

Water Resources Programs at the Maine Geological Survey



Ryan Gordon, Hydrogeologist,
Maine Geological Survey



Commission To Study the Role of Water, October 6, 2022

Water Resources Programs at MGS

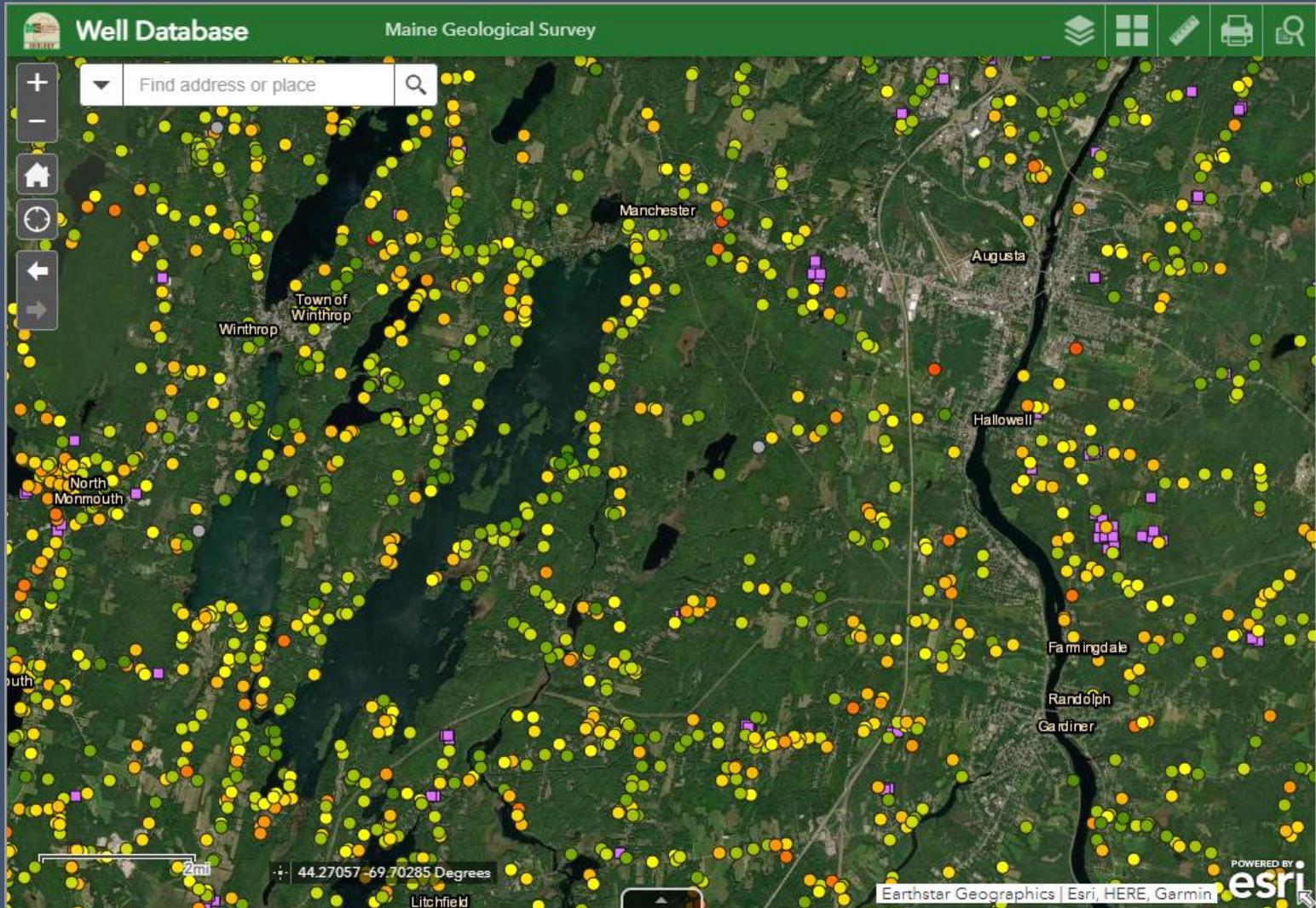
1. Water Well Database and Portal
2. Aquifer Mapping Program
3. Groundwater Level Monitoring Networks
4. Water Use Reporting Program
5. Many other water resources studies

Water Well Database

- Statute: “Water well information” Title 12, Sec 550-B (1987)
- Contains 143,943 records, mainly of domestic wells
- Well drillers must report completed wells
- Data includes depths and yields
- Gives no information about current use of well, or withdrawal volumes
- Recent project to match chemistry data from MeCDC laboratory records

Water Well Database Portal

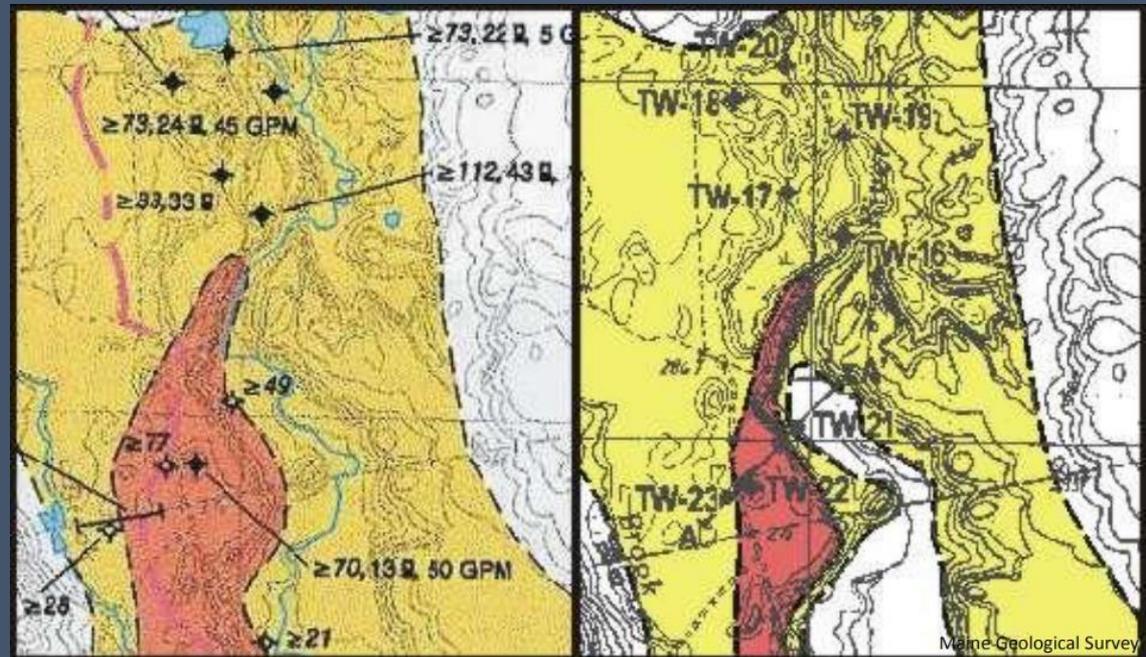
<https://www.maine.gov/dacf/mgs/pubs/digital/well.htm>



Aquifer Mapping Program

<https://www.maine.gov/dacf/mgs/pubs/online/aquifers/aquifers.htm>

- A long-term project to map surficial (sand and gravel) aquifers
- Series of maps, reports, and revisions from 1978 to the present



Groundwater Level Monitoring Networks

1. USGS Network (17 wells):

https://newengland.water.usgs.gov/web_app/GWW/GWW.html

2. MGS is a partner in the National Groundwater Monitoring Network (30 wells):

<https://cida.usgs.gov/ngwmn/index.jsp>

- MGS is currently in our third two-year Cooperative USGS Grant to run and expand this network (9 additional wells will come online this winter)
- Data is collected by MGS staff and DEP contractors
- MGS manages, stores, and serves the data

NGWMN Portal

cida.usgs.gov/ngwmn/

Available data:

- Water levels (10+ years)
- Location and elevation
- Lithology
- Well construction

National Ground-Water Monitoring Network

>> NGWMN NETWORKS

∨ FILTER MAP DATA

>> Principal Aquifer

>> Available Data

>> Site Type

∨ State and County

Indiana

Iowa

Kansas

Kentucky

Louisiana

Maine

Maryland

Massachusetts

Michigan

Minnesota

Mississippi

Missouri

Montana

Nebraska

Nevada

New Hampshire

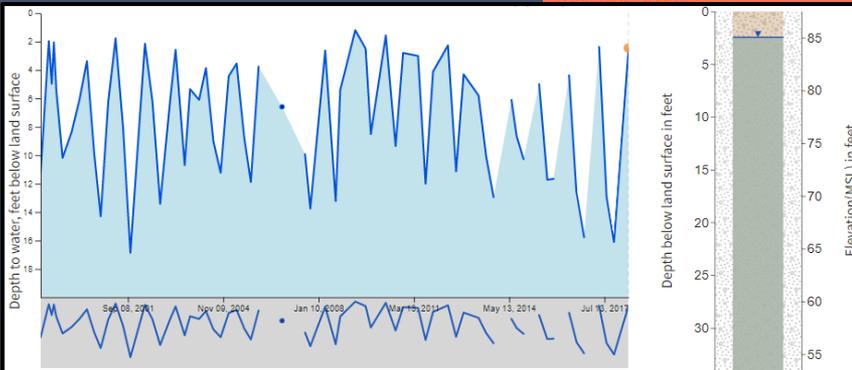
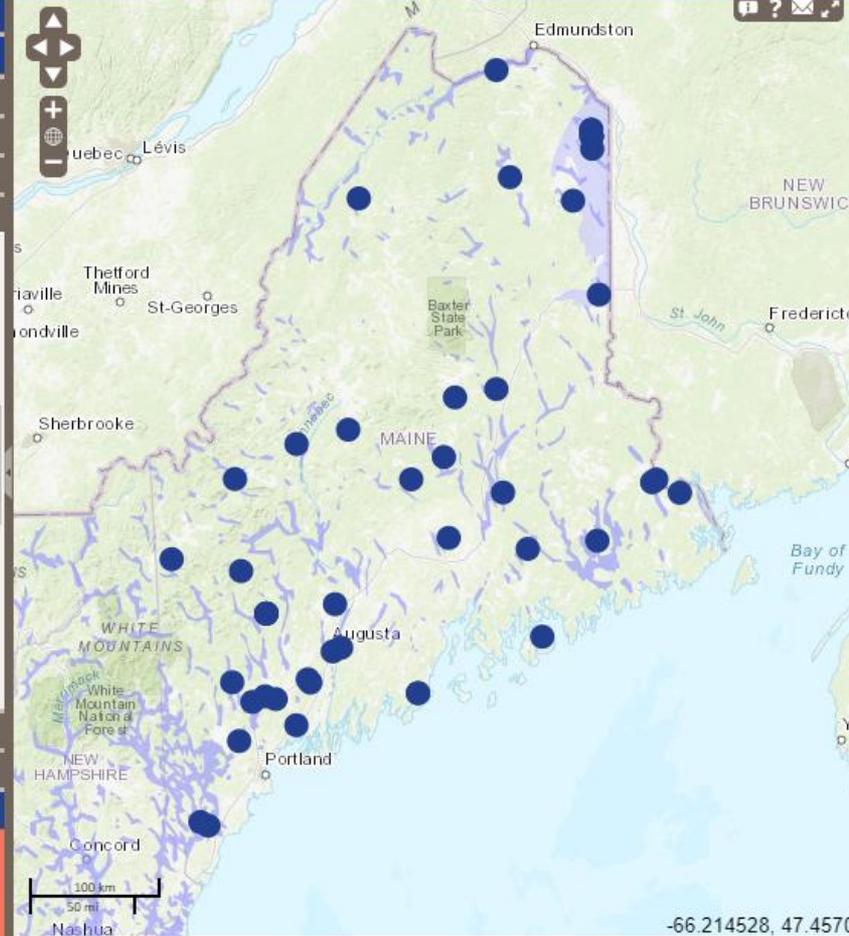
New Jersey

>> Contributing Agency

>> Aquifer Characteristics

CURRENT STATUS

47 Sites mapped



Water Use Reporting Program

- Statute: Title 38, Sec 470-A to 470-G (2001, 2011)
- Consumptive uses above a threshold must be reported
- Thresholds are based on streamflow or pond size
- Exceptions:
 - Household use and public water systems
 - Non-consumptive use
 - Storage ponds
 - Agricultural producers
 - Wells that don't impact nearby surface water bodies
 - Withdrawals reported through any other permit or program
- DEP compiled reports before 2010

Water Use Data and Research (WUDR) Program

Federal grant program to help states help the USGS

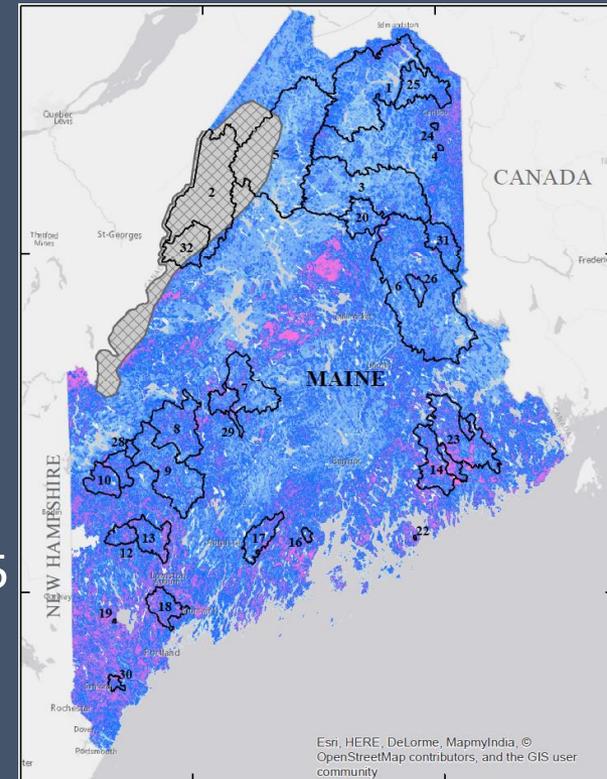
MGS is currently finishing our third two-year USGS Cooperative Agreement

MGS projects funded by the USGS program:

- 2016: Development of a Water Use Workplan
- 2017-2018: Agricultural survey and irrigation model
- 2019-2020: Domestic water use and population estimates
- 2020-2022: Industrial water use survey and wastewater data collection

Other projects

- Maine Cooperative Snow Survey:
https://www.maine.gov/dacf/mgs/hazards/snow_survey/
- River Flow Advisory Commission
- Drought Task Force
- Modeling studies
 - Freeport aquifer study
 - Kennebunk aquifer study
 - Popham Beach sea-level rise study
 - Statewide recharge estimates:
<https://pubs.er.usgs.gov/publication/sir20195125>



25-year (1991-2015) Mean annual potential recharge

A brief introduction to ongoing water planning efforts in the Department of Agriculture, Conservation, and Forestry



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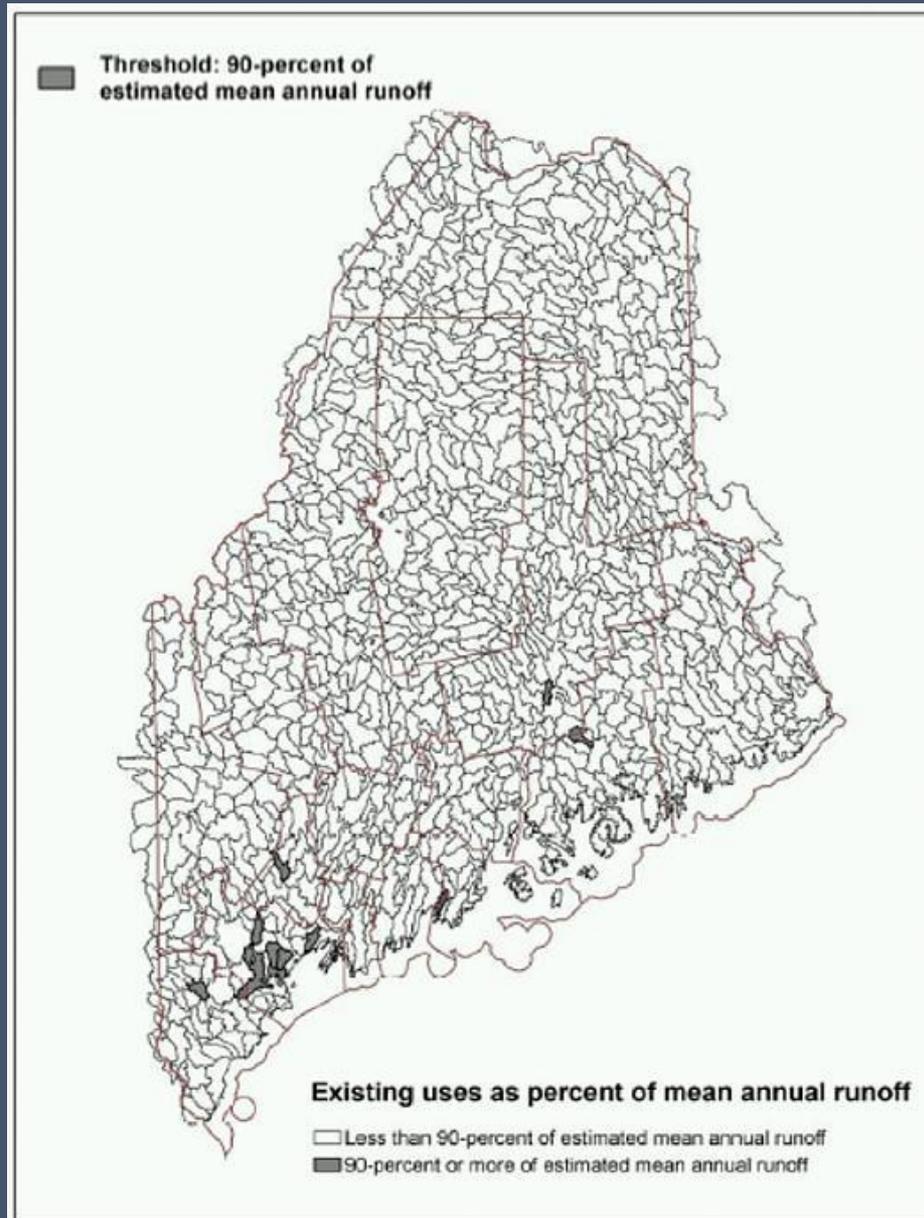
Current water planning bodies in the Department of ACF

1. Water Resources Planning Committee
2. Agricultural Water Management Board

Long history of water planning

- Water Boards, Commissions, Committees, etc:
<https://legislature.maine.gov/role-of-water-as-a-resource-in-the-state-of-maine-background-materials>
- Previous State Efforts in Water Use Policy:
<https://www.maine.gov/dacf/mgs/explore/water/regs/feb06-r.htm>
- Report of the Land & Water Resources Council:
<https://www.maine.gov/dacf/mgs/explore/water/regs/final.htm>

Watersheds-at-Risk Analysis (2007)



Water Resources Planning Committee

APPROVED

APRIL 30, 2019

BY GOVERNOR

CHAPTER

67

PUBLIC LAW

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND NINETEEN

H.P. 162 - L.D. 199

An Act To Create the Water Resources Planning Committee

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

Sec. 1. 5 MRSA Pt. 15-C is enacted to read:

PART 15-C

WATER RESOURCES PLANNING COMMITTEE

CHAPTER 357

WATER RESOURCES PLANNING COMMITTEE

§6401. Water Resources Planning Committee

1. Water Resources Planning Committee. The Water Resources Planning Committee, as established in section 12004-I, subsection 68-C and referred to in this subsection as "the committee," is established in the Department of Agriculture, Conservation and Forestry.

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

(1) Personnel from:

(a) The Department of Agriculture, Conservation and Forestry, Bureau of Resource Information and Land Use Planning, Division of Geology, Natural Areas and Coastal Resources, Maine Geological Survey;

(b) The Department of Agriculture, Conservation and Forestry, Maine Agricultural Water Management Board;

(c) The Public Utilities Commission;

(d) The Department of Environmental Protection;

(e) The Maine Land Use Planning Commission; and

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

(f) The use of water by commercial entities;

(g) Water conservation education; and

(h) Stormwater management or wastewater management. [PL 2019, c. 67, §1 (NEW).]

Summary of WRPC Goals

Plan for the sustainable use of water resources. The committee shall focus on:

1. Collecting and reviewing information regarding water withdrawal activities;
2. Coordinating state water resources information; and
3. Identifying watersheds at risk by refining the most recent analysis of watersheds at risk performed by the Maine Geological Survey, including:
 - a) Conducting appropriate water resources investigations in watersheds at risk;
 - b) Considering projected increased water use by population, agricultural irrigation, commercial users, industrial users and other users;
 - c) Considering seasonal use;
 - d) Considering potential effects of climate change;
 - e) Considering the effects of anticipated future water quality classification changes on the availability of water for withdrawal;
 - f) In establishing priorities for further investigations, seeking input from the user community, from towns dealing with multimunicipal aquifers and from towns with significant local aquifers; and
 - g) Developing guidelines for consistency in further investigations.

Summary of WRPC Goals

Review state policy with regard to:

1. Conservation of water resources;
2. Development of regional sources and solutions to water use issues;
3. Incentives for stewardship of water resources; and
4. Effects of surface water quality improvements on water withdrawal opportunities.

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

Water Resources Planning Committee

- Organized under DACF (Maine Geological Survey)
- Typically meet 2-3 times per year
- Also review and update information about ongoing drought conditions, flood hazards, and snow conditions
- Monitor and update on new legislation

Agricultural Water Management Board

- Organized under DACF (Bureau of Agriculture)
- Reactivated and reorganized in Spring 2021
- Members have expertise in crop and livestock production, agricultural and environmental engineering, wetlands permitting, etc.
- Met four times last year. Next meeting is October 27 at UMaine.

Agricultural Water Management Board

- Members realized early that water resources are not easily accessed for agricultural production. Recent droughts have stressed producers and resulted in crop losses.
- The Board encouraged Governor Mills to advocate for federal assistance for sustainable water source and irrigation development.

Agricultural Water Management Board

- The legislature recently passed LD 1998 establishing the Farmers Drought Relief Program within DACF
- Program will provide grants to establish environmentally sound water supplies for irrigation.
- DACF is working with UMaine and the Board to design the program with extensive consultation with the ag community.