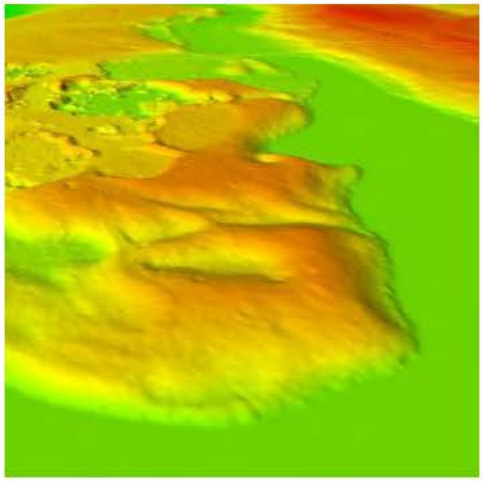
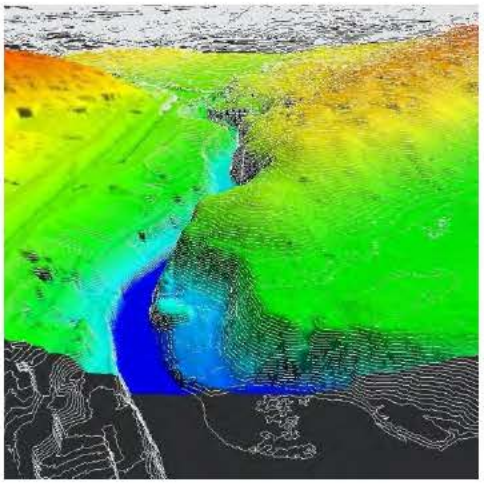




MAINE GEOLIBRARY

2020 ANNUAL REPORT

MAINE LIBRARY OF GEOGRAPHIC INFORMATION

TO THE JOINT STANDING COMMITTEES OF:
ENVIRONMENT & NATURAL RESOURCES AND STATE & LOCAL GOVERNMENT
129TH LEGISLATURE – SECOND SESSION

TABLE OF CONTENTS

This Maine Library of Geographic Information Annual Report for FY20 has been prepared in accordance with 5 M.R.S.A. §2003(I)(L).

ABOUT THE GEOLIBRARY

In 2001, the Legislature instructed the State Planning Office to convene what came to be known as the Resolve 23 Steering Committee (Committee) to study the use of Geographic Information Systems (GIS) in statewide strategic planning. The Committee developed a needs assessment – the conclusion of which recommended the creation of the GeoLibrary, its method of governance, and strategic focus. The Legislature and Governor concurred, and the Maine Library of Geographic Information Act 5 M.R.S.A. Section 2001 et. Seq. became effective April 2002. The Maine Library of Geographic Information Board ("GeoLibrary" or "Board") was established as a partnership of public and private stakeholders with the following guidance of purpose and duties, to:

Figure 1. An example of orthoimagery in Hancock County, acquired in April 2020.

- Operate a coordinated, cost-effective electronic gateway providing access to data custodians' public geographic information;
- Establish and maintain standards, rules and policies for non-state data custodians' geographic information;
- Reduce redundancies in the creation, verification and maintenance of public geographic information and to enhance its utility for complex analyses;
- Set priorities and authorize the expenditure of State funds;
- Promote innovative uses of geographic information;
- Enter partnerships to promote the purposes of the legislation;
- Hear and resolve disputes that may arise between data custodians or with respect to information to be placed in the Maine Library of Geographic Information, enforcement of geographic information GeoLibrary standards, rules or policies or other related matters;
- Conduct studies relating to the coordination, development and use of statewide geographic information;
- Report annually by January 1st to the joint standing committees of the Legislature having jurisdiction over natural resources matters, and state and local government matters, and;
- Develop appropriate internal services to facilitate generalized access for and use of data by governmental agencies and the public.

This Maine Library of Geographic Information Annual Report for FY20 has been prepared in accordance with 5 M.R.S.A. §2003(I)(L).

EXECUTIVE SUMMARY

Following is a summary of the GeoLibrary's data acquisition activities and data needs. The GeoLibrary continued its efforts to coordinate agency data acquisitions in FY 2020. The United States Geological Survey (USGS) approved and partially funded the acquisition of **2600 square miles of LiDAR data along the Southern Coast of Maine in 2020** (see Figure 2). The contractor was successful in acquiring data that is currently being processed and checked with anticipated delivery in the spring of 2021.

The GeoLibrary submitted a proposal to the USGS in November of 2020 for over **2000 square miles of LiDAR** data to replace outdated information along the Mid-Coast of Maine. Status notification regarding our submission is anticipated late in December 2020 or early January 2021. This project is planned as a 2021 spring acquisition with delivery in early 2022.

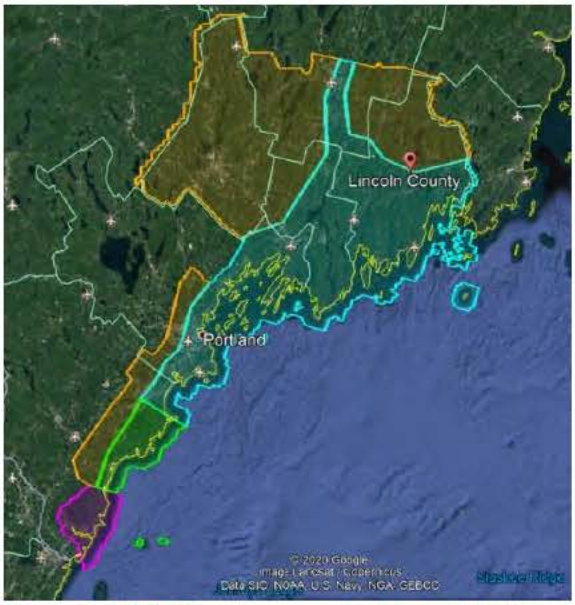


Figure 2. LiDAR Coverage acquired in April 2020 covering Southern Coast of Maine. Available Spring 2021.

The GeoLibrary coordinated orthoimagery for one county including that county's unorganized territories. (see Figure 1 for an example of county coverage). One community acquired three-inch pixel resolution and seven more acquired six-inch pixel resolution aerial imagery (see Figure 3 for an example of high-resolution imagery). An interactive map with more detail on the GeoLibrary's orthoimagery base mapping efforts can be found at http://www.maine.gov/geolib/programs/ortho/index.html

The GeoLibrary's Data Catalog was updated in 2020, with an enhanced search and discovery web index to improve access to geographic data and mapping applications for both state agencies and the general public.

A land cover initiative adopted by the Board is designed to update the 2004 land cover dataset. Partial fundraising and community outreach initiated this year have a goal of making updated land cover datasets available to the public in the Summer of 2022.

The Board voted to initiate a project in 2021 to update the Strategic Plan developed in 2009. The updated strategic plan will result in a road map for achieving the GeoLibrary Board's legislatively mandated responsibilities to provide commonly accessible mapping and GIS data while adapting the method of that access to leverage current and future technologies that advance its mission.

The GeoLibrary finance committee met multiple times to ensure our fiscal responsivities were met and to prioritize which future projects to fund. The GeoLibrary has been proactive and successful pursuing and developing partnerships for matching funds against qualified grants that support data acquisition projects.

Previously, these funds for data acquisitions were provided by the Maine Office of GIS (as part of their budget). For fiscal years 2022-2023, a general fund request of $500,000/year has been submitted to the legislature to partially finance future data acquisition projects, including orthoimagery for the unorganized territories. If approved, this annual project budget will provide a means to develop spatial data sources covering communities where funding levels have not supported past efforts made by the GeoLibrary Board.

RECOMMENDATIONS

A brief description of recommendations is listed below. A more thorough discussion on these recommendations can be found on **Page 19** of this report.

Approve the general fund budget request of $500,000/year, so that the GeoLibrary can:

- Provide funding to support geospatial data acquisition.
- Enhance the services of the GeoLibrary for stakeholders outside of state government.

This Maine Library of Geographic Information Annual Report for FY20 has been prepared in accordance with 5 M.R.S.A. §2003(I)(L).

KEY DATA LAYER ACTIVITIES

Each data layer has a brief description of acquisition plans and status. Additionally, an estimate of costs and potential partners for data acquisition are provided where information is available.

LEAF-OFF ORTHOIMAGERY PROGRAM

Leaf-off imagery is a key data set for all agencies and other GIS community users needing to map and analyze ground features for planning and development purposes. This need is consistent in both organized communities and the unorganized territories across the State. Lacking a consistent State funding means, the GeoLibrary has been limited in accomplishing the goal to acquire a statewide data set. The current program relies on a community level program that functions as a pay to play system where only those communities and counties with local funding resources can participate in the GeoLibrary Orthoimagery Program. The extent of the current coverage of orthoimagery is illustrated in **Appendix A.**

Through an open RFP process, the GeoLibrary contracts with a qualified vendor to acquire orthoimagery annually. The target area is developed in concert with counties who are willing to pay for one-third of the costs of acquisition. The remaining two thirds of the costs are covered under the current structure through funds developed by state agencies as part of their department project plans provided through memorandums of agreement or budgeted as part of the Maine Office of GIS fee structure. Communities can participate in acquiring high resolution imagery by paying into the program to cover the additional acquisition costs. The costs for Counties and Communities are substantially lower than what they would be if they had to contract for services on their own. Figure 3 shows an example of high-resolution imagery.

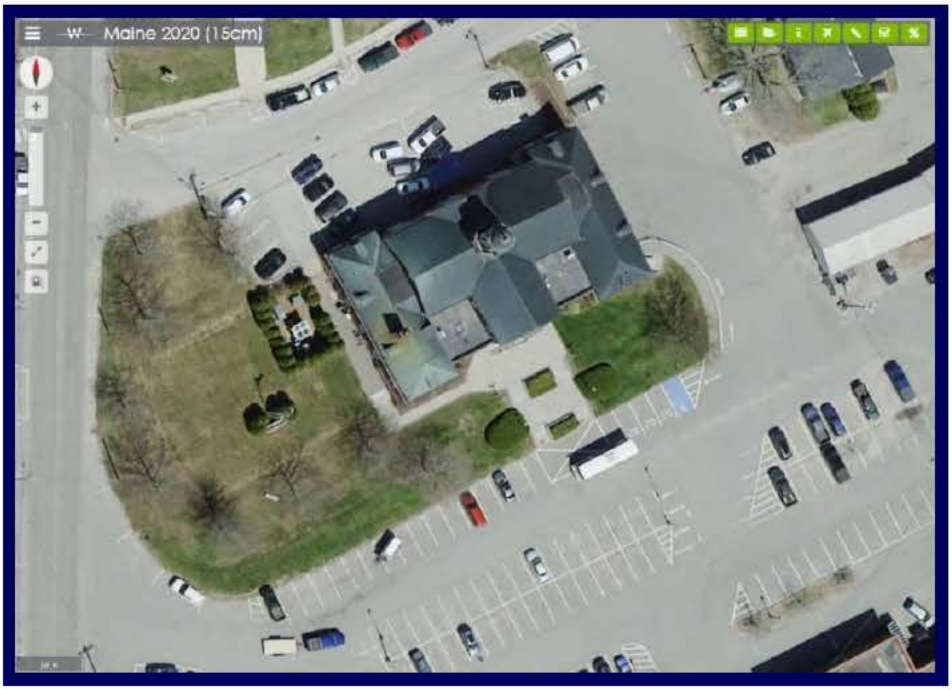


Figure 3. An example of high-resolution imagery for the City of Ellsworth. Imagery captured in April 2020.

This imagery base map data is available for use by public, private, nonprofit corporations and individuals at no additional charge through the GeoLibrary's online data services. This program is a notable example of a cost sharing approach leveraging state, county, and municipal funding sources. The imagery serves as an accurate base map upon which other data is developed and published within the GeoLibrary.

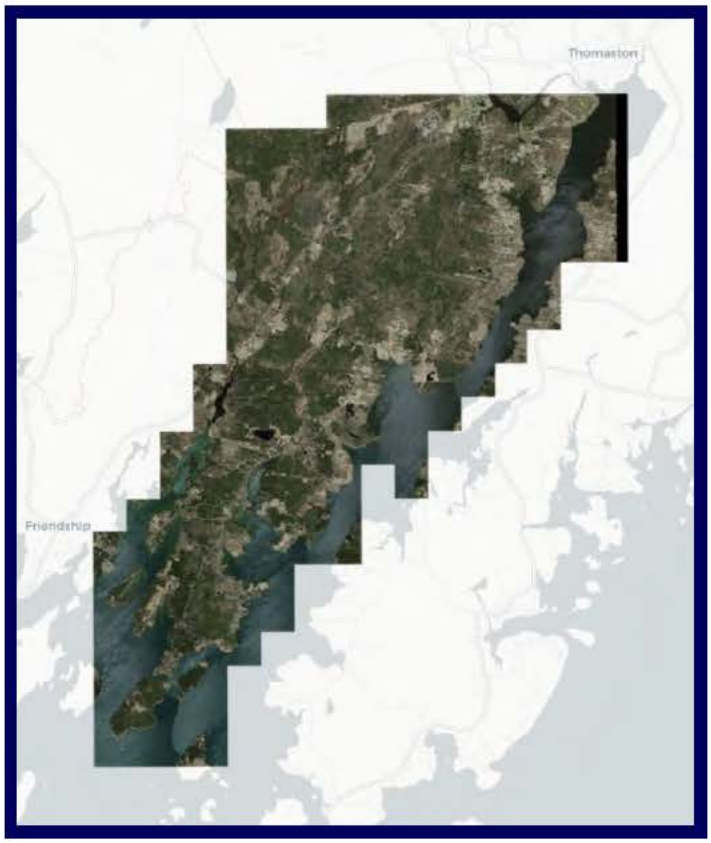


Figure 4. All of the Town of Cushing was captured at 6" high resolution imagery in April 2020.

The GeoLibrary initiated its third program (2017-2022) cycle for imagery base mapping and is entering its fourth year of that cycle. During FY20, Hancock County including Hancock's Unorganized Territories (UT) signed contracts for eighteen-inch and twelve-inch resolution orthoimagery which were acquired in April 2020. Statewide, seven additional communities (Bridgton, Naples, China, Cushing (see Figure 4), Old Town, Ellsworth, and Bar Harbor) joined in to purchase higher six-inch resolution imagery. Portland opted to purchase 3-inch resolution imagery in connection with the project. Many of these communities are repeat partners purchasing refreshed coverage where their county had previously participated in the program.

Adoption of the proposed GeoLibrary general fund budget will stabilize the orthoimagery program for the next two years. It will provide enough funds to continue providing matching funds to counties, including the unorganized territories, and attract funding from local communities. This will provide continuity for a program that has substantially benefited the state, counties and municipalities. The GeoLibrary encourages counties that have not participated to join its efforts to acquire an orthoimagery base map for all of Maine and continues to seek grant funding sources to help achieve that goal.

ELEVATION PROGRAM

Since 2009, the GeoLibrary has initiated several projects to acquire high resolution elevation (see Figure 5), also known as topographic data. Topographic data is used to create contour maps at one- or two-foot elevation intervals (see Figure 6) suitable for engineering and planning development at the parcel level. Accurate elevation data is important to many programs such as flood risk mapping, watershed delineation and hydrographic mapping, mapping of landslide hazards away from the coast, mapping existing infrastructure and managing wildlife habitat.

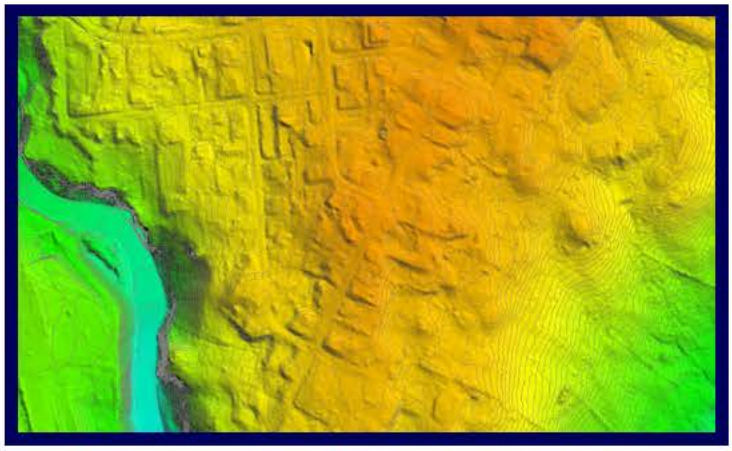


Figure 5. Shaded relief Digital Elevation Model (DEM) – A derivative product developed from LiDAR.

Despite challenges with full funding, the GeoLibrary has developed strategic partnership proposals to acquire new data with Light Detection and Ranging (LiDAR) Technology for all the state's land area. (See map in **Appendix A**). LiDAR provides elevation and topographic information, and derivative products include shaded relief models and contours.

The 2020 Maine Southern Coast LiDAR project acquired a total of 2,672 square miles and provides a complete set of USGS Quality Level 2 (QL2) accuracy data with tidal coordination.

The GeoLibrary Board acquired funding from numerous public and private sources including the Natural Resource Conservation Service (NRCS), state agencies such as Maine Department of Transportation, The Nature Conservancy; the Town of York, the City of Portland; and others. This year, the GeoLibrary solicited over $325,000 from state and local partners to apply for USGS matching funds, which has resulted in securing **over $420,000** in matching federal funds for this current LIDAR data acquisition.

Figure 6. Two-foot contours – A derivative product developed from LiDAR.

The availability of these data products is having a transformative effect on land development costs for private and public sectors in Maine's economy. Elevation data provides a rich resource for analyzing the natural and manmade environments. This data is one of several geospatial datasets that supports development of value-added products such as the land cover layer, which is critical to assess the effects of climate change.

LAND COVER AND IMPERVIOUS SURFACES

High resolution landcover typing and impervious surface data provides critical information for tracking changes in the environment important for assessing and managing future projects. Examples of users who benefit from the availability of this data include urban communities planning for storm water runoff and retention from impervious surfaces, first responders for environmental impacts like oil or other hazardous spills, and Inland Fisheries and Wildlife professionals identifying prime habitat for the state's aquatic and land species. These activities typically require at least 1-meter resolution landcover data. Funding for this resolution of data will return a great benefit for communities and state agencies that need accurate data for storm water modeling and floodplain mapping that enables the visualization of the future impact of development projects and land use activities.

By providing a regular refresh rate across the State, this data will provide important insights regarding the effects of climate change. This is critical information to support decisions designed to mitigate the impacts of the changing climate on our communities. Maine's most recent land cover data was developed in 2004 and is at a resolution of 5 meters (16.4 feet). It is out of date in its content and accuracy and entirely inadequate for supporting the level of analysis required today.

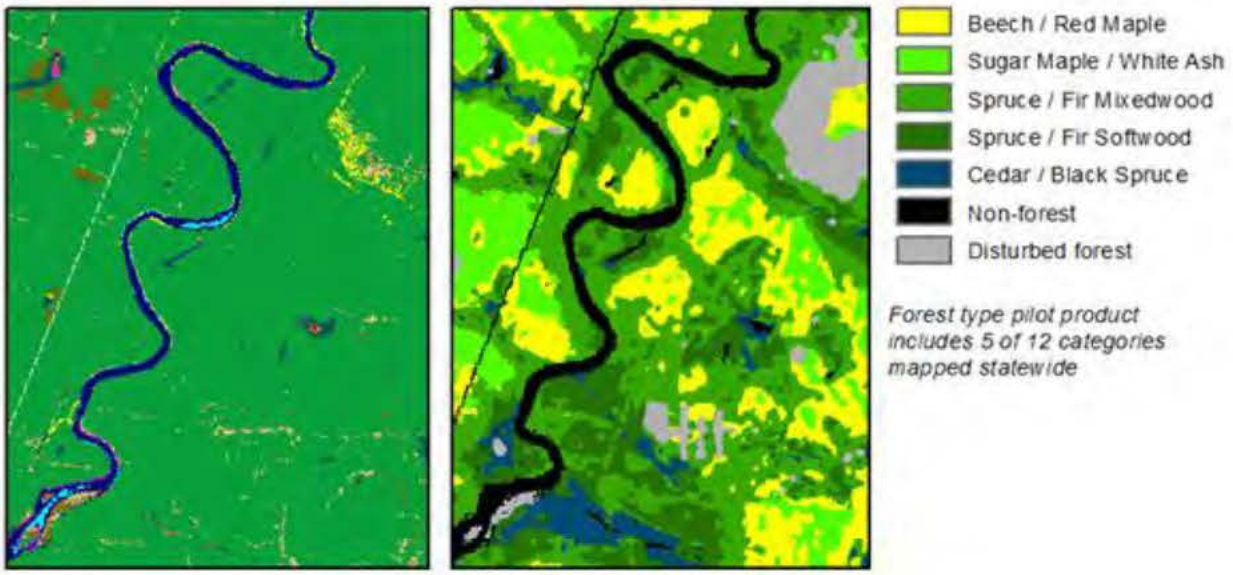


Figure 7. An example of old (2004 data) vs. new (2016) land cover. Notice the detail on the right image.

The GeoLibrary Board voted to make updating this land cover dataset a priority in FY21 and if necessary, provide partial funding from the remaining balance in the GeoLibrary account. NOAA and the University of Maine have committed to be partners in this project and will provide a portion of the funding needed to develop a comprehensive, statewide 1-meter land cover map, and a statewide 10-meter forest type map (see Figure 7), which is assessed at combined costs of $701,000.

NOAA has already committed to invest $250,000 of in-kind services, and the University has agreed to donate data processing services, which reduces our funding gap to $451,000. The GeoLibrary is actively looking for funding partners to complete this initial update effort.

Land cover data is most useful when comparing data over time and the GeoLibrary will develop a recommendation and plan a reasonable update cycle for land cover data with set aside annual funds to do this. NOAA's update cycle for landcover data is every 4-6 years. Board members view this as a reasonable refresh rate and is considering adopting this overall cycle as core to defining its annual project plan.

Potential partners/users for this project besides NOAA and the University include, other federal agencies, state agencies, non-profits, and communities with water and sewer districts.

PARCEL DATA PROGRAM

Current parcel information is a frequent request posed by data consumers. Creating a statewide parcel data layer is challenging as the State is dependent on source data from individual communities. It is the responsibility of each individual community to maintain parcel records and not every community has embraced the idea of developing a digital parcel map.

The current cadastral data set made available through the Maine GeoLibrary is comprised of two feature sets. Organized towns infrequently contribute parcel information through the Maine GeoLibrary Board. These submissions are assembled into a composite feature set managed and published by the Maine Office of GIS. For unorganized territories and plantations within the State, the source information is assembled and published in coordination between the Maine Revenue Service and the Maine Land Use Planning Commission. It is not uncommon for the parcel data that is available to be several years out of date in a given community. Some communities do not update their data every year and others may update the data but not share it with the GeoLibrary.

Users are frustrated by the lack of a statewide, comprehensive, current, and accurate dataset. Having access to community parcel maps in a digital format (see Figure 8) that is updated on a regular basis is an important resource to state agencies, real estate and development interests as well as many other users of location specific data. The Board has collected data from many communities in past years through various grant programs. However, it currently lacks the resources for a continued outreach to towns for soliciting updated data and assisting communities without digital maps to develop them. Several times a year, inquiries from communities are made regarding the availability of grant funds to help pay for the conversion of paper maps to a digital format.

Figure 8. Parcel data with orthoimagery underlaid beneath it. An example of using multiple geospatial data layers.

For estimating purposes, the GeoLibrary has assessed a cost for converting paper maps to digital products at $20,000 per town. This price can vary based on many factors including the number of parcels, currency and quality of existing maps. Using this average cost, the estimate for converting all communities to digital products is approximately $4.2 million statewide.

An interactive map showing communities that have submitted parcel information to the GeoLibrary is located here:
https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=28e35c8fcf514d2685357b78bdd0b246

The GeoLibrary Board sees a need for a partnership grant program that would assist communities to maintain parcel maps in a digital format meeting state standard for data sharing. Potential partners besides the communities are state agencies, real estate agents, code enforcement officers, surveyors, assessors, regional Council of Governments (COG), and academic institutions.

BATHYMETRY

Bathymetry data is an important component for transportation planning and development, the monitoring of fisheries, and analyzing climate change. Near and offshore high-resolution data is needed for a better understanding of Maine's fisheries, support to aquaculture, and to assess the impacts of development. This data is derived from bathymetric LiDAR (Light Detection and Ranging), which uses water-penetrating green light to measure seafloor and riverbed elevations.

Current available bathymetry is a collection of data acquired for numerous independent studies and is of varying accuracies. New consistent high-resolution data is needed to complete comprehensive studies of the land-sea interface for many applications. Large sections of the Maine coast lack current near-shore bathymetry. Portions of the Gulf of Maine data available date as far back to the times when lead sinkers and ropes were used to determine "depth to bottom". The state needs a systematic approach to updating bathymetric data; taking advantage of modern technology for increasing accuracy. Better bathymetry would contribute to improved navigation, provide an understanding of fisheries habitat, support aquaculture and model potential flooding. Updated bathymetry is especially important to the state's tidal areas including heads-of-tide in Maine's river systems.

The state should acquire Atlantic Ocean near-shore bathymetry data (see Figure 9) on a progressive annual basis with a goal of updating the data on a regular schedule for areas susceptible to change due to accretion and erosion of shorelines.

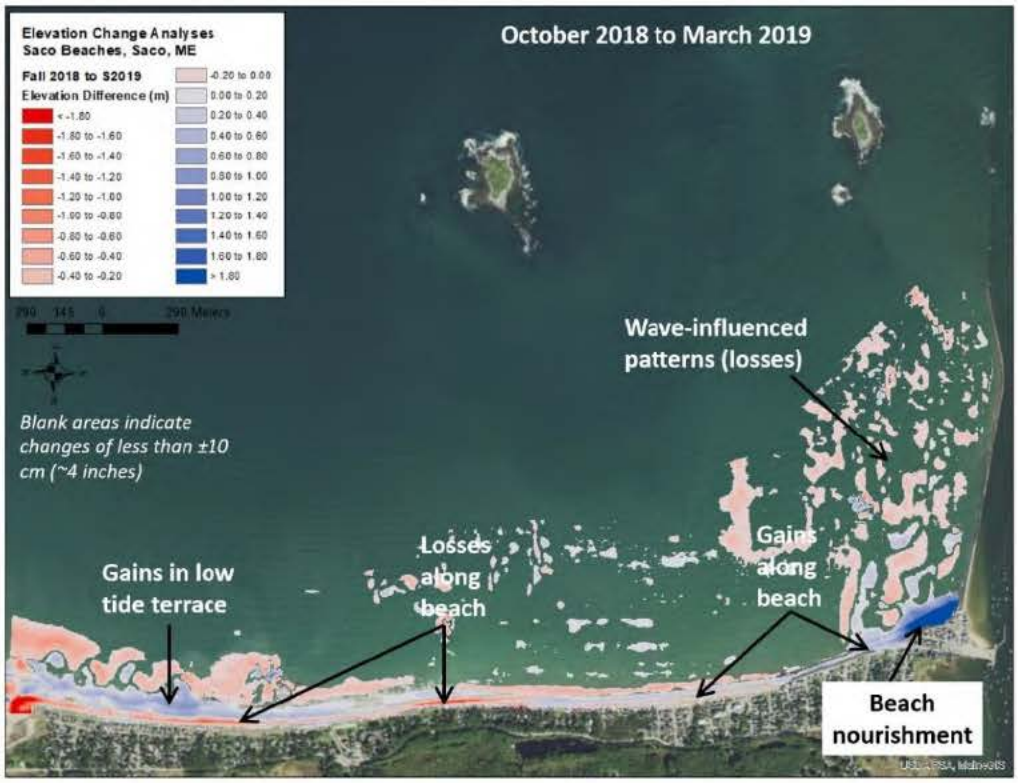


Figure 9. Example of bathymetric LiDAR and resulting analysis along Saco Beach.

An initial estimate of costs for an annual acquisition program include in the GeoLibrary OneMAP program is $500,000.

Potential partners for acquiring elevation and bathymetry include the USGS, NOAA, USDA, State agencies, the University of Maine, non-profit organizations, the Bureau of Ocean Energy Management, Maine shoreland counties, communities, and private enterprise. This data is one of several geospatial datasets that supports development of value-added products when combined with other features such as the land cover layer, which is critical to assess the effects of climate change.

DATA LIBRARY

The first purpose specified in the GeoLibrary Board's enabling legislation was to create an electronic gateway for distributing GIS data to the public. Maine Office of GIS (MEGIS) staff support the GeoLibrary's efforts with its catalog of state data and mapping services for distributing elevation, imagery and parcel data developed by the GeoLibrary Board or other Maine agencies. This is done utilizing the MaineIT infrastructure and works well for state agency GIS users as a gateway to publish and share geospatial data and other GIS resources.

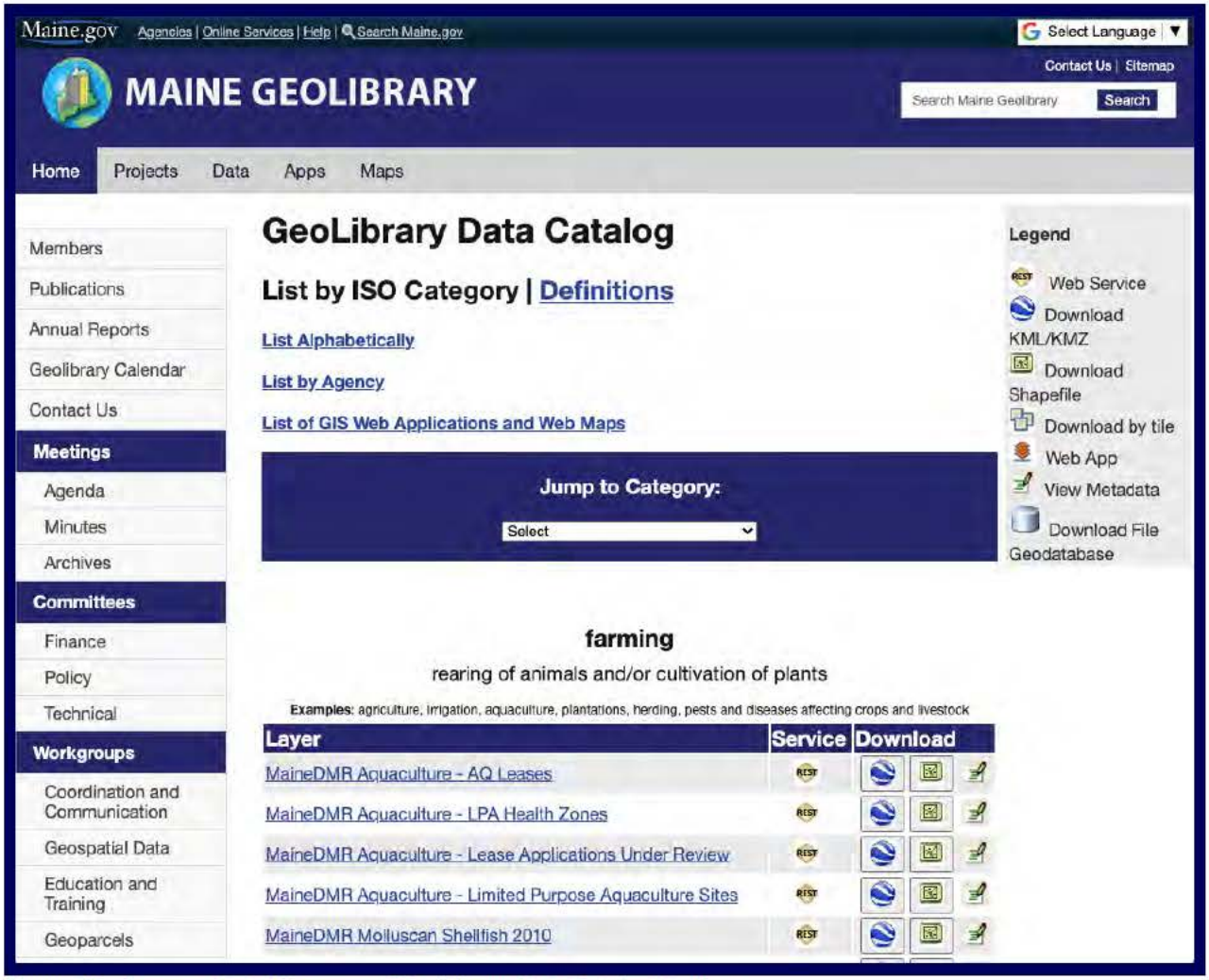


Figure 10. A screenshot of the current GeoLibrary Data Catalog interface

This year the Maine Office of GIS and the GeoLibrary Board updated the Maine GeoLibrary Data Catalog to make it more efficient and user-friendly for constituents and interested stakeholders. This work was the result of a comprehensive demonstration and beta testing period from FY2019 involving community stake holders such as code enforcement officers, assessors and other end users. The new Data Catalog (see Figure 10) page organizes the available data layers by their ISO metadata category or alphabetically. The GeoLibrary Board

promoted this work through a webinar hosted for them by the Maine GIS User's Group in the spring and the updated format went live in July of 2020.

Even though the Data Catalog interface was recently updated, more maintenance work is needed on the overall web content. Just as the State Library maintains and keeps current its selection of books, periodicals and reference materials, and provides a librarian to assist customers, a GeoLibrary must continually maintain and acquire new data layers, reference materials and staff support to stay current and meet the needs of Maine's GIS and geospatial data users. For many applications of geospatial data, it is also important to have access to older data that is no longer current.

Researchers and others need to be able to complete comparative analysis using previous data relative to the newest data. This temporal or time elapsed change is becoming a more important component of geospatial analysis. Examples of this value can be found in assessing beach erosion rates, resource depletion, or legal disputes involving ownership or trespass issues. The State and GeoLibrary do not have an established method for compiling, cataloging, or making this data available. A limited historical record for just a few data layers or mapping types is currently available in the GeoLibrary catalog.

Analyzing these needs of the public for a geospatial library and developing a strategy to meet them will be an important part of the strategic plan update.

FINANCIAL STATUS

The GeoLibrary has not received direct funding from the Legislature for either data delivery operations or data acquisition. Despite this lack of funding in the state budget, **GeoLibrary staff have been successful in building partnerships and leveraging funding from cooperating partners to finance data acquisition**. As a result, the GeoLibrary has managed to accrue a positive balance in its Geospatial Reserve Fund (Account # 013-18B-3057) – See Table 1. This balance results from good fiscal control, strategic planning and engaging partners by providing community outreach.

Cash Balance (as of 12/17/2020)	
Current Reserve Cash Balance	$1,060972.05
Contract Liability 014	$(381,348.42)
Grant Funds Available	$542,097.07
Contract Liability 013	$(397,518.00)
Remaining Cash Available	$824,202.70
014 = Non-federal funds for data acquisition *013 = Federal grant funds for data acquisition*	

Table 1

A portion of these funds will be used to update the GeoLibrary's strategic plan and to support additional data acquisition. Table 2 shows the status and sources of funding from partners for the orthoimagery and LiDAR projects in 2020. A more complete description of sources is contained in the data acquisition section under the project descriptions.

Note that "State funds" mean bond revenues and General Fund money (see http://legislature.maine.gov/legis/statutes/5/title5sec2002.html) appropriated by the Legislature for the purposes of the GeoLibrary mission. State funds used to purchase geospatial data must be matched by funding from other sources at least to a one-to-one ratio. (see http://legislature.maine.gov/legis/statutes/5/title5sec2006.html).

Project Funding Summary							
Project	***Total***	***Match***	***Federal***	***State***	***Counties***	***Municipalities***	***Private & Nonprofits***
Ortho Imagery	$204,596.00	$22,304.15	$0.00	$0.00	$51,267.00	$131,024.85	$ -
LiDAR	$467,639.65	$129,564.42	$173,075.23	$125,000.00	$0.00	$0.00	$40,000.00
Total	**$ 672,235.65**	**$151,868.57**	**$173,075.23**	**$125,000.00**	**$51,267.00**	**$131,024.85**	**$40,000.00**

Table 2

STRATEGIC PLAN UPDATE

The Board's Strategic plan was last updated in 2009. Information technology has advanced significantly since the Board's inception in 2005. Technology changes in how data is acquired and distributed require the Board to periodically rethink how it does business and to review the requirements of its stake holders. This is especially true of non-state GIS data users where access to GIS data has become ubiquitous in the workflows of business, nonprofit and research communities. The needs of these stakeholders have outgrown the historical offerings of the Maine Office of GIS at current budgeted levels to provide comprehensive support of current and anticipated requests for GeoLibrary related services.

Updating the Board's strategic plan will provide a blueprint for financing Board operations, data acquisition and hosting, and dissemination of geospatial data to the greater GIS community and the public. Goals and tasks for the plan include:

- Lead an in-depth review of the GeoLibrary Board's legislation seeking input from policy makers, GIS users, GIS Managers and other GIS constituencies. This review will lead to a determination of;
  - The efficacy of the Board in meeting its obligations under existing legislation and,
  - Determine whether legislative changes are necessary and provide draft legislation for any recommended changes.
- Lead a review of the previous Strategic Plan recommendations and Board accomplishments in achieving goals set forth in the plan. The Strategic Plan completed in 2008 can be found http://www.maine.gov/geolib/policies/otherdocs.html
- Provide an analysis of:
  - State agency and non-state GIS data users' needs for GeoLibrary services,
  - Technology required to deliver services,
  - Staff required to support these services,
  - Funding requirements to deliver GeoLibrary services,
  - Potential partnerships and sources of funding other than direct State support the Board should seek to develop for achieving the goals identified in this strategic plan.

2021 RECOMMENDATIONS

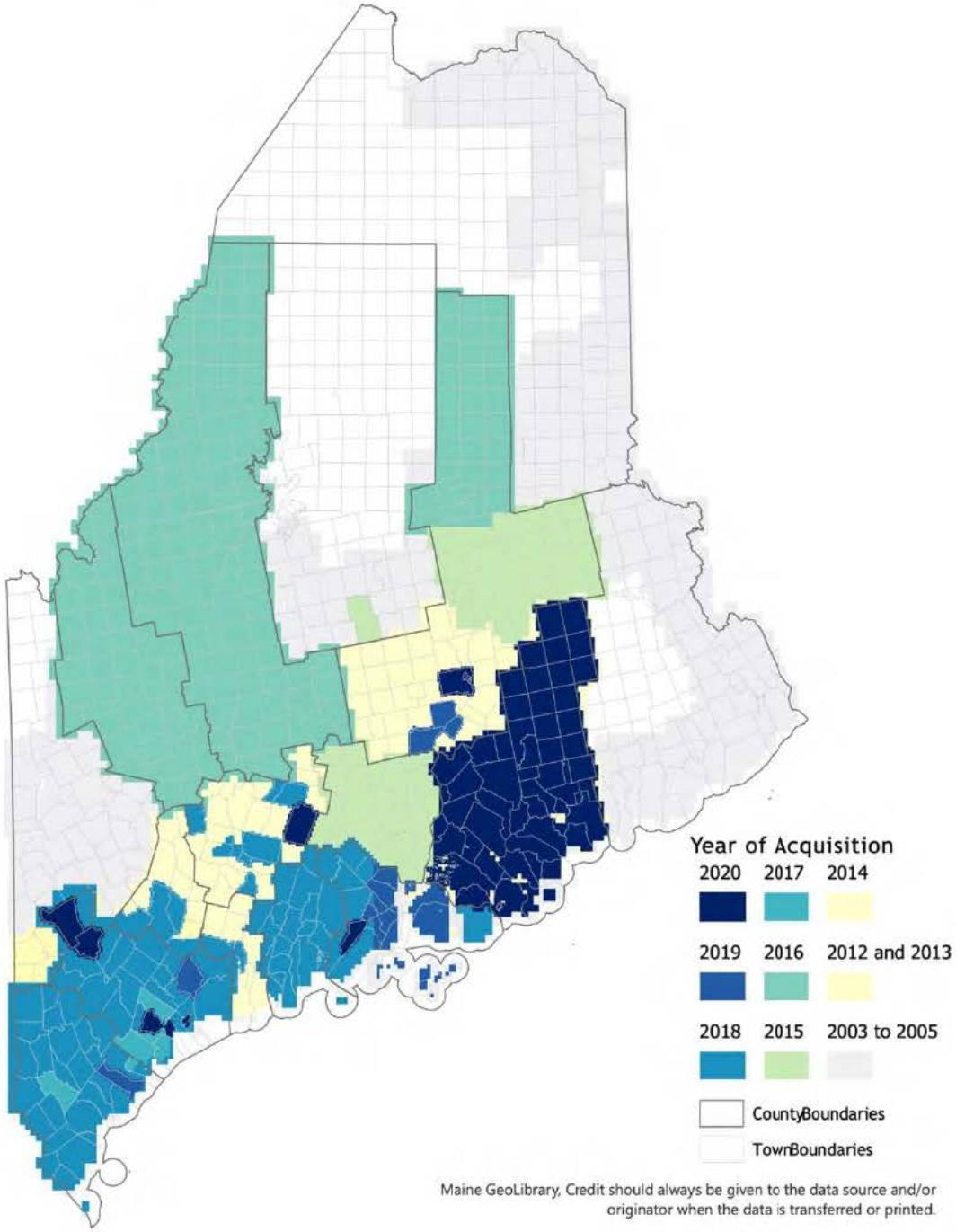
1	**Provide funding to support geospatial data acquisition.** All state funds for acquiring mapping data require at least a 1:1 match and the GeoLibrary has a proven track record in finding partners to finance data acquisition. The Maine Climate Council's Scientific and Technical Subcommittee's report found the following recommendations and needs for improved data collection and studies, which include LiDAR, land cover, and bathymetric LiDAR. The Maine Library of Geographic Information is the logical vehicle to accomplish the data acquisition. Even with limited staff and no general fund allocations, it has been successful in developing funding to acquire millions of dollars in elevation and imagery geospatial data playing a key role supporting data for the climate council. **Action: Approve the general fund budget request of $500,000/year for the GeoLibrary**
2	**Enhance the services of the GeoLibrary to stakeholders outside of state government.** The GeoLibrary supports engineers, surveyors, developers, realtors, municipalities, the educational community and many others. These services should be supported through appropriations from the State's general fund or another dedicated source of funds. The GeoLibrary should work with the Legislative oversight committees to develop a funding mechanism to support GeoLibrary Board activity. **Action: Approve the general fund budget request of $500,000/year for the GeoLibrary**

This Maine Library of Geographic Information Annual Report for FY20 has been prepared in accordance with 5 M.R.S.A. §2003(I)(L).

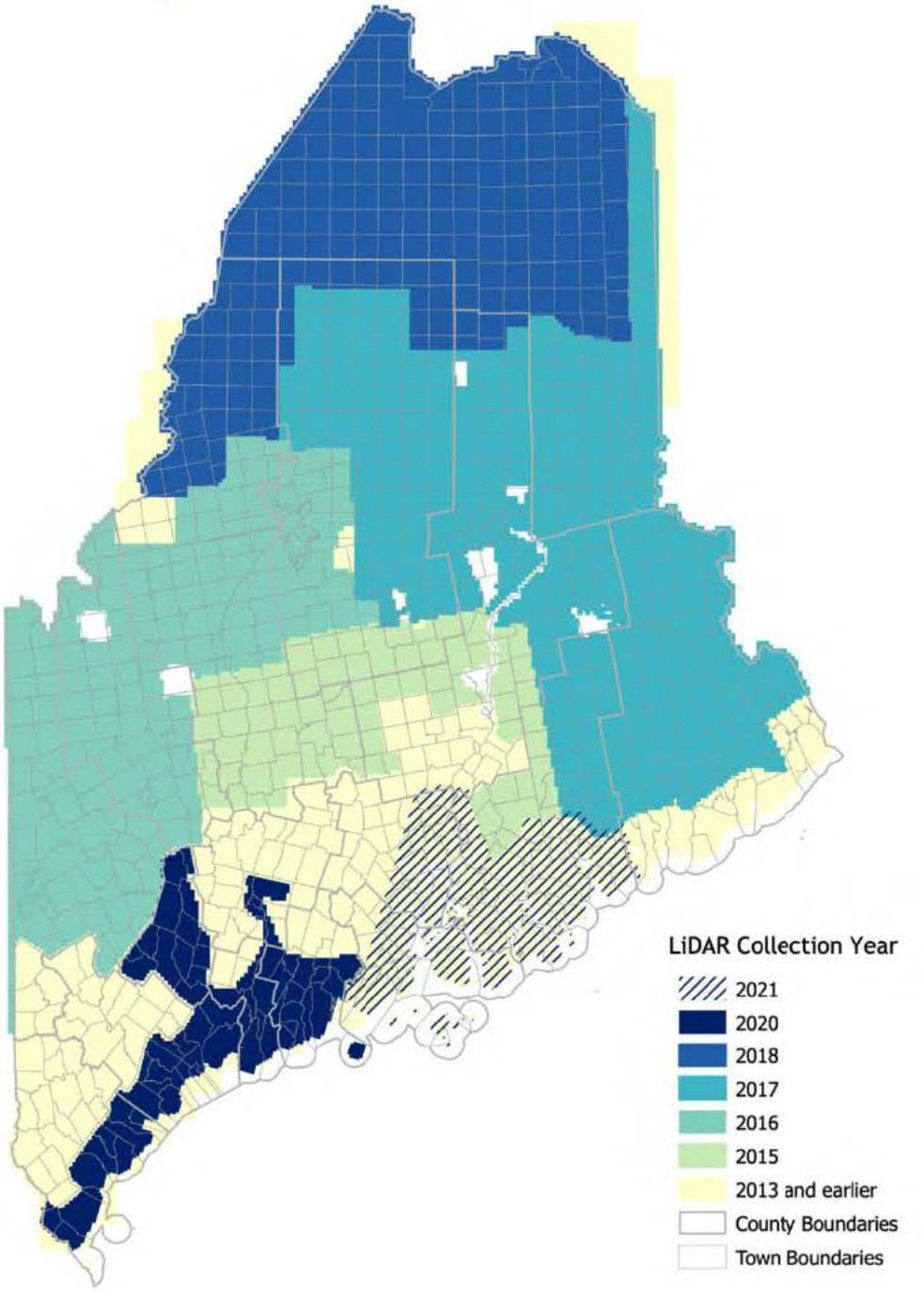
APPENDIXES

APPENDIX A: DATA ACQUISITION PROGRESS MAPS

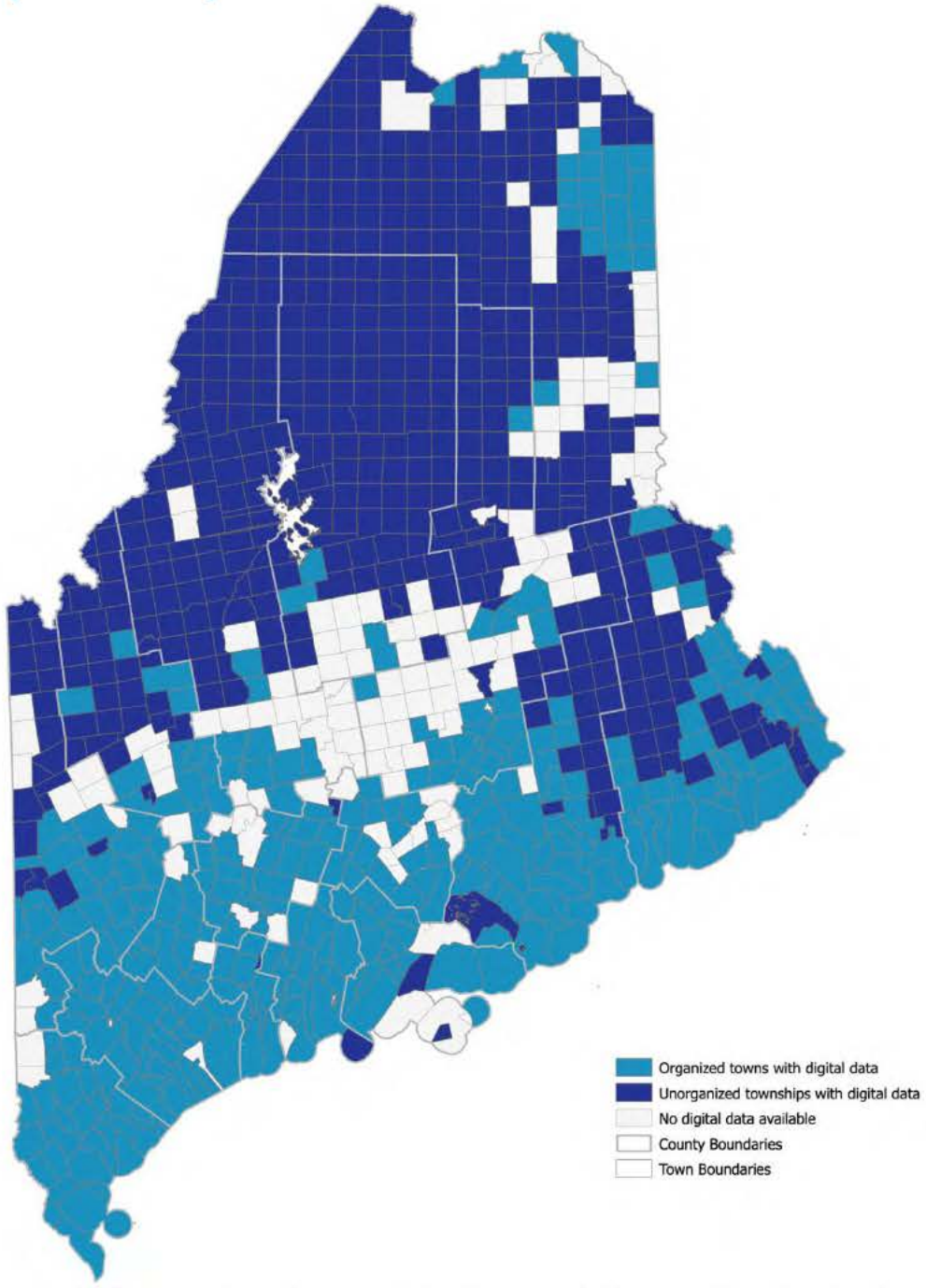
ORTHOIMAGERY (AS OF 12/2/20)



LIDAR (AS OF 12/2/20)



PARCELS (AS OF 12/2/20)



APPENDIX B: PAST PROJECTS

** Please contact the Board for access to studies that are off-line. Underlined headings indicate a hyperlink.*

RETURN ON INVESTMENT STUDY FOR ORTHOIMAGERY*

The Maine GeoLibrary, in cooperation with the Maine Office of GIS, received a FGDC grant to conduct a return on investment (ROI) study of orthoimagery in Maine. The independent study was conducted by Applied Geographics and showed a ROI of 400-1200%.

STRATEGIC PLAN

When the Maine Library of Geographic Information was formed in 2002, its first strategic plan was developed under Legislative Resolve 23. The GeoLibrary completed an update to this plan in 2009. The strategic plan serves the same function for the GeoLibrary as a Comprehensive Plan for a municipality. The plan guides the development of the GeoLibrary and is a living document that needs to be updated regularly. The pace of technological advances in the field of digital mapping is fast and requires the GeoLibrary to make continual adjustments in how it approaches the acquisition of data and the delivery of geographic information to the many users of this information. The 2009 plan identified a series of recommendations for:

- Expanding Participation
- Improving Statewide GIS Coordination
- Improving Access to Geospatial Data
- Developing and Maintaining Statewide Geospatial Data
- Lowering the Barriers to the Use of GIS
- Improving Access to Training and Education
- Establishing Sustainable Funding for the GeoLibrary.

2003 -2005 ORTHOIMAGERY ACQUISITION*

The project was a $3.2M project to create, in cooperation with the U.S. Geological Survey (USGS), full color, high-resolution digital orthophotos for most of the populated areas of Maine.

PARCEL GRANTS

In the Resolve 23 Study leading to the creation of the Maine Library of Geographic Information (GeoLibrary), surveyed municipalities placed great emphasis on acquiring and updating digital tax parcel data. Having this local information in a standard format, and in a central repository, would assist individual communities and regional planners in various planning activities. In addition, municipalities will also be able to develop a regional outlook for whatever data is being studied. Consequently, the GeoLibrary approved two rounds of grants to Maine municipalities for the upgrading and creation of digital parcel data, budgeting a total of $371,419 with awards varying from $1,000 to $10,000.

LAND COVER PARTNERSHIP*

The Maine Landcover Dataset (MELCD 2004) project provided updated land cover and impervious surface data for Maine based on 2004 satellite imagery. Previously, the most recent such data for Maine was based on 13-year old imagery and was at a very coarse resolution of 30 meters (98.4 feet). This project provided data at a higher resolution of 5 meters and was

tightly integrated with federal landcover mapping projects. In addition, impervious surface data were developed at a 5-meter resolution as well.

2005 COUNTY GIS STUDY*

This study focused on county GIS needs and identification of opportunities to support county use of GIS. Data gathered from the study resulted in four general areas of information, Lessons Learned, Opportunities for Collaboration to Build and Fund County GIS, Planned Information Forums, and the need to collect more detailed information.

RESOLVE 23

This was the original comprehensive strategic plan developed in 2002. This plan set the stage for implementing a statewide partnership approach to collection and distribution of GIS data. It provided a comprehensive analysis of needs and benefits to all GIS providers.

APPENDIX C: GEOLIBRARY ORGANIZATION

The GeoLibrary is staffed by agreement with the Office of Information Technology (OIT). OIT/MEGIS provides an Executive Director and support staff to manage and operate the GeoLibrary website, GIS database, and data access facilities. The GeoLibrary Board meets monthly or as needed. Agendas and meeting notes can be found on the GeoLibrary website: http://www.maine.gov/geolib/.

STANDING COMMITTEES

FINANCE COMMITTEE, WITH RESPONSIBILITY FOR:

- budget oversight;
- recommending budget or other financial actions to the GeoLibrary for approval;
- primary interaction with outside entities on financial issues.

POLICY COMMITTEE, WITH RESPONSIBILITY FOR:

- policy oversight;
- recommending policy adoptions and amendments to the GeoLibrary;
- memorializing approved GeoLibrary policies;
- primary interaction with external entities on policy issues.

TECHNICAL COMMITTEE, WITH RESPONSIBILITY FOR:

- advising the GeoLibrary on all technical matters;
- oversight of all GeoLibrary projects;
- primary interaction with outside entities on technical issues.

WORKGROUPS

In addition to the three standing committees, the GeoLibrary has four workgroups with members solicited from the state's geospatial community. These members provide for a broad cross section of interests in a geographic sense and in terms of their use of GIS data. These work groups are:

COORDINATION AND COMMUNICATION

The Communication/Coordination Workgroup seeks to continually improve GeoLibrary outreach relations with federal, state, county, and local governments, academia, non-profits, private industry, and the public, by way of documenting and promoting the activities of the GeoLibrary through various media delivery methods. The workgroup also seeks to educate people about the importance of GIS and using geographic data to solve problems, find new data contributors to the GeoLibrary, and obtain a wide base of support for the efforts of the GeoLibrary.

GEOSPATIAL DATA

The mission of the Geospatial Data Work Group is to develop appropriate geospatial data standards and define the geospatial data needs and flows between all levels of government, private sector, and academia to permit the ongoing acquisition of multi- purpose geospatial data for Maine. The workgroup seeks out a strong coalition of state, local, federal, private and non-profit partnerships to achieve this mission.

EDUCATION AND TRAINING

The mission of the Education and Training Workgroup is to expand and improve coordination of geospatial education, training and other outreach activities in support of better public use of geospatial data. In this capacity, the Workgroup seeks to develop and ensure a broad-based and efficient strategy for GIS education and training initiatives among all organizations and institutions statewide, considering special needs of the various constituencies: K-12, academia, local government, non-profits, and any Maine citizen.

GEOPARCELS

The mission of the GeoParcels work group is to develop a statewide parcels data layer with links to the registry of deeds, assessing data and other related databases.

APPENDIX D: BOARD MEMBERSHIP (AS OF 12/2/20)

Seat	Member	Term Ends	Representing	Appointed By
1	**VACANT**	-	Dept. of Administrative and Financial Services (DAFS)	DAFS Commissioner
2	**Brian Guerrette** Office of Information Technology (207) 649-3838 Brian.Guerrette@maine.gov	Permanent	State CIO	State Chief Information Officer
4	**Nate Kane*** Dept of Transportation (207) 624-3297 Nate.Kane@maine.gov	09/17/2018	Governor	State GIS Functions
5	**Vinton Valentine** University of Southern Maine (207) 228-8455 vvalentine@maine.edu	06/22/2022	Chancellor	University of Maine System
6	**Patrick Cunningham** Blue Marble Geographics (800) 616-2725 patrickc@bluemarblegeo.com	02/22/2023	Senate President	Municipal Government
7	**Vern Maxfield** Town of Woodstock (207) 665-2668 vhm24@megalink.net	05/06/2023	House Speaker	Municipal Government
8	**Leticia vanVuuren** Knox County EMA (207) 594-5155 gisp@knoxcountymaine.gov	10/28/2022	House Speaker	Statewide Association of Regional Councils
9	**Betsy Fitzgerald*** Washington County (207) 255-3127 manager@washingtoncountymaine.com	09/17/2017	Governor	Statewide Association of Counties
10	**Katie Bernhardt** American Title (207) 404-3231 ckbernhardt@gmail.com	11/25/2022	Senate President	Real Estate and Development Interests
11	**Sarah Haggerty** Maine Audubon (207) 781-2330 x225 shaggerty@maineaudubon.org	6/17/2023	House Speaker	Environmental Interests
12	**Brian Lippold** Casco Bay Advisors (207) 233-2976 brian@cascobayadvisors.com	09/17/2021	Governor	Utility Interests
13	**Aaron Weston** Cartographics Associates, Inc. (603) 761-6241 aweston@cai-tech.com	04/28/2022	Senate President	GIS Vendors
14	**Jon Giles, Chair** City of Portland (207) 200-2128	02/23/2021	House Speaker	GIS Vendors

	Jon.Giles@portlandmaine.gov			
15	**Joseph Young** Private Citizen (207) 931-7626 joe.younggis@gmail.com	04/28/2022	Senate President	Public
16	**Maria Jacques** Maine PUC (207) 287-6083 Maria.Jacques@maine.gov	09/12/2021	Governor	State GIS Functions

NOTE: Seat 3 was eliminated by Legislature

"*" Renewal for these seats is awaiting appointment.

Executive Director: Claire Kiedrowski, (207) 266-7087, claire.kiedrowski@maine.gov

APPENDIX E: ACRONYMS & DEFINITIONS

Term	Description
Board	Board of Directors for the Maine Library of Geographic Information
CIO	Chief Information Officer for the state
ESCB	Emergency Services Communications Bureau
FEMA	Federal Emergency Management Agency
FGDC	Federal Geographic Data Committee, sets metadata standards
GeoLibrary	Common name for Maine Library of Geographic Information
GIS	Geographic Information System
HUC	Hydrologic Unit Code
LiDAR	Light Detection and Ranging, a remote sensing system used to collect topographic and other data
MDIFW	Maine Department of Inland Fisheries and Wildlife
MDOT	Maine Department of Transportation
MEMA	Maine Emergency Management Agency
MeGIS	Maine Office of GIS
MEGUG	Maine GIS Users Group
MPUC	Maine Public Utilities Commission
NGA	National Geospatial-Intelligence Agency
NGO	Non-Government Organization
NG911	Next Generation 911
NHD	National Hydrography Dataset
NMDC	Northern Maine Development Commission
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NSDI	National Spatial Data Infrastructure, a consortium to promote the sharing of geospatial data and standards
OGC	Open Geospatial Consortium, a non-profit international organization that develops standards for geospatial and location-based services
OIT	Office of Information Technology
Orthoimagery	Aerial imagery corrected to represent the earth's surface, having been adjusted for topographic relief, lens distortion, and camera tilt so that it can be used as an accurate base map
Resolve 23	Legislative committee that drafted the plan that resulted in the GeoLibrary
USDA	United States Department of Agriculture
USGS	United States Geological Survey

THIS REPORT WAS PREPARED FOR THE LIBRARY OF GEOGRAPHIC INFORMATION WITH SUPPORT FROM THE MAINE OFFICE OF GIS, OFFICE OF INFORMATION TECHNOLOGY, DEPARTMENT OF ADMINISTRATIVE AND FINANCIAL SERVICES

This Maine Library of Geographic Information Annual Report for FY20 has been prepared in accordance with 5 M.R.S.A. §2003(I)(L).