previous calendar year. The report must include monthly average and maximum day use for each month. Such reports shall be on forms provided by the Division and shall be submitted to the Division by January 31 of the current year for water use in the previous year.
- 391-3-2-.08(1) except for farm uses, ground water permittees shall file with the Division a certified statement of the quantities of water used or withdrawn, sources of water, and the nature of the

use thereof. The statement shall be on forms prepared and furnished by the Division and shall be submitted to the Division semiannually. Key requirements of the report include: quantity of water used or withdrawn monthly from each aquifer, average hours pumped per day.

Is auditing carried out?

-

How are data managed and by whom?

- data are managed by the Environment Protection Division, Georgia Department of Natural Resources

Are monitoring data readily accessible to other agencies and the public?

- Monitoring information contained in surface water permittee water use/diversion reports is collected and available to the public on the EPD website (<http://www.dnr.state.ga.us/dnr/environ/>)

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Environment Protection Division, Georgia Department of Natural Resources

How are conflicts between users and/or violations of permits/licences/approvals identified?

-

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- 391-3-6-.07(12) any permit may be suspended, restricted or otherwise modified by emergency order of the Director when an emergency period of water shortages exists.
- In the event of dire emergency, only water for domestic and personal uses (drinking, sanitation, health) will be permitted. Farm uses will be give second priority. All other usages will be established by the Director based on the priorities established in (8).
- DNR currently working on developing a Statewide Drought Management Plan (Board of Natural Resources, 2001).
- Currently, the emergency water shortage plan manages water, in a drought situation, through progressive restriction of non-essential outdoor water uses. The following steps are implemented in an emergency water shortage (Board of Natural Resources, 2001):
 - A. EPD will request, or if necessary, order a community or region of the state to restrict outdoor water use to certain days or hours for ALL users. This occurs if a community exceeds 90% of its permitted water withdrawal amount or max. safe production level for one day, if the water distribution system is experiencing low pressure or loss of service, or if the stream flow below the water withdrawal intake is less than 1.2 times the 7Q10 of the stream.
 - B. EPD can issue an emergency order to a community/region stopping all outdoor use of water including lawn/garden/car washing. Business using high volumes of water (car washed, nurseries) may be put on significant reductions.
 - C. EPD can issue an emergency order to a community/region prioritizing the use of water for essential purposes only, including: health care, sanitation and cooking needs. Commercial and industrial uses will be restricted and outdoor water use is banned. Implemented if earlier actions fail to prevent loss of user service.

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

-

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- water conservation plan must be submitted with both ground and surface water applications. The required components of these plans are very similar. Key components of both ground and surface water conservation plans include:
 - A. description of current and planned programs to reduce UAW
 - B. description of current and planned education programs for the promotion of water conservation
 - C. progress report – five years after issuance of a permit, permittee must submit to the Director a progress report outlining actions and/or improvements made to conserve water and reduce water loss
 - D. water use data – permittees must submit to the Director an annual water use data report that includes information on unaccounted for water for the past 12 months.
 - E. Long range planning – all permittees must incorporate water conservation into long term water demand and supply planning. Permittees must develop water demand projections covering a 20 year time period using a method or methods approved by the Director. Demand projections must reflect the effects (demand reductions) inherent in the implementation of new or enhanced water conservation programs.

- both ground and surface water permitting legislation require permit applicants to develop and submit a drought contingency plan with application. The plan must follow specific guidelines laid out in the relevant legislation and should include alternative system and resource management strategies for implementation in drought conditions that may severely reduce availability of the resource. Common elements of both surface and ground water drought contingency plans include:
 - A. drought condition indicators – applicant or permittee must develop a system for determining drought severity based on some approved indicator
 - B. potable water use priorities program – order of priorities listed in section 3 is generally recommended but may be modified as needed based on local conditions
 - C. restrictions on lower priority uses (including enforcement procedures)
 - D. rationing and/or other emergency procedures

- surface water legislation also includes a provision for the protection of low-flows
- Georgia's present instream flow policy based on 7Q10 flow. Several permutations of Department of Natural Resources (DNR) minimum flow rule shown below (Board of Natural Resources, 2001):
 - o Provide 7Q10 flow, if no unreasonable adverse effects to the stream or other water users will occur from the withdrawal.
 - o Provide the "non-depletable flow" (NDF) if probable impacts of the withdrawal, diversion or impoundment would occur to other water users. The NDF is the instream flow consisting of the 7Q10 flow plus an additional flow needed to ensure the availability of water to downstream users. Non-depletable flow is normally calculated by adding the 7Q10 flow to the prorata share of the downstream withdrawal or discharge needs, using the drainage area ratio method.
 - o Provide some other appropriate instream flow limit, as established by the Director of EPD (Environmental Protection Division, DNR), or as established from site-specific studies and approved by the Director of EPD.

- in extreme situations of drought, water shortage, EPD has reserved the option of allocating remaining surface waters 50% to the environment, 50% to public health and safety.

- surface water legislation also requires applicants to provide a statement with the application, detailing any water storage available to the applicant in a critical drought period. Definition of available storage should include:
 - o yield vs. drought return period
 - o storage type
 - o any available alternate sources of finished and raw water such as ground water, interconnections, contractual agreements.

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

Major water stresses in Georgia are summarized as follows (Board of Natural Resources, 2001):

- population growth in North Georgia where stream flow rates are relatively low and groundwater reserves are very limited
- saltwater contamination of groundwater in southeast Georgia, portions of Florida and South Carolina, caused by rapid growth in coastal Georgia. Water users in 24 southeast Georgia counties obtain most of their water from aquifers (Upper Floridan Aquifer)
- weather, economics and risk management are causing farmers in the Flint River Basin, southwest Georgia, to depend more heavily on irrigation. This water use has the potential to harmfully deplete the flow of the Flint River in drought years.
- Interstate conflicts among the States of Georgia, Alabama, and Florida over water management in the Coosa, Tallapoosa, Flint and Chattahoochee River Basins.
- Continuing drought conditions in Georgia.
- Old water and wastewater infrastructure in many Georgian communities, with leaking or overflowing sewer lines.
- The loss of healthy aquatic habitat and reduction in water quality through land development impacts.

Issues identified in paper, "The Role of Water Rights and Georgia Law in Comprehensive Water Planning for Georgia," (Blount et al., 2002):

- no distinction between consumptive and non-consumptive uses of water is state statutes
- current Georgia water statutes and regulations do not adequately specify the circumstances and conditions under which the EPD may reallocate limited waters during a period of shortage
- better data and information regarding all water uses is necessary for EPD to make sound water management decisions
- more comprehensive public notice procedures are required to ensure that all affected entities are apprised of proposed water use permits

Other issues:

- Farm users of water are not required to report water use and, due to the variation in irrigation water needs resulting from unpredictable climate conditions, agricultural water-use permits cannot be revoked as a result of nonuse of water (Kundell and Tetens, 1998).
-

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

Instream Flows

- Flow requirements provided for in legislation are not intended to establish base flow conditions for aquatic organisms.
- In mid 1990's Wildlife Resource Division of Georgia Department of Natural Resources proposed consideration of an alternative minimum instream flow policy. Recommendations were as follows:

Category	Season	Recommended Protective Flow
Unregulated Streams		
Warm Water Streams	All	30% average annual discharge
Trout Streams	All	September median flow
Regulated Streams	July through November	30% average annual discharge
	January through April	60% average annual discharge
	May, June, December	40% average annual discharge
Special case streams: Approved field studies to determine flow requirements		
Peaking Hydropower Projects: Site specific IFIM studies to determine flow requirements		

Source: (Kundell and Tetens, 1998)

- all flow requirements represent instantaneous flows
- In response to these recommendations, Environmental Protection Division created work group to review instream flow question. Effective April 1, 2001 the EPD adopted an interim minimum stream low flow protection policy based largely on recommendations of the working group. Policy is as follows:
 - o EPD to employ an interim minimum flow policy that allows the applicants for new or modified withdrawal permits for increased withdrawals the flexibility to select from one of 3 minimum stream flow options (Board of Natural Resources, 2001).
 1. monthly 7Q10: For a water supply reservoir, the applicant is at all times required to release (at the reservoir's release point) the lesser of the monthly 7Q10 or the inflow to the reservoir. For off stream reservoirs, the flows must be protected at the intake location as well as at the reservoir outlet. For an instream withdrawal, the applicant is at all times required to pass the lesser of the monthly 7Q10 or the inflow at the withdrawal point.
 2. site-specific instream flow study: where applicant performs a site-specific instream flow study after receiving approval from the Department. Upon completion of the study, DNR would evaluate results and render a decision regarding minimum flows which must be preserved by applicant.
 3. Mean annual flow options
 - A. 30% Mean Annual Average Flow (Direct Withdrawal)
Applicant is at all times required to allow the lesser of 30% of the mean annual flow of the stream, or the inflow, to pass the instream withdrawal point.
 - B. 30/60/40% Mean Annual Flow (Water Supply Reservoir)
For applicants proposing a reservoir, applicant is at all times required to release from the reservoir, the lesser of 30% of the mean annual flow or inflow during the months of July-November; 60% of the mean annual flow or inflow during the months of May, June, December.
- Recommended that DNR make efforts to conduct and/or require in-state, site-specific studies upon which to base a final minimum flow policy by January 1, 2003.

Forthcoming State Drought Management Plan

- drought management plan will provide specific steps to assign priorities for water use during droughts (Board of Natural Resources, 2001).
- DNR strongly recommends the passage of priorities governing allocation of water, into legislation as follows:
 1. Potable water for human consumption
 2. Sufficient streamflows to maintain and preserve Georgia's rivers and streams in order to serve the water needs of present Georgians and future generations.

River Basin Management Plans

- state law, Georgia River Basin Management Planning Act (OCGA 12-5-520) provides for the development of river basin management plans for several rivers in Georgia. The purpose of these plans is to provide relevant information on river basin characteristics, describe the status of water quality and quantity in each basin, identify present and future water resource demands, present and facilitate the implementation of water protection efforts, and enhance stakeholder understanding and involvement in basin planning.

References:

Blount, G. and H. Rosenzweig, D. Moore et al. 2002. The Role of Water Rights and Georgia Law in Comprehensive Water Planning for Georgia: A White Paper to the Joint Comprehensive Water Plan Study Committee by the Georgia Chamber of Commerce. March 2002.

Board of Natural Resources, State of Georgia. 2001. Water Issues White Paper. May 2001.
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Kundell, J.E. and D. Tetens. 1998. Whose Water Is It? Major Water Allocation Issues Facing Georgia. Carl Vinson Institute of Government: University of Georgia.

Georgia Department of Natural Resources, Environmental Protection Division. 2001. Ogeechee River Basin Management Plan 2001.

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LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- permitting and registration system

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Iowa Administrative Code, Environmental Protection (567) Chapters 51-54
- comprehensive permitting adopted in 1957

Is ownership of water vested in right of the province/state?

- all waters (surface and ground) are “public waters and public wealth” of Iowa citizens

What other relevant legislation/ regulation(s) exist and for what purpose?

-

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- 567-51.6 a permit is required for the use of more than 25, 000 gpd for any purpose
- this permitting threshold makes it the most comprehensive permitting program of any eastern state
- permits also required to store surface water, divert surface water into an aquifer, withdrawals of water by rural water districts. Activities that must be registered include test pumping of sources of water to determine adequacy of the source and effects of such withdrawals, nonrecurring minor uses, research contracts and agricultural drainage wells.

Is there a de minimus volume/rate exemption?

- 25 000 gpd

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

-

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

-

Do certain types of uses have priority over others?

- statutes have been enacted to provide very specific directions to water management agencies regarding priorities of use during shortage, from highest to lowest these are:
 1. publicly supplied water for human use
 2. water for livestock production
 3. water for public power generation
 4. water for manufacturing and industrial use
 5. water for irrigation of other crops
 6. water for irrigation of specified crops, mostly grains
 7. water for recreation and aesthetics
 8. water to be conveyed interstate

- 52.10(2) *Triggering events*. The department may implement the priority allocation plan following the occurrence of any of the following:
 1. a. Receipt of a petition by a governmental subdivision or 25 persons that the priority allocation plan be implemented due to a substantial local water shortage adversely affecting their water supply.
 2. Issuance by the governor of a proclamation of a disaster emergency due to a drought or other event affecting water resources of the state.
 3. Determination by the department in conjunction with the office of disaster services of a local crisis which affects availability of water.
 4. Receipt of information from a state or federal natural resource, research or climatological agency indicating that a drought of local or state magnitude is imminent.

- As a general guideline, emergency conservation or priority allocation restrictions will not be imposed on withdrawals from a surface stream or adjacent alluvial aquifer when stream flow is above the seven-day, one-in-ten-year low-flow level.

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- Iowa Department of Natural Resources

Is permitting/licensing handled centrally, regionally or locally?

- centrally

How are availability of supply and allocation limits determined?

- allocation limits are actually guided by legislation. 567 – 52.2 details permit restriction rules for various permitted water uses (irrigation, industrial use or power generation, public water supplier, recreation). For example, according to 52.2 (1) a permit for irrigation shall authorize withdrawals equivalent to 12 acre-inches per acre for general farm crops and 24 acre-inches per acre for specialty crops unless the Department finds that a different amount is justified. Factors to be considered in determining whether a different amount is justified include soil types and potential water availability during drought events.
- 567-52.3 details conditions on withdrawals from streams. For example, new withdrawals of water for consumptive uses of water from streams draining less than 50 square miles, shall not be in excess of 200 gallons per minute.
- Legislation also provides for the protection of flows. 52.8 – *The protected flow is designed to protect and maintain adequate water supplies for ordinary household and livestock use; for fish and wildlife use; for recreational use, for in-stream wasteload assimilation and pollution control; for beneficial water use needs in the watershed; for preservation of aesthetic values; and for other uses of a public nature.*

- Protected flow levels are listed within the chapter, at points on a stream with an official US Geological Survey stream flow gage. Approximately 71 stream gauging stations are listed, with protected low flows ranging from 2-1390 cubic feet per second. Protected flow is based in part on statistical annual and seasonal low flow characteristics of Iowa Streams.

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- 50.6(1) *Application for permit to withdraw groundwater.* An applicant shall be required to submit information needed by the department to identify the aquifer(s) from which withdrawals of water are proposed, predict the effects of pumping with a reasonable degree of confidence, and determine any permit conditions for well interference pursuant to 567—Chapter 54. At many locations the only reliable methods to determine the availability of a water source of adequate quantity and quality and to predict the effects of pumping require test drilling, yield test pumping, and a controlled aquifer test with measurements in one or more observation wells conducted under appropriate supervision. The applicant shall be required to perform each of these exploratory operations to the extent necessary for the department to obtain information from which to determine whether a permit should be granted and to identify conditions which should be imposed in any permit granted. An applicant who requests a permit authorizing withdrawals of groundwater from a well or reservoir may be required to assist the department in conducting an inventory of nearby wells within a designated radius of the proposed site.
- various other supporting documentation must be submitted by the applicant with application for an irrigation permit, permit to dewater a rock quarry, permit to divert water into an aquifer not related to the use of an agricultural drainage well, permit to divert water into an aquifer related to the use of an agricultural drainage well.

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- 50.7 (3) – before issuance of a permit to withdraw, divert or inject water the department shall publish notice of recommendation to grant a permit in a newspaper circulated in the locality of the proposed water source. The notice shall summarize the application and the recommendations issued during review of the application and contained within a summary report. The notice shall allow 20 days to request a copy of the summary report and submit comments on the report.

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOCATION

What mandatory provisions and powers exist?

- permit duration: 567- 52.5 (2) permits for withdrawal or diversion of surface water shall be issued for 10 years. 567-52.5 (3) permits for withdrawal of groundwater shall be issued for a maximum period of 10 years and may be granted for less than that if geological data on the capacity of the aquifer and the rate of its recharge are indeterminate
- permit cancellation/modification: (52.7(1))The department may modify or cancel a water permit or any condition of a permit for any of the following:
 1. breach of permit or law
 2. nonuse: the permittee has failed for 3 consecutive years to use the water, and the permittee has not demonstrated adequate plans to use water within a reasonable time
 3. public health and safety
 4. addition of conservation provisions

What are the applicant's rights of appeal?

- 50.9 - the applicant, and any other person aggrieved by an initial decision issued by the Department, may file a notice of appeal with the Director. The notice of appeal must be filed within 30 days following the certified date of mailing of the decision.

APPLICATION FEES AND WATER USE CHARGES

Are there application fees? Describe.

- a fee of \$25 USD must accompany an application for a new permit to withdraw or divert water, and an application for modification or renewal of a permit to withdraw or divert water

Are there ongoing charges? Describe.

-

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

-

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- (567-52.6(1)) each permittee shall submit to the department reports of water used, diverted or stored and any other information deemed necessary by the department
- 52.6(3) *Requirement of access port for measurement of water levels in a regulated well.* All new water permits which authorize withdrawals from wells shall require that each authorized production well be equipped with an access port having a minimum diameter of $\frac{3}{4}$ inch. The access port must be located to allow insertion of a steel tape or electric probe into the well casing for measurement of water levels.
- 52.6(4) *Aquifer tests and observation wells.* A permittee may be required to conduct a controlled aquifer test as a condition of keeping a water permit if the department, after consultation with the geo-logical survey bureau, finds an aquifer test to be necessary to determine the effects which the autho-rized withdrawals have on other water uses. A controlled aquifer test, authorized by the department and supervised by a registered well driller, registered professional engineer or other designee of the department, may be required for an administrative resolution of a well interference conflict pursuant to 567—Chapter 54. The permittee may be required to construct, develop, and maintain adequate ob-servation wells for use in an aquifer test and for subsequent water level measurements or water quality monitoring.

What is the form and frequency of monitoring?

-

What is the form and frequency of reporting and to whom?

- permit holders shall keep records of water use and shall report the amount of water used by Jan. 31 annually
- water use is reported on a specific Department form, in monthly totals
- water use may be determined by meter or by calculation

Is auditing carried out?

-

How are data managed and by whom?

-

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Iowa Department of Natural Resources

How are conflicts between users and/or violations of permits/licences/approvals identified?

- conflicts primarily identified through complaints of well interference, water shortage

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- 52.7(2) *Emergency suspension or restriction*. Notwithstanding any other rule or permit conditions, if the department finds that it is imperatively necessary in an emergency to protect from imminent danger or substantial injury the public health, welfare or safety, the public or private interest in lands or water, or to implement the priority allocation system pursuant to rule 52.10(455B), and these findings are incorporated into a written emergency order to the permittee, then the department may immediately suspend or restrict operations under a permit and require the permittee to take measures necessary to prevent or remedy the injury. This provision may also be applied in a case of well interference between a permitted and nonregulated user.
- priority allocation restrictions may be implemented, see section 3 for further detail
- restriction of water use in times of drought are tied to flow measurements at various stream gage locations
- 52.2 details the conditions applied to various permitted water uses. Many of these permitted water uses include conditions restricting water use in times of low-flow, water shortage. For example, all permitted users must cease water use when the flow of a stream is below the protected flow designation of the source. *When the flow of a stream, or portion thereof designated by the department, is below a flow equal to the protected flow plus the summation of all permitted consumptive withdrawals by permittees whose permits provide for maintenance of a protected flow in such stream or portion thereof, the department may order temporary cessation or rotation of all consumptive withdrawals to ensure that the protected flow is preserved.*
- Another example, withdrawals from unconsolidated aquifers adjacent to streams draining 50 or more square miles are subject to the seven-day, one-in-ten year low flow restriction. *Withdrawals for consumptive uses at any point located between 1/8 mile and 1/4 mile of a stream shall cease when the stream is at or below the 7Q10 flow.*

IAC, Environmental Protection (567) Chapter 54

Well interference by existing permitted uses. If a complaint is made to the department by the owner of a nonregulated well regarding suspected well interference, the following procedures will be followed.

54.5(1) *Initial notification of complaint*. The complainant shall provide the department with a description of the problem, suspected interference, contact info etc.

54.5(2) *Initial response by the department*. The department will provide the complainant with a description of procedures, guidelines for resolving well interference complaints and information from department files on permitted uses in the area. The department will also notify any permitted user who is suspected of causing well interference of a possible well interference complaint.

54.5(3) *Well inspection*. It is the responsibility of the complainant to have the affected well inspected by a certified well contractor, to have the contractor complete Form 122: Water Well Inspection Report, and to

submit the report to the department. Costs for a well inspection are eligible for compensation if well interference is subsequently verified.

54.5(4) *Corrective work prior to a settlement.* The complainant may proceed with corrective measures prior to a settlement and remain eligible for compensation if well interference is subsequently verified. However there will be no assurance of compensation.

54.5(5) *Determination of apparent well interference.* The department will determine that the complaint appears valid if all of the following criteria are met:

- a. The well inspection found no mechanical or structural reason for well failure.
- b. A permitted use can be identified as an apparent cause of well interference.
- c. The nonregulated well was in use when the permitted use began or the suspect permitted use changed significantly while the nonregulated well was still active.
- d. The suspect permittee and complainant withdraw water from the same aquifer or sources likely to be in close hydraulic connection.
- e. The suspect permittee was withdrawing water during the period when well interference was claimed.
- f. Well interference is reasonably possible with known conditions (i.e., pumping rates, separation distances, aquifer properties and relative water levels in the wells).
- g. Other obvious causes of water level decline are not apparent.

The department may identify permitted uses, in addition to those identified by the complainant, as apparent causes of well interference and will so notify the complainant and each suspect permittee. The department or a suspect permittee may identify other nonregulated wells which may also be affected by well interference caused by the suspected permittee(s), and the department will so notify the suspect permittee(s) and each potential complainant who has been so identified.

If the department determines that apparent well interference exists, the department will immediately notify the complainant and suspect permittee(s) of the situation, procedures, and required informal negotiations. If the department determines that apparent well interference does not exist, the complaint will be dismissed and the complainant and each suspect permittee will be so notified. A dismissal may be appealed by the complainant as provided in rule 54.10(455B).

54.5(6) *Emergency withdrawal suspension or restrictions.* If the complainant's well is not able to deliver a sufficient water supply due to apparent well interference, the department may immediately suspend or restrict withdrawal by the suspect permittee(s) pursuant to 567—subrule 52.7(2). Restrictions may include, but are not limited to, scheduling withdrawals or reducing withdrawal rates. If approved by the department, the permittee(s) may elect to provide a temporary water supply to the complainant or take other appropriate measures as an alternative to withdrawal suspension or restrictions. A temporary water supply must meet the needs of the intended use in terms of both quantity and quality.

- settlement procedures are also documented in IAC, Environmental Protection (567) Chapter 54

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- (54.1) although administrative resolution of conflicts between permitted and nonregulated users is available, informal negotiations between affected parties must first be attempted and are encouraged by the Department

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- 52.9 Each permit granted after July 1, 1986, will include conditions requiring routine (day-to-day) conservation practices, and requiring emergency conservation practices after notification by the department. Existing permits may be modified to include conservation conditions if deemed necessary by the department.
- Only general provisions for routine conservation will be included in a permit, unless water is to be withdrawn from a protected water source designated in 567—Chapter 53 which has specific requirements for routine conservation. Permit conditions requiring routine conservation are

primarily intended to raise awareness of water usage, develop a preparedness for periods of water shortages, and minimize waste of water.

- General conditions involving emergency conservation will be included in all permits. Specific emergency conservation conditions may be included in a water use permit if the proposed or permitted withdrawal could result in a significant consumptive use of water from a source which is likely to experience a short-term shortage. A determination of the consumptive nature of a water use will be based on the hydrologic relationship of the sources of water withdrawal and wastewater discharge. If the source of withdrawal and discharge are the same, the consumptive use from the source will be considered to be the amount of water withdrawal minus the wastewater discharge. If the sources of withdrawal and discharge are hydrologically independent, then consumptive use from the source of withdrawal will be considered to be the total amount of withdrawal. Water sources which are in close hydrologic connection (e.g., an alluvial aquifer and adjacent stream) will be considered as the same source. If specific emergency conservation permit conditions are required, they will be based on a water conservation plan developed by the permittee or applicant, in accordance with subrule 52.9(3), and approved by the department.
- 52.9(3) *Water conservation plans*. Unless specific emergency conservation permit conditions are not required in accordance with subrule 52.9(2), the applicant or permittee shall submit a water conservation plan with an application for a new water use permit or renewal of an existing permit. The department may also require a water conservation plan to be submitted by any existing permittee after a minimum of 90 days' notice.
- Water conservation plans shall describe the measures to be used to achieve water conservation and estimate water savings from each measure. Water conservation plans must contain the following information, as applicable, to be approved by the department.
- *a. General provisions*. The following information shall be included in all water conservation plans:
 - (1) A description of each source of water withdrawal (i.e., well or surface water intake) including the location, well depth, pumping rate, and date of installation.
 - (2) A description of wastewater discharge including the location and discharge frequency.
 - (3) Monthly withdrawal amounts from each source for the past five years.
 - (4) Monthly total water withdrawal amount for the past five years.
 - (5) Monthly total wastewater discharge amount for the past five years.
 - (6) A quarterly breakdown, by the water use categories in subrule 52.10(3), of total water use and estimated consumptive water use over the past five years.
 - (7) A description of any previous water shortage problems, including the cause, frequency, other affected parties, and how they were resolved.
 - (8) Identification of nearby water supplies which are potentially affected by or could potentially affect the proposed or permitted withdrawal.
 - (9) A means of identifying impending water shortage problems (e.g., water level in wells or a reservoir decline to a certain level or stream flows fall to a certain rate).
- *b. Routine conservation provisions*. Consideration of routine conservation is encouraged although it is not normally required in a water conservation plan. Documented water savings from routine conservation measures will be credited towards emergency conservation requirements. Suggested routine conservation measures include:
 - (1) Use of water-saving plumbing devices or required use of these devices in building codes.
 - (2) Scheduling irrigation to minimize peak water use.
 - (3) Use of efficient irrigation techniques.
 - (4) Implementing programs to minimize lost water, such as piping leaks.
 - (5) Use of metered water billing by public water supplies.
 - (6) Utilizing best commercially available technology to optimize efficiency of water use.
 - (7) Implementing recycling and reuse practices.
 - (8) Developing alternative water sources which are not susceptible to shortages.
 - (9) Increasing rates charged for water or eliminating reduced rates for large users.
- *c. Emergency conservation provisions*. Water conservation plans shall contain emergency conservation provisions in accordance with the following criteria.
 - (1) General. The consumptive nature of a water use, as described in subrule 52.9(2) and determined from information required in 52.9(3)"a," shall be reduced by at least 50 percent over

similar periods of normal use. This criterion does not apply to irrigation use. If this requirement cannot be met, justification for nonattainment shall be provided which must include documentation that an activity involving water use is essential and demonstration of use of best commercially available technology. The department may then grant variances on a case-by-case basis. Measures which will be credited for emergency conservation include, but are not limited to, the following: documented water savings resulting from routine water conservation measures; shutdown, postponement, or curtailment of nonessential activities involving water use; switching to nonaffected sources for water supply; mitigation of consumptive uses by direct discharge of stored water or water from a nonaffected source to the affected water source; acquisition and retirement of existing consumptive uses from the affected water source (credit for retirement of existing consumptive uses will be given only for the amount authorized during periods when emergency conservation is required); and imposing surcharges on water use during periods of shortage.

(2) Public water supplies. At a minimum, emergency water conservation plans for public water supplies must include provisions for restricting outside, consumptive water use.

(3) Irrigation water use. Emergency water conservation plans for irrigation water uses shall limit irrigation water use to the equivalent of one inch per irrigated acre per week for general farm crops and specialty crops, unless the water conservation plan contains other mitigating provisions such as listed in 52.9(3)“c”(1) above. Water conservation plans shall also address irrigation scheduling. Irrigation scheduling should attempt to provide approximately equal water use on each day of an irrigation cycle. Irrigation scheduling may be done in cooperation with other nearby irrigators who utilize the same water source.

- *Long-term water use planning*

567-53.2 – the department, after consultation with the geological survey bureau of the department and other authorities, may designate a surface water or groundwater source within a defined geographical area as a protected source. The purpose of designation is to ensure the long-term availability of water quantity and quality to preserve public health and welfare. Special information may be required of applicants for permits to withdraw from such sources and conditions may be applied to approved permits.

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

-

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

-

MINNESOTA

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- Water Appropriation Permit Program

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Minnesota Statutes (103G.255 to 103G.315) and Minnesota Rules (6115.0600 – 6115.0810) provide authority for implementation of permit program (since 1937)

Is ownership of water vested in right of the province/state?

-

What other relevant legislation/ regulation(s) exist and for what purpose?

-

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- permit is required for all water withdrawals exceeding 10,000 gpd or 1 million gallons per year
- water for domestic purposes serving less than 25 people, test pumping of a groundwater source and agricultural field drainage are exempt from permit requirements

Is there a de minimus volume/rate exemption?

- 10,000 gpd

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

-

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- permitting system based on common law regime

Do certain types of uses have priority over others?

- resolution of water use conflicts is based on water use priorities established in Minnesota Statutes, Section 103G.261

103G.261 Water allocation priorities.

(a) The commissioner shall adopt rules for allocation of waters based on the following priorities for the consumptive appropriation and use of water:

(1) first priority, domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets the contingency planning provisions of section 103G.285, subdivision 6;

(2) second priority, a use of water that involves consumption of less than 10,000 gallons of water per day;

(3) third priority, agricultural irrigation, and processing of agricultural products involving consumption in excess of 10,000 gallons per day;

(4) fourth priority, power production in excess of the use provided for in the contingency plan developed under section 103G.285, subdivision 6;

(5) fifth priority, uses, other than agricultural irrigation, processing of agricultural products, and power production, involving consumption in excess of 10,000 gallons per day; and

(6) sixth priority, nonessential uses.

(b) For the purposes of this section, "consumption" means water withdrawn from a supply that is lost for immediate further use in the area.

(c) Appropriation and use of surface water from streams during periods of flood flows and high water levels must be encouraged subject to consideration of the purposes for use, quantities to be used, and the number of persons appropriating water.

(d) Appropriation and use of surface water from lakes of less than 500 acres in surface area must be discouraged.

(e) The treatment and reuse of water for nonconsumptive uses shall be encouraged.

(f) Diversions of water from the state for use in other states or regions of the United States or Canada must be discouraged.

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- Minnesota Department of Natural Resources administers permit program, although the DNR coordinates its efforts with other entities in the state (i.e. soil and water conservation districts, watershed districts, cities etc.)

Is permitting/licensing handled centrally, regionally or locally?

- regionally

How are availability of supply and allocation limits determined?

- 6115.0670 upon receipt of a complete application for a water appropriation permit, the commissioner shall consider the following key factors before making a decision:
 - o type of appropriation and its impact on the availability, distribution and condition of water and related land resources in the area involved;
 - o hydrology and hydraulics of water resources involved and the capability of the resources to sustain the proposed appropriation based on existing and probable future use;

- probable effects on the environment
 - efficiency of use and intended application of water conservation practices;
 - the commissioner shall further consider additional factors for appropriation from watercourses, vs. basins vs. groundwater. For each source the commissioner must consider different factors. For example, factors for consideration in a watercourse application include: historic streamflow records, and where streamflow records are not available, estimates based on available information on the watershed, climatic factors, runoff and other pertinent data etc.
- monitoring of hydrologic conditions in Minnesota is extensive. Division of Waters monitors and collects precipitation, lake level, ground water level, stream flow and water use data to determine Minnesota's water budget. This information is used by the commissioner when considering applications for water appropriation.
 - When water supply conflicts occur or when a request for water use poses a potential conflict, evaluations of the water supply and demand are conducted by the DNR. These evaluations use data from many sources, including:
 - DNR monitoring networks (climate, ground water, lakes, and streams),
 - DNR water use data,
 - DNR and Minnesota Department of Health (MDH) pumping tests,
 - County Well Index,
 - United States Geological Survey and MGS geologic and hydrogeologic studies, and
 - MGS and DNR county and regional maps.

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- the applicant is required to submit with the application, hydrology and hydraulics of the water sources involved, including for surface waters the applicant's analysis of the effect of proposed withdrawals on levels and flows and anticipated impacts, if any, on instream flow or lake level conditions to the extent that such facts are not already available to the commissioner;
- information applicant submits with application primarily used to back up/confirm the information the commissioner has available to him/her

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- soil and water conservation districts, watershed districts and cities receive copies of new permit applications and may comment on these within 30 days of receiving notification.
- The DNR also coordinates review of water emergency and conservation plans required for new wells, wellhead protection plans and Drinking Water Revolving Fund applications, with the Department of Health (Blake, 2002)

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- *Permit duration:* Permits shall be issued for temporary or for long-term appropriation (M.R. 6115.0750).
 - Temporary permits involve a one-time, limited life, not more than 12 months, nonrecurring appropriation of waters of the state, such as for highway construction, exploratory drilling for minerals, hydrostatic testing of pipelines and other short-term projects. Requested time extensions shall be permitted, but in no case shall the total length of time the permit remains in force exceed two years.
 - Long-term permits will remain in effect subject to applicable permit provisions and conditions of the permit, the law, and these parts, provided that in cases where the permittee is not the

landowner of record, the term of the permit shall be the same as that of the property rights or license held.

- *permit amendment:* (6115.0750) permit holders must request to amend their permits if changes are made to their water systems including: number of installations, pumping rate, volume of water required, number of acres irrigated.
- *Permit transfer:* (6115.0750) requests for transfer to a new owner should be submitted in writing along with the name and contact details of the new owner and the date of transfer. Proof of new ownership is required.
- *Permit revocation:* (6115.0750) a permit holder no longer requiring their water permit should request the termination of the permit as water use reports and fees are due each year for an active permit. A permit shall be terminated when any of its provisions are violated; if the permittee has not appropriated any water within 5 years of the issuance of the permit; when the commissioner deems it necessary to protect public health, safety, welfare; etc.

What are the applicant’s rights of appeal?

-

APPLICATION FEES AND WATER USE CHARGES

Are there application fees? Describe.

- filing fee of \$75 USD

Are there ongoing charges? Describe.

Maximum Annual Water Use Fees are as follows:

- \$750 for any single agricultural irrigation permit
- \$35,000 for any single non-irrigation permit
- \$35,000 total for an entity with 3 or less permits
- \$50,000 total for an entity with 4 or 5 permits
- \$175,000 total for an entity with 5 or more permits
- \$175,000 total for a city of the first class

Once through heating and cooling systems ONLY:

1. For nonprofit corporations and school districts:
 - o \$50 per million until December 31, 1991
 - o \$100 per million gallons from January 1, 1992 until December 31, 1996
 - o \$150 per million gallons from January 1, 1997 until 2010
2. For all other users, \$200 per million gallons

Note: There is no maximum fee for once-through system water use.

There is also a fee charged to process annual water use reports, these are as follows:

Volume Appropriated	Fee
0 to 50 million gallons	\$50.00 minimum fee
50 to 100 million gallons	\$1.00 for each million
100 to 150 million gallons	\$1.50 for each million
150 to 200 million gallons	\$2.00 for each million

200 to 250 million gallons	\$2.50 for each million
250 to 300 million gallons	\$3.00 for each million
300 to 350 million gallons	\$3.50 for each million
350 to 400 million gallons	\$4.00 for each million
Above 400 million gallons	\$4.50 for each million

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- (M.S. 103G.265) Diversion greater than 2,000,000 gallons per day. A water use permit or a plan that requires a permit or the commissioner's approval, involving a diversion of waters of the state of more than 2,000,000 gallons per day average in a 30-day period, to a place outside of this state or from the basin of origin within this state may not be granted or approved until:
 - (1) a determination is made by the commissioner that the water remaining in the basin of origin will be adequate to meet the basin's water resources needs during the specified life of the diversion project; and
 - (2) approval of the diversion is given by the legislature.

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- Minnesota statutes require all permittees to use flow meters to measure the quantity of water appropriated within the degree of accuracy required by rule (10%), unless another method is approved by the DNR
- According to M.R. 6115.0750
 - o *For surface water appropriations, where applicable, the permittee shall measure flows or levels in the watercourse or basin at a specific gauge designated by the commissioner and located within the area of appropriation. The commissioner shall require permittees to pay necessary costs of establishing and maintaining such gages.*
 - o *For groundwater appropriation, the commissioner, based on availability of hydrologic data on the aquifer involved, frequency and rate of pumping, and probability of conflict or well interference, shall require the permittee to measure and keep records of the water levels in each production well at reasonable times prescribed in the permit. Observation wells may be required as a condition of the permit to better evaluate hydrologic conditions and effects in areas where hydrologic data are unavailable, where probable conflict or well interference problems may occur and where such wells are required by law.*
- See fact sheet, "Measuring Water Use and Flow Meter Requirements," produced by DNR and provided as terms of reference to all applicants

What is the form and frequency of monitoring?

- the following methods are approved for measuring water use:
 - o Flow meters with a totalizer
 - o Flow rate meters used with timing devices + *
 - o Timing devices (hour meters and electric meters) + *
 - o Vehicle gallon capacities (i.e. water trucks) +
- + daily records of water use and time pumped must be kept for these methods
- * methods 2 and 3 are required to have a constant pumping rate

What is the form and frequency of reporting and to whom?

- all water users are required to submit annual water use reports with monthly data
- data is to be recorded on DNR Water Use Reporting Form and returned to the DNR by Feb 15 each year

Is auditing carried out? Describe.

-

How are data managed and by whom? Obtain an example copy of database report for a typical permit/licence (i.e. information field contained within database).

- data are managed by the Department of Natural Resources and are available to the public on the DNR website. Information field contained within the DNR database include use, agricultural acreage, permitted pumping rate (gpm), permitted volume (in millions of gallons per year) and reported pumping from 1996 to 2000.

Are monitoring data readily accessible to other agencies and the public?

- see above

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Minnesota Department of Natural Resources

How are conflicts between users and/or violations of permits/licences/approvals identified?

- potential conflicts between a proposed water use and existing uses may be foreseen by the DNR before issuing a permit
- conflicts between existing users are identified primarily by the users themselves

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- Minnesota Rule 6115.0740 Water Use Conflicts

If conflicts can be resolved by modifying the appropriation of the proposed and existing users, the commissioner shall do so.

If conflicts cannot be resolved through modification of proposed and existing permits the commissioner shall base the decision regarding issuance of new applications and retention, modification, or termination of existing permits on the basis of existing priorities of use established by the legislature as follows:

(1) If the unresolved conflict involves users who are or would be in the same priority class, the commissioner shall require the proposed users and existing permitted users to develop and submit a plan which will provide for proportionate distribution of the limited water available among all users in the same priority class. The commissioner shall withhold consideration of new applications and shall, if the existing permitted appropriations endanger the supply of waters of the state, suspend or limit existing permits until a plan is approved by the commissioner.

The plan must include proposals for allocating the water which address the following: possible reduction in the amounts of appropriation so that each user would receive a proportionate amount of water for use; and possible restrictions in the timing of withdrawals so that each user would be allowed to withdraw a proportionate share of water for use over certain periods of time.

If the commissioner approves the proposed plan, new permits will be issued and existing permits will be amended in accordance with that plan.

If the commissioner determines that the proposed plan is not practical or reasonable, the commissioner shall develop a new plan or modify the proposed plan to provide proportionate share of water among the users involved. The commissioner shall issue new permits and amend existing permits based on that plan.

(2) If the unresolved conflict involves users who are or would be in a different priority class the available water supply shall be allocated to existing and proposed users based on the relative priority of use. Highest priority users shall be satisfied first. Any remaining available water supply shall be allocated to the next succeeding priority users, until no further water is available. Users in the same priority class shall be offered the same options as provided in subitem (1).

Drought Emergency

- *When necessary, the DNR will suspend surface water appropriation permits within specific watersheds when stream flow drops below the protected flow, and on specific water basins when water levels drop below the protected elevation. Stream flow and lake level monitoring will be the basis for considerations of permit suspension (DNR, 1993)*
- *The Governor is empowered to declare an emergency drought situation. Public water supply authorities may be ordered to adopt and enforce water conservation restrictions that limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses.*
- *A mean daily flow of 554 cubic feet per second or less on the Mississippi River will automatically trigger a critical water deficiency DNR recommendation to the Governor for the Mississippi River basin.*
- *Please see the, "Agency Drought Coordination Matrix," in the document, "Drought Response Plan," for the specifics on roles and responsibilities of Minnesotan agencies during drought.*

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

-

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- *Minnesota has a formal water conservation program. Conservation plans are required for public water suppliers and for agricultural irrigators.*
- *Water emergency and conservation plans are required for all public water suppliers serving more than 1,000 people. These plans might include education, conservation rate structures, planning, and the elimination of wasteful uses. They must be updated and approved by the DNR every 10 years.*

- Public water suppliers must also implement demand reduction measures before requesting permit approvals for new municipal wells and increases in water withdrawals. Suppliers with UAW volumes exceeding 20 percent are required to establish a goal and reduce UAW to less than 20 percent within 3 years.
- In some cases, applicants for irrigation permits may be required to develop a site-specific soil and water conservation plan in order to gain the approval of a county soil and water conservation district (Blake, 2002).
- (M.R. 6115.0660) all applications for use of surface water shall include a “contingency plan which describes the alternatives the applicant will utilize if at any time appropriation is restricted to meet instream flow needs or to protect the level of a basin. The contingency plan shall be feasible, reasonable, and practical; otherwise the applicant shall submit as part of the application a written statement agreeing in such case to withstand the results of no appropriation” (Minnesota Statutes, section 103G.285, subdivision

Protected Flows

- The DNR continues to research and work on establishing protected flow limits for specific watercourses in Minnesota
- Until specific protected flows have been established, the DNR Divisions of Ecological Services and Waters have agreed to use the annual 90 percent exceedence flow for all new permits for water appropriations from streams.
- Minnesota Rule 6115.0670 states that the commissioner shall establish protected flows and protection elevations (for basins) for the purpose of accommodating instream needs such as water-based recreation, navigation, aesthetics, fish and wildlife habitat, water quality, and needs by downstream higher priority users located in reasonable proximity to the site of appropriation
- Where a protected flow/elevation is established by the commissioner, no appropriation shall be allowed when the flow/elevation is below that protected flow/elevation.

- *Unwise uses of ground water such as once through cooling and lake water level maintenance have been severely curtailed since 1989. This has resulted in a 6.4 billion gallons per year reduction in unwise water use (DNR, 2000).*

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

-

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

-

**PENNSYLVANIA
(DRAFT)**

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water allocation permit

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Water Rights Act (1939): only authorizes DEP to regulate surface water withdrawals for public water suppliers
- Delaware River Basin Compact (1961): provides for the coordination of policies for water conservation, control, use and management in the Delaware River Basin. The Commission has the power to allocate water from the basin to and among the signatory states according to the doctrine of "equitable apportionment". Signatory states include New York, Delaware, New Jersey, Pennsylvania.
- Delaware River Basin Water Code (1996)
- Susquehanna River Basin Compact: provides for the coordination of policies for water conservation, control use and management in the Susquehanna River Basin. Signatory parties include Maryland, New York, Pennsylvania.

Is ownership of water vested in right of the province/state?

-

What other relevant legislation/ regulation(s) exist and for what purpose?

- *The Pennsylvania Safe Drinking Water Act*

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- groundwater is not included in permitting

DRBC (Delaware River Basin Commission)

- both

SRBC (Susquehanna River Basin Compact)

- both

What uses are included/excluded?

Area outside the basins

- *"Incorporated publicly or privately-owned water suppliers who want to take water from a stream or spring, increase a taking from a stream or spring within the Commonwealth, significantly expand a service area or buy bulk water from another public water supplier which uses a stream or spring as source of water must first obtain a DEP Water Allocation Permit to obtain rights to water."* (DEP, 2001b)

DRBC

- within the Delaware River Basin, any project that could have a significant impact on the water resources of the basin must be approved by the Delaware River Basin Commission

FINAL DRAFT

- projects requiring approval include those that involve water takings (ground or surface) in excess of an average of 100,000 gpd, measured over any 30-day period
- within protected areas (DRBC designated areas that are, or are likely to, experience water shortages), withdrawal permits are required for any water withdrawal in excess of an average of 10,000 gpd, measured over any 30-day period. This includes domestic, municipal, agricultural and industrial uses.
- Pennsylvania owners of wells withdrawing an average of 10,000 gpd or more must register their wells with the Pennsylvania Department of Environmental Protection

SRBC

- According to section 3.10 of the Susquehanna River Basin Compact, any project that could have a significant impact on the water resources of the basin must be approved by the SRBC
- approval is required for any project that involves water takings (ground or surface) in excess of an average of 100,000 gpd and for those consuming an average of 20,000 gpd or more, measured over any 30-day period (Project Review Rules and Regulations, part 803)
- exemptions to this rule include agricultural water users and public water suppliers
- within protected areas (SRBC designated areas that are, or are likely to, experience water shortages), withdrawal permits are required for any surface or ground water withdrawal in excess of an average of 10,000 gpd, including domestic, municipal, agricultural and industrial uses
- any water user withdrawing an average of 10,000 gpd or more (ground or surface) must register their water withdrawals with the SRBC every five years (Project Review Rules and Regulations, part 804)

Is there a de minimus volume/rate exemption?

- see above

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted? If so, what proportion of current water users may have been grandparented?

- yes, unless withdrawal amounts have increased or the service area has expanded, existing public water suppliers whom have been withdrawing water prior to 1939, are exempt from the permit requirement

DRBC

- water users with approvals or permits granted for withdrawals by the Commonwealth of Pennsylvania prior to 1961 are exempt from the requirement of obtaining a DRBC withdrawal permit in protected areas
- there is no grandparenting exemption for Pennsylvania owners of wells withdrawing an average of 10,000 gpd or more. Preexisting, unregistered wells are also subject to the registration process.

SRBC

- water users with approvals or permits granted for withdrawals by the Commonwealth of Pennsylvania prior to 1972 are exempt from the requirement of obtaining an SRBC withdrawal permit in protected areas

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation?

- no, water rights system based on riparian doctrine and common law rules

Do certain types of uses have priority over others?

- only in a declared state of drought emergency (see section 9, Enforcement and Conflict Resolution Processes)

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- the Pennsylvania Department of Environmental Protection administers the Water Act and the Safe Drinking Water Act.
- the Delaware River Basin Commission (DRBC) and the Susquehanna River Basin Commission also have the authority to regulate water withdrawals/diversions within their respective basins. Within these basins, the commissions' regulations supercede state water regulations. If undertaking a large water use project in a basin, approval for it must be secured by the appropriate commission concurrent with processing of DEP application
- to avoid duplication of work, the DRBC has developed agreements of understanding with the DEP regarding review of applications, administration and regulation of water conservation programs; and the monitoring of public water suppliers within the basin. DEP also administers and enforces metering, recording and reporting of all other permitted water withdrawals in the DRB. I cannot find evidence of a similar set-up in the SRB. All monitoring and reporting of water use is directed back to the SRB rather than the DEP.
- All applications for public water supply withdrawal within PA should be directed to the appropriate DEP regional office, applications for all other types of projects should be submitted directly to the appropriate River Basin Commission (DRBC Groundwater Withdrawal Application Instructions)

Is permitting/licensing handled centrally or locally?

- DEP Permit applications should be submitted to nearest regional office

How are availability of supply and allocation limits determined?

Area outside of basins

- appears that water budgets are not used (see section 12)
- allocation limits are determined based on the following information: proposed water sources, water allocation and justification, existing withdrawal sources (including groundwater sources), interconnections with other water suppliers, instream intakes, present and past water use, water conservation and drought contingency programs
- *water allocation and justification*: applicants should relate the quantity of allocation requested to present and future demand (20-30 years in the future). Documentation showing the determination of this quantity must be provided with the application, along with an explanation of the methodology used in determining future need (DEP, 1998)
- water availability and the safe yield should be listed for each water source. An explanation of the methodology used to determine safe yield must also be provided.
- The DEP Water Allocation Application and Instructions detail the criteria used by the DEP in the review of safe yield calculations by the applicant. For instance, if the source in question is a stream or small reservoir the following criteria apply: *"Where water is withdrawn from a flowing stream, it is desirable for the minimum consecutive 7-day average low flow having a 50-year recurrence interval to exceed the estimated future maximum day water demand. Flow augmentation requirements, diversions, and instream flow needs should be appropriately accounted for, consistent with minimum flow criteria..."* Flow data may be obtained from the DEP or the US Geological Survey. Actual flow data collected may also be used to supplement this flow data. Criteria for large reservoirs and springs are also listed.

DRBC

- ground water withdrawal application must include:

- estimate of present average water use from all sources
- establish the need for the requested allocation by showing, through calculation, how the quantity of withdrawal requested will meet present and future predicted need
- information on applicant's existing wells
- well records
- driller's log
- pumping test
- chemical analysis
- water conservation plan: under section 3.8 of the Compact, new surface and ground water withdrawals in excess of one million gpd and subject to review by the Commission, shall include and describe water-conserving practices and technology designed to minimize the use of water by municipal, industrial and agricultural users (see section 10 for further details)
- drought emergency plan must be prepared by applicant's withdrawing groundwater for the purposes of municipal or public, commercial or industrial water supply

SRBC

- surface water withdrawal application must include:
 - safe yield estimates of all sources of water supply. Method of computation must also be included.
 - The applicant must also show by calculation how the "quantity of withdrawal requested" was determined.
 - A description of how sufficient the requested allocation will be in meeting the future needs of the project.
 - A description of alternative sources of supply considered in lieu of requesting a new or increased allocation from all sources of water supply.
 - An estimate of projected total water use for 25 years in future or, if project duration less than 25 years, the projected use of that year
- groundwater application must include:
 - estimate of projected total water use for 25 years in future, if project duration less than 25 years, the projected use of that year
 - description of existing wells (i.e. average daily withdrawal etc.)
 - description of other sources of water (i.e. average daily withdrawal, safe yield etc.)
 - well records (proposed and existing)
 - driller's log
 - pumping test (in accordance with SRBC specifications)
 - chemical analysis of groundwater

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- determination made primarily by applicant
- results compared with DEP/River Commission estimates and/or calculations
- final approval rests with DEP/River Commission

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

Area outside of basins

- there is a 30-day comment period from the date of publication in the Pennsylvania Bulletin
- during the review process, the application is forwarded to many other review agencies for their approval. I.e. relevant regional Bureau of Water Supply and Community Health, Bureau of Water Quality Management, River Basin Commission etc.
- Act 14, P.L. 834, enacted February 17, 1984, requires that each applicant give written notice to the municipality(ies) and the county(ies) in which the permitted activity is located. The written notice shall be received by the municipality(ies) and the county(ies) at least 30 days prior to the issue or denial of the permit by the DEP (DEP, 1998)

DRBC

- further research required

SRBC

- further research required

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOCAION

What mandatory provisions and powers exist?

Area outside of basins

- *licence duration*: commonly granted for a period of 25 years, although resource assessments during permit process will guide the period for which water rights are granted (DEP, 2001)
- *transfer of water rights*: water rights may be transferred to new owners who take over or acquire existing public water supply systems that are lawfully withdrawing surface water if the new owner initiates no substantive changes to the terms and conditions of development and use of the surface water sources as contained in the existing approvals (DEP, 2002).

DRBC

- further research required

SRBC

- further research required

What are the applicant's rights of appeal?

Area outside of Basins

- once the DEP has made a decision, the applicant and/or the public may appeal the decision to the Pennsylvania Environmental Hearing Board. Appeals must be filed within 30 days. To appeal, the EHB must be contacted by the applicant/public to obtain a copy of the Notice of Appeal form and the board's rules and regulations (DEP 2001b)

DRBC

- further research required

SRBC

- further research required

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

Area outside of Basin

- \$ 25 application fee

DRBC

- a project review fee is required from the applicant by the DRBC
- fee is determined based on total estimated project cost (whichever fee listed below is greater)
- a) 1/10 of 1% of estimated project cost of up to \$10 000 000
- b) 1/25 of 1% of remaining estimated project cost above \$ 10 000 000
- the minimum fee for any project requiring Commission action is \$250

SRBC (see attached rate schedule)

Ground water and surface water withdrawals

Up to 250, 000 gpd - \$1 500

250 001 gpd – 500 000 gpd: \$3 000
500 001 gpd – 1 mgd: \$4 500
over 1 mgd: \$6 000

Hydroelectric projects
Less than 1 megawatt : \$250
1-10 megawatts: \$1 500
greater than 10 megawatts: \$7 500

All other projects requiring review under section 3.10 (2) of the Compact that do not involve a request for a quantity of water e.g. stream encroachments, discharges to interstate waters, etc.
\$2500

Are there volume/ongoing charges?

- No

DRBC

- water users withdrawing water in excess of their legal entitlement must pay for water used, withdrawn or diverted according to rates established by the DRBC (section 2.10.6 DRB Water Code). These rates are calculated based on a “weighted-average unit cost” of all the water stored by the DRBC. The unit cost is calculated as the quotient of the DRBC’s annual project cost divided by the net yield of water supply. A minimum annual charge is required of all permit holders based on estimated demand, and is due annually regardless of actual use.

SRBC

- further research required

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

Area outside of Basins

- it is the policy of the DEP to discourage interbasin transfers of water unless: “a) the importing basin has made reasonable efforts to develop its own resources, and further development of those resources is impractical or would engender overriding adverse economic, social or environmental impacts; b) the transfer will not cause substantial adverse impacts on the ability of the exporting basin to meet its own needs; and c) compensation is provided to the exporting basin during low flow periods through provision of flow augmentation.” (DEP, 2002a)

DRBC

- further research required

SRBC

- further research required

How is it regulated?

Area outside of Basins

- this policy is not an adjudication or regulation. DEP reserves the right to deviate from this policy statement if circumstances warrant.

DRBC

- further research required

SRBC

- further research required

MONITORING AND REPORTING

What uses/users are covered/ not covered?

Area outside of Basins

- any water allocation permit the DEP issues will require the installation of meters to determine the amount of water withdrawn from the source (s)

DRBC

- all users with total daily withdrawals in excess of 100 000 gpd average, during any 30-day period, must meter all withdrawals
- The following water uses and operations are exempt from this requirement: agricultural irrigation; snowmaking; dewatering incidental to mining and quarrying; and dewatering incidental to construction.
- owners of water supply systems serving the public in the Basin must install meters to record water use at all service connections. Water charges collected by purveyors shall be based in part on metered usage.

SRBC

- all users permitted by the SRBC must meter, monitor and periodically report water usage to the SRBC

What is the form and frequency of monitoring?

Area outside of Basins

- see question below

DRBC

- see question above
- section 2.50.2 of the Code states, "*Withdrawals shall at a minimum be recorded on a daily basis for public water supply use and on a biweekly basis for all other water uses and reported as monthly totals annually. More frequent recording or reporting may be required by the designated agency (DEP).*"
- Persons engaged in exempt withdrawal uses in excess of 100 000 gpd during any 30-day period shall record the pumping rates and the dates and elapsed hours of operation of any well or pump used to withdraw water, and report such info following the same procedure as detailed above.

SRBC

- groundwater users must monitor and record water levels weekly, pumpage daily, and groundwater quality every three years
- surface water users must monitor withdrawals by source, daily, weekly or monthly, water conservation activity and water releases for in-stream protection (regulations do not apply to groundwater withdrawal undertaken prior to July 13, 1978 or to surface water withdrawals prior to November 11, 1995)

What is the form and frequency of reporting and to whom?

Area outside of Basins

- public water suppliers holding a water allocation permit, must submit a Water Allocation Permit Compliance Report annually. This report must include information on: source metering, residential

daily per capita water use, service metering, leakage control programs, water conservation activities, water pricing rate structures, demand reduction, drought contingency plans

- under the Pennsylvania Safe Drinking Water Act, public water suppliers holding a public water supply permit from the DEP must submit an Annual Water Supply Report to the DEP annually. The report must include information on annual and daily water withdrawals by source, the status of water metering initiatives, local water conservation plumbing codes, and whether or not the supplier provided water conservation information to their customers in the last year.

DRBC

- see question above

SRBC

- the Surface Water Withdrawal Reporting Form must be completed and submitted annually or as otherwise required for each surface water source approved by the SRBC. Withdrawal info is reported as daily pumpage from each source. Monthly totals and a quarterly or annual total should also be provided if applicable.
- The Daily Ground-Water Withdrawal Reporting Form must be completed and submitted annually or as otherwise required for each ground water source approved by the SRBC. Withdrawal info is reported as daily pumpage and weekly water level for each source. A summary of total daily ground-water pumpage (with monthly totals) is also required.

Is auditing carried out?

-

How are data managed and by whom? Obtain an example copy of database report for a typical permit/licence.

Area outside of Basins

- data are managed by the Department of Environmental Protection, Commonwealth of Pennsylvania

DRBC

- further research required

SRBC

- monitoring data collected by SRBC

Are monitoring data readily accessible to other agencies and the public?

- The DEP Environment, Facility, Application, Compliance Tracking System allows the public to monitor the compliance of any/all permit holders in PA. All permits held by a particular public water supplier may be viewed. Date and reasons for all inspections are listed, as well as whether or not the inspection resulted in a violation. If the facility is found to be in violation, the reason for this violation is also documented on the website. However, in a search of the site I was not able to view any monitoring information pertaining to the actual water allocation permit that a supplier must have (i.e. information that is obtained by the DEP through the Water Allocation Permit Compliance Report). The available data, including violation data, was documented for some of the other permits that a public water supplier must have i.e. public water supply permit – construction. This system may be found on the web at <http://www.dep.state.pa.us/efacts/default.asp>

DRBC

- further research required

SRBC

- further research required

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- DEP regulates and enforces Water Rights Act
- DEP, DRBC, SRBC all play important roles in the management of water within the Commonwealth during times of drought

How are conflicts and/or violations identified?

Area outside of Basins

- Conflicts between users are typically identified on a reactive basis, through the users themselves
- According to the Citizens Advisory Council to the DEP, under the current system, disputes between water users are typically resolved through litigation. This does not guarantee or protect water rights, does not deal with use conflicts during droughts, does not address conservation of water during non-drought conditions, and does not adequately provide for increasing demand (CAC, 2000).

DRB

SRB

In drought situations

- water shortages caused by drought are monitored and identified by DEP, DRBC, SRBC (see below for further details)
- managing the Commonwealth's water resources during droughts is the responsibility of the Pennsylvania Emergency Management Agency (PEMA), with support from DEP

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

In drought situations

- DEP monitors drought conditions throughout the Commonwealth (indicators include precipitation levels, groundwater levels, reservoir storage, streamflow, Palmer Drought Severity Index) and uses a system of 4 drought stage categories: normal, drought watch, drought warning, drought emergency
- during a drought emergency, regulations under the Pennsylvania Code (4 PA. Code Chapter 119) outline and prohibit non-essential uses of water including lawn, garden, and golf course watering (except for tees, greens, aprons), pavement washing, the use of water for ornamental purposes, washing automobiles, serving water in restaurants and filling swimming pools.
- "agricultural irrigation for the production of food and fiber, for the maintenance of livestock and poultry or the production of nursery stock," are exempt from this regulation
- also at this stage, public water suppliers are required to have their drought contingency plans approved by the DEP
- violation of these mandatory non-essential uses of water is a summary offense. Violators are issued a citation by law enforcement authorities (state police, county and state fire marshals, other state employees with law enforcement authority and public water supply agencies) and the violator must appear before a district justice. Penalties are as follows: "...payment of a fine not exceeding \$200 or imprisonment not exceeding 30 days or both, for the first offense, and a fine not exceeding \$500 or imprisonment not exceeding 90 days or both, for each subsequent offense" (35 PA. Code Section 7707)
- if a drought is so severe that water use restrictions are unable to protect the supplies of an individual public water supplier, it may become necessary to ration water within that system. Upon approval from the Governor, the water supplier may ration the water source amongst system customers. How water is allocated is up to the supplier or municipality (DEP 2001a).

DRBC

- section 10.4 of the Delaware River Basin Compact states, “in the event of a drought or other condition which may cause an actual and immediate shortage of available water supply within the basin, or within any part thereof, the commission may, after public hearing, determine and delineate the area of such shortage and declare a water supply emergency therein”
- priorities of water use during drought conditions are as follows, from first to last priority (2.5.2 DRB Water Code):
 - 1) those uses which sustain human life, health and safety
 - 2) livestock
 - thereafter, based on the doctrine of equitable apportionment, the remaining water is allocated among producers of goods and services, food and fibers, environmental quality
- DRBC defines drought conditions differently from DEP. Drought conditions are defined by the total combined storage in the New York state reservoirs of Cannonsville, Pepacton and Neversink. Storage level of the reservoirs may be classified as normal, drought warning, or drought at any time (see Figure 1. Operation Curves for Cannonsville, Pepacton and Neversink Reservoirs, DRB Water Code, pg 9).
- NB: local streamflows and groundwater levels may actually be in drought conditions at the same time as reservoir levels are normal. In this case, DRBC relies on DEP to respond to drought conditions.
- For each drought condition category, DRB Water Code provides a schedule of allowable maximum diversions from the basin, minimum compensating releases from the reservoirs, stream flow objectives at various locations in basin.
- A drought emergency may also be declared based on the storage levels of lower basin reservoirs, even if major reservoir storage is considered normal. In this case, regulations are in place for each drought situation, including regulations addressing streamflow objectives, priorities and quantities of reservoir releases, diversion rates, conservation measures
- During drought conditions, DRBC works with DEP to restrict non-essential water uses (listed above)

SRBC

- SRDC’s drought management procedure consistent with procedures followed by the state
- SRDC has rule and regulations in place to manage water in times of drought and in low flow conditions
- SRBC uses the following indicators to assess drought: precipitation, stream flow, groundwater levels, PSDI, reservoir levels, reported public water supply problems
- Three categories of drought status are drought watch, drought warning, drought emergency (see Susquehanna River Basin Drought Coordination Plan for detailed definitions of these categories. Definitions are consistent with those of the state). These may be declared basin-wide or for specific regions or counties.
- Section 803.42 of the Project Review Rules and Regulations requires large water users consuming water in excess of 20,000 gpd to compensate for the consumptive use of water in times of low flow
- Compensation may be in the form of monetary payment, the imposition of conservation measures, etc
- During a drought emergency, SRBC may reduce water allocations and diversion, coordinate reservoir operations, and require signatory states to restrict non-essential water uses

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

In drought situations

DRBC

- during drought warning conditions the DRBC will encourage and implement voluntary water conservation measures and programs (DRB Code, section 2.5.6C.5) DRBC relies on press to facilitate the spread of information and to promote water conservation measures

SRBC

- SRBC call for voluntary conservation measures during a drought warning. Public water suppliers and industrial users are to continue implementing their drought contingency plans

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

Area outside of Basins

- all applicants should develop water conservation and leak detection programs and drought contingency plans. If the applicant has not developed these programs/plans, the Department will require the development and implementation of these as conditions in the permit (DEP, 1998)
- if the applicant's customer connections are unmetered, the applicant will be required to submit a plan and timetable for metering the connections. Any permit issued will contain a condition requiring metering of the unmetered connections within a specified period of time (DEP, 1998)
- DEP Guidelines For Designing a Water Conservation Program are included with the Water Allocation Application and Instructions. These guidelines included suggested supply management methods, including leakage/loss control and water meter management; and demand management methods, including pricing, water conservation education and local water-use regulations.

DRBC

- public water suppliers applying for a new permit to withdraw in excess of one million gpd from ground or surface waters MUST prepare a conservation program. The conservation program must consist of the following elements: monitoring of water distribution and use, establishment of a systematic leak detection and control program, use of water conserving devices and procedures, a contingency plan including use priorities and emergency conservation measures to be instituted in the event of water shortage
- all applications submitted after June 30 1992 must also include an evaluation of the feasibility of implementing a water conservation pricing structure and billing program as required in section 2.1.7 of resolution 92-2
- water users applying for a permit to withdraw in excess of one million gpd for industrial or commercial uses and for agricultural use must also submit various reports and contingency plans (see resolution 81-9, DRB Water Code)

SRBC

- public water suppliers must restrict losses from their distribution systems, install meters for all users and develop and implement a water conservation program
- Industrial water users and agricultural water users must also abide by certain conservation regulations

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- To address increasing concern for the present and future water resource needs of Pennsylvania, the DEP facilitated 15 public Water Forums on various topics in the spring of 2001
- the following key issues were identified as concerns across the state:
 - lack of information and data specifying how much water is available and how it is being used in Pennsylvania
 - lack of information on water use and overuse
 - lack of water conservation programs/plans/initiatives
 - absence of standards for the construction of water wells (to prevent groundwater pollution and assure good water supplies)
 - a need to encourage groundwater recharge through better stormwater management
 - disputes among water users
- According to the CAC to the DEP other shortcomings include (CAC Position Statement, 2000):
- lack of a comprehensive water management system,

- poor coordination between agencies in managing resources: i.e. among River Basin Commissions and DEP. Areas of the state outside of the river basin commissions' jurisdictions are regulated only for water quality and surface water public water supply withdrawal.
- Biological resource impacts have been largely ignored
- lack of a mechanism to implement the water plans that have been developed by the DEP over the years

- water shortages across the state due to frequent and ongoing drought conditions, increasing pressure on existing supplies due to continued population growth and economic development are also major problems

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

To address the issues identified by the public in the Water Forums, the DEP proposed the development of the Water Resources Conservation and Protection Act (Senate Bill 1230 – House Bill 2230). If passed, the Act will be Pennsylvania's primary legislation addressing water resources. The following initiatives are provided for in the proposed Act (DEP, 2001).

- 1) State Water Plan Update: the Act would ensure that DEP completes an updated State Water Plan within 3 years and updates this Plan every 5 years
- 2) Collection of Data: Act requires users of 10,000 gpd or more to register and report water use to DEP annually (no registration fee).
- 3) Critical Water Planning Areas: Critical Water Planning Areas (areas where the demand for water exceeds, or is projected to exceed the supply) would be identified during the updating of the State Water Plan.
- 4) Integrated Water Resources Plans: once established, Critical Water Planning Areas would serve as the planning boundary for the creation of a more detailed "water budget" for the area. The DEP would ask the people of these areas, through an open public process, to designate an organization to develop an Integrated Water Resource Plan. The organization must be representative of the area and include local stakeholders in a local watershed planning advisory committee. Technical and financial support (up to 75% of the cost of developing a plan) would be provided by DEP.
- 5) Voluntary Water Conservation Program: the Act establishes a formal water conservation and water use efficiency program for all users. A Water Resources Technical Assistance Centre would be created to promote the use and development of water conservation and water use efficiency education and technical assistance programs.
- 6) PENNVEST Funding: funding available to public water supply systems addressing unaccounted for water losses and the implementation of water conservation measures when water loss rates exceed 20%
- 7) Water Wells: The Act would require the DEP to develop water well standards.
- 8) Disputes Among Water Users: The Act directs DEP to establish a voluntary mediation program to facilitate the settlement of conflicts between water users to provide an alternative to litigation. The Act will not alter the common law rules that apply to water withdrawals.

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http://www.dep.state.pa/dep/subject/All_Final_Technical_guidance/wsc/392_2130_012.htm

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WISCONSIN

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water withdrawal approval required for well construction (s. 281.17) and for the development/extension of water and sewage facilities (s. 281.41)
- water withdrawal permit required for the diversion of water from lakes and streams (s. 30.18), only an owner or lessee of riparian land can receive a permit to divert water

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Chapter 30, "Navigable Water, Harbors and Navigation," of the Wisconsin Laws establishes permit programs for the following activities: dredging, ponds, grading, diversions, dams etc. S. 30.18 regulates diversion of water from lakes and streams
- S. 281.35 of the Wisconsin State statutes: regulates the registration of water withdrawal
- S. 281.17 of the Wisconsin State statutes: regulates the construction, installation and operation of groundwater wells
- S. 281.41 of the Wisconsin State statutes: regulates the approval of plans for water and sewage facilities
- Chapter NR 142 of the Wisconsin Administrative code: regulates water management and conservation in the state, applies to all person withdrawing water from any waters of the state, provides for the reporting of withdrawal volume and rate of water loss

Is ownership of water vested in right of the province/state?

- the waters of the state are held in trust by the state for the public. The state only has true ownership of the beds of natural navigable lakes.
- Riparian landowners do not have exclusive rights to the water adjoining their property. Public trust doctrine ensures the rights of navigating, fishing, hunting and swimming public.

What other relevant legislation/ regulation(s) exist and for what purpose?

- Boundary Waters Treaty of 1909

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- s. 281.35 states that a water withdrawal must be registered if it will average in excess of 100,000 gpd in any 30-day period
- s. 281.17 states that a well may not be constructed, installed, or operated to withdraw groundwater where the capacity and rate of withdrawal of all wells on one property is in excess of 100,000 gpd without first obtaining the approval of the department
- s. 30.18 states that a permit is required for water loss of 2 000 000 gpd in any 30-day period, or for diversion of water from lakes and streams for the purposes of watering agricultural crops, tree plantations or golf courses

- A person making a withdrawal authorized by a permit or approval issued under s. 30.18, 281.17, or 281.41, and, as a condition of the permit or approval, is reporting the volume and rate of water loss from the withdrawal to the department, is EXEMPT from the registration requirement

Is there a de minimus volume/rate exemption?

- see above

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted? If so, what proportion of current water users may have been grandparented?

- no, all users withdrawing water in excess of 100,000 gpd on or after January 1, 1986, shall register the withdrawal

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- no, system has evolved from common law of England, based on riparian right doctrine
- riparian right doctrine protected under law, although it is subject to a) reasonable use and b) the public trust doctrine

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- priorities not established in regulation, however, the department may approve an application if it finds:
 - o that the applicants current (if applicable) and new proposals for water use will incorporate reasonable conservation practices
 - o that the proposed withdrawal and uses will not have a significant adverse impact on the environment and ecosystem of the Great Lakes basin or the upper Mississippi river basin
 - o that the proposed withdrawal is not opposed by downstream users
 - o that the rights of instream users will not be compromised. The public is entitled to sufficient water for stream flow, recreation and aesthetic enjoyment.

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency(ies)

- Wisconsin Department of Natural Resources (DNR) oversees water use in the state

Is permitting/licensing handled centrally or locally?

- regionally

How are availability of supply and allocation limits determined?

- when considering an application for a stream/lake diversion, the Department determines the amount of surplus water available in the stream after making a detailed field investigation of the site (Application for Irrigation, 2002)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

-

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- If the department receives an application for a withdrawal that will result in a new water loss to the Great Lakes basin averaging more than 5 000 000 gpd in any 30-day period, the department shall notify the office of the governor or premier and the agency responsible for management of water resources in each state and province of the Great Lakes region. If required under the Boundary Waters Treaty of 1909, the international joint commission may also need to be contacted. (NR 142.07)
- under s. 30.18 (Diversion of water from lakes and streams), the Department will schedule a hearing or provide notice that it will proceed on an application or request without a hearing if written objections to the undertaking are not received within 30 days after publication of the notice
- the applicant shall then publish a notice of the proposed stream/lake diversion, in a local newspaper designated by the department.
- The applicant must also acquire the consent of other stream/lake users before a permit is issued. The Department supplies the applicant with a list of downstream users. If a downstream beneficial user does not grant a waiver of objection, the applicant must agree to leave sufficient water in the stream for that user, or the permit application will be dismissed (Irrigation Application, 2002)

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- *approval duration*: may be assigned to an approval if deemed necessary by the department
- *review*: if an expiration date has in fact been issued, the department shall review the approval prior to its expiration. If no expiration date has been issued, the department shall review the approval within 5 years from the date of issuance and at least every 5 years thereafter (s. 281.35, (6b))
- *amendment*: to ensure continued compliance, the department may propose modifications of the approval, or additional conditions, limitations or restrictions determined to be necessary, at any time
- *revocation*: an approval shall be revoked if the department determines that a person to whom an approval has been issued would be unable under any conditions, limitations or restrictions to comply with s. 281.35 or any other applicable statute or rule (s. 281.35, 9d). The Department may revoke most waterway diversion permits if the diversion is subsequently determined to be harmful to the lake or stream or to other riparians (30.18, 6m)
- *request for a new approval or modification*: all approval and/or permit holders shall apply to the department, under s. 30.18, 281.17, or 281.41 for a new approval or modification of an existing approval if the proposal is to begin, or modify a withdrawal that will result in a water loss averaging more than 2 000 000 gpd in any 30-day period (s. 281.35.4b)

What are the applicant's rights of appeal?

- any person who receives notice of a denial or modification requirement by the department is entitled to a contested case hearing if the person requests such measures within 30 days after receiving the notice

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- fees are charged for permits/approvals based on the estimated time spent by the department in reviewing, investigating and making a permit/approval decision (MOE summary document)
- For a permit/approval with an estimated time of:
 - o Less than 3 hours, the fee is \$30
 - o More than 3 hours but less than 9, the fee is \$100
 - o More than 9 hours, the fee is \$300

Are there ongoing charges?

- any person who makes a withdrawal from the waters of the state and is required to register that withdrawal pursuant to NR 142.01, shall be annually assessed a withdrawal fee based on the following schedule:

Withdrawal amount in gpd, in any 30-day period	Annual Charge in USD \$
100 000-5 000 000	35
5 000 000 – 50 000 000	100
50 000 000 – 500 000 000	250
500 000 000 +	500

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

- fees are credited to the general state fund

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

- before approving an application for a withdrawal involving an interbasin diversion, the department shall determine all of the following:
 - o *“that each state or province to which the water will be diverted has developed and is implementing a plan to manage and conserve its own water quantity resources, and that further development of its water resources is impracticable or would have a substantial adverse economic, social or environmental impact”*
 - o *“that granting the application will not impair the ability of the Great Lakes basin or upper Mississippi River basin to meet its own water needs”*
 - o *“that the interbasin diversion alone, or in combination with other water losses, will not have a significant adverse impact on lake levels, water use, the environment or the ecosystem of the Great Lakes basin or upper Mississippi River basin”*
 - o *“that the proposed withdrawal is consistent with all applicable federal, regional and interstate water resources plans”*

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- according to the DNR Application for Irrigation, the Department requires all irrigators to install flow meters in the irrigation system.

What is the form and frequency of monitoring?

- irrigation meters should show instantaneous discharge and cumulative volume

What is the form and frequency of reporting and to whom?

- all registered persons must submit the actual or estimated average annual and monthly volumes and rates of withdrawal; and the actual or estimated average annual and monthly volumes and rates of water loss resulting from the withdrawal; to the department, on a form provided by the department, no later than 60 days after the end of each calendar year

Is auditing carried out? Describe.

-

How are data managed and by whom?

-

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- the Department of Natural Resources enforces conditions of water withdrawal permits/approvals

How are user conflicts and/or permit violations identified?

- according to NR 142.09, any 6 or more residents of the state may petition for an investigation of a withdrawal alleged to be in violation of any state rule, statute etc., by submitting a petition to the department, identifying the alleged violator and detailing the reasons for believing a violation occurred.
- DNR conducts on-site inspections of permitted water uses to determine whether or not there is compliance with permit requirements (Application for Irrigation, 2002)

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- If the department determines that the allegations of the petitions are true, it shall order the alleged violator to take whatever action is necessary to achieve compliance with the statute, condition etc.
- s. 281.35, (7). *Emergency Order. The department may, without a prior hearing, order a person to whom an approval is issued to immediately stop a withdrawal if the department determines that there is a danger of imminent harm to the public health, safety or welfare, to the environment or to the water resources or related land resources to the state.*
- Any person in violation of a permit/approval condition, state regulation, statute etc., is liable to any person who is adversely affected by the withdrawal for damages or other appropriate relief
- The Department maintains jurisdiction over diversion permits and may determine when diversions must cease. The Dept. may revoke a permit if it is determined to be harmful to the lake or stream or to other riparians.

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

-

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- no formal water conservation plan (Great Lakes Commission, 2002)
- state recommends water conservation plans as part of wellhead protection plans required for new municipal wells

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- user conflicts are common due to increasing population and expansion of industries
- a law adopted in 1867 known as the, "Cranberry Law," exempts cranberry growers from state water use permitting requirements, including the diversion of water. Cranberry cultivation requires intensive use of surface water for irrigational, frost protection, winter flooding and harvest purposes. The number of water quantity conflicts between cranberry growers and other users continue to rise as the cranberry industry expands in Wisconsin. (WDNR, 1999)

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- WDNR currently working with cranberry industry to encourage the use of practices that protect wetlands, water quality and water quantity

References:

WDNR. 1999. Environmental Issues Related to Cranberry Production in Wisconsin.
<http://www.library.wisc.edu/guides/agric/cranberry/dnrpaper.html>

WDNR. 2002. Application for Irrigation.

Great Lakes Commission. 2002. Report on State and Provincial Water Use and Conservation Programs in the Great Lakes-St. Lawrence Basin. Draft prepared May 2002 by Dan Blake of the Great Lakes Commission.

ENGLAND & WALES (DRAFT)

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water abstraction licensing system
- This system is currently being incorporated into a new water resource management strategy for England and Wales. Water will now be managed on a local level, through the development of Catchment Abstraction Management Strategies (CAMS). England and Wales are divided into 129 CAMS areas and strategies for some of these areas are currently underway. Once CAMS are developed they will set out the licensing practice for the catchment and will identify how abstraction is to be managed to maintain or achieve sustainability.

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Water Resources Act (1991), first introduced in 1963. Minor changes incorporated into the Water Act 1989. Whole process has since been consolidated into the present version of the Act.

Is ownership of water vested in right of the province/state?

- yes

What other relevant legislation/ regulation(s) exist and for what purpose?

- Environment Act (1995)
- European Directives include:
 - o EC Water Framework Directive 2000: establishes a common framework for the protection and management of European Community surface and ground waters. Implementation requires Member States to develop, "River Basin Management Plans," to achieve the environmental objectives of the directive.
 - o Birds (EC Birds Directive 1977) and Habitats (EC Habitats Directive 1997) Directives: ensure strict protection of specially designated EC sites. The Conservation (Natural Habitats) Regulations 1994, which implement these directives, must be adhered to by the Agency when considering an application for water abstraction within a protected area.

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- the following purposes are EXEMPT from the licensing requirement: one-off abstraction not exceeding 5 m³; one-off abstraction not exceeding 20 m³ subject to the consent of the agency; domestic use from groundwater not exceeding 20 m³/day; domestic and/or agricultural use (excluding spray irrigation) from an inland water contiguous to the occupier's land not exceeding 20 m³/day; transfers between inland waters by a navigation, conservancy or harbour authority; de-watering of quarries, mines and other building/engineering works; any operation for the purposes of land drainage (including abstraction for irrigation other than spray irrigation); fire-fighting; use on vessels; abstractions for groundwater investigations subject to their being

- undertaken with the Agency's consent; sources of supply designated as exempt from licensing control by statutory instrument; use by or on behalf of the Crown or on Crown land
- a licence is also required to impound water for the construction or alteration of any works that impede or obstruct flow of an inland water

Is there a de minimus volume/rate exemption?

- no

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

-

Do you have a basic working definition/description of your allocation process? Describe.

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- no, current system evolved from riparian rights

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

-

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- The Environment Agency licenses the impoundment and abstraction of water under the Water Resources Act 1991. Under the Water Resources Act, the Agency has the power to: grant, vary or refuse water abstraction and impoundment licences on application; revoke or vary licences; monitor and enforce abstraction and impoundment licence conditions.

Is permitting/licensing handled centrally, regionally or locally?

- regionally

How are availability of supply and allocation limits determined?

- under the new system of CAMS, each CAMS catchment will be further subdivided into water resource management units (WRMUs) which define the largest subdivision of the catchment that can be managed in the same way
- The Agency then calculates a water balance for each WRMU based on river flows, groundwater recharge, abstractions, discharges, instream aquatic environment needs and any other water uses or features requiring protection. Depending on the hydrologic characteristics of the unit (e.g. seasonal variability, ecologically sensitive flow regime), this balance may need to be calculated on a seasonal or monthly basis. The resource balance will indicate the acceptability of the current abstraction regime in the unit and the quantity and timing of water resource potentially available for further abstraction. This resource assessment and the development of resource balance equations will be repeated every six years from the start date of CAMS development.

- To provide information on water availability within a catchment, a classification system has been developed, allowing presentation of availability on maps. The four categories of availability include:

Indicative resource availability status	Definition
Water Available	Water likely to be available. Restrictions may apply.
No Water Available	No water available although there may be exceptional circumstances in which a licence may be available.
Over-licensed	No water available on the basis of licensed abstractions. Full use of existing licences has the potential to cause unacceptable environmental impact.
Over-abstracted	No water available on the basis of licensed and actual abstractions. Existing abstraction is causing unacceptable environmental impact.

Source: (Environment Agency, 2001 p. 8)

- These status categories are applied to both ground and surface water sources
- Licences will generally not be granted unless the unit has been classified as “Water Available”. Restrictions on licenses will likely become more severe as licences are granted and the amount of available water decreases.
- To assist in the determination of allocation limits, a sustainability appraisal process is used to consider what the resource availability status could or should be after each 6 year CAMS cycle. In units classified as “Water Available”, this process will define the resource availability status that could be reached, but must not be exceeded by the end of the cycle.
- This provides a mechanism for managing licences by dictating the restrictions that will apply to new licences and by identifying necessary variations to licence restrictions as renewal applications for licences are considered.
- Currently, the Agency usually requires the applicant to submit an environmental assessment and/or other environmental reports. It is suggested that the applicant contact the Agency before commencing any formal licence application procedure to ensure the best possible chance of meeting all environmental requirements
- to assess availability of groundwater, the Agency requires all groundwater source applicants to test the proposed source for available yield and impact on surrounding sources and groundwater-dependant features before it is submitted to the Agency
- when considering an application for a licence, the Agency must have regard for any minimum acceptable flow that has been set for the source, if no MAF has been set, the criteria that would be used, namely:
 - The flow of water in the inland water from time to time
 - The character of the inland water and its surroundings in the light of the general environmental duties of the Environment Agency under the 1991 Act
 - Any water quality objectives established under the 1991 Act in relation to the inland water or any other inland water that may be affected by the flow in the inland water in question
 - The need for safeguarding public health
 - The requirements of existing lawful users
 - The requirements of navigation, fisheries and land drainage
- The Agency must also ensure that the proposed abstraction will not interfere with surrounding water users; consider the immediate and direct impacts of the proposed abstraction on the surrounding environment and adjacent sources; consider the general availability of resources within the catchment or water management unit concerned (Environment Agency, 2001).
- The Water Resources Act provides for the protection of minimum flows and existing abstraction rights and privileges (section 39 and 40)

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

- under the CAMS process, availability of supply and potential impact to other uses/users are primarily determined by the Agency

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

- Under the Act, when making an application, the applicant must publish a notice of the application in one issue of the London Gazette and in each of two successive weeks in a local newspaper. The dates of publication must be carefully co-coordinated (section 37, Water Resources Act).
- Notice must also be served on the local water undertaker and any navigation, conservancy or harbour authority and any internal drainage board having responsibilities at the point of abstraction (if applicable).
- The application and any accompanying reports must be placed on deposit at a convenient location for inspection by any interested person for a period of 28 days
- Once the application is received, details are held on a Public Register available for inspection at local Agency offices.

- Consultation is an integral part of the CAMS process. The process offers many opportunities for interested organizations and individuals to comment on and/or participate in the development of a CAMS. Some elements of the consultation involve a “stakeholder group” comprised of about 8-10 key stakeholders identified in the initial stages of the process, while others involve all interested parties. Consultation is an important part of the CAMS resource assessment (not in the resource assessment calculation), the sustainability appraisal (stakeholder group) and in the presentation of the proposed strategy to the public. With the production of the formal consultation document, the public has three months to respond to the Agency. (Environment Agency, 2001 p. 16)

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOCAION

What mandatory provisions and powers exist?

- *licence duration:* At present, licences may be granted with or without a time-limit. However, under the CAMS process, the normal renewal period for a licence will be 12 years. Time-limited licences will be managed using a common end-date approach where all licences within a CAMS area expire on a date that links in with the 6 year CAMS cycle. Synchronization of the licence expiry date with the CAMS cycle will ensure efficient reallocation of licences within any revised resource assessments derived from the CAMS process. Shorter and longer duration licences may also be granted, however, this will be a matter for discussion between the applicant and the Agency.
- *Licence renewal:* a licence will be renewed subject to the conditions considered necessary by the Agency for the sustainable management of the resource as determined through the CAMS process and provided the licence satisfies the following three renewal tests: environmental sustainability is not in question, there is continued justification of need, and water is being used in an efficient manner.
- *Non-renewal of licences:* Where sustainability issues indicate that licences should not be renewed, either at all or on the same terms, the Agency is required to give 6 years notice of non-renewal to the licensee. Six years notice of non-renewal will also be given for licences containing terms requiring significant restriction on previous entitlement.
- *licence succession:* A licence is required to define the land on which the water is to be used. A licence can transfer to a new holder, either wholly or partly, and without any change to the location, purpose or conditions, as a result of change to the occupation of the land defined on the licence. If the entire lot of land is taken, the licence passes automatically to the new owner, subject to notice being given to the Agency within 15 months. If only a part of the land is acquired, the new occupier is entitled to apply for an apportionment with any other new occupiers, or with the original owner if he/she is retaining some part of the original property.

- *Licence relocation*: (trading). The Agency will facilitate licence trading as part of the CAMS process. Licence trading would most likely occur in a situation where an applicant applies for an allocation of water in an over-allocated or over-licensed area. To facilitate the granting of a new licence, the allocation being traded must release resources either from the same management unit as that from which the new licence will draw, or from another unit that in some way contributes to that unit. In some circumstances, resource benefit or enhancement may form part of the trade, however, trades would normally be resource neutral. Trading will not create a short cut through the normal application determination process. *Short-term trades*: Short-term trades may be facilitated in circumstances where a trade is only required or possible for a defined period (i.e. due to the short-term needs of the new abstractor or because the traded licence is only available temporarily). This situation can be addressed through a “linked trade”. This is where the 2 licences involved in the trade are linked by appropriate conditions reflecting the details of the trade. These conditions are enforceable and allow the donor licence to retain its validity while releasing its unused resource temporarily to the new abstractor. All trades will require the submission of a full licence application. Trading will most likely become a useful resource recovery tool. (Environment Agency, 2001 p. 24)
- *Licence amendment*: A licence may be varied by the Agency or by the licence holder through the submission of an application. Where the Agency determines that a licence requires modification (i.e. to reduce environment impacts), the Agency may develop a proposal for an appropriate variation, or for a complete revocation of the licence. If the licence holder objects to the proposal, the matter is referred to the Secretary of State to decide the outcome. If the proposed change is confirmed, the licence holder may be entitled to compensation. An application to vary a licence made by the licence holder is generally subject to the same public consultation, submission of supporting information requirements. The Agency processes this application in the same way it does when considering a new application.
- *Licence cancellation*: A licence may be revoked by the Agency on the grounds that it has not been used in the preceding seven years. In the CAMS process, a licence may be revoked as part of a resource recovery programme. However, this will, wherever possible, be done through voluntary agreement. If the Agency’s decision to revoke a licence is upheld by the Secretary of State, the licence holder may be entitled to compensation (sections 52, 53 and 54 of the Water Resources Act). The Agency is currently drawing up guidelines on the assessment of the compensation which might be payable to a user whose licence has been revoked, varied or not renewed.

(Environment Agency, 2001 p. 38)

What are the applicant’s rights of appeal?

- an applicant may appeal an Agency decision to the Secretary of State. The appeal must be served within 28 days of the date on which the applicant was first notified of the decision (Water Resources Act Chapter 43).

APPLICATION FEES AND WATER USE CHARGES

Are there application fees?

- Yes (find more info)

Are there ongoing charges?

- annual abstraction charges are applied to all licences with the following exceptions: power generation where the installed capacity is 5MW or less; those not exceeding 20 m³/day for agricultural purposes (other than spray irrigation) from groundwater (Environment Act 1995, section 41)

- licence charges are listed in the Agency's Scheme of Abstraction Charges and are normally based on the annual quantity of abstraction authorized by the licence, the source of the water and the time of year it is taken. Weighting factors for each category of use are applied as follows:

Loss Factor	WF	Time of Year	WF	Source Type	WF
High loss, e.g. spray irrigation	1.0	All year	1.0	Unsupported	1.0
Medium loss, e.g. water supply	0.6	Summer	1.6	Supported	3.0
Low loss, e.g. mineral washing	0.03	Winter	0.16	Tidal	0.2
Very low loss, e.g. fish farming	0.003				

Source: Environment Agency, 2001 p. 37

- the charge is calculated as follows
 - o Charge = volume x source x season x loss x standard unit charge
- the standard unit charge varies from one region to another and applies per m3 of authorized abstraction, see table below:

Current Abstraction Charge Rates		
Region	Charge (pence/m3)	Water Company Charge (pence/m3)*
Anglian	1.66	79
Midlands	0.98	49.8-73.9
Northumbria and Yorkshire	1.75/0.7	44.8-59
North West	0.93	
Southern	1.28	42-98
South Western	1.36	
Thames	0.93	51-61
Welsh	0.84	64.4-82.4

* variation reflects differences across catchment and between large and small users

Source: Department of the Environment, Transport and Regions 2000 part 4

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

- income from abstraction charges funds all of the Agency's water resources management activities, including measurement, licensing, operational management and resource protection (Env. Agency, 2001 p. 37)

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

-

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- all significant abstractions must be measured by an appropriate meter or other suitable device (Environment Agency, 2001 p. 36)
- special monitoring provisions may be attached to a licence to ensure protection of water-dependant environments nearby or to provide further information on the effects of the abstraction (Environment Agency, 2001 p. 36)

- section 46 of the Act states, “Every licence...shall make—
(a) provision as to the quantity of water authorised to be abstracted in pursuance of the licence from the source of supply to which the licence relates during a period or periods specified in the licence, including provision as to the way in which that quantity is to be measured or assessed

What is the form and frequency of monitoring?

- metered users are typically required to record the quantity of abstraction daily
-

What is the form and frequency of reporting and to whom?

- metered users are usually required to submit a daily record of water use monthly, or a monthly record submitted annually
-

Is auditing carried out?

-

How are data managed and by whom?

- data collected by the Agency include: actual water abstraction from non-tidal sources (data broken down into household water use, industry, agriculture and power generation)
- OFWAT collects metering data from public water suppliers, including leakage data
-

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Environment Agency

How are conflicts between users and/or violations of permits/licences/approvals identified? (i.e. on a primarily reactive or proactive basis)

- The water resource balance equations used to assess resource availability (see section 4) will proactively identify “over-licensed” and “over-abstracted” areas. Some reduction in the volume licensed for abstraction will be necessary by the Agency (see next question).
- the Environment Agency’s, “Enforcement and Prosecution Policy,” sets out a framework for agency inspection of abstractions and impoundments to ensure compliance with licence conditions. The frequency of inspection depends upon the criticality of the impact of the authorized activity on the environment. Meter inspections are an integral part of licence enforcement. (Environment Agency, 2001 p. 37). In the year 2000/2001, the Agency visited 14,000 sites with water abstraction licences to ensure compliance with licence conditions (Environment Agency, 2002 web).

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

- In “over-licensed” and “over-abstracted” areas, the Agency will try to claw back some of the allocated resource. For each 6 year CAMS cycle, a sustainability appraisal will be undertaken to assess what the resource availability status for each WRMU should or could be at the end of the cycle. In “over-licensed” and “over-abstracted” areas, a resource recovery strategy will be defined by the Agency based on the amount of resource they will aim to recover. Resource recovery actions range from simple variations to release unused licence allocations, through

water efficiency and waste minimization strategies, to significant licence variations or revocation of licences (Environment Agency, 2001).

- licence conditions may include a, “Hands-off flow or level condition”. To protect low flows and levels it is common Agency practice to apply a flow or level threshold constraint to new or varied abstraction licences. This requires the licensee to cease or reduce abstraction when the flow or level in the source or nearby monitoring point is reached (Environment Agency, 2001).
- Penalties for non-compliance with licence conditions are applied according to the severity of the infringement:
 - Site warning
 - Warning letter
 - Formal caution
 - Prosecution
- Section 73 of the Act allows the Secretary of State to declare a drought emergency. A drought order issued by the Secretary of State may contain a provision, “*authorising the Authority to prohibit or limit the taking by any person (including a water undertaker) of water from a source specified in the order if the Authority is satisfied that the taking of water from that source seriously affects the supplies available to the Authority, any water undertaker or any other person*”
- the Act gives the Agency power to impose temporary restrictions on spray irrigators and other agricultural water users in areas most at risk
- Total bans on water abstraction can be instigated as a last resort

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- in drought conditions, farmers are initially asked to voluntarily reduce their abstractions in areas most at risk, however, formal restrictions will be imposed by the agency if monitoring of surface and groundwater continues to show low levels
- through the CAMS process, measures for the recovery of resources in “over-abstracted” and “over-licensed” units are defined. This would most likely include efficiency and waste minimization measures, but may also include measures to vary, revoke or not renew active licences. These types of measures will be implemented through voluntary agreement, wherever possible. The Agency will typically advise the licence holder on how they may continue to meet their needs while ensuring the protection of the environment. For example, the Agency may suggest the licensee voluntarily connect to a main water supply, develop an alternative source of supply, construct a winter storage reservoir to allow abstraction from a river during winter months when flows are typically higher or improve the efficiency of water use (Environment Agency, 2002a web).

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- the Agency expects water companies to develop Drought Contingency plans that confirm measures such as demand reduction in times of drought
- The Agency presently operates a program called, “Restoring Sustainable Abstraction.” This programme identifies licences that need to be varied, or possibly revoked to achieve sustainable abstraction regimes (Env. Agency, [http://www.environment-agency.gov.uk/subjects/waterres/189450/189504/?lang=e®ion=.](http://www.environment-agency.gov.uk/subjects/waterres/189450/189504/?lang=e®ion=))
- The Agency has produced a series of Waterwise informational guides that promote and encourage water conservation and efficiency in the home and garden, schools, business, and agriculture.
- The Agency also operates The National Water Demand Management Centre. The Centre’s mission is, “*To provide a focus for information and expertise to ensure acceptance of water conservation throughout society*”. The Centre provides technical and practical advice on national

and international water resources, demand management and water conservation, to both the Environment Agency and external bodies. The Centre publishes an external bi-monthly Demand Management Bulletin, providing news and analysis on UK and international demand management and water conservation issues.

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

- formal government review of the abstraction and licensing system in England and Wales began in May of 1997. The consultation paper, "The Review of the Water Abstraction Licensing System in England and Wales," details the following allocation issues/concerns:
 - o over-licensing in some areas, causing environmental problems
 - o the need for flexibility given future uncertainties such as climate change
 - o lack of transparency in determination processes
 - o difficulties of allocating water resources amongst competing needs
 - o compliance with various EC environmental directives
 - o low water levels and increased competition between abstractors in times of drought
 - o impact of projected increases in demand for water from households and the agricultural sector

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

- In March 1999, the Government published, "Taking Water Responsibly," outlining its decisions, following public consultation, on changes to the abstraction system. A proposal for the development of CAMS was contained within this document, along with many changes requiring new legislation. In November 2000, the Government published its consultation on a draft Water Bill that would give effect to those recommendations in the Taking Water Responsibly report requiring new legislation. In May 2002, the Government released its response to this consultation (Water Bill Consultation on Draft Legislation: Government Response). Subject to the will of Parliament, the new legislation will make many changes to the current licensing system, including the following:
 - o Establish 2 new forms of licences – temporary licence to authorize abstractions of less than 28 days, and transfer licences authorizing circumstances where water is transferred between sources of supply without intervening use
 - o Establish 20 m³/day as the normal threshold at or below which a licence is not required for any purpose
 - o Require all new licences to be time-limited
 - o Allow licences to be transferred by agreement between the parties concerned
 - o Establish a new right of action for damages against holders of abstraction licences whose abstraction causes loss or damage to another person
 - o Reduce the period after which the Agency may revoke an abstraction licence for non-use, without payment of compensation, from 7 to 4 years
 - o Give powers to the Agency to enter into enforceable water management arrangements with licence holders and recover costs
 - o Give the Agency additional enforcement powers to deal with breaches of licence conditions
 - o Remove, from July 2012, the right to compensation if a licence granted without time limit is curtailed on the direction of the Secretary of State or the National Assembly for Wales (NAW) on the grounds that the abstraction is causing significant environmental damage.
 - o Plus many more (Environment Agency, 2001 p. 39)
- The Water Bill Consultation on Draft Legislation also states that the Agency has been asked to consult, by June 2002, on changes to the current abstraction charging regime. Changes are to be based on recommendations that came out of the Government consultation document, "Economic Instruments in Relation to Water Abstraction," published in May 2000

- In March of 2001, the Environment Agency published the report, "Water Resources for the Future." The report lays out a strategy for the sustainable management of water resources in England and Wales over the next 25 years. Current availability of water, future demand for water (demand forecasting using a scenario approach that considers a range of possible social and economic changes) and the potential effects of climate change are assessed and a series of 30 recommendations are proposed based on the Agency's conclusions in these areas. The Strategy divides England and Wales into 7 regions, each with a water resource strategy reflective of the water resources and issues in that region. Recommendations include: A 19 - Farmers should consider the possibility of trading abstraction licences to meet their needs, A18 – The Agency will assist in the trading of abstraction licences, provided that no harm to the environment will result, A 29 – The Agency will explore the idea of an independent water efficiency body, + many more.

References:

Department for Environment, Food and Rural Affairs. 1998. The Review of the Water Abstraction Licensing System in England and Wales: A Consultation Paper. June 1998. www.defra.gov.uk/environment/consult/waterab/chap1.htm

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NEW ZEALAND

LEGAL FRAMEWORK

What type of authorization is used, i.e. water rights licence, water taking permit, other and how long has it been in place?

- water permitting system administered by regional councils. Resource management is decentralized. There are approximately 14 councils in New Zealand, each with their own water allocation plans/programs.

What is/are the primary authorizing legislation/ regulation(s) (include date(s) of primary authorization and subsequent amendments)?

- Resource Management Act of 1991 (national)
- All councils have or are in the process of developing a region-wide plan that includes management of water quantity and allocation

Is ownership of water vested in right of the province/state?

-

What other relevant legislation/ regulation(s) exist and for what purpose?

-

SCOPE OF ALLOCATION PROGRAM

Is surface water and/or ground water included in permitting/licensing?

- both

What uses are included/excluded?

- a resource consent is required to take, use, dam or divert water, heat or energy from water, heat or energy from the material surrounding and geothermal water UNLESS (Resource Management Act s. 14):
- (a) in the case of fresh water, the water, heat, or energy is required to be taken or used for---
 - (i) An individual's reasonable domestic needs; or
 - (ii) The reasonable needs of an individual's animals for drinking water, and the taking or use does not, or is not likely to, have an adverse effect on the environment; or
- (c) In the case of geothermal water, the water, heat, or energy is taken or used in accordance with tikanga Maori for the communal benefit of the tangata whenua of the area and does not have an adverse effect on the environment; or
- (d) In the case of coastal water (other than open coastal water), the water, heat, or energy is required for an individual's reasonable domestic or recreational needs and the taking, use, or diversion does not, or is not likely to, have an adverse effect on the environment; or
- (e) The water is required to be taken or used for fire-fighting purposes.

Is there a de minimus volume/rate exemption?

- yes, these vary greatly between regions, for example:
 - NRC – up to 10 m³/day in summer, 30 m³/day otherwise
 - ARC – up to 5 m³/day
 - HMW – 15 m³/day surfacewater, 50 m³/day groundwater
 - WRC - 20 m³/day, none from over-allocated resources

- these do not include the exempted takes described above

Is there a grandparenting exemption i.e. an exemption of those takers using before a regulated system was adopted?

- No
- *The transitional provisions under s. 386 of the RMA provide that rights and authorities to take water granted under the Water and Soil Conservation Act 1967 become “water permits” deemed to have been granted under the RMA with the same conditions. These deemed permits are grouped into two categories: “existing rights” and “existing authorities”. Permits resulting from existing rights which would have finally expired after 31 October 2026 now expire on that date. Permits resulting from existing authorities, many of which were granted in perpetuity, finally expire on 10 October 2001. Existing authorities are not transferable and s. 319 enforcement orders can only be made on application by the relevant regional council. In the application of regional plans and rules, consents relating to existing rights and authorities are treated the same way as consents issued under the RMA (Lincoln Environmental, 2000).*

Do you have a basic working definition/description of your allocation process?

-

LEGISLATED AND OTHER ASSIGNMENT OF PRIORITY AMONG USES

Do you use prior appropriation? If not, indicate the constitutional basis of the allocation system (i.e. common law, riparian rights etc.)

- all councils operate on a first-in first-served basis when considering consents to take water

Do certain types of uses have priority over others? Describe (quote any relevant policies and regulations).

- some councils implement priority uses in situations of water shortage, see section 9 for further detail

PROGRAM ADMINISTRATION AND THE DECISION-MAKING PROCESS

Who is/are the responsible government department(s) and/or agency (ies)

- the New Zealand Ministry for the Environment administers the Resource Management Act
- regional councils administer the permitting program

Is permitting/licensing handled centrally, regionally or locally?

- decentralized, regional councils handle permitting

How are availability of supply and allocation limits determined?

- Some regional councils set allocation limits, a predetermined limit on the total amount of water that can be abstracted from a resource.

	Method for setting allocation limits for surface water resources
EW	A percentage of the 5-year low flow. Values range from 5% to 40%, with a default value of 10% used in the absence of adequate information.
EBOP	30% of the 5-year low flow.

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HBRC	7-day average flow exceeded 95% of the time from November to April less the minimum flow. Existing allocation is worked out on the basis of weekly flow converted to an instantaneous flow.
WRC	A “Core allocation” was originally set based on a low-flow statistic and adjusted during plan consultation. In some cases the core allocation was set equal to the existing takes. A flow at which “supplementary allocations” can be taken is also given, and is often higher than the upper limit of the core allocation. There is no limit to supplementary allocations.
TDC	Allocation limit for a zone set so that users experience a certain reliability in a specified drought. For example, 35% reduction in water availability during a 10-year drought. Limits are worked out using simulation models and taking environmental bottom lines into account.
MDC	Band system. The limit for Class A permits is the 1-in-5 year 7-day low flow (less the minimum flow). Class A permits are available 93 to 97% of the time). The limit to Class B permits is based on the 80 percentile flow and provide a moderate degree of certainty. There is no limit on Class C permits which are intended for storage and for power generation.
CRC	A band system on the Opihi sets A permits to the limits of existing irrigation (as at 1994), there is no limit on B permits. On the Waimakariri, A permits are used for stock/drinking water, B permits have an upper limit based on providing reasonable reliability.
ORC	Band system. The limit for Class A permits is the greater of 50% of the 7-day mean annual low flow or the current assessed level of take. The limit for B Permits is the mean annual low flow less the Class A allocation. Where the Class A allocation is greater than the mean annual low flow there is no Class B allocation. As for minimum flows, allocation limits are set as “default” values and can be varied on a case-by-case basis.

Source: Lincoln Environmental, 2000

- allocation limits are set to guide the consent (permitting) process, to minimize effects of abstraction on low flow regime and natural character, to provide certainty to users etc.
- allocation limits are set after consideration of the following: hydrological characteristics of the river, current and potential water uses, reasonable risk to users, groundwater recharge information, availability of water storage, level of demand relative to supply, potential for adverse environmental effects
- annual water budget approaches are widely used to quantify groundwater resources
- allocation limits for groundwater are not widespread, however, the following councils have set allocation limits:

	Methods	Calculated	Expressed
ARC	Groundwater models and annual water budgets	Annually	Annually
WRC	Safe yield set based on annual water budgets and throughflow analysis	Annually	daily
TDC	Groundwater models and annual water budgets	Weekly/annually	Weekly
MDC	Safe yield based on throughflow analysis	Annually/daily	Daily

- all councils require industrial users to justify the volume of water applied for
- a wide variety of methods are used to assess reasonable irrigation water requirements, these include:
 - NRC – general guideline of 2.5 mm/day (25 m³/ha/day)
 - EW – regional plan sets out water requirements (daily and annual) for pasture/crops, onions, potatoes and greenhouses on various soils. Applicants must comply with these or prove that higher use is efficient. These were established using, average irrigation efficiency, multi-year simulation of daily rainfall and evapotranspiration and keeping soil moisture levels within specified bounds.

Is the determination of the availability of supply and of the potential impacts on other uses/users made by the applicant and/or the permitting/licensing agency?

-

What opportunities are available to other agencies, other users, and the public to input to, comment on, and influence the issuance of a permit/licence prior to approval issued?

-

PERMIT OR LICENCE DURATION/REVIEW/ REVISION/RENEWAL/REVOICATION

What mandatory provisions and powers exist?

- s136 of the RMA provides for the transfer of permits if allowed for in a regional plan or upon application to the consent authority
- water may be transferred permanently and temporarily
- examples of transferable water permit provisions in regional plans include:
 - EW – method in plan states “transferring of permits is allowed provided it is to a downstream point in a catchment, to an area with the same or a less restrictive water class, and written notice must be provided to EW within 14 days”
 - HMW – irrigation permits can be transferred within sub-catchments during periods of restricted taking. Council must be notified before transfer takes effect.
- transfer of permits is not widespread, other than that associated with land transfer or subdivision
- *consent duration*: duration of water permits varies between regions, from 5 – 35 years
- *consent renewal*: nearly all consents have a review or renewal at 5 to 15 year intervals

What are the applicant’s rights of appeal?

-

APPLICATION FEES AND WATER USE CHARGES

Are there application fees? Describe.

- all councils charge applicants for the processing and granting of a consent

Are there ongoing charges? Describe.

- some councils charge an annual amount to water permit holders
- fees can be fixed or a function of allocate volume, examples of funding policies are as follows:
 - EW – an annual user levy is based on the allocated volume, compliance records, potential for adverse effects. Levy covers consent monitoring and administration of databases.

Are application fees and/or water charges/revenues used to cover the costs of water management activities, to support other water management objectives (e.g. to encourage conservation) or other purposes?

-

REGULATION OF WATER DIVERSION AND BULK EXPORT

What is permitted / not permitted?

-

How is it regulated?

-

MONITORING AND REPORTING

What uses/users are covered/ not covered?

- monitoring requirements vary greatly between regions
- for example:
 - EW – water meters are required on all consented takes. Measurements must be recorded daily and reported annually
 - TDC – water meters required in fully or over-allocated zones. Measurements must be recorded weekly and reported weekly.
 - NRC – water meters required for groundwater takes > 200 m³/day or if more than 50% of average annual recharge is allocated. Surface water takers must provide volume of take on request, which is intended to move all surface water onto meter over the long term

What is the form and frequency of monitoring?

-

What is the form and frequency of reporting and to whom?

-

Is auditing carried out?

- some regions carry out spot-checks of flow rates to ensure compliance with permit conditions
- some councils issue permits to industries, with conditions specifying water audits

How are data managed and by whom?

- data are managed by each individual council

Are monitoring data readily accessible to other agencies and the public?

-

ENFORCEMENT AND CONFLICT RESOLUTION PROCESSES

Who enforces?

- Ministry of Environment enforces the RMA 1991
- Regional councils enforce permitting requirements, with Min of Environment as back up

How are conflicts between users and/or violations of permits/licences/approvals identified? (I.e. on a primarily reactive or proactive basis)

- EBOP conducts compliance monitoring of over-allocated takes
- TDC have reduced allocations in many of their previously over-allocated zones by randomly reviewing existing consents. Reviews look at area irrigated, size of pumps, irrigation equipment etc. to assess whether the volume allocated is reasonable. If not, the rate is cut-back.
- Councils are alerted to users taking in excess of their allocated volume either by meter records or by spot checks of instantaneous flow, pump size, etc.
- Illegal takes are most often brought to the attention of councils by neighbours during water short periods. Some illegal consents are discovered when properties change hands.
- Some councils have conducted site-by-site visits and flyover surveys matching irrigated land to water permits, to investigate water taking

Are regulatory powers available and used to require and enforce reduced takings? What penalties can be applied?

Resource Act s. 329. Water shortage direction---

(1) Where a regional council considers that at any time there is a serious temporary shortage of water in its region or any part of its region, the regional council may issue a direction for either or both of the following:

- (a) That the taking, use, damming, or diversion of water:
- (b) That the discharge of any contaminant into water,---

is to be apportioned, restricted, or suspended to the extent and in the manner set out in the direction.

(2) A direction may relate to any specified water, to water in any specified area, or to water in any specified water body.

(3) A direction may not last for more than 14 days but may be amended, revoked, or renewed by the regional council by a subsequent direction.

(4) A direction comes into force on its issue and continues in force until it expires or is revoked.

(5) A direction may be issued by any means the regional council thinks appropriate, but notice of the particulars of the direction shall be given to all persons required to apportion, restrict, or suspend---

- (a) The taking, use, damming, or diversion of water; or
- (b) The discharge of any contaminant into water,---

as far as they can be ascertained, as soon as practicable after its issue.

(6) For the purpose of this section, notice may be given to a person by serving it on the person or by publishing the notice in one or more daily newspapers circulating in the area where the person takes, uses, dams, or diverts the water, or discharges a contaminant into water.

- *these water shortage directions are rarely used by councils and would only be required if there was a need to cutback permitted takes or to restrict existing consents that have not yet been reviewed to include minimum flow provisions in their conditions* (Lincoln Environmental, 2000)
- most councils implement a system that attempts to allow successive reductions in take as the minimum flow or aquifer trigger level/pressure is approached. Takes are restricted by one or a combination of the following:
 - Use of a band or permit class system with successively higher river flows at which abstraction must cease
 - Stepped cutbacks. For example, a 25% reduction once a specified flow is reached.
 - Pro-rata cutbacks. All takes must be reduced by the ratio of water available to allocated volume.
 - Informal arrangements with irrigators such as alternative days or sides of rivers
 - User groups required to work out amongst themselves the best option for reducing overall take
 - Allowing transfers of permits among users
- NRC has a policy in the plan that sets priorities for water during severe water shortages. Water for public health is the top priority, with lowest priority to swimming pools and commercial uses for which water is non-essential.
- In Canterbury, the National Water Conservation Order (Rakaia River) and some non-statutory plans require a 1:1 sharing rule between the amount of water abstracted and the amount left in the river above the minimum flow. Takes from these rivers are implemented with a priority/band system. These sharing systems are difficult to implement and enforce.

Are voluntary processes used to eliminate or mitigate conflicts and, if so, when?

- In ORC (Otago Regional Council) and on the Riwaka River (TDC) formal user committees are used to establish rostering of takes when river levels drop close to minimum flows. A condition on ORC consents states that the holder will comply with directives from a water allocation committee set up by the regional council. These are local water users groups who decide how cut-backs will be implemented. Council contacts the group when river levels are getting low. On the Riwaka River, a pre-determined and very detailed rostering schedule has been established by the 32 users taking into account pump size, crop type and irrigation system. Flow recorders are sited upstream and downstream of the reach where abstraction occurs.
- In MDC, groups were very effective during the 1997/1998 drought. The groups elected a committee representative of each user section. Groups have since faded but were reactivated in 1999/2000 in anticipation of a drier than normal summer season.

WATER CONSERVATION AND DEMAND MANAGEMENT POLICIES, REGULATIONS AND OUTREACH PROGRAMS

What water conservation and demand management policies, regulations and outreach programs do you use? What water use sectors are included/excluded and why?

- *most regional councils set minimum flows in regional plans, informal plans or strategies, national water conservation orders or via the resource consent process (permitting process). Nearly all councils recognize that specific assessment using habitat methods, WaiOra, or environmental indicators, in conjunction with a community consultation process, is the best method for setting minimum flows.*
- *HMW (Manawatu-Wanganui Regional Council) and HBRC (Hawke's Bay Regional Council) have ongoing programmes to complete IFIM studies on all larger streams/ivers. NRC (Northland Regional Council) and ORC (Otago Regional Council) have set a default minimum flow (statistical flow), which has been tested for its ability to protect instream values and is considered precautionary. This "default" approach gets minimum flows in place across a region, then allows rivers to be assessed on a case-by-case basis, with priority set for more detailed investigations and consultation according to consent applications, the demand/supply ratio and/or the significance of environmental values. Minimum flows set on a case-by-case basis can be higher or lower than the default value.*
- *In Otago, groundwater abstraction must be reduced by 25%, 50% and cease when groundwater levels or pressures at monitoring wells reach specified values. These triggers were set by examining aquifer extent and properties, groundwater level records, bore logs, existing and potential use and recharge estimates. As for surface water, these limits can be exceeded on a case-by-case basis if detailed investigation indicates no adverse environmental effects.*
- *WRC (Wellington Regional Council) have trigger levels in the Lower Hutt and Moroa aquifers. In Lower Hutt the level is set to maintain flows in undersea springs and prevent salt water intrusion. In the Moroa aquifer, users are restricted at a set trigger level to ensure water supply to all areas of the aquifer. (Lincoln Environmental, 2000)*
- *councils typically address over-allocation of resources by adjusting existing permits to better reflect actual take. For example, EW has adjusted consents at renewal (assessing actual use, applying reasonable use guidelines and the use of a sinking lid policy – 10% reduction at each renewal) and by strict lapsing of unused consents*

Long term Planning

- *some public water supply permits include volumes/rates based on projections of future use*
- *many councils work actively with local authorities or water suppliers to assess long-term water supply strategies. Councils considering or using catchment-specific plans/strategies are particularly good at recognizing these strategies when allocating water.*
- *Water is reserved by councils for the purpose of domestic/stock water and public water supplies*

User Outreach, Education

- Councils work with users, provide advice on good management practices, leak detection strategies etc.

SUMMARY OF CURRENT ALLOCATION ISSUES/CONCERNS BASED ON GOVERNMENT AND/OR EXTERNAL REVIEWS

-

IS YOUR ALLOCATION PROGRAM UNDER REVIEW? WHAT CHANGES ARE BEING CONTEMPLATED/UNDERWAY?

-

Key Jurisdictional Contacts⁴

Water Allocation - Water Use Management Practices Research

Jurisdiction	Contact Person/Agency	Coordinates
Canada		
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Ontario	Trevor Pawson Ministry of the Environment	Tel: (416) 314-7991 Email: trevor.pawson@ene.gov.on.ca
Quebec	-	
Manitoba	Ray Bodnaruk Manitoba Conservation	Tel: (204) 945-6398 Email: rbodnaruk@gov.mb.ca
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Georgia	-	
Iowa	-	
Minnesota	-	
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Wisconsin	Chuck Ledin Dept of Natural Resources	Tel: (608) 266-1956 Email: ledinc@dnr.state.wi.us
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England and Wales	Aileen Kirmond Environment Agency	Tel: +44 1454 624387 Email: aileen.kirmond@environment.agency.gov.uk
New Zealand	-	

⁴ If no contact name is listed, research for and completion of the questionnaire was completed from published and web-based material only.