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**Water Resources Planning Committee
Annual Report
to the
Land and Water Resources Council**

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**September 2008
Robert G. Marvinney, State Geologist
Maine Geological Survey**

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Introduction

The Maine Water Resources Planning Committee (WRPC) was established by the 123rd Legislature, 1st Session in May 2007. This step came after many years of referenda on water issues, a 1½ -year-long stakeholder process to review regulations governing groundwater withdrawals, and several controversial groundwater bills in the 1st Session. The establishment and responsibilities of this Committee were part of comprehensive legislative actions to address specific water issues in Maine negotiated with members of the Legislature's Natural Resources Committee and a stakeholder group. (See Appendix A for the specific legislation.)

The WRPC draws its membership from state agency groundwater professionals, water utilities, agricultural water users, the bottled water industry, other commercial water users, private well drillers, and a water advocacy organization. (See Appendix B for membership list.)

The overarching charge to the WRPC is to plan for sustainable use of water resources, through three phases of work. The first phase of this effort is to gather and otherwise improve water resource data and to use these data in an analysis of "watersheds at-risk." Prior to establishment of the WRPC, the Maine Geological Survey conducted a preliminary analysis of "watersheds at-risk" using available data as part of a comprehensive review of groundwater withdrawal regulations. The map produced through this process (Figure 1) identifies a number of watersheds in which cumulative withdrawals in combination with in-stream flow requirements might be a large percentage of available water resources. Improving water information in a select few of these watersheds is the focus of WRPC work during 2008.

The second phase of work for the WRPC will be to convene planning groups in watersheds where additional data gathering and analysis indicate that cumulative water use, including demands for in-stream flow, approach unsustainable conditions.

The WRPC hopes that the third phase of work will not be necessary, involving a return to the Legislature with recommendations to address oversubscribed watersheds where the planning efforts of the second phase have failed.

The Legislature provided no additional resources for this new work. The Maine Geological Survey (MGS) has redirected 1½ Hydrogeologists to this effort. Adequate funding has been secured from the Drinking Water Program in cooperation with the water utilities, the Maine Department of Environmental Protection, and from Poland Spring for the field investigations necessary to characterize groundwater in select watersheds. Funding is currently secured for two years only.

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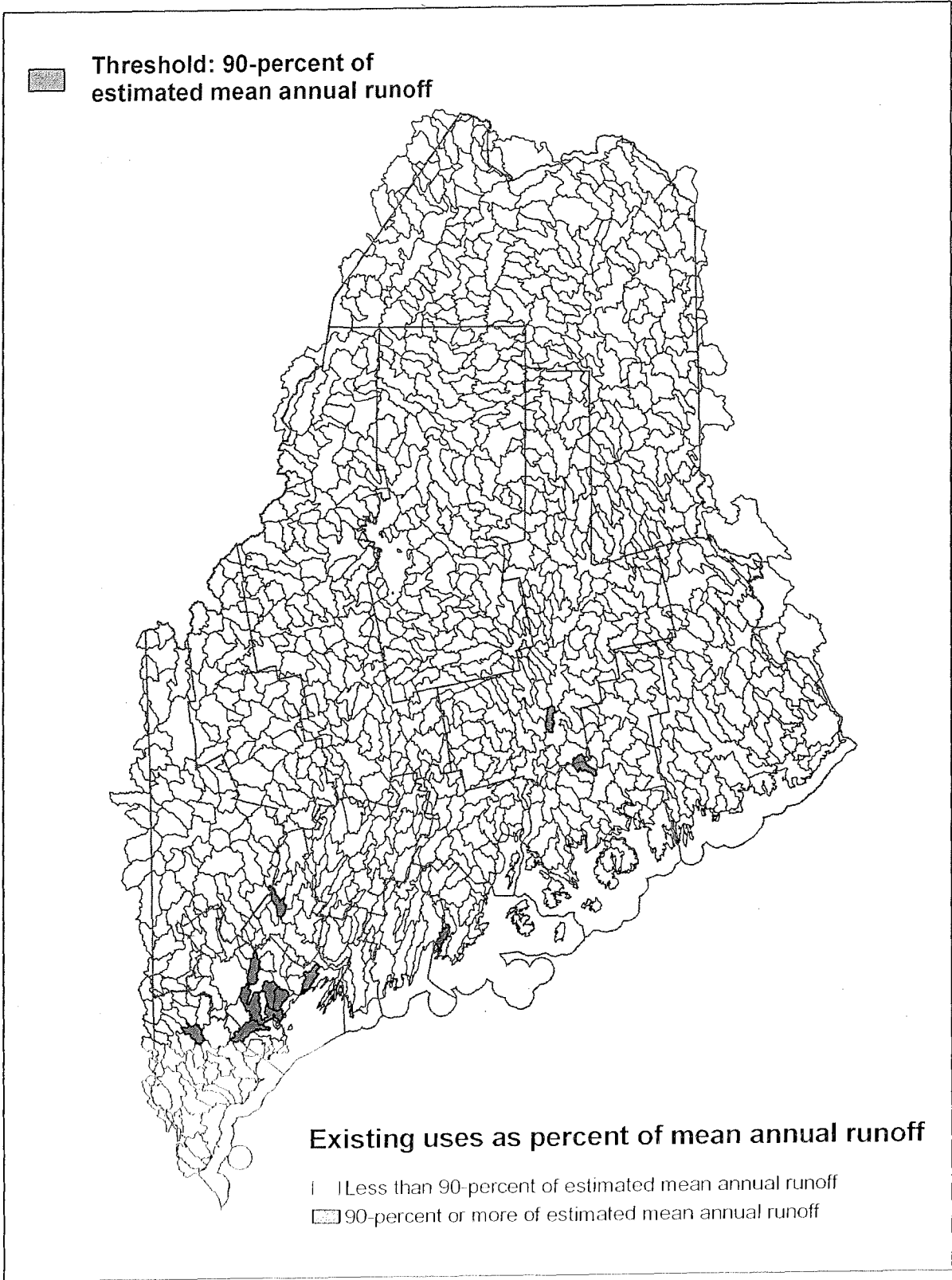


Figure 1. Watershed at-risk analysis conducted in 2006.

2007-2008 activities

Committee meetings

The WRPC met on three occasions – January 15, March 26, and July 22, 2008. The full meeting notes for each meeting are provided in Appendix C. Brief summaries of each meeting are provided here.

January 15, 2008: This inaugural meeting focused on reviewing the legislative process that resulted in establishment of the WRPC, committee membership, charge to the committee and current funding status. We briefly reviewed the watersheds at-risk analysis done previously and some changes to this analysis, which ultimately had minimal impact on the outcome of the analysis. MGS staff discussed potential climate-change impacts to the analysis and activities MGS might undertake in select watersheds to better understand water resources in each.

March 26, 2008: Marvinney noted that budgetary forecasts required cuts in all agencies, and the MGS was forced to place one-half Hydrogeologist on the funding for the WRPC activities provided by other agencies. MGS staff presented detailed maps of several candidate watersheds for additional investigations, including the Greater Portland area, Lake Auburn, Freeport, Friendship, Floods Pond, and Prestile Stream. After discussion, the WRPC decided to focus efforts in 2008 in the Freeport watersheds (see Figure 2). We further discussed the hiring of interns to assist with investigations, and preliminary thoughts on improving discharge measurements.

July 22, 2008: This meeting focused on the potential agreement between the Kennebunk-Kennebunkport-Wells Water District (KKWWD) and Poland Spring for water withdrawal in the Branch Brook watershed. Staff from KKWWD presented an overview of the issue and their current position to table further consideration of an agreement indefinitely. KKWWD will first pursue the certification that is required of them under the state's in-stream flow rules (Chapter 587). Staff from Poland Spring presented an overview of their interests in the area, and the recent hydrogeologic studies by them. The WRPC further discussed the regulatory process that would be triggered by potential water withdrawals by Poland Spring, noting that they would need a permit under the Natural Resources Protection Act for this activity. MGS staff updated the WRPC on current activities. We also briefly discussed the need for better water resource information in eastern Maine and for improved educational efforts. The WRPC sent the KKWWD a letter (Appendix D) endorsing their decision to pursue its certification under the Chapter 587 flow rules before considering any agreements for water withdrawal. The WRPC further offered to work collaboratively with KKWWD to improve water information in their watershed.

Investigations

The Maine Geological Survey began water resource investigations in the Freeport watersheds that host the water supply wells for the Freeport Division of Aqua Maine (FDAM). Aqua Maine, Inc., a subsidiary of Aqua America, Inc., is a public utility that owns or manages 15 water systems in Maine. FDAM's primary source wells are in a large sand and gravel aquifer, first mapped by the Maine Geological Survey in the 1980s. Daniel Locke, MGS Hydrogeologist, is conducting and managing the data collection efforts. Mr. Locke and two summer interns have been working on the following tasks:

- 1) Data collection from available sources. Mr. Locke met with Rick Knowlton of Aqua Maine to discuss the project and review all available documentation on the hydrogeology of wells sites and surrounding areas. Mr. Locke and Dr. Marvinney also discussed this project with Freeport's town manager. Two summer interns worked with DEP personnel to review and copy appropriate records from DEP files on the hydrogeology of various sites in the watershed in which DEP has done work. Pulling these data together will provide more detail on the characteristics of the aquifer systems in the watershed, as well as identify areas in which the ground water may be compromised by contamination. Where appropriate, data from these datasets will be compiled onto summary maps of aquifer characteristics.
- 2) Aquifer investigations. Mr. Locke and our summer interns spent the majority of their time in Freeport collecting additional data on the sand and gravel aquifers. They collected more than 40 seismic refraction lines across key areas of the aquifers. The seismic refraction technique allows investigators to examine the thickness of unconsolidated materials about the solid bedrock, and to determine the portion of those materials that are saturated with water (i.e. establish the local water table). Once processed and interpreted, the seismic data will help improve our understanding of the three-dimensional nature of the sand and gravel bodies and our understanding of water table dynamics.
- 3) Discharge measurements. A meaningful water budget for a watershed requires accurate information on cumulative water uses and stream flow. Through the Water-Use Reporting Program and other sources, we have good information on water use. However, there are no stream gages within the Freeport watersheds, requiring that stream flow currently be estimated from neighboring gaged basins of similar characteristics, or through calculations. The formulas developed by the U.S. Geological Survey (Dudley, 2004) do not work that well for small watersheds such as these, the largest of which is less than 20 square miles in area, and the smallest less than 2. Rather than rely on these formulas, which have large inaccuracies at this basin size, MGS staff will collect direct discharge measurements from strategically selected streams in the watersheds. To this end, Mr. Locke met with scientists at the U.S. Geological Survey to discuss appropriate stream gaging methods, purchased appropriate equipment and scouted suitable locations in the watersheds. At this time, several sites have been identified and data collection tests have been conducted. In order to get the most reliable measurements of base flow (flow derived from ground water discharge into surface water) extended dry periods are necessary. Unfortunately, the precipitation during much of the 2008 summer did not provide these conditions. Measurements will continue into Fall 2008.

References

Dudley, Robert W., 2004, Estimating monthly, annual, and 7-day, 10-year streamflows for ungaged rivers in Maine, U. S. Geological Survey, Scientific Investigations Report SIR 2004-5026, 22 p.

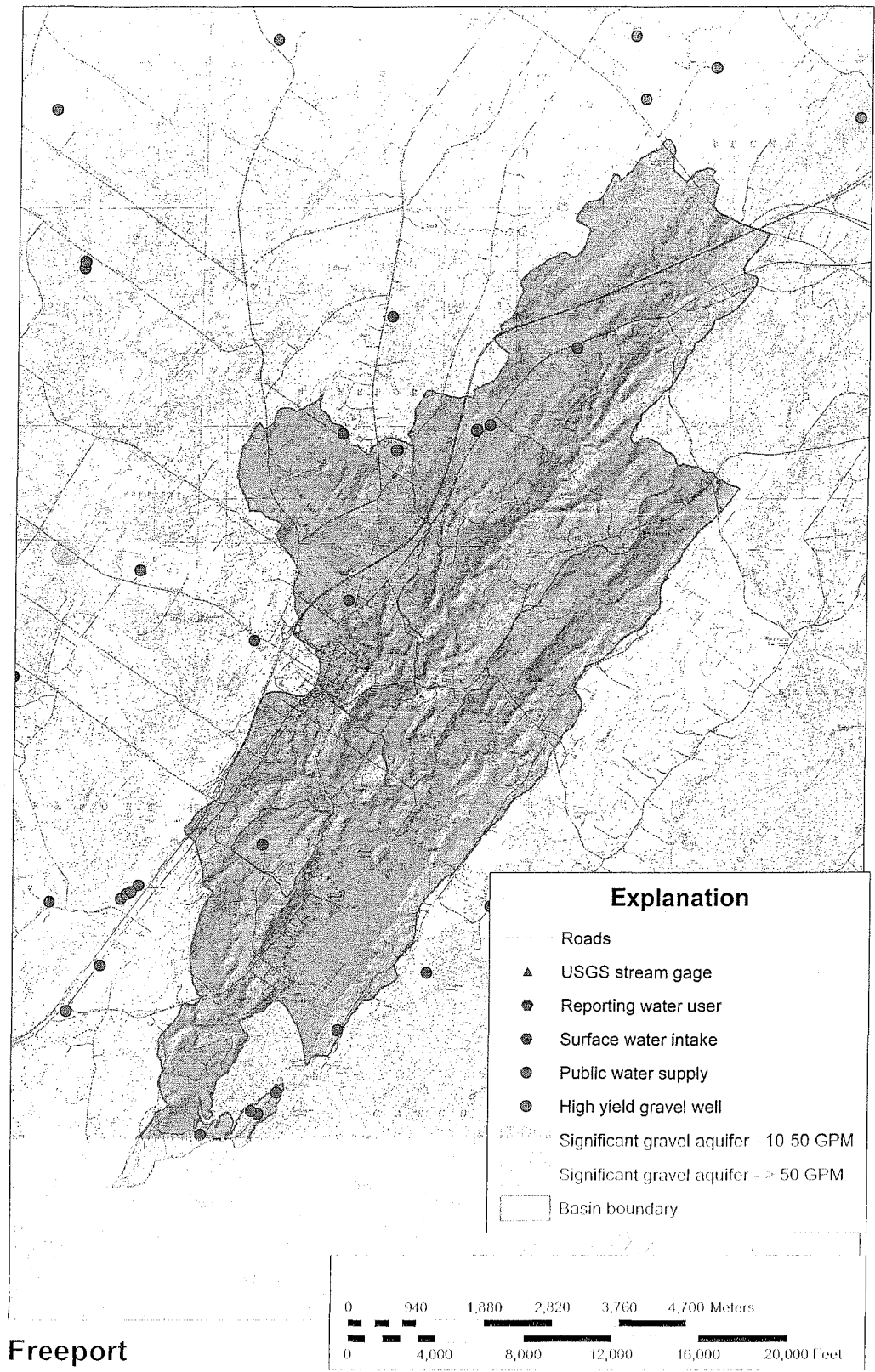


Figure 2. Groundwater resources will be further characterized in these Freeport watersheds.

Appendix A. Portion of Public Law 2007 Chapter 399 that establishes the Water Resources Planning Committee

An Act Concerning the Sustainable Use of and Planning for Water Resources

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

Sec. 1. 5 MRSA §3331, sub-§8 is enacted to read:

8. Water Resources Planning Committee. The council shall convene the Water Resources Planning Committee, referred to in this subsection as “the committee.”

A. The committee’s membership must include, at a minimum:

(1) Personnel from:

- (a) The Department of Conservation, Maine Geological Survey;
- (b) The Department of Agriculture, Food and Rural Resources;
- (c) The Department of Environmental Protection;
- (d) The Maine Land Use Regulation Commission;
- (e) The drinking water program of the Department of Health and Human Services;
and
- (f) The Executive Department, State Planning Office; and

(2) Members of the public with expertise in:

- (a) Agriculture;
- (b) Public water utilities;
- (c) Water bottling and the sale of bottled water;
- (d) The use of water by private domestic well owners;
- (e) The environment and conservation; and
- (f) The use of water by commercial entities.

B. The committee shall meet at least quarterly and report annually to the council, beginning in August 2008. The committee shall plan for the sustainable use of water resources focusing on the following three phases.

(1) In the first phase, the committee shall focus on:

- (a) Collecting and reviewing information regarding water withdrawal activities;
- (b) Coordinating state water resources information; and

(c) Identifying watersheds at risk by refining the watersheds-at-risk analysis previously performed by the Maine Geological Survey, including:

(i) Conducting appropriate water resource investigations in watersheds at risk;

(ii) Considering projected increased water use by population, agricultural irrigation, commercial users, industrial users and other users in refining the watersheds-at-risk analysis;

(iii) Considering seasonal use in refining the watersheds-at-risk analysis;

(iv) Considering potential effects of climate change when refining the watersheds-at-risk analysis;

(v) Considering the effects of anticipated future water quality classification changes on the availability of water for withdrawal when refining the watersheds-at-risk analysis;

(vi) In establishing priorities for such investigations, seeking input from the user community, from towns dealing with multimunicipal aquifers and from towns with significant local aquifers; and

(vii) Developing guidelines for consistency in investigations.

(2) In the 2nd phase, the committee shall focus on convening planning groups in watersheds at risk or regions encompassing multiple watersheds at risk to develop water use management plans for water withdrawals. Based on the needs of the individual watershed or region, planning group participants must be drawn from:

(a) Personnel from:

(i) The Department of Conservation, Maine Geological Survey;

(ii) The Department of Agriculture, Food and Rural Resources;

(iii) The Department of Environmental Protection;

(iv) The Maine Land Use Regulation Commission;

(v) The drinking water program of the Department of Health and Human Services;

(vi) The Executive Department, State Planning Office; and

(vii) The Department of Inland Fisheries and Wildlife; and

(b) Members of the public with expertise in:

(i) Agriculture;

(ii) Public water utilities;

(iii) Water bottling and the sale of bottled water;

(iv) The environment and conservation;

(v) Aquaculture;

(vi) Business and commerce;

(vii) Industrial water use; and

(viii) Municipal government.

(3) In the 3rd phase, if oversubscription of water use remains after the analysis conducted in the 2nd phase, the committee shall recommend a process to resolve issues.

C. The committee shall conduct annual reviews of state policy with regard to:

(1) Conservation of water resources;

(2) The development of regional sources and solutions to water use issues;

(3) Incentives for stewardship of water resources; and

(4) Impacts of surface water quality improvements on water withdrawal opportunities.

D. The committee shall provide guidance to municipalities and develop and disseminate educational materials on water resources and the regulatory regime.

Appendix B. Water Resources Planning Committee Membership

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Marcia Spencer-Famous
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Steve Timpano
Department of Inland Fisheries and Wildlife

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