MAINE STATE LEGISLATURE

Report of the Land & Water Resources Council

to the
Natural Resources Committee
of the
123rd Maine Legislature, 1st Regular Session
Pursuant to P.L. 2005, Chapter 452

Review and Recommendations
Regarding Ground Water Regulations

January 10, 2007

Prepared by staff of the
Maine Geological Survey

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Executive Summary

In 2005, the Legislature passed LD 1643 in 2005 "An Act to Clarify and Harmonize State Policy on Groundwater Management." In June 2005, the Governor signed this bill into law as Public Law 2005 c. 452. This law directs the Land and Water Resources Council, to conduct a comprehensive review by November 2006 of Maine's regulations governing ground water withdrawals through the formation of a work group. The primary charge to the group was to identify any changes in state law needed to ensure a consistent, integrated and scientifically sound state policy that ensures that the withdrawal of groundwater does not have an undue adverse effect on waters of the State. Participants in the group represented a broad spectrum of interests with regard to ground water activities. (See Appendix 2 – Meeting Participants.)

The group met eleven times through the year. The first few meetings provided an introduction and background information on Maine's water resources and current regulatory setting. Discussions during the remaining meetings focused on new approaches to groundwater regulation. A preliminary analysis of watersheds at risk conducted by the Maine Geological Survey was instrumental in focusing the recommendations of this report.

This report presents the findings and recommendations developed by the work group which the Council approved at its December 14, 2006 meeting.

Recommendations

1) Watershed approach. This group endorsed a watershed approach to addressing water issues. Scarce resources could be focused on watersheds where there is potential for problems rather than applying a new approach on a statewide basis.

The watershed approach to addressing water issues should be built on a tiered system:

Tier 1: Conduct full assessment of water supply and demand, including build-out analysis of community water needs.

Tier 2: If Tier 1 analysis indicates need, work with parties to develop a water-use management plan for the watershed.

Tier 3: If over-subscription of water use remains after Tier 2 analysis, there may be a need for a binding dispute resolution process to resolve issues.

2) Ground Water Committee. Establish a Ground Water Committee under the Land and Water Resources Council. The committee would consist of state agency staff with ground water responsibilities and expertise and would be advisory to the Land and Water Resources Council. The Committee would have the following responsibilities:

a. Review ground water withdrawal activities.

b. Coordinate state ground water information.

c. Direct appropriate ground water investigations in "watersheds at risk."

d. Convene planning groups of stakeholders as needed to address withdrawals in "watersheds at risk", in significant local aquifers, or in multi-municipal ground water issues.

e. Provide assistance to towns.

f. Develop and disseminate educational materials on water resources, regulatory regime. See the next recommendation.

3) Education on water science and current regulatory rigor.

The Ground Water Committee described in recommendation 2 would be charged with the following:

a. Develop education materials that clearly describe the various regulations governing ground water withdrawals and how agencies interact in their implementation.

b. Disseminate this information via meetings, conferences, internet resources, and other means.

4) Changes to regulations.

a. Drilled Well Reporting: Change definition to include all wells for water withdrawal.

b. Natural Resource Protection Act: Modifications to NRPA to address non-agricultural high-yield wells.

c. Bulk Water: The group recommends that the Legislature review the predicate findings to see if they are relevant.

d. Agricultural wells: High-yield agricultural wells would be reviewed by the Agricultural Water Management Board under a farm plan.

e. Public Water Supplies: No changes are recommended to the regulations governing public water supplies.

f. LURC jurisdiction: LURC will review its standards and rules governing water withdrawal to identify and make changes as needed to: (1) clarify the existing regulations, (2) assure consistency with DEP and DHHS, where applicable, and (3) assure that the Commission's statutory authority over groundwater withdrawal is clearly reflected.

Cost

Funds for aquifer investigations in watersheds at risk will cost $100,000 annually. The Maine Geological Survey will contribute an additional $120,000 to this effort by redirect 1.5 FTE hydrogeologists.

Introduction

Maine has abundant water resources. In an average year more than 20,000 billion gallons fall on the Maine landscape. Perhaps one-third of this amount, 7,000 billion gallons, percolates into the ground to recharge the ground water system annually. By comparison, total ground water use in Maine from all sources, both reported and estimated, are around 20 billion gallons annually. While there are orders of magnitude of difference in supply relative to demand, ground water recharge occurs locally and ground water use can have important local consequences.

Over the past several years, the State has dealt with some concerns regarding ground water use. Some examples include: a public water supply and a source for a commercial bottler in the same small watershed, large volume irrigation wells developed to eliminate in-stream withdrawals, several irrigators in the same watershed as a public water supply. With the increasing demand for ground water resources, the potential for problems will increase. In the past year, ground water withdrawals for bottled water have increased significantly, with an expectation for increasing demand in future years. The agricultural community has been encouraged by wildlife and regulatory agencies to develop wells to meet irrigation water needs during critical low flow periods and plans to significantly increase irrigation in the coming years. Additionally, some community water supplies are looking for additional ground water sources. All of these uses can be accommodated with Maine's abundant resource as long as care is given to managing the resource in a sound fashion. Currently there is a broad net of regulations that govern many ground water withdrawals.

For these reasons and others, Governor Baldacci proposed and the Legislature passed LD 1643 in 2005 "An Act to Clarify and Harmonize State Policy on Groundwater Management." In June 2005, the Governor signed this bill into law as Public Law 2005 c. 452 (see Appendix 1). This law has several provisions, but the one pertinent to this process directs the Land and Water Resources Council ("Council"), to conduct a comprehensive review by November 2006 of Maine's regulations governing ground water withdrawals. The law provides that the Maine Geological Survey (MGS) will be the lead agency for purposes of this study. The law further directs that a work group be formed to participate in the review process.

Charge to study group. The intent of LD 1643 is to promote development and implementation of consistent, integrated and scientifically sound state policy regarding groundwater management. The law provided several direct charges to this group:

- Identify any changes in state law needed to ensure a consistent, integrated and scientifically sound state policy that ensures that the withdrawal of groundwater does not have an undue adverse effect on waters of the State.
- Review existing geological, hydrogeological and other related scientific information regarding Maine's groundwater resources in order to assess the efficacy of existing state law for ensuring that withdrawal of groundwater does not have an undue adverse effect on waters of the State.
- Identify and assess criteria that should influence whether and how the State regulates or otherwise manages withdrawal of groundwater
- Assess the projected costs to the State and to applicants for withdrawal of groundwater for complying with any changes in state law.

Participants: Along with participation by agency staff with responsibilities in the ground water arena and legislators whose committees have jurisdiction in this area, the group included representation from the agricultural community, public water utilities, the water bottling industry, individuals with expertise in water law, and a private well owner. Additionally, representatives of several environmental organizations participated in the process. Several observers with expertise in water policy and water science also contributed to the process. A full listing of participants is provided in Appendix 2.

Process: While the intent was to strive for consensus as a group, important differences made this impossible on all points. We tried to work from agreement on general issues, through more detailed proposals, although it was not always possible to agree on details of how to accomplish a broad goal.

Summaries of meetings

What follows are brief summaries of each of the group's meetings. The full agenda and notes for the meetings are provided in Appendix 3 and also can be accessed on line at: http://www.maine.gov/doc/nrimc/mgs/explore/water/regs/withdraw.htm

November 2005. This was the organizational meeting of the group in which participants were introduced and the charge to the group was reviewed. Each participant had an opportunity to discuss their interests in participating in the process. In order to benefit from past efforts to address various water issues in Maine, the group reviewed recommendations of the Water Resources Management Board in the late 1980s. We also reviewed and approved a general schedule for subsequent meetings of the group.

December 2005. This meeting focused on water science education. Several individuals from within the group presented in their areas of expertise. In addition, several guest presenters participated in the meeting. Topics we covered included general ground water geology in Maine, Maine's water monitoring network, ground water – surface water interactions, sustainable water use, and methods for assessing resources.

January 2006. During this meeting, state agency representatives gave overviews of regulatory processes within each agency. We discussed the Bulk Water Transport law that regulates transfers of water across town boundaries in bulk containers, review of regulatory processes for public water supplies and bottling facilities, provisions of the Site Law that affect water withdrawals, and Land Use Regulation Commission (LURC) permitting of water withdrawals. We also heard from several participants who have experience with various town ordinances addressing water resources. At this meeting, a representative from the Maine Attorney General's Office reviewed current law regarding ground water ownership and regulation of its withdrawals. The group began to consider gaps and redundancy in the regulations.

February 2006 – September 2006. During each of the subsequent meetings, the group discussed current regulations and concepts for better management of ground water resources. Many issues were identified through these discussions. At several of these meetings, agency personnel were charged with bringing back to the group a concept for ground water resources management based on the group's discussion. Most often, the staff brought back a concept that stimulated yet further discussion of the concept. Through this iterative process, the group generally agreed to a common set of recommendations. During one meeting, the group also had a briefing from the Department of Environmental Protection (DEP) staff on the proposed flow rules and how they

might impact ground water withdrawals. Over the course of these discussions, we outlined several "end-member" options representing strictly voluntary approaches to ground water management, and, at the opposite extreme, a strictly regulatory approach.

Major Issues Discussed

Agency coordination. A discussion point at several meetings was the perception that agency personnel involved in regulating water withdrawals lack coordination. Depending on the particular activity, one or more agencies may be involved in the review process. Also, depending on the location, either DEP or LURC jurisdiction, different approaches to regulation might be employed. In the case of the Bulk Water Transport Law, three different agencies are involved in reviewing applications. While there is no formal visible mechanism, state agency staff involved with ground water withdrawals communicate with one another frequently on individual applications and with more general discussions. Furthermore, through the legislative process that set up this group, the state agencies were directed to standardize their requests for information from applicants under the different regulations. This process was accomplished (see http://www.maine.gov/doc/nrimc/mgs/explore/water/regs/jan06-r.htm).

Multiple jurisdictions. The State and towns have overlapping interests in water withdrawals. Towns want to be in control of resources within their boundaries, but often do not have the technical expertise to address ground water withdrawal issues. LURC acts as the town regulatory body in the unorganized territory. Furthermore, since aquifer boundaries often cross town lines, multiple towns may be involved in a particular water withdrawal issue, but without opportunities for equal representation in a local process. Local ordinances are unevenly developed around the state.

Regulatory vs. voluntary approaches. Some participants held the view that regulatory controls on water withdrawals are substantial and more focus should be given to voluntary approaches. It is in the best interest of those activities dependent on significant water withdrawals that they be done in a sustainable fashion. Further, large users are often the best stewards of the water resource, so incentives and other mechanisms that help with landowner stewardship should be part of the solution.

Relationship to flow rules. The state agencies have been discussing for several years the rules intended to protect flows required for in-stream habitats. The group reviewed how the proposed in-stream flow requirements would affect ground water withdrawals. The group acknowledged that once flow rules are finalized these rules will also protect flows from excessive ground water withdrawals.

Watershed focus. Early in the discussions of approaches to ground water management, the group agreed on the need to focus at the watershed level. The watershed is a logical unit for addressing water issues. It is possible in a general way to consider water supply and water use on a watershed level to get some idea as to where water use approaches some critical percentage of available resource. In order to accomplish this, it is necessary to consider all water uses, both surface and ground water, since these are really different, interconnected portions of the same resource.

Tabled items

Ground water ownership. The issue of ground water ownership came up during several meetings, beginning with the review of this issue by a representative from the Maine Attorney General's Office. Essentially, ground water in Maine is privately owned by the surface land owner. However, in spite of local ownership, state agencies have broad authority to regulate ground water use. The Legislature did not direct this group to address ground water ownership, nor did it compose the group in a way that would facilitate discussion of this issue. The issue of ground water ownership and the prospect of fundament changes to this topic is highly complex. It raises a range of fundamental legal questions that were beyond the scope of this effort and the expertise of the work group.

Allocation. Many in the group felt that specific allocations of water – defining specifically how much each user would be entitled or defining a hierarchy of uses – is not necessary at this time, because there generally are few water use conflicts. Others felt that we were simply postponing the inevitable. In the final analysis, the prevailing sentiment of the work group was to recommendation no action on the matter at this time recognizing that allocation may become necessary in watersheds with many users when other approaches are unsuccessful.

Costs to the regulated community. The group considered cost to state agencies of implementing the recommendations, as presented in a later section of this report. Due to time constraints on the process, which was spent mostly on developing the recommendations, the group did not specifically address costs to the regulated community. However, the work group expects the approach outlined here to have a minimal impact.

Watersheds-at-risk analysis

As part of an effort to better define the problem of unsustainable use of water resources, the Maine Geological Survey conducted a preliminary analysis of watersheds at risk. This instructive analysis was made possible by public investments over the past decade in important datasets and analyses including a statewide digital compilation of watersheds, analysis by the U.S. Geological Survey (USGS) of typical annual and monthly stream flows in Maine, and water-use reporting. It is important to note that the in-stream flows required by the provisionally adopted flow rules are a major component of the water demand in each watershed.

Analysis: For this preliminary analysis, a "watershed-at-risk" is defined as a watershed where the sum of the required in-stream flows plus the consumptive water withdrawals exceeds some percentage of the total runoff generated within the watershed.

The analysis assumes that:

1) The long-term average water resource available within a watershed is equal to the long-term average annual runoff from the watershed. The annual runoff from a watershed is the volume of surface water that flows from a watershed on a yearly basis. From a simple mass balance equation in a watershed with no consumptive water use, it is equal to

   annual precipitation – loss from evaporation – loss from plant transpiration

   The evaporation and plant transpiration terms are usually combined to give

   annual precipitation – loss from evapotranspiration

(A small volume of groundwater may also flow from a watershed, but will be ignored in this analysis.)

2) This net runoff must supply the minimum in-stream flow requirements for the watershed as defined in provisional in-stream flow rules adopted by the Board of Environmental Protection (BEP) plus any consumptive water use in the watershed.

3) The analysis includes both surface water and ground water withdrawals for consumptive use. A watershed with significant surface water withdrawals will be at risk from subsequent groundwater withdrawals even if those groundwater withdrawals alone do not constitute a significant percentage of the runoff generated within the watershed.

4) This preliminary analysis does not consider cumulative in-stream flow from upstream watersheds in excess of minimum in-stream flow requirements. The result of this simplification is that the analysis will overestimate the impacts of direct withdrawals from the major rivers and streams within a watershed. It will not affect the analysis for headwater watersheds.

Sources of data:

1) The Natural Resources Conservation Service (NRCS) 12-digit Hydrologic Unit Code (HUC) watersheds were used for comparing net runoff to minimum in-stream flow requirements plus consumptive water use. This data set was selected as a compromise between detail and available water use data. The state is divided into 973 watersheds, ranging in size from less than 1 square mi to approximately 275 sq miles, with an average watershed size of 35 square miles.

2) The long-term average annual runoff generated in a watershed was estimated from a regional regression equation developed by the US Geological Survey (USGS) (Dudley, 2004)

$$Q_{ann} = 1.151(A^{0.991})(10^{0.023*pptW})$$

Q_{ann} is the annual runoff in cubic feet per second (CFS), A is the watershed area in square miles, and pptW is the mean winter precipitation in inches of water.

The area of the watershed was obtained from a digital version of the NRCS 12-digit HUC watersheds; the mean winter precipitation was obtained from a climate dataset maintained by the NRCS that was used by the USGS in developing the regression equation.

3) The minimum required in-stream flow for a watershed was initially estimated from regional regression equations for monthly median flows developed by the US Geological Survey (Dudley, 2004) and cited in the provisional in-stream flow rules adopted by the BEP.

In some cases, the weighted sum of the estimated monthly median flows required in the provisional in-stream flow rules exceeded the estimated average annual runoff. This is because these regional regression equations for monthly median flow were developed independent of the equation for average annual runoff and from each other and may have uncertainties exceeding +/-30-percent.

On average, however, the weighted sum of the estimated monthly median flows required in the provisional in-stream flow rules was approximately 65-percent of the average annual runoff. This finding is significant in and of itself: the provisional in-stream flow rules require that, on average, 65-percent of the runoff generated in a watershed must remain in the stream and is not available for any consumptive use.

This value of 65-percent of the average annual runoff was used as the minimum required in-stream flow for all watersheds in the analysis.

4) Consumptive water use was estimated as the sum of:

- Public water supply withdrawals as reported to the Public Utilities Commission.

- Reported water use by other major water users as required by the water withdrawal program established by the legislature in 2002.

- Estimates of withdrawals by smaller water users regulated by the Drinking Water Program in the Department of Health and Human Services.

- Agricultural water withdrawals as reported to the Department of Agriculture, Food and Rural Resources. This data was provided as aggregate data in 10-digit or larger HUC watersheds, and where necessary was counted in multiple 12-digit HUC watersheds.

- Private domestic water use estimated from 1990 Census data on percent of households on private wells (the latest data of this type available) and 2000 Census population data.

A "watershed-at-risk" was defined as a watershed where the sum of the minimum required in-stream flow plus the estimated consumptive water use was equal to or greater than some arbitrary threshold percent of the estimated average annual runoff generated in the watershed.

The figures on pages 8 and 9 show watersheds-at-risk for arbitrary threshold values of 80-percent of the average annual runoff and 90-percent of the average annual runoff generated in the watershed. "Watersheds-at-risk" are shaded in gray on the two maps.

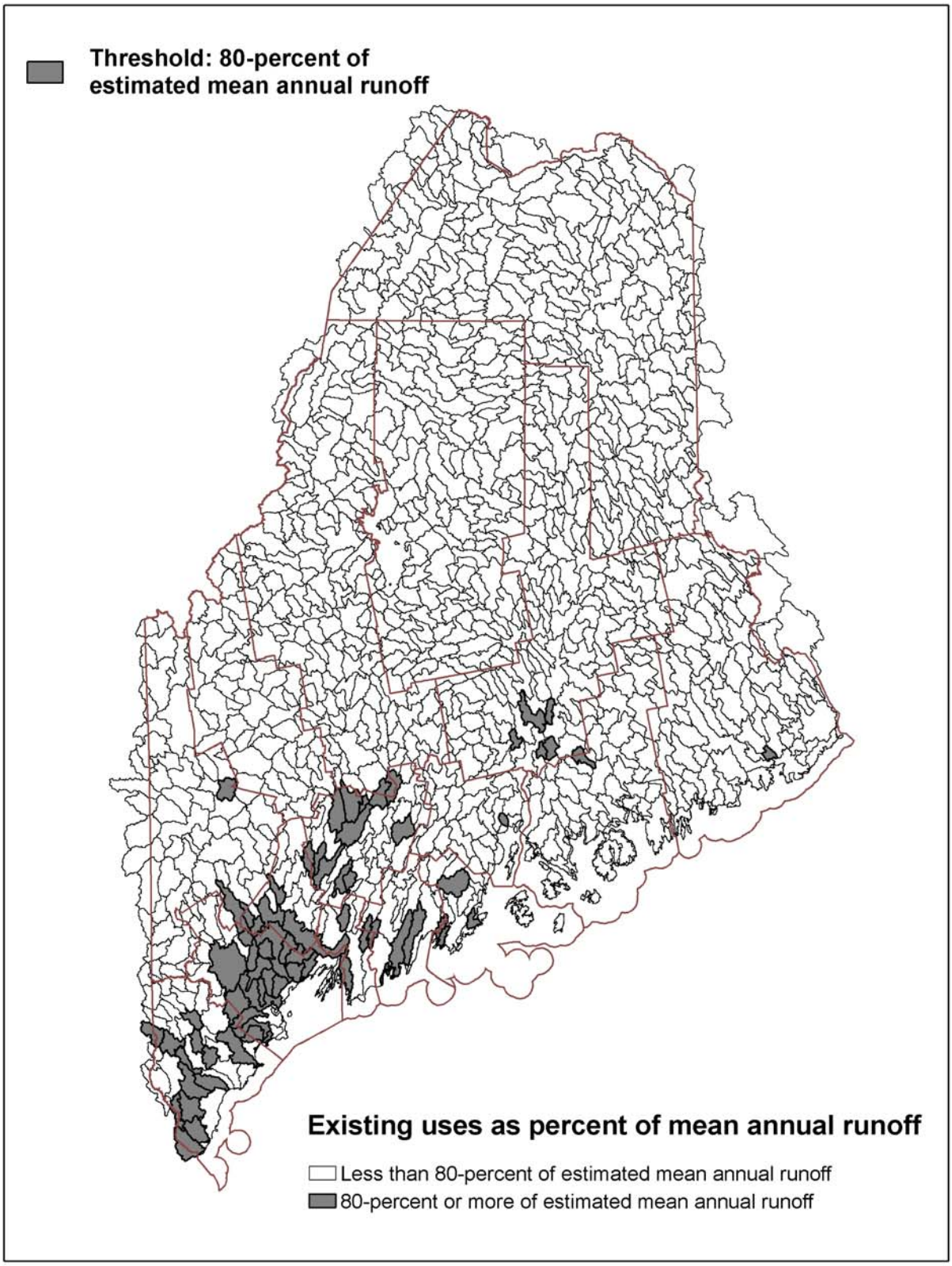
A number of watersheds exceed the 80- and 90-percent threshold values on the two maps. A total of 69 watersheds have minimum required in-stream flow plus estimated consumptive water use equal to or greater than 80-percent of the average annual runoff generated in the watershed. The total area above the 80-percent threshold is slightly over 2000 square miles, but because of the size of the NRCS 12-digit HUC watersheds, the actual impacted area is less than this. At a threshold of 90-percent of the average annual runoff generated in the watershed, 11 watersheds have minimum required in-stream flow plus estimated consumptive water use equal to or greater than the threshold. The total area impacted is 245 square miles, which again is probably larger than the actual area impacted.

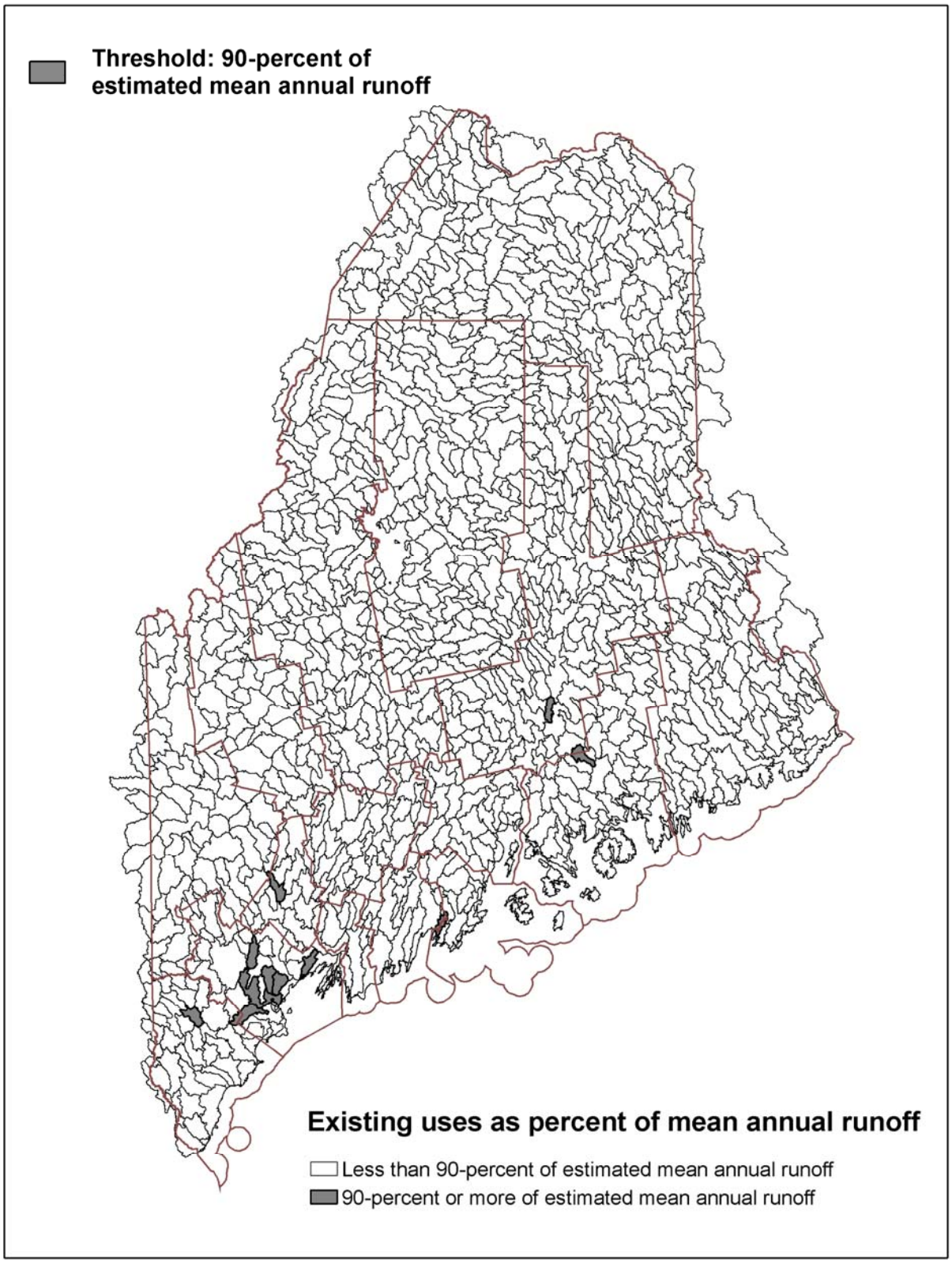
Three watersheds (1 in Androscoggin County and 2 in Cumberland County) have the sum of minimum required in-stream flow plus consumptive water use actually exceeding the estimated annual runoff generated in the watershed, and only by less than 10-percent of the estimated average annual runoff. However, given the assumptions and uncertainties in the analysis, this result should only be taken as a flag to examine the water budget of these watersheds in more detail.

Overall, the results confirm what we know – at this time there is no crisis where many watersheds have flow requirements and withdrawals far exceeding sustainable levels. There are watersheds that bear more detailed study, however.

For both threshold values, the majority of watersheds-at-risk are in areas with relatively high population densities. This suggests that, at this level of analysis, areas undergoing rapid development and population growth are most likely to experience problems with non-sustainable water withdrawals in the future.

At the aggregate level the data was provided to us, agricultural water withdrawals do not appear to a problem.


Threshold: 80-percent of
estimated mean annual runoff
Existing uses as percent of mean annual runoff
Less than 80-percent of estimated mean annual runoff
80-percent or more of estimated mean annual runoff


Threshold: 90-percent of
estimated mean annual runoff
Existing uses as percent of mean annual runoff
Less than 90-percent of estimated mean annual runoff
90-percent or more of estimated mean annual runoff

Recommendations

1) Watershed approach. This group has endorsed a watershed approach to addressing water issues. The rationale is that watersheds define the natural boundaries of water availability and use, and as such represent reasonable units through which to approach water issues. Scarce resources could be focused on watersheds where there is potential for problems rather than applying a new approach on a statewide basis. The rationale is underscored by the Maine Geological Survey's preliminary analysis of watersheds at risk, which suggests mostly localized potential for problems. Watersheds are also the basic units used in efforts to reduce non-point source pollution. A watershed approach can be dynamic and capable of responding to new demands.

This effort should focus on the sustainability of water withdrawals in a watershed. Because of the direct linkage between surface water and ground water resources, when considering water management issues in a watershed it is necessary to consider all water resources and water uses within a watershed, not simply those related directly to ground water. This effort would focus on sustainability issues and would dovetail with but not usurp the in-stream flow rules (rules currently in review by the BEP), which if approved will govern impacts on water-related natural resources.

The watershed approach to addressing water issues should be built on a tiered system. Note that many of the activities or management responsibilities outlined in the following discussion of tiers will be carried out by the Ground Water Committee proposed in recommendation #2.

Tier 1: Conduct full assessment of water supply and demand, including build-out analysis of community water needs. This needs to be a more complete analysis than the Maine Geological Survey's preliminary analysis of watersheds at risk. Some data may need to be developed to support this analysis. This work will be carried out by the Ground Water Committee (see #2).

Tier 2: If Tier 1 analysis indicates need, work with parties to develop a water-use management plan (similar to Aroostook agreement or Downeast Rivers) for the watershed. Agreements among users may limit uses, adjust periods of use, implement conservation measures, provide incentives for good stewardship, and include other measures. Monitoring the results of a management plan is an important consideration. The Ground Water Committee (#2) will manage the planning effort.

Tier 3: If over-subscription of water use remains after Tier 2 analysis, there may be a need for a binding dispute resolution process to resolve issues. Discussion of this option was tabled because the group could not come to broad agreement that such a process was necessary at this time.

The Ground Water Committee proposed in the following recommendation a process that could facilitate the watershed approach.

2) Ground Water Committee. Establish a Ground Water Committee (chaired by MGS) under the Land and Water Resources Council. The committee would consist of state agency staff with ground water responsibilities and expertise and would be advisory to the Land and Water Resources Council. As with other meetings of the Council, meetings of the Ground Water Committee would be open to others, and periodically others may be asked to present before the Committee. The Committee could be established by Executive Order and should meet quarterly

or more frequently if activities so demand. The Committee would have the following responsibilities:

a. Review ground water withdrawal activities. This is not a permitting activity but a regular, formal opportunity for periodic discussion among the permitting agencies regarding these activities. Such discussions would be a preliminary step to identifying watersheds at risk.

b. Coordinate state ground water information. There is a wealth of ground water information in various database and files that should be better coordinated, focusing first in areas of potential problems.

c. Refine the "watersheds-at-risk" analysis. Conduct appropriate ground water investigations by state agencies in "watersheds at risk." Where water use and analysis suggest potential problems, the Committee will direct appropriate investigations. With appropriate input from the user community, the Committee would establish priorities for such investigations and develop guidelines for consistency in investigations.

d. Convene planning groups of stakeholders as needed to address withdrawals in "watersheds at risk", in significant local aquifers, or in multi-municipal ground water issues. Such an approach has been used successfully in the past to address issues in Aroostook County and in eastern Maine. The need to convene planning groups may be identified through the analysis of water information, or may come about through petition by towns dealing with multi-town resource issues, or a town dealing with a significant local aquifer.

e. Provide assistance to towns. Towns will always exert home rule and it will be beneficial to develop some guidance documents that towns might use in addressing their concerns. There may be a grants program whereby towns can request funds for technical assistance on ground water sustainability issues.

f. Develop and disseminate educational materials on water resources, regulatory regime. See the next recommendation.

g. Report annually to the Legislature.

3) Education on water science and current regulatory rigor.

There is a broad net of regulations that address ground water withdrawals, but the nature and extent of these regulations are not well known. The Ground Water Committee described in recommendation #2 would be charged with the following:

a. Develop education materials that clearly describe the various regulations governing ground water withdrawals and how agencies interact in their implementation.

b. Disseminate this information via meetings, conferences, internet resources, and other means.

4) Changes to regulations.

a. Drilled Well Reporting: Change definition to include all wells for water withdrawal. Currently only wells drilled for potable water are reported. The new definition would still exclude wells drilled for monitoring purposes.

b. Natural Resource Protection Act: Modifications to NRPA to address non-agricultural high-yield wells* not used for individual home domestic supply that are not otherwise regulated by DEP or DHHS. (*High-yield well to be defined in rulemaking.)

c. Bulk Water: The language of the Bulk Water Transport Law lacks specificity. The language with regard to findings (failure to authorize will cause undue hardship) is very difficult to apply. The group recommends that the Legislature review the predicate findings to see if they are relevant. Part of this effort might focus on stream-lining the application review process. There was one dissenting opinion in the group on this recommendation.

d. Agricultural wells: High-yield agricultural wells would be reviewed by the Agricultural Water Management Board under a farm plan.

e. Public Water Supplies: No changes are recommended to the regulations governing public water supplies. Considerable information is available on these supplies to be used in research on sustainable use of ground water resources.

f. LURC jurisdiction: LURC will review its standards and rules governing water withdrawal to identify and make changes as needed to: (1) clarify the existing regulations, (2) assure consistency with DEP and DHHS, where applicable, and (3) assure that the Commission's statutory authority over groundwater withdrawal is clearly reflected. Furthermore, LURC will explore the development of a guidance document to ensure its review is consistent and coordinated with other agencies.

Costs

The major costs associated with these recommendations are related to the watershed approach to water management (1) and the proposed Ground Water Committee (2). The resources needed for the Maine Geological Survey to carry out the tasks outlined in these recommendations are the following:

1.5 FTE Hydrogeologists – $122,000 (existing funds)

Staff to Ground Water Committee
Data compilation
Aquifer investigations
Assistance to towns

Operating funds - $100,000 (new funds)

Aquifer investigations
Matching grants to towns in watersheds at risk for studies.
Some of these funds will be directed to the private sector through contracts.

With this existing staff and new operating funds, realistically one "watershed-at-risk" could be investigated each year. From the 90-percent threshold map presented on page 9, 11 years of funding at this level would be required. More funds over a longer period would be required for the watersheds identified in the 80-percent threshold map (page 8).

Sources

Hydrogeologists – the Maine Geological Survey will redirect 1.5 FTE hydrogeologists from lower priority aquifer mapping to investigate aquifer characteristics in select watersheds.

APPENDICES

Appendix 1.

CHAPTER 452

H.P. 1158 - L.D. 1643

An Act To Clarify and Harmonize State Policy on Groundwater Management

Be it enacted by the People of the State of Maine as follows:

PART A

Sec. A-1. 12 MRSA §685-B, sub-§4, ¶C, as amended by PL 1973, c. 569, §11, is further amended to read:

> C. Adequate provision has been made for fitting the proposal harmoniously into the existing natural environment in order to assure there will be no undue adverse effect on existing uses, scenic character~~,~~ and natural and historic resources in the area likely to be affected by the proposal~~, and~~. In making a determination under this paragraph regarding development to facilitate withdrawal of groundwater, the commission shall consider the effects of the proposed withdrawal on waters of the State, as defined by Title 38, section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells, within the anticipated zone of contribution to the withdrawal. In making findings under this paragraph, the commission shall consider both the direct effects of the proposed withdrawal and its effects in combination with existing water withdrawals;

Sec. A-2. 22 MRSA §2660-A, sub-§3, ¶D, as enacted by PL 2003, c. 121, §1, is amended to read:

> D. For a source not otherwise permitted by the Department of Environmental Protection or the Maine Land Use Regulation Commission, the water withdrawal will not ~~adversely affect existing uses of groundwater or surface water resources, including private wells~~ have an undue adverse effect on waters of the State, as defined by Title 38, section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells, within the anticipated zone of contribution to the withdrawal. In making findings under this paragraph, the commissioner shall consider both the direct effects of the proposed water withdrawal and its effects in combination with existing water withdrawals.

Sec. A-3. 38 MRSA §484, sub-§3, ¶F is enacted to read:

> F. In making a determination under this subsection regarding a structure to facilitate withdrawal of groundwater, the department shall consider the effects of the proposed withdrawal on waters of the State, as defined by section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells, within the anticipated zone of contribution to the withdrawal. In making findings under this paragraph, the department shall consider both the direct effects of the proposed water withdrawal and its effects in combination with existing water withdrawals.

PART B

Sec. B-1. Development of consistent hydrogeological review procedures. By January 1, 2006, the Department of Environmental Protection, the Maine Land Use

Regulation Commission and the Department of Health and Human Services, in consultation with the Department of Agriculture, Food and Rural Resources, the Maine Geological Survey and other public or private entities or persons that they consider appropriate, shall:

1. Review their existing administrative procedures and practices regarding review of development activities involving groundwater withdrawal;

2. Develop and implement any changes to such administrative procedures and practices that are appropriate and necessary to establish a consistent, efficient and effective approach under their existing legal authority to review pertinent hydrogeological and related natural resources issues; and

3. Submit a report to the Governor and Joint Standing Committee on Natural Resources summarizing actions taken pursuant to this section.

Sec. B-2. Permit fees. The Department of Environmental Protection, the Maine Land Use Regulation Commission, the Department of Health and Human Services and the Maine Geological Survey shall each review their administrative costs of reviewing permit applications under the Maine Revised Statutes, Title 12, chapter 206-A; Title 22, chapter 601; and Title 38, chapter 3, article 6, including administrative costs associated with any required impact studies or monitoring and shall adjust pertinent permit application fees as appropriate to ensure that such fees are adequate to cover such administrative costs. Beginning January 15, 2008, the Department of Environmental Protection, the Maine Land Use Regulation Commission, the Department of Health and Human Services and the Maine Geological Survey shall biennially review their administrative costs of reviewing permit applications under Title 12, chapter 206-A; Title 22, chapter 601; and Title 38, chapter 3, article 6, including administrative costs associated with any required impact studies or monitoring and report to the joint standing committee of the Legislature having jurisdiction over natural resources matters on the adequacy of such fees to cover pertinent administrative costs anticipated in the next biennium.

Sec. B-3. Rulemaking. The Department of Environmental Protection, the Maine Land Use Regulation Commission, the Department of Health and Human Services and the Maine Geological Survey may adopt major substantive rules, as defined in the Maine Revised Statutes, Title 5, chapter 375, subchapter 2-A, to establish a consistent, efficient and effective approach to review of pertinent hydrogeological and related natural resources issues or adjust permit fees as provided in sections 1 and 2 of this Part.

PART C

Sec. C-1. Study of state regulation of groundwater withdrawal. The Land and Water Resources Council established in the Maine Revised Statutes, Title 5, section 3331 and referred to in this Part as "the council" shall undertake a study of current state law regarding regulation of withdrawal of groundwater. The purpose of the study is to identify any changes in state law needed to ensure a consistent, integrated and scientifically sound state policy that ensures that the withdrawal of groundwater does not have an undue adverse effect on waters of the State, as defined by the Maine Revised Statutes, Title 38, section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells, within the anticipated zone of contribution to the withdrawal.

Sec. C-2. Oversight. The council shall begin the study under section 1 no later than October 1, 2005. The study must be carried out under the direction of the council with work performed by a work group composed of appropriate personnel from the Department of Environmental Protection, the Department of Agriculture, Food and Rural Resources, the Maine Land Use Regulation Commission, the Department of Health and Human Services'

drinking water program, the Maine Geological Survey, the Department of Economic and Community Development, the Executive Department, State Planning Office and members of the public with expertise in relevant fields of interest, including, but not limited to, agriculture, public water utilities, groundwater law and water bottling and sale. In addition, the work group must include a private domestic well owner and legislative members from the Joint Standing Committee on Natural Resources, the Joint Standing Committee on Agriculture, Conservation and Forestry and the Joint Standing Committee on Business, Research and Economic Development.

Sec. C-3. Staffing assistance. The Maine Geological Survey shall provide staff services to the council and serve as lead agency for purposes of management of the study at the council's direction.

Sec. C-4. Issues to be considered. In developing its recommendations, the council shall:

1. Identify and review provisions under the Maine Revised Statutes, Title 12, chapter 206-A; Title 22, chapter 601; and Title 38, chapter 3, article 6, any other pertinent state laws that may trigger state regulation of a proposed withdrawal of groundwater;

2. Review existing geological, hydrogeological and other related scientific information regarding Maine's groundwater resources in order to assess the efficacy of existing state law for ensuring that withdrawal of groundwater does not have an undue adverse effect on waters of the State as defined by Title 38, section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells, within the anticipated zone of contribution to the withdrawal;

3. Identify and assess criteria that should influence whether and how the State regulates or otherwise manages withdrawal of groundwater, giving consideration to sizes and uses of withdrawal, including, but not necessarily limited to, the following:

A. The quantity of proposed withdrawal;

B. The hydrogeologic characteristics of the aquifer in which the proposed withdrawal will take place;

C. The duration of the proposed withdrawal;

D. The size of the land parcel on which the withdrawal occurs;

E. The location of the proposed withdrawal in relation to wetlands, great ponds or other protected natural resources; and

F. The nature, size and location of proximate surface waters;

4. Propose any necessary changes to state law, including, but not limited to, a series of regulatory thresholds with appropriate levels of review for each, such as permit-by-rule, that would trigger state regulatory review of withdrawal of groundwater. The council shall recommend such changes that it considers appropriate and necessary to establish a consistent, integrated and scientifically sound state policy regarding groundwater management that ensures that withdrawal of groundwater does not have an undue adverse effect on waters of the State, as defined by Title 38, section 361-A, subsection 7; water-related natural resources; and existing uses, including, but not limited to, public or private wells within the anticipated zone of contribution to the withdrawal;

5. Assess the projected costs to the State of developing and implementing any changes in state law proposed pursuant to subsection 4 and the adequacy of existing departmental

resources, including regulatory fees, to develop and implement those changes efficiently and effectively; and

6. Assess the projected costs to applicants for withdrawal of groundwater for complying with any changes in state law proposed in subsection 4.

Sec. C-5. Report. The work group established under section 2 of this Part shall provide updates or reports to the council as determined by the council. The council shall submit its final report and recommendations to the joint standing committee of the Legislature having jurisdiction over natural resources matters no later than November 1, 2007.

Sec. C-6. Rulemaking. By March 15, 2007, the Department of Environmental Protection, the Maine Land Use Regulation Commission, the Department of Health and Human Services and the Maine Geological Survey shall coordinate the adoption of any major substantive rules, as defined in Title 5, chapter 375, subchapter 2-A, needed to implement the recommendations of the council pursuant to section 4 of this Part.

PART D

Sec. D-1. Legislative intent. The purpose of this Act is to promote development and implementation of consistent, integrated and scientifically sound state policy regarding groundwater management through:

1. Establishment of a uniform standard for state regulatory review of the effects on groundwater withdrawal when such review is provided for under existing provisions of the Maine Revised Statutes, Title 12, chapter 206-A; Title 22, chapter 601; and Title 38, chapter 3, article 6;

2. Appropriate changes in administrative procedures and practices, including assessment of permit fees, under current law; and

3. Identification of proposed changes in state law appropriate and necessary to establish and implement a consistent, integrated and scientifically sound state policy regarding groundwater management for subsequent consideration by the Legislature.

Nothing in this Act expands or limits the activities currently subject to regulation under Title 12, chapter 206-A; Title 22, chapter 601; and Title 38, chapter 3, article 6.

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Appendix 2.

Meeting participants

Name	Affiliation	15-Nov-05	13-Dec-05	13-Jan-2006	10-Feb-06	10-Mar-06	14-Apr-06	12-May-06	16-Jun-06	14-Jul-06	8-Sep-06	17-Nov-06
C. Ahrens	Pierce Atwood LLC			Yes	Yes			Yes	Yes			
J. Austin	Maine Municipal Association				Yes				Yes	Yes		
N. Beardsley	Maine Drinking Water Program			Yes	Yes		Yes	Yes	Yes		Yes	Yes
D. Bell	Agricultural Council of Maine	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S. Belle	Maine Aquaculture Assoc.	Yes		Yes	Yes						Yes	
G. Bergoffen	Fryeburg	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes
C. Bohlen	Trout Unlimited			Yes	Yes	Yes	Yes	Yes	Yes			Yes
D. Braley	Drinking Water Program									Yes		
T. Brennan	Nestle Waters/Poland Spring		Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T. Burrowes	Maine State Planning Office	Yes							Yes			
B. Caswell	Cherryfield Foods		Presenter									
D. Courtemanche	Maine Dept. Environmental Protection					Presenter						
J. Delahanty	Pierce Atwood LLC	Yes	Yes	Yes		Yes		Yes	Yes	Yes		Yes
D. Dow	Maine Senate	Yes	Yes		Yes				Yes		Yes	Yes
N. Dube	Atlantic Salmon Commission					Yes						
M. Dubois	Nestle Waters/Poland Spring			Yes								
J. Eberle	Maine House of Representatives	Yes		Yes	Yes	Yes			Yes	Yes	Yes	Yes
B. Evangelista	Mount Desert Spring Water		Yes									
R. Evangelista	Mount Desert Spring Water		Yes									
W. Ferdinand	Eaton Peabody			Yes	Yes	Yes	Yes				Yes	Yes
D. Friedman	Office of the Senate President			Yes								
P. Garrett	Emery and Garrett Ground Water		Presenter									

Name	Affiliation	15-Nov-05	13-Dec-05	13-Jan-2006	10-Feb-06	10-Mar-06	14-Apr-06	12-May-06	16-Jun-06	14-Jul-06	8-Sep-06	17-Nov-06
P. Gauvreau	Maine Office Attorney General	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes
S. Giffen	LURC					Yes						
T. Glidden	State Planning Office	Yes		Yes	Yes	Yes	Yes			Yes	Yes	Yes
J. Harker	Maine Dept. Agriculture		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	
D. Harnish	Maine Office Attorney General			Presenter								
K. Hebert	Maine Rural Water Association						Yes		Yes	Yes	Yes	
T. Hobbs	Maine Potato Board			Yes	Yes	Yes	Yes		Yes		Yes	
A. Hodsdon	A.E. Hodsdon Engineering		Yes	Yes	Yes	Yes			Yes	Yes		Yes
J. Hopeck	Maine Dept. Environmental Protection	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
W. Johnston	Muskie Center			Yes	Yes	Yes						
D. Locke	Maine Geological Survey	Yes	Yes	Yes								
M. Loiselle	Maine Geological Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R. Knowlton	Aqua Maine Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
M. Margerum	Maine Dept. Environmental Protection	Yes								Yes		
R. Marvinney	Maine Geological Survey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
K. Mayland	Trout Unlimited				Yes		Yes					
J. McKee	Town of Kingfield	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
J. McNelly	Maine Water Utilities Association	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
M. Nielsen	U.S. Geological Survey		Presenter									
L. Percy	Maine House of Representatives					Yes						
N. Schalit	Maine Rivers		Yes	Yes								
M. Shannon	Maine Congress of Lake Associations						Yes	Yes	Yes			
M. Spencer-Famous	LURC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
G. Stewart	U.S. Geological Survey		Presenter									
T. Tavares	ME Dept. Economic Community Development	Yes										

Name	Affiliation	15-Nov-05	13-Dec-05	13-Jan-2006	10-Feb-06	10-Mar-06	14-Apr-06	12-May-06	16-Jun-06	14-Jul-06	8-Sep-06	17-Nov-06
K. Taylor	St. Germain Assoc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
K. Tilberg	Maine Dept. Conservation							Yes				
S. Timpano	Maine Dept. Inland Fisheries & Wildlife	Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes
A. Tolman	Maine Drinking Water Program	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
J. Trial	Atlantic Salmon Commission				Yes		Yes		Yes			Yes
J. Wilfong	Stow	Yes				Yes	Yes	Yes			Yes	
A. Wong	Maine Rural Water Association							Yes	Yes	Yes	Yes	Yes

Appendix 3 – Meeting agenda and notes

November 15, 2005

Agenda

8:45 Arrival, coffee and refreshments

9:00 Welcome and Introductions (Marvinney)

9:15 Work group process (Glidden)

9:25 Review of the provisions of Public Law chapter 452 (Marvinney)

9:45 Overview of past legislative/agency efforts regarding groundwater extraction (Marvinney)

10:00 Break

10:15 Perspectives from participants (All)

11:15 Discussion of proposed schedule for future meetings (Marvinney)

12:00 Adjourn

November 15 Meeting Notes

1) Bob Marvinney welcomed everyone and introduced the importance of this process.
2) Tim Glidden (facilitator) reviewed the process for the group and discussed some basic ground rules for the group. We will strive for consensus as a group, but be frank about differences where they occur and will acknowledge these in the final report. Glidden emphasized the group's role as an advisor to the Land and Water Resources Council.
3) Marvinney reviewed the provisions of PL Chap. 452.
    a. Part A. This section makes parallel changes in statutes for each of the agencies involved in regulating water withdrawals. This section clarifies the responsibilities of the permitting agencies to consider the effects that a proposed withdrawal would have on other water-related natural resources and existing ground water uses.
    b. Part B. This section requires permitting agencies to develop consistent hydrogeologic review processes. John Hopeck and Andy Tolman reported that the state agencies were on track for completing this process by early next year. A summary of this information will be made available to the group.
    c. Part C. This is the section that defines the study we are undertaking. It falls under the auspices of the Land and Water Resources Council, to which our group must make recommendations no later than October, 2006, any of which must be passed on to the Legislature no later than November, 2006. (Note that the law incorrectly states November 2007.) The law includes a list of factors that must be considered in the review process but this should not be limiting to our discussion.
    d. Discussion at this point centered on the definition of "water-related natural resources." DEP looks at those that specifically require water – streams, ponds, etc. IFW considers state trust resources that are water dependent. **Hopeck will bring back a definition based on DEP usage**.
4) Marvinney reviewed past efforts regarding water policy. Marvinney worked from a 2-page synopsis taken from a lengthy summary that he compiled last year with the assistance of others. There has been considerable debate on water policy for decades and many of the recommendations from past efforts have been implemented while others have not.
    a. Water Resource Management Board. We noted that this temporary board (1989-90) recommended considerable local involvement in water management. This has been adopted

after a fashion in the Aroostook Water Use Policy (1996) and the Downeast Rivers Water Use Management Plan (2000). The merits of this approach should be considered in our discussions.

b. Dave Bell pointed out that while the state has been discussing policies for many years, much has not been implemented, at least partially due to the lack of resources/funding for implementation. It might be best to develop a policy framework but apply scarce resources to a few areas of potential conflict.

5) Perspectives. Each member of the group offered a few points on the issues/process:

Gene Bergoffen:
- concerned with the issue of sustainability versus use, and best regulatory means to insure sustainability
- how do you determine what is sustainable?
- how do you assess impacts on surface water bodies?
- important for locals to coordinate with State agencies

John Delahanty
- interested in coordination of permitting and regulation among State agencies
- public education, in particular educate the public that water resources are currently regulated
- interest in seeing water used to it's full potential for economic development

Rick Knowlton
- has dealt with local and State agencies in using ground water resources, and all have different regulations
- experience with one local ordinance was onerous
- would like to see uniform criteria in assessing impacts of water use

Andy Tolman
- interested in source protection – both quality and quantity
- uniform State policy, but
- would like a screening process to focus regulator efforts on cases where sustainability issues and conflicts might arise
- policy shouldn't impose bureaucratic burden on developers

T.J. Tavares
- foster economic development but protect the resource

John Hopeck/Mark Margerum
- are we looking at the right criteria?
- are we looking at these criteria in the right way?
- must look at the bigger picture; cumulative impact
- need good science behind the regulation; a scientifically defensible process, but not more than the applicant need to do.

Todd Burrowes
- no real desires
- would like to see State provide support for community planning efforts around water management

-

Steve Timpano

- public-trust resource perspective
- interested in protection of aquatic resources => maintenance of habitat and surface flows throughout the species life cycle
- ground water/surface water interaction
- willing to share the resource
- stresses conservation of the resource before accepting habitat loss
- uses for hatcheries, etc

Sebastian Bell

- Maine has significant, current aquacultural uses of ground water
- Maine has significant additional aquaculture possibilities; an economic development opportunity
- need for high quality ground water
- need for high volumes
- small but important group of users; don't ignore them

Dave Bell

- agrees with the need to look at ground water alternatives to surface water in some cases
- who owns the ground water?
- would like to see incentives to raise stewardship levels of owners
- need to minimize the costs to government
- need to minimize cost of stewardship for owners
- investments made by the owners in stewardship and development of sustainable resources must be protected in the future
- would like to see basin-wide planning efforts

Jim Wilfong

- ownership; ground water of the state is a public resource
- overall control of water resource management is an important issue
- sustainability – for all users in the community
- citizen equity in the ground water resource for their investment in ground-water quality
- must take the long term view and assess all impacts of ground water use
- needs to be a Statewide discussion

Dana Dow

- State should use natural resources to fullest economic benefit but in a sustainable manner
- all data should be looked an in an objective way

Jack McKee

- use resource to the fullest for economic development
- insure that local jurisdiction has authority to insure sustainability of quality and quantity
-

Keith Taylor

- works with small districts in negotiating with other users
- has found it to be a relatively easy process, especially in identifying what is an "adverse impact" on the water district
- likes the current "shoreland zoning" model – State guidance with local implementation
- public education very important
- allocation/conflict resolution must be dealt with in the future

Jeff McNelly
- recognizes need for sustainability
- regulation must not be onerous – must be reasonable
- what we do regulate, we must regulate well

Marcia Spencer-Famous
- current LURC regulation too general; need to be more specific
- need to be predictable and consistent
- must regulate to maintain sustainability
- keep "no adverse impact" as highlighted in LURC statute as prime motivation in regulation
- planning very important

Paul Gauvreau
- sustainability of sound public policy
- interested in the process
- the process must be fair and acceptable to participants
- a sound, democratically principled process will result in a policy that is stable, self-vindicating.

Dan Locke
- impacts of ground water withdrawals on surface water and other users
- ground water/surface water interaction
- how do we define a "significant" or "adverse" impact? Very seldom defined in regulation

Jane Eberle
- grateful for everyone's participation; seems people have much in common
- prevention is good => proactive protection of the resource; protect and preserve is better than restore and reclaim
- promote the economy through the use of natural resources
- all groups must work together in promotion and protection
-

Bob Marvinney
- science has a key role to play in making policy
- ground water is the State's most renewable resource
- but still needs review and regulation to insure sustainable quality and quantity
- use existing information to identify potential problem areas and focus attention on these areas
- fair treatment of all users
- public education important

5) Review of proposed schedule.
   a. Next meeting (Dec. 13) will provide background on Maine's ground water setting with invited speakers covering various topics. The speaker list and format are still being developed. This could possibly be a day-long (or most of a day) meeting. May invite others to this meeting, but not to be a huge open session.
   b. We discussed whether or not the meat of our discussion would be pushed too many months away. Marvinney noted that the proposed schedule has the group reviewing regulations in January and we don't expect this to be simply static presentations, but rather a discussion as the various regulations are reviewed.
   c. No decision was made on whether or not to invite speakers from other states at a later meeting to present overviews of their regulations.
   d. Try to get the bulk of the work done before July/August when participation will likely be low.

6) Action items:

a. Provide a definition of "water-related natural resources." (Hopeck)
b. Provide a summary of the consistent hydrogeological review criteria to the group (Hopeck, Tolman)
c. Outline of final report to Land & Water Resources Council (major headings) by December meeting. (Marvinney)
d. Invite members of legislative committees of jurisdiction to the Dec. 13 meeting. (Marvinney).
e. As soon as possible, provide an outline of presentations and presenters for the December meeting. (Marvinney) Meeting participants make recommendations on possible presenters. (All).
f. A summary of presentations and questions and answers should go in the final report. (Marvinney)
g. Propose possible meeting dates for January and perhaps recommend consistent monthly times to meet thereafter. (Marvinney)
h. Develop a summary list of the types of ground water use. (Marvinney, with the assistance of all.)
i. Any amendments/additions to the various perspectives outlined under #5, or any other points of interest should be directed to Marvinney. (All)
j. Circulate a compendium of statues and regulations, with pertinent web links, via e-mail. (Marvinney)

December 13, 2005

Groundwater education

Agenda

9:45 Arrival, coffee and refreshments

10:00 – 10:45 Introduction – hydrologic cycle, Maine's two aquifer types, general water stats (Marvinney)

10:45 – 11:45 Long-term records – Maine's groundwater monitoring network (Martha Nielsen, USGS)
a. Watershed scale – recharge areas
b. Time scale – recharge cycle
c. Comparison with other regions

11:45 – 12:30 Lunch (provided)

12:30 – 1:15 Groundwater – surface water interactions (Keith Taylor)

1:15 – 2:00 Sustainability – Methods for assessing safe yield using models (Peter Garrett)

2:00 – 2:45 Resource characterization/evaluation – methods (Brad Caswell)
Defining the water budget

December 13 Meeting Notes

Presentations by speakers are available on line at:
http://www.maine.gov/doc/nrimc/mgs/explore/water/regs/withdraw.htm

January 13, 2006

Agenda

8:45 Arrival, coffee and refreshments

9:00 Review of current regulations relating to ground water withdrawals (Marvinney and staff of appropriate agencies)

10:00 Local ordinance example (Bergoffen, Fryeburg)

10:15 Maine's legal setting for ground water ownership (Attorney General's Office)

10:30 Break

10:45 Discussion of regulations (All)

11:30 Brief overview of draft flow rules (Courtemanche, DEP)

12:00 Adjourn

January 13 Meeting Notes

At this meeting, staff from the various agencies that have roles in permitting ground water withdrawals outlined the regulations and processes involved in permitting such withdrawals. The Attorney General's Office also provided an overview of Maine's legal setting with regard to ground water ownership. The overviews were followed by a general discussion of issues among all group members.

Presentations by agency staff

1) Andy Tolman provided an overview of ground water regulations at the Maine Drinking Water Program. (See presentation for full remarks.)
    a. Quantity of water is not specifically regulated.
    b. Al Hodsdon noted that quantity is actually regulated indirectly by the imposition of minimum travel times between water bodies and a ground water source well. Pumping too much reduces the travel time below the level required by the DWP.
    c. DWP Rules do not specifically require monitoring, but the DWP include a monitoring requirement in permits as a matter of course.
2) Marcia Spencer-Famous provided an overview of the Land Use Regulation Commission's process for addressing ground water withdrawals. (See presentation for full remarks.)
    a. Land use districts define where activities can occur. LURC resources are thin, but adequate for careful review.
    b. Modeling is useful but not always necessary as in the Dallas Plantation proposal.
    c. State agencies do not conduct independent testing, but define the requirements for ground water testing and rigorously review materials submitted by the applicant.
    d. Resource testing could be done without a permit. Dave Bell indicated that some large growers spend several hundred thousand dollars to get a permit, basically because they build their well first. Rick Knowlton noted the same for public water supplies.
3) Steve Timpano discussed how the Maine Department of Inland Fisheries and Wildlife reviews proposals for ground water withdrawals with regard to potential impacts on habitat.
    a. Concerned with essential habitats (e.g. bald eagle nest sites).

b. Impacts on designated habitats (a species must be present to designate a habitat).

c. Incidental "take" of adverse impact on habitat is allowed or is prohibited?.

d. Al Hodsdon noted that public water suppliers are often the best stewards of lands due to their interest in limiting activities that can compromise water quality.

4) John Hopeck provided an overview of the Maine Department of Environmental Protection's regulations that govern ground water withdrawals. (See presentation for full remarks.)

a. Under NRPA, altering a wetland (e.g. filling in a portion) triggers compensation, but dewatering by induced recharge is more difficult to quantify than dewatering by trenching, for example. DEP stresses avoidance, where practical, as the preferred alternative to any alteration, but especially when the impacts are difficult to assess.

b. MIFW also requested to review impacts on water resources.

5) Gene Bergoffen provided an overview of Fryeburg's approach to regulating ground water withdrawals. (See presentation for full remarks.)

a. Noted that a volunteer group raised $100,000, partially for a consultant to develop a hydrogeologic model, and partially to study the impact of withdrawals on Ward Brook and Lovewell Pond.

b. Summary of modeling is that current wells could pump water in excess of recharge, but permittees are not pumping to this limit.

c. Monitoring is an important element that will be provided by permittee but also some by private donations.

d. Fryeburg felt that the State agencies should have asked applicant for more information on the bulk water renewal, but probably not within their scope of authority or resources.

6) Dennis Harnish of the Attorney General's Office provided an overview of Maine's legal setting with regard to ground water.

a. Mattox vs. Giles case. Involved a spring running dry on the Mattox property because of activities in Giles's gravel pit. There is a general presumption of percolating ground water in Maine law, but plaintiff needs to prove "underground stream" to have cause. Also needed a residence on property. Decision was no cause of action. (Editor's Note: there are no underground streams in Maine!!!)

b. Maine uses the "absolute dominion" rule (English rule), which provides that a landowner owns the ground water under his land and can use as much as he wants. There is no cause of action by a neighbor whose property is damaged by these withdrawals.

c. Many western states use "reasonable use" (American rule), which allows just that with no wasting of water, including taking it off site. Impetus was large-scale pumping by water districts which was dewatering farm land.

d. California – "correlative rights." This is basically an allocation similar to surface water.

e. Some states use "restatement of torts," which is based on case law.

f. In 1990, the Maine Legislature had option to go to "reasonable use" but rejected this.

g. One statute that attempts to address the worst part of the problem – 38 MRSA Section 404. An individual is liable when withdrawal is in excess of need for a single family home or when it interferes with such use on another property. Provide compensatory damages. Except for Mattox vs. Giles, this law has not been used.

7) Discussion of LD 1925 in this current session (see: http://www.mainelegislature.org/legis/bills/LD.asp?LD=1925).

   a. Some participants feel that this group should take a position on this bill, which would change the law to "reasonable use." Others argued that much of this group's time could be devoted to this single issue, the result being that not much else would be accomplished. There is inadequate time to have a meaningful review of this issue before the bill is heard.

   b. Deb Friedman from Senate President Edmond's office noted that the bill was printed before adequate review and is not Edmond's proposal. She noted that action might be premature and that it would be good for someone from this group to come before the legislative committee and suggest that the committee hold off on this issue until after our work group completes it's report (November 2006).

   c. The work group felt that Marvinney should make this recommendation to the legislative committee during the public hearing for LD 1925.

8) **General discussion of issues**.

   a. Harker: Identify problem areas and focus solutions there, similar to the Fryeburg process. Must be concerned with who pays.

   b. Hodsdon: not much needs to be changed for public water supplies, which represent 8 billion gallons of annual use. System works well, is understood.

   c. Bell: concern about late comers to ground water withdrawal in an area.

   d. Loiselle: Need to be mindful that ground water does not recognize municipal boundaries. Fryeburg's aquifer is in Fryeburg, but other municipalities use aquifers outside their boundaries.

   e. Knowlton: review and confirm state role in protection, controls, but recognize local ability to trump state regulations. Every town is unique and we should not make the Fryeburg example apply statewide. E.g. Freeport where aquifer extends beyond municipality – this is where the state has a role – verifying the science. State regulations are mostly reactive – general lack of guidance on state level for planning.

   f. Spencer-Famous: the Fryeburg approach is basically what LURC needs to do.

   g. Taylor: Do we have problems? Are they procedural? Do we need new regulations/legislation?

   h. Ahrens: not much controversy in science. Issues will always arise in individual municipalities. The municipal ordinance is not necessarily a good example of what should be done at the state level.

   i. Bergoffen: Ranking of uses? Guidance from the state level would be useful. Should all municipalities do things differently?

   j. McKee: each municipality is unique. Kingfield is working well. There should be guidance and appropriate process from the state level, but the local level should have a role.

   k. Hobbs: is there a regional gap?

   l. Hodsdon: certain things need state regulation, e.g. impacts on surface water. Need to recommend guidance to local level. Decisions need to be made at local level.

   m. Ahrens: Focus on the science. Group should focus on water impacts. Social/political impact is a completely different issue.

n. Ferdinand: State should help towns understand sustainability. Issue – how do we address competing uses of the water budget?

9) Developing the agenda for the next meeting (Feb. 10).

a. All participants should direct to Marvinney their thoughts on problems that need focus. These suggestions will be developed into an agenda.

b. Marvinney should check with MMA and MWRA to gauge their interest in participating in this process.

February 10, 2006

Goal for this meeting: Review issues raised by members of the group, develop consensus on those we should address, and provide direction on how they should be addressed.

8:45 Arrival, coffee and refreshments

9:00 Discussion of issues regarding the adequacy of current ground water withdrawal regulations.

Broad areas of issues for discussion:

- Relationships between levels of government (LURC/DEP/Towns) and between state agencies
- Review criteria (e.g. environmental protection, competing human uses)
  - Thresholds
  - Stewardship
  - Allocation
- Available information and science
- Available resources

11:00 Summary

11:30 Next steps

February 10 Meeting Notes

Goal for this meeting: Review issues raised by members of the group, develop consensus on those we should address, and provide direction on how they should be addressed.

Relationships between levels of government (LURC/DEP/Towns) and between state agencies

- Ensure a consistent review process across agencies. Much of this is being addressed by state agencies through development of consistent hydrogeologic review processes.

Land Use Regulation Commission (LURC) &. Department of Environmental Protection (DEP)

- State agencies should develop formal Memoranda of Agreement that clarify roles in review of ground water withdrawal applications. Each agency has a slightly different focus and process.
- There probably are not major conflicts in mission between LURC and DEP, but LURC has broader mission (i.e. comprehensive land use planning).
- From public water supply perspective, there are substantial differences in supply proposals and review between the unorganized territories regulated by LURC and the organized towns regulated by DEP.

Several comments regarding redundancy in review within and across levels of government:

- There are many reviews in different agencies with only minor differences. This is costly in terms of time, resources. An example is Bulk water Transport permit in LURC jurisdiction. This requires a LURC review and permit, and a Drinking Water Program review (multi-agency) and permit.
- In large projects, there is some benefit to multiple review.
- There will always be multiple levels, partially because towns do not wish to give up right to home rule.
- Applicants need single point of contact/lead agency at state. Make sure all agencies engage appropriate advisory agencies.
- Develop a table of agency responsibilities with goals and tasks as a tool to identify duplication, gaps.

Discussion of local ordinances:

- For public water supplies, different local ordinances are an issue. An example is Hartland, which has no local ordinance vs. Freeport, which has a tough local ordinance.
- Both communities would have appreciated more of a state role in water development proposals/review. Town boards typically do not have resources for adequate review and not every town may guard water supplies appropriately.
- Some town ordinances are specific about types of water use while others are concerned mostly with quantity.
- The concerns of the agricultural community are similar to those of the public water supplies with regard to the differences in application requirements/process in LURC and DEP jurisdictions, and with regard to local ordinances.
- Irrigators would find hook up to public water supply much easier. Need assurance of supply and regulatory stability for investment.
- With regard to the development of model ordinances (typically developed by the state for use by towns), the Maine Municipal Association (MMA) generally likes model ordinances. MMA might consider two questions with regard to this:
    - Does a town do something that the state doesn't do?
        - Yes, towns fill gaps.
        - No, overkill, redundancy, etc.
    - Does town do something that State does?
        - Yes, and it's good to have this redundancy.
        - Yes, and it is burdensome redundancy.
- Towns are unlikely to allow the elimination of town reviews and home rule. But we need to address reactionary response to water withdrawal proposals. Objectors bring up many issues other than actual withdrawals.
- There can be informal agreements between towns and state agencies for exchange of information, e.g. Kingfield and LURC.
- This group should recommend that an appropriate body develop a model ordinance or guidance documents for towns.

Discussion of watershed approach to regulation of water withdrawals

- A watershed focus might be a framework for regulation, rather than new statewide regulations. Some particular set of regulations may only be activated in a watershed when water use approaches some percentage of available water.
- This approach may be developed with several tiers.

- There are some concerns that State does not have information needed for watershed analysis. Other approaches might be:
    - First come - first served basis.
    - Allocation.
    - Based on resource use.
- Watershed good for planning, but then need details for permit.
- Source water protection program is a component of the watershed approach, but there needs to be a broader solution.
- Existing uses: Simple recognition of existing uses would be prudent. Need to ensure that existing uses have some standing in the permitting process. But also need to consider the impacts of grandfathering existing uses, which has presented problems elsewhere in New England.
- Conservation should be part of a strategy. Can such measures meet future demand?
- Stewardship should be an important element in whatever scheme is pursued. Incentives toward stewardship might be the least expensive route toward wise use and stewardship. Users might be charged with a stewardship obligation.
- Important to look at cumulative impacts and consider priority water uses in this context. Note that public water supplies represent 88% of withdrawals.
- A watershed approach needs to be dynamic, capable of responding to new demands.
- State needs a greater role in addressing development. Site law only addresses subdivisions of ≥30 lots.
- Monitoring is an important element of any approach.

Groundwater ownership/legal setting

- Courts have been hesitant to change Maine's legal basis from one of "absolute dominion" to "reasonable use" or some other framework, but it may be only a matter of time before this changes.
- We may wish to consider recommending a change in legal basis.

Discussion of surface water/ground water interactions and flow rules

- Brief discussion of these issues and proposed flow rules makes it clear that this group will benefit from a short presentation by Dave Courtemanch on the flow rules. Presentation proposed for March 10 meeting.

Other discussion points

- Develop more than one model. All politics is local. Some places might be better off with allocation model; others might be better served by stewardship.
- Charge is clear from statute establishing this group, but it should not limit discussion.
- Focus needs to be proactive – to be prepared for future demands.
- Consider regional ground water management groups as proposed by the former Water Resources Management Board (1989). The Aroostook Water & Soil Board has taken this role to some degree. Still largely complaint driven. The degree of regulation is wrapped up in the definition of adverse undue impact.
- Some expressed concerns that we don't know all the water uses. However, the Water Use Reporting program enacted in 2002 has generated some very good information on a basin scale of significant water uses. Compliance with the program has generally been good.
- Should we consider thresholds? Does the state have jurisdiction in all areas they need? We need to look at adequacy of regs vs. potential demand.

- Should we consider allocation? There is a range of ways to approach allocation. The political battle around this is most difficult. Get everyone's favorite approach on table.

Preparation For March 10 Meeting

- Invite Dave Courtemanch to discuss flow rule
- Develop a table of agency responsibilities and tasks
- Develop a recommendation to task a group to develop model ordinances/guidance documents addressing water withdrawals for towns.
- Outline components of agency MOAs.
- Outline components of a watershed approach to ground water withdrawal regulation.
- Add several documents to website (Report to Legislature on consistent hydrogeologic reviews; outline of past water policy efforts).

March 10, 2006

Goal for this meeting: Review several draft recommendations, develop consensus. Continue discussion of other issues, develop consensus on those we should address, and provide direction on how they should be addressed.

8:45 Arrival, coffee and refreshments

9:00 Brief overview of in-stream flow rules – Dave Courtemanch

9:30 Review of topics which approached consensus at February meeting.

- Agency coordination. MOA's between agencies and/or proposal for Ground Water Coordinating Council.
- Recommendation for model ordinance or guidance to towns.
- Options for a watershed approach to ground water management.

10:45 Continued discussion of broad areas of issues:

- Relationships between levels of government (LURC/DEP/Towns) and between state agencies
- Review criteria (e.g. environmental protection, competing human uses)
  - Thresholds
  - Stewardship
  - Allocation
- Available information and science
- Available resources

11:30 Summary

11:45 Next steps

March 10 Meeting Notes

In-stream flow rules

- Dave Courtemanch (DEP) reviewed the water flow / water level rulemaking process currently underway at the DEP. Dave provided a written outline of the effort and a brief history of the process to date.
- The purpose of the rules is to maintain surface water conditions that directly protect designated uses.

- These rules focus largely on in-stream flow requirements during six "seasons" of the year to maintain near-natural flows. The rules also have requirements for lakes levels, differentiated by type of outlet. The rules may affect ground water withdrawals that have an impact on surface water.
- The rules allow standard alteration. They specify minimum seasonal flows that protect in-stream uses, above which activities can take place. Those users applying standard alteration will continue to do so.
- Site-specific flows can be established through more specific investigations - a water flow/level plan.
- The rules do not prohibit all withdrawal from any waterbody, they do not allocate water, and they do not confer any legal water rights.
- Rules set up a planning process. DEP will not be issuing permits but will be adopting plans.
- The rules include variances for water supplies during droughts.
- In LURC jurisdiction, a plan would be filed with the DEP but incorporated in LURC permit.
- All existing permits, water level orders, etc that specify flows or water levels remain in effect for the term of the permit.
- Discussion of water classifications: In response to concerns that water classifications favor urban areas for greater use of water (generally lower water quality) as opposed to rural agricultural areas (often with higher water quality), Dave noted that the State needs an array of classification for water. We are not striving to have all waters achieve AA. Activities in urban/suburbs areas could not continue if all water at AA. Furthermore, most waters are A/B/C, not AA, with only a few select waters in the AA classification. The group noted that classification is a contentious political process in the Legislature. Need to note that classifications may change.
- Discussion of allocation: Allocation is a very difficult issue. The rules do not allocate water, but the user community argues that they in fact do allocate water with regard to habitat. Some participants feel that the flow rules are not protective of any use other than habitat. Other designated uses are not addressed. Habitat is, in fact, allocated considerable resources.
    - Post-meeting clarification by DEP: The rules must be protective of all uses. Neither the Clean Water Act, nor state water quality law, allows a hierarchy of uses. All uses are allowed to the extent that they do not impair another use. Aquatic life habitat is often the "limiting use" with any of the standards of quality or quantity. Aquatic life by its nature requires some constant quality and quantity to be maintained. Note too however, there are drought circumstances identified in the rule when public water supply takes a precedence. DEP has also issued permits (hydro) where recreation-based flows become the limiting criteria.
- Discussion of ground water impacts: Several participants have concerns about groundwater withdrawals and enforcement against those that have impact. We note that establishing impact is difficult. Currently wells within 500 feet of surface water bodies and above the reporting threshold must report use annually. It is generally thought that most wells with impact would be within this zone and above threshold. There is a need to consider surface water impacts when siting new ground water withdrawal wells.
- Discussion of process: The October 2005 version of rules is posted on the DEP web pages. New version expected by April 1, 2006. Rules might go to Board of Environmental Protection in June or July. These are major substantive rules and anything passed by BEP will go back to

Legislature next January. The DEP will dedicate resources to this effort, mostly for site-specific needs. Most standard alterations will require no action.

Options for ground water management/regulation:

- **Ground Water Council**: Marvinney presented the concept of a Ground Water Council. Several states have councils and they generally consist of participants from state agencies with water responsibilities. The Council would have regularly scheduled meetings and would be a forum for discussion and coordination among the state agencies. While the staff of the various water agencies in Maine meet regularly to discuss issues, the Council would provide visibility to this coordination.
- Reactions:
  - Many participants think this idea has merit, recognizing that there is a great need for coordination. Having a formal group and process would give the public greater confidence that coordination is occurring.
  - Several participants think such a Council should have broader representation than simply state agency people. Some water users should be involved and perhaps there should be some public participation. The Council could be organized under the Land & Water Resources Council, which already provides a mechanism for participation by interested parties. There could be an annual review.
  - Such a Council would need clear priorities and an agenda. Most current coordination is on the regulatory process, which is important.
  - Some participants indicated concerns about groundwater and development, particularly development that does not trigger the Site Law.
  - Some participants suggest that such a Council is needed for all water issues, not just ground water.
- Summary: Marvinney offered to develop a fuller proposal for the Ground Water Coordinating Council concept and present it to the group at the April meeting.

- **Model Ordinances:** Marvinney outlined a draft recommendation to establish a group to develop model ordinances or guidance materials for towns. The group would include state agencies, and stakeholders and would develop guidance that is complementary to the state regulatory process. This proposal grew out of lengthy discussions during the February meeting. Towns want some local control of their natural resources and are likely to develop ordinances with or without any guidance.
- Reactions:
  - Some feel that such a recommendation is premature in our process. We have not developed the big picture of what is needed for sustainable ground water use and protection, so it is difficult to see where this recommendation fits. Town ordinances typically are not easy to administer. There needs to be more information on what we would recommend.
  - Others feel that such model ordinances/guidance is needed. Towns want state involvement and it is very low risk to begin the development of model ordinances as soon as possible.
  - One participant noted that state involvement is not necessary because towns can engage the services of consultants to help develop ordinances.
  - Some have found through direct experience that model ordinances can be cumbersome. There is a need to for a multi-town approach for aquifers that extend beyond town boundaries. Planners should be involved in ordinance development.
- Summary: The model ordinance recommendation has merit, but we need to better define a context before moving forward.

- As a side comment, one participant noted that desalinization of seawater is becoming more popular in coastal areas. We note that public water supplies need a permit for desalinization, while private water supplies need no permit. There is a question about who would need a discharge permit. This will be reviewed with DEP.
- **Watershed approach to ground water management/regulation:** Marvinney led a discussion of using watersheds as a basis for action on ground water issues. He outlined a document developed with MGS staff that broadly described "end-members" of a watershed approach in terms of participants, scope, and process.
    - In this approach, watersheds "at risk" would receive more focus in terms of regulatory process and/or resources. A simple analysis could be done using average precipitation data, watershed size, and information on large water uses to do a coarse filter on watersheds. Those where water use exceeds some percentage of annual recharge might be identified as "at risk" and in need of more detailed attention.
    - The watershed area can be used in the first-order estimate of ground water recharge. We would not distinguish between gravel and bedrock ground water sources until such time as a watershed was identified as "at risk."
    - There could be a state-led oversight/management team or a locally led team.
    - The authority could be advisory only, or could involve some level of permitting – or anything in between.
- Reactions:
    - Many supported a watershed approach as a basis for action and for directing scarce resources. Some other states (e.g. NH) have taken this approach, and Maine has used the watershed approach in addressing contamination. Scaling a response to a specific problem is a good approach. Islands and peninsulas are isolated and fall neatly within the watershed concept. Many of these are designated as sole-source aquifers. (Note that NH's process has been long, but without any indication that good science will guide policy.)
    - It might be considered on a broader scale also, involving neighboring states.
    - This approach needs to involve all levels, from the local to the state. There needs to be an entity and a process that towns can go to when water issues cross town lines (e.g. the Freeport example). Perhaps an existing entity such as the Soil and Water Conservation Districts would be an appropriate entity since many of the stakeholders are already involved with the SWCD.
    - Might be a SWAT team approach – bring resources together in places where things are happening. Issue-oriented rather than a management approach.
    - There are broader issues that need discussion: Multiple use allocation; ground water ownership and use; property rights of land surrounding water; interstate commerce clause; traditional use/sustainability.
    - Some support a proactive approach, to try to anticipate what is coming, while others argue that we can only be reactive because we cannot know what is coming.
    - Consider protecting ground water specifically under NRPA.
    - Provide some good examples, real and/or theoretical, that show how the process might work and the scope and scale of the problem statewide.
- Summary: There is some positive energy around a watershed approach to ground water issues, although the group needs more detail to suggest a direction. MGS will develop a possible approach with more detail for the next meeting.

April 14, 2006

Goal for this meeting: Review several options for a watershed approach to water resources management. Develop consensus on options to move forward.

8:45 Arrival, coffee and refreshments

9:00 Review of charge to this group. (Marvinney)

9:20 Review of Freeport water supply example. (Knowlton)

Questions to consider:

- What should the state's role be in addressing multi-town water issues?
- What should be the extent of local authority?
- Should large withdrawals come under NRPA?

9:45 Review of watershed management options document. (Marvinney)

- This chart summarizes two options that might be considered opposite ends of a continuum of possibilities. We hope to complete the middle column with what we might propose in each category (or additional categories), either drawing from the other two columns, or from other sources.

11:30 Summary

11:45 Next steps – future meetings. Note that at our current rate, we have 4 meetings remaining before forwarding recommendations to the Land & Water Resources Council.

April 14 Meeting Notes

Review of Charge:

Marvinney reviewed the overall charge to this group –

- "to identify any changes in state law needed to ensure a consistent, integrated and scientifically sound state policy that ensures that the withdrawal of groundwater does not have an undue adverse effect on waters of the State";
- to "review existing geological, hydrogeological and other related scientific information regarding Maine's groundwater resources in order to assess the efficacy of existing state law for ensuring that withdrawal of groundwater does not have an undue adverse effect on waters of the State", and;
- to "assess the projected costs to the State" and "assess the projected costs to applicants for withdrawal of groundwater for complying with any changes in state law."

This group needs to consider the broad policy first and not get lost in discussion of details.

Examples of the types of problems we might address are:

- Freeport – where the ground water source for the water district underlies several towns, but neighboring towns have no standing in the process to approve wells.
- Fryeburg – where the town feels that current state regulations inadequately protect their interests with regard to ground water withdrawals.

This review led to a general discussion of what should be addressed. Some points in that discussion:

Current regulatory review: Several participants thought we generally did well with the things we are required to review, but that perhaps there are gaps in what we review.

Allocation: This is an issue we haven't addressed, but may need to in the future.

Home rule: This will always be involved in local resource issues and whatever we do must recognize that.

Stewardship: Maintain and retain dynamics of high level of ownership and stewardship, although water districts, for example, have little authority to require conservation measures.

Social concerns: While many issues with regard to ground water withdrawals are technical, there are also social/emotional concerns and these need some separation. We might deal more with the technical issues and the legislative process might deal more with the social issues.

Freeport example:

Rick Knowlton presented an overview of the process the water district had to navigate to install an additional well in Freeport.

Freeport's 2 wells. Well #1 installed in 1988-1989 under local ordinance, in the corner of Freeport near Pownal/Desert Road area. Well #2 installed in 2003 at same location. The 2,500-day travel time for the wells is all within Freeport. The watershed extends to Pownal. Confined aquifer of 40-80 feet with clay on top.

Well #1 cost: approximately $585,000, including well and infrastructure.

Well #2 cost: Cost the same, with most funds being spent on local approval process, models, testing.

Review process for the second well:

At State level: new well approval criteria. No NRPA, site law, etc.

At Local level: site plan review. Freeport ordinance language: activities cannot lower water table beyond project area of 10 feet, no ground subsidence greater than 1 inch, no salt water intrusion.

Rate: PUC approval required. If spending too much, will go before PUC.

Public concerns with the new well:

The modeling was questioned; there were concerns about the accuracy of predictions, even though the modeled impacts were not expected for decades. They wanted to determine the possible impacts of potential future water demands.

Some were concerned about restrictive resource protection district. Freeport has wellhead protection – 500 feet radius around wells.

Yarmouth and Pownal wanted a part in the process. Pownal claims Freeport is taking their water. Yarmouth residents were concerned that the salt-water interface would not move inland. This was the most sensitive aspect of project.

Aqua Maine did additional work and meetings over three years. They basically asked Freeport for an allocation, seventy-five percent of available resource. There was no recognition in process that would prevent future conflicting uses, especially if in another town.

A regional view/analysis not required, although they do monitoring. Any enforcement actions would be by the town, but since they pay for water it might not be that rigorous.

This presentation was followed by a broad discussion of this example, plus the concept of a watershed approach to water resources management.

Modeling: Freeport's allocation is based on a model, but the water district cannot enforce or defend the allocation. Models have many assumptions that need careful consideration and that can drastically affect the outcome of the model. Other uses change the conditions that go into the model, so the model becomes invalid.

These are real examples of new withdrawals. State agency permitting generally considers these other uses. In Dallas Plantation, the two major water users agreed among themselves on conditions for new water withdrawals.

In this example, the users that foot the bill got to decide how to proceed, and this may be different from other permitting situations.

Watershed approach. We discussed the 3-column chart developed by the Maine Geological Survey (attached) that provided several options as to how a watershed approach to water resources management might be implemented. There is general acceptance in the group (although perhaps not consensus) that an approach based on watersheds is worth pursuing. Some comments:

The watershed level is a good level to consider sustainability.

How does policy best integrate pieces? GW/SW interfaces? What are important factors that need to be in policy?

Situations are local, defined by watershed, local people. Locals can work it out or go to court. Protection might mean buying more of the upstream resource. These are business decisions. Stewardship, ownership.

Need to discuss appropriate kinds of standards that we need to address. Freeport had some examples; but, not necessarily practical. These conditions and standards may need to be considered in a case-by-case process.

Triggering the process: There might be additional triggers, such as surface water not meeting quality standards; not meeting federal standards. There could be petitions by others as well to get the process underway, particularly since some local government might not have the capacity to begin the process.

We discussed whether an individual landowner might petition should be included as trigger. Several noted that this approach is not intended to be a dispute resolution process for individual landowners.

Structure: several supported having a point agency that people could go to, that has some resources for modeling efforts, etc. Monitoring efforts – need analysis, etc. Encourage people to work together, but then there needs to be some leverage.

Costs. Each step costs money. To do an analysis of watersheds at risk, we need information from users. MGS thinks that for the first step of analysis, we have the information we need from the water use reporting program and other readily available sources. We need to consider how well can we use this format to manage transaction costs. In the Freeport example: high cost for a small problem. The tiered approach outlined in the MGS chart has potential. But the process will fail if transaction costs are too high.

Ownership: We need to consider the ownership issue and the duration of allocations. Uses can be changed over time. What are rights of other property owners when allocations happen?

Assignment for May 12 meeting: Participants should fill in the middle column with their thoughts on the implementation of a watershed approach to water management.

Water Management Options for discussion purposes only

For discussion purposes, we assume that:

- surface water and ground water resources should be treated as a **single resource.**
- the basic geographic unit for water resources management is assumed to be a **watershed.**

	Water Resources Support Group		Maine Water Resources Management Agency
Structure	An informal group of water resources professionals from State agencies, water users, municipal government, other stakeholders		A newly formed State regulatory agency incorporating water resource-related programs from existing State agencies, including the DEP, LURC, Drinking Water Program, MGS, Agriculture, and others
Scope	Watersheds at risk, all water uses – surface and ground		All watersheds statewide, all water uses – surface and ground
Triggering mechanism	Cumulative water use exceeds XX% of available seasonal water supply, as determined by a coarse screening process **OR** Petition by one or more local governments		All water withdrawals above a threshold (XX gallons per day) require a permit
Responsibilities	• Coordinate State agency review of ground water and surface water withdrawal plans/applications • Provide technical assistance to local governments and planning boards dealing with ground water and surface water withdrawal issues • Facilitate discussions on water use and water needs • Facilitate agreements between water users • Identify areas for research. • Recommend policies to local and state levels. • Manage a water planning process/ assist communities with water resources planning efforts • Facilitate distribution of revolving loans/ grants/ other financial instruments.		• All current and future water resources permitting through one agency • Identify watersheds at risk for increased regulation and for priority study • Identify areas for research/ conduct studies of water resource supply and demand • Recommend policies to local and state levels • Manage a water planning process/ review and approve water withdrawal plans/applications • Establish water use priorities • Establish water use policy • Determine water allocation when necessary • Distribute loans/grants, etc.

Process	Tiered approach: • Tier 1: Conduct full assessment of water supply and demand, including build-out analysis of community water needs. • Tier 2: If Tier 1 analysis indicates need, work with parties to develop a water use management plan (similar to Aroostook agreement or Downeast Rivers). Agreements among users to limit uses, adjust periods of use, etc. • Tier 3: If conflict remains after Tier 2, then allocation/priority setting for water use.		Formal rule-making and permitting process. - Incorporate surface water flow rules - Diminimus withdrawal/ standard alteration process. - Water resource managemen t plan process. - Permitting withdrawals
Authority	Statutory authority to address allocation/priority setting only if planning and agreements fail to resolve problems		Statutory authorities of all current state agencies – DHS, DEP, DOC – with additional statutory authority for regulating surface and ground water withdrawals in watersheds at risk.

May 12, 2006

Goal for this meeting: Continue to develop details of a watershed approach to water resources management, with ideas from group participants.

8:45 Arrival, coffee and refreshments

9:00 Introduction. (Marvinney)

9:10 Discussion of watershed management options

- Group participants will present their views on how a watershed approach might be implemented.

11:30 Summary

11:45 Next steps – future meetings. Note that at our current rate, we have 3 meetings remaining before forwarding recommendations to the Land & Water Resources Council.

May 12 Meeting Notes

Goal for this meeting: Review participants' thoughts on the matrix of possible options for ground water management presented at the April meeting (see April meeting notes).

Hopeck: Watershed process – we need to consider how to match such an approach in NRPA and Site Law. The in-stream flow rules (in development) should address impacts of ground water withdrawals on surface water.

Bell: An approach needs to consider how to deal with the subsequent applicants for water withdrawals when a watershed is identified as "at risk".

Knowlton: MGS should take the major role of hydrogeology, basin analysis, etc.

Bergoffen: The process must recognize local control. More towns are developing ordinances.

Spencer-Famous: LURC looks at broad environmental impacts. A watershed approach could be integrated w/current processes.

McKee: Home rule advocate. Multiple municipalities can be a real problem. There should be a mechanism that allows municipalities in watershed to convene to review and work out own solutions. This may need some enabling legislation but not a new permitting procedure. Simpler is better. Do more at home.

Taylor: There could be value to statewide permitting to get data. The process should avoid redundancy. Avoid asking information that another agency collects.

A threshold could be established with permit-by-rule. Applications could be submitted with involvement by a certified geologist.

Harker: Expressed concerns about the cost of studies and who bears these costs. What will the impact be on a small farmer that irrigates 1-2 acres of vegetables?

Marvinney: Comments on flow rules. The scrutiny of ground water withdrawals that comes out of this process will not ignore potential impacts on surface waters, but this is not the key objective of this process. Those impacts will be addressed through the flow rules.

Bergoffen: The flow rules do not address town concerns. We should develop a decision tree that clarified the process.

Spencer-Famous: We need to consider other potential impacts and define what we mean by sustainable.

Knowlton: Reviewed his response to the management options presented by MGS at the April meeting. A group would come together and discuss what adverse means, inputs of wells, etc. Not a request to MGS to become a review agency.

Tolman: Reviewed his thoughts on management options which are based on some other areas of the country. He outlined basically a judicial system for situations involve multiple municipalities that can resolve disputes. To address issues in a watershed, a local group would be formed – paid for by water users. This process would usurp local control because watersheds almost always cross borders. At the highest tier, a loosely termed "water master" might have the ultimate authority on the distribution of water. Money would be needed for analysis and under this proposal each user pays according to withdrawals. A process like this needs to be self-funded if it is going to happen. This process would be self-regulating – it would only happen where it needs to happen because of user money.

Knowlton: Reviewed his comments on the management options. He outlined a process that is similar to the "Water Resources Support Group" in the original document of management options. (See end of these notes for his comments.) Intended to provide some oversight on significant withdrawals, wherever they occur.

Timpano: Expressed concern that if a process is not statewide, it might miss things happening in other watersheds.

Bergoffen: Need a process in place that focuses on cumulative impacts. Process could be at local level, rather than proactive risk analysis. Petitioning by locals will determine if there is a risk.

Bohlen: There is considerable interest in getting good information and organizing it centrally. This might be easier to accomplish if the information gathering was not linked to permitting. Where are the gaps in information? A central data system will help identify areas of need.

Ahrens: Statewide process for withdrawals is a benefit.

Marvinney: Some information may come from well driller reports.

Harker: It might be worthwhile to consider registration of all wells; but, don't make everyone report.

Ahrens: Collecting information is great; but, may be not much benefit. The public will want more than the aggregate from reporting programs. The public wants to be sure water withdrawal is done responsibly.

Spencer-Famous: There is considerable value in monitoring of withdrawals, and we should be able to learn something from the monitoring that has already taken place.

Bell: With regard to water use reporting, 20,000 gallons per day is nothing in Maine. We need some education on volumes.

Harker: Outlined the viewpoint of Dept of Agriculture, which is similar to the left-hand column of the management options (see April notes). The Dept of Agriculture advocates an advisory council approach, with the state bringing in technical expertise. The Agriculture Water Board in the Department has authority on agricultural water issues.

Allocation Advisory Council: For most people, not a problem. We do not need a new process, but need to focus on real problems. The primary issue is: who does the studies of watersheds, over allocations, etc.? Also, there should be technical assistance to local communities. The tiered approach is good.

State policy is to support farmers in state. Agriculture has a grant program to help farmers install wells. 99% of farmers won't be a problem; we don't need more regulation. But registration of wells is OK, as long as there is no additional cost to farmers. LURC has good process; DWP has good process. There is a gap in DEP involving bottling, irrigation, snow making, and maybe some industrial processes. It might be best to treat Ag differently.

McKee: Agreed with the idea to treat farmers differently – need to support farmers.

Bergoffen: Need a prescribed process – possible through ordinance or process. Then a voluntary tiered approach – developing a plan; possible with some incentives, then possibly a final tier with a water "master".

Taylor: Some of this could be accomplished by tweaking current regulations - NRPA, and/or LURC, others - to address gaps.

Knowlton: We will still struggling with the local level. Ownership issues may drive us back to basics in statute. We should not recommend an approach that is oriented toward "reasonable use" without declaring Maine as a "reasonable use" state.

Ahrens: Maine really is no longer an "absolute dominion: state because of the controls currently in place. The shore land zoning model is intriguing; this would need the involvement of the Maine Municipal Association. How much of what we are discussing is new program versus amendment of existing programs? Would prefer specific separate program but one that recognizes other processes.

Bell: Some of these overall concepts are good, but need to address some specific issues:

1. Need for information and good data.
2. Stewardship/ownership incentives – need to look at what these might be.

3. How to accomplish allocation in Tier 3 or Tier 4

Wilfong: Ground water ownership and "reasonable use" need to be addressed.

Ahrens: There are issues with municipalities do not want to/have no authority to evaluate impact outside of boundaries. When issues cross borders, then must go to a group/council for resolution.

Knowlton: This process would work better with two different approval steps: a review at state level for watershed concerns; a final review at municipalities. We cannot avoid detailed analysis in some towns. But the state should review the watershed first. There is a question of who should pay for this.

Marvinney: Group could also assist with technical advice, etc. The type of analysis done at the state level would be focused on sustainability within a watershed. This process will need an appropriate trigger mechanism. Maybe a registration that determines whether more analysis needed.

Knowlton: We need to consider how to administer such a program. The role of players in group is to bring perspectives, to decide on significance of particular activity.

McKee: Towns could use some guidance but not model ordinances. Towns have too many unique attributes.

Gene: Regarding permitting authority, permitting by the state raises concerns about the protection of town.

Ahrens: A process needs to be clear as to what is regulated and what is not regulated.

Tilberg: We need a decision tree that identifies who makes decisions, when they should be made, goals of decisions, etc. State staff will work on a more detailed outline for discussion at the June meeting.

Knowlton comments on water management options

	Water Resources Support Group	
Structure	An informal group of water resources professionals from State agencies, water users, municipal government, other stakeholders	**A formal group consisting of staff from DEP, DWP, MGS, LURC, IFW, SPO, Ag, and DECD and 3-5 members of the public appointed by Commissioners of DEP, DHHS, and LURC to represent stakeholders**
Scope	Watersheds at risk, all water uses – surface and ground	**Reactive: Tier 2 Permit Review and comment** **Proactive: Review cumulative water use on a watershed basis**
Triggering mechanism	Cumulative water use exceeds XX% of available seasonal water supply, as determined by a coarse screening process **OR** Petition by one or more local governments	**All public water supply withdrawals need a permit from DWP** **All non-residential withdrawals > 20,000 gpd need a permit (to fill gap in current regulatory scheme) by LURC, DEP or MGS**

Responsibilities	• Coordinate State agency review of ground water and surface water withdrawal plans/applications • Provide technical assistance to local governments and planning boards dealing with ground water and surface water withdrawal issues • Facilitate discussions on water use and water needs • Facilitate agreements between water users • Identify areas for research. • Recommend policies to local and state levels. • Manage a water planning process/ assist communities with water resources planning efforts • Facilitate distribution of revolving loans/ grants/ other financial instruments.	**Review all Tier 2 permits** **Provide technical assistance to municipal governments** **Facilitate allocation issues within watersheds**
Process	Tiered approach: • Tier 1: Conduct full assessment of water supply and demand, including build-out analysis of community water needs. • Tier 2: If Tier 1 analysis indicates need, work with parties to develop a water use management plan (similar to Aroostook agreement or Downeast Rivers). Agreements among users to limit uses, adjust periods of use, etc. • Tier 3: If conflict remains after Tier 2, then allocation/priority setting for water use.	**Tier 1 Permits available when:** • **Withdrawal request <50% of available watershed yield** **Tier 2 Permit required when:** • **Withdrawal request >50% of available watershed yield or** • **Adverse impact identified by lead permit agency** **Annual withdrawal reporting identifies watershed at risk from cumulative use**
Authority	Statutory authority to address allocation/priority setting only if planning and agreements fail to resolve problems	**Established in rulemaking for permit review/comment**

June 16, 2006

Goal for this meeting: Continue to develop details of a watershed approach to water resources management, with ideas from group participants.

8:45 Arrival, coffee and refreshments.

9:00 Introduction (Marvinney)

9:10 Continued discussion of watershed management options

11:30 Summary

11:45 Next steps - future meetings. Note that at our current rate, we have 2 meetings remaining before forwarding recommendations to the Land & Water Resources Council.

June 16 Meeting Notes

Goal for this meeting: Review the very draft proposal circulated by the Maine Geological Survey for a Groundwater Coordinating Council, and modify, amend, eliminate in accordance with a consensus from the group.

Marvinney opened the meeting by stating that the very draft proposal circulated by the Maine Geological Survey generated lively responses, most of it in the negative sense. He emphasized that this was a draft proposal for discussion purposes only and that the Maine Geological Survey and others were not overly vested in the details of this proposal. He stated, only partially in jest, that a primary goal of circulating this "radical" proposal was to ensure good attendance at this meeting. But the basic concepts of the proposal -- to provide visible state agency coordination, to have a tiered approach based on watersheds, and to involve groups in developing management plans when there is concern about the volumes of water withdrawn from a watershed – are in keeping with our discussions of the past few meetings.

Marvinney committed to having the Maine Geological Survey try to make a map in time for the July meeting, that would be a first cut at identifying "watersheds at risk", using existing information. This will help us identify the scope of

Discussion

Hodgdon: Creation of another agency doesn't make sense; there are few specific stakeholders in the proposed Coordinating Council. Most ground water use is in the public water sector. They already have a process, so exclude them from anything new.

Marvinney: The coordination council was proposed to address the concern, both real and perceived, that the state agencies are not coordinated. This was intended to provide visibility for coordination of state agencies. Under this scheme, watershed management groups would be convened for "watersheds at risk" that would involve all users.

Ahrens: The establishment of a new separate entity is an issue. There should be one lead agency, perhaps MGS, and other agencies can provide advisory comments on particular withdrawals as they do now. The lack of coordination is more with regards to data, not the review process, although there is some duplication there.

Spencer-Famous: This proposal has some good aspects. It provides consistency, predictability. The basic concept is good, but there should be more focus on how it is developed. The tiered approach and involvement of the regulated community are good.

Trial: The Atlantic Salmon Commission has a model for this without establishing a separate agency.

McKee: Legislation may likely be required for several aspects of a such a proposal and asking for new resources will be difficult.

Hobbs: Coordination is one of the fundamental issues driving the current lack public confidence. The development of town ordinances is an example of the lack of confidence with the process at the state level.

Much regs in place already.
Not well communicated.
Unknown, appeas uncoordinated
Should have one point
Towns are trying to address without resources, assume no oversight
Gaps in regs.

Some in DEP that don't trigger site law – prob agriculture
Might not be a very big gap

Knowlton: Local concerns
Different thresholds at different agencies in terms of adverse impacts
Should the state get down to addressing local concerns.

Bohlen: Prob. Not one entity needed for all tasks.
Coordination is one.
Gaps is another
New Sources
Need coordinating structure for communication
At risk stuff goes to MGS
Who responds then?

McNelly: Comments from water districts.
No support for additional agency.
Getting new entity will be tough.
More coordination than a few years ago.
Still could do more
Report to Legislature – demonstrates coordination
A subgroup of this group might critique this report with eye toward identifying more coordination, gaps
Dance between states and municipalities.
Do we have enough resources? Need data to make good decisions

Bell: Coordination – municipality perception
Concrete actions could be taken right now.
Review of current regs – improve document and send out to towns with some discussion.

Ahrens: Municipalities are not responding from a uniform perspective.
Ordinance generally address what you can do. If not in there; can't do it.
Then change ordinances to propose control.
Some put moritoriums in place.

Harker: Towns need support
Guidelines like Shoreland Zoning.
Propose to help support towns
LURC process is good. Zoning ordinance approach.
Thresholds will be significant.

Multiple towns – then state involvement

There are just a few gaps – AG might be one
Maybe address these w/DEP regs. Minor tweeking

Data collection – This is biggest problem to towns.
Need more state support.
MGS needs resources to provide more services.
342 farms pull water from wells; only 12 report.
Of the 12, 99% is Cherryfield.
Address the huge wells.
Brad says none of the wells have an impact on sustainability
Only a few have had an impact on other resources.

LURC process is good; good coordination w/state agencies.
Maybe beef up DEP a bit.

Ahrens: Question about sustainability
Impacts on other regs.
How to define _____

Loiselle: Consumptive use – at rate greater than can be sustained over a period of time.
Perhaps so not sufficient water during periods of drought.
Fryeburg example: discretionary water after other requirements met.

Marcia: LURC tries to look at water budget.
Becomes very site specific in short order.

Bell: Context on Cherryfield
State policy drove them out of streams
Alternative water sources have cost $7 - $8 million.
Flow rules.

Knowlton: Reporting threshold:
Does registration data give some information on irrigation wells?
Probaby very few wells capable of exceeding thresholds.
Maybe MGS could just look at this data

Loiselle: We get occasional irrigation well
Required on wells for potable water.

Knowlton: This might be an easy fix to water well reporting.

Harker: Agriculture Water Management Board
Any new source for monetary assistance needs a plan.
Might tweek what they do.

Al: Small holes
More of an issue of coordination.
No new agency.
Assign responsibilities to someone
Wellhead protection program
Almost veto authority on activities.

Marcia: LURC does wh p to protect quality.
Doesn't focus on quantity.

Marvinney: State agencies will convene and talk about coordination
Talk about "tweeks" to laws.

Bell: Do "at risk watersheds"
Review of statute that brought us here….impacts, etc.
What is an undue adverse affect?
Some thoughts:
(1) ID from g.w. use affects that have happened so far as guide for solutions. Tie to "at risk" watersheds.
(2) Step 1 is critical to addressing gaps.
(3) What should appropriate thresholds be?
(4) Review current experience.
(5) As guidance for developing thresholds, etc.

Brennan: Size of problem should drive size of solutions.
Towns – limited number of examples and issues.

Bohlen: Need to consider future use as well.
Population, etc.
Could be future problems

Hobbs: Get summary of water well reporting.
We'll use population numbers rather than _____ well yield.

Harker: Don't want to come back next time there is an issue
Need resources to MGS.

Marcia: Science – factual info is really key.
Look at potential for undue impact.
There is uncertainty and need to monitor
A consistent monitoring program would help towns.

McKee Kingfield not like Freeport.
Zoning ordinance in 1988.
Bottling plant required town to revisit ordinance.
Also, well head protection. Needed to improve this ordinance. It basically says you can't do anything.
Kingfield solved this problem locally.
Doesn't want too much state involvement
MMA needs to weigh in.

Jeff Austin, MMA:
Summary view – can we change a perception that there is no state review?
Can we fix some gaps?
Shoreland zoning as model. This is a mandatory program.
There could be very large number of communities then.
Balance between reigning in some towns and not bringing in too much.

Model ordinances -- MMA would always accept; but need care as to what this will mean in terms of number of towns focusing on this issue.
Some guidance to towns would be helpful.
At risk definition – like stormwater?

Knowlton: This is probably a very small universe.
If review at threshold of reporting requirements, then we could almost guarantee compliance w/sustainability because those putting in want sustainability.
Don't want to deplete resource.
Need to better communicate this to towns and others.

Hodgdon: Impact of large wells?
Out of 50 large production wells, there are only 2 that show an impact.
Pumping near a wetland – have had some impacts.
Rangeley W.D. is example of exactly what we should do.

Bohlen: Different impacts at different scales.
State level structure may not go down to level towns want and let them know what is being reviewed and what isn't.
Define what is being reviewed and what isn't.

Marcia:

Delahanty: Has MMS had inquiries regarding groundwater withdrawal?

Austin: Probably not a lot coming up but will check. But, where it does come up, probably a big issue.

Trial: Need some way to look at cumulative uses.

Harker More help at MGS is needed.
Need to think about future.
Land speculation underway on aquifer resources.

Tayler: Tweeking existing regulatory systems
Majority of loopholes might be all that is necessary.
Value in better communication and coordination.

Knowlton: Cumulative impact won't be covered.

Beardsley: Ditto. MGS should cover.
Water resources plan -- _____? Needed.

Knowlton: Legislative perspective?

Eberle: Very little grasp of technical aspects.
But, "protecting and preserving" is more important than "fixing and restoring".
She's please with how close together we are.
Need to address potential future impacts.
Political Reality: Using existing authorities is good. Will work to support $$$$

Dow: Most work could be done within some agency
$$$$ are short.
More money to social services currently.
This isn't a major issue out into the public so probably no additional revenues.
Need to look at dupliation
May need some sort of coordinating agency
State generally has good water resources.
Not enough of an issue right now.
See what agencies are doing already.
Then may need a future effort.

July 14, 2006

Goal for this meeting: Decision on a watershed approach to water resources management, including state agency coordination, watershed planning, changes to regulations.

8:45 Arrival, coffee and refreshments

9:00 Introduction. (Marvinney)

9:10 Review of "watersheds at risk" analysis. (MGS)

9:45 Discussion of Ground Water Committee proposal. (Marvinney)

10:30 Discussion of changes to regulations ("tweaks"). (State agency staff)

11:30 Summary

11:45 Next steps – future meetings. Note that at our current rate, we have 1 meetings remaining before forwarding recommendations to the Land & Water Resources Council.

July 14 Meeting Notes

Goal for this meeting: Review the analysis of "watersheds at risk" conducted by the Maine Geological Survey, try to achieve consensus on some of the concepts in a ground water coordination and adjustments to regulations.

1) Watersheds at risk
Marc Loiselle reviewed his effort since the last meeting in analyzing watersheds at risk with existing information on watersheds, water availability, and water use.

- This is a first-cut analysis that uses the streamflow equations developed by the USGS in 2004. The uncertainties in these equations may be as much as +/- 25%. Uncertainties are amplified by using the monthly equations in aggregate to establish seasonal flows.
- This effort uses the so-called 12-digit watersheds as defined by the Natural Resources Conservation Service. This digital dataset is the most detailed, complete dataset of watersheds for the state. With the current dataset, it is not possible to analyze the contribution of upstream watersheds to the outflow of each watershed.
- The analysis uses the thresholds for in-stream flows proposed in the in-stream flow rules currently under review by the Board of Environmental Protection. These flows are used to establish minimum annual flows out of watersheds and the amount of water on an annual basis that might be available for other uses.
- The analysis used best available water use information from the Water Use Reporting Program and other databases to estimate annual consumptive water use in a watershed.

- Estimates of domestic water use came from applying the percentage of the population on private wells from the 1990 census (the last time this information was requested) to the 2000 population data and then applying a daily per capita water use figure.
- Currently the analysis does not include agricultural water use because of the statutory limitation on access to detailed information. In a future analysis we can approximate agricultural use on a coarser scale.
- This analysis provides a discussion point for the boundaries of what should be considered "at risk." The summary map looks at the cumulative water uses as a percentage of "available" water – the water that is not required to maintain in-stream flows. In two summary maps, we highlighted the watersheds wherein cumulative use was at or above 80% of available water and 90% of available water. These watersheds are mostly in the south and west where population is focused.
- The outcomes could change with the inclusion of agricultural water use and with changes about the assumption of what percentage of domestic use is consumptive. If the analysis were done on the more detailed 14-digit watershed level, there would probably be more watersheds identified, but less cumulative area in those watersheds.

NOTE: We will not be putting this analysis on the Ground Water website at this time. We need to develop more detailed explanatory materials before making this widely available and that effort must wait until most of MGS's current field responsibilities are completed.

Discussion of analysis: The group commended Marc for his effort, the quality of his analysis and presentation. Within the group, the comfort level with this analysis really depends on where the thresholds fall. How do we define a "watershed at risk?" In part, the answer to this may come from taking one or more of these watersheds and doing a more detailed analysis.

Additional work that could be done to improve the analysis:

- Review all water uses in potential "watersheds at risk" to ensure their volumes and locations are correct. Make sure we have all the available data on water use.
- Separate surface and ground water uses. Sustainability of individual aquifers was not part of this effort and will require a substantially more rigorous and expensive effort to accomplish that is beyond MGS's current resources.
- Consider a worst case drought scenario.

2) Review of proposed concept for agency coordination

Marvinney outlined a concept for a Ground Water Committee under the Land and Water Resources Council. This could be established by Executive Order and would have the following responsibilities:

g. Review ground water withdrawal activities (not a permitting agency).
h. Convene planning groups of stakeholders as needed to address withdrawals in "watersheds at risk" or multi-municipal ground water issues. (This would be similar to the WUMP process for eastern Maine.)
i. Direct appropriate ground water investigations in "watersheds at risk."
j. Coordinate state ground water information.
k. Provide "guidance" to towns.
l. Develop and disseminate educational materials on water resources, regulatory regime.

Discussion:

- There should be an opportunity for a town to petition this group to consider ground water issues in a town.
- This group could possibly represent a clearinghouse for grants to municipalities to address some specific issues.

- This committee might also initiate a planning effort in "watersheds at risk" rather than coming only from outside requests.
- This committee is not a political mediator and would not address individual landowner issues regarding water rights.

Summary: When asked about consensus to move forward with this concept, no dissention was expressed by participants in this meeting.

3) Review of regulatory "tweaks"

The group discussed some potential changes to regulations as presented in an outline that Marvinney forwarded prior to the meeting.

Discussion:

- The LURC Commissioners agreed that some adjustments are required to LURC regulations with regard to consumptive uses – some clarification.
- The meeting participants raised no issues with the concept to modify the well drillers' reporting requirement to include wells drilled for any ground water withdrawals. Currently the regulation is only for wells for potable water, but in reality the MGS receives information from drillers for other types of wells too. We need to review this with the Well Drillers Commission.
- Irrigation wells. John Harker outlined a concept that places review of irrigation wells under the Agricultural Water Management Board. This would be a proactive approach that works with farmers early in the water management planning process. Other agencies could act in an advisory capacity. John emphasized that this was a very preliminary concept that had yet to be considered by the agricultural community. John will circulate this concept for comment.
- Site Law/NRPA. This would look at impacts of wells at locations that do not trigger Site Law review (less than 3 acres of disturbed area). There could be a better match between LURC and DEP regulations. This concept will need further development and outreach to other constituents not represented in this group.
- Drinking Water Program. There would need to be review of any proposed changes by federal and state authorities. Some meeting participants feel that the DWP program already considers the key elements in its existing authority. The "adverse impact" language is problematical and there must be a process that recognizes special situations when seeking new sources, for example, new sources needed because of contamination.
- Place the "Development of Consistent Hydrogeological Review Procedures" on line and have other experts review it. This could be a basis for developing consistency across regulations.

Representative Eberle offered that she was very pleased with the effort that everyone is putting in, and that the group was actually very close to consensus and a good result. She recently attended a national meeting of state legislators and noted that many states have serious water issues. She will support additional resources that the group proposes.

Tasks for next meeting

- Outline report, write intro sections
- Amend the Ground Water Committee concept with comments from this meeting
- Put more detail to regulatory changes

September 8, 2006 and
November 17, 2006

8:45 Arrival, coffee and refreshments

9:00 Review draft recommendations

10:30 Review of resource needs/costs

11:00 Review report outline

11:30 Adjourn

September 8 and November 17 meeting notes: Notes are represented by changes in final report.