

DIGITAL MAPPING TECHNIQUES 2022

The following was presented at DMT'22
May 22 - 25, 2022

The contents of this document are provisional

See Presentations and Proceedings
from the DMT Meetings (1997-2022)

<http://ngmdb.usgs.gov/info/dmt/>

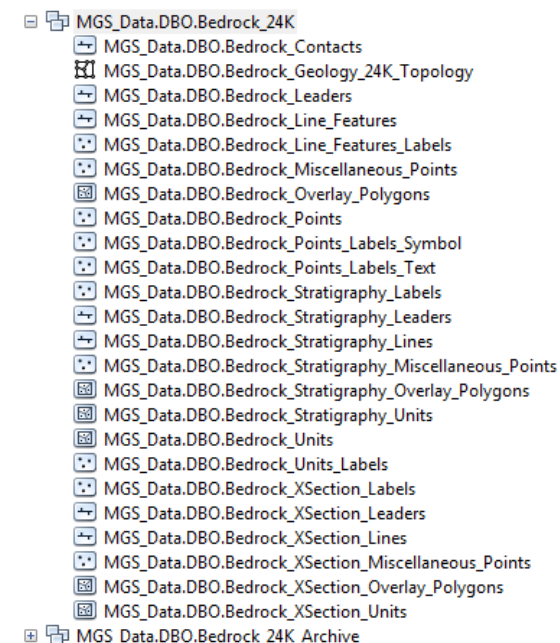
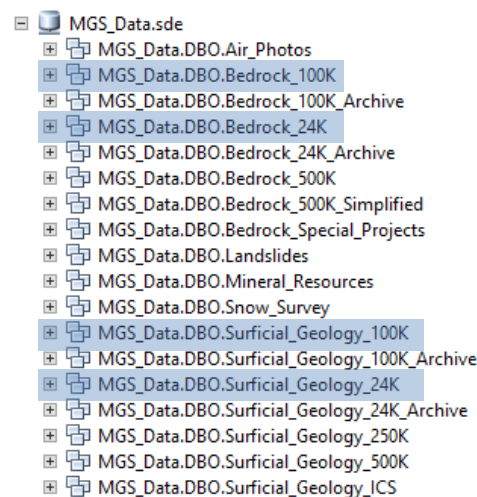
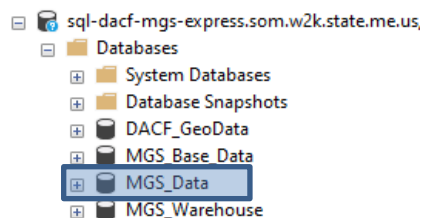
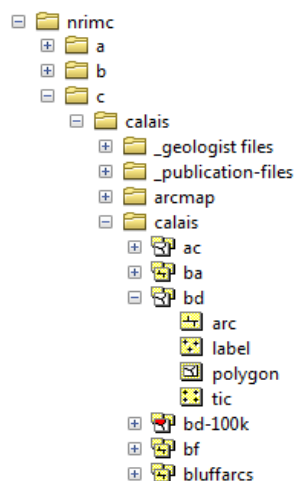
Automating GeMS Submissions from an Enterprise Geodatabase



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How Did We Get Here?

- 1996: Single quadrangle-based mapping with ArcInfo Coverages
- 2014: SQL Server Express Enterprise Geodatabase for multi-quadrangle, multi-scale, multi-map type
- 2017: NCGMP09
- 2018: MGS - GeMS gap analysis
- 2020: StateMap Supplemental project - GeMS workflow development



Working with an Enterprise Geodatabase in GIS

Features for all quads by map type and scale are stored in each feature class

The screenshot displays the ArcGIS Pro interface for a project named 'Bedrock_24K - Map Bedrock'. The main map area shows a geological map with various colored units and features. The interface includes a ribbon with toolbars for Project, Map, Insert, Analysis, View, Edit, Imagery, and Share. The Catalog pane on the right shows the project structure, including folders for 'Applications', 'Air Photos', 'Base Maps', 'Beach Mapping', and 'Bedrock Geology 24K'. The 'Bedrock Geology 24K' folder contains several feature classes, including 'Add Quadrangle Bedrock Unit Contact Line', 'Bedrock Cross Section 24K', 'Check Bedrock Comp IDs', 'Export Stereonet File', 'Setup Bedrock Map', and 'Setup Bedrock Review Map'. The 'General' folder contains various tools and utilities, such as 'Cast Perpendicular Lines', 'Divide Line', 'Domain Add Coded Text Value', 'Line Stations', 'Make Lines Perpendicular to Polyline', 'Quadrangle Definition Query 24K', 'Quadrangle Definition Query 100K', and 'Relief Elevation Processor'. The map view shows a detailed geological map with various colored units and features, including a river and a road. The status bar at the bottom indicates the scale is 1:93,673 and the coordinates are 69.6256627°W 44.379664°N.

Working with an Enterprise Geodatabase in GIS

Custom Python tool applies definition query to all layers in the map

The screenshot displays the ArcGIS Pro interface for a project named "Bedrock_24K - Map Bedrock". The main map area shows a colorful geological map with various colored polygons representing different geological units. A "Geoprocessing" dialog box is open, titled "Quadrangle Definition Query 24K". The dialog has two tabs: "Parameters" and "Environments". Under "Parameters", the "Quad Name" is set to "augusta". There are checkboxes for "Clear Definition Query" (unchecked) and "Set DRAW to Yes" (checked). There are also input fields for "Cross section profile number" and "Stratigraphy diagram number". A "Run" button is at the bottom right of the dialog. On the left side, the "Contents" pane shows a list of layers under "Map Bedrock", including "Map_Bedrock_Geology" and various point, line, and polygon layers. On the right side, the "Catalog" pane shows a tree view of the project structure, including "Bedrock Geology 24k" and "General" folders. The status bar at the bottom shows coordinates: 70.0283120°W 44.3984335°N.

Working with an Enterprise Geodatabase in GIS

Only features in a single quad are now displayed for map production

The screenshot displays the ArcGIS Pro interface for a project named "Bedrock_24K - Map Bedrock - ArcGIS Pro". The main map area shows a geological map with various colored regions (green, pink, blue) and a river. A dialog box titled "Layer Properties: Bedrock_Units" is open, showing the "Definition Query" tab. The query is: `QUADNAME = 'augusta' And DRAW = 'Yes'`. The "Definition Query" tab is selected, and the "SQL" toggle is turned on. The "Definition Query" list shows one query: "QuadDefQuery24KPython". The "Active definition query" is "QuadDefQuery24KPython".

The interface includes a ribbon with various tools (Project, Map, Insert, Analysis, View, Edit, Imagery, Share, Appearance, Labeling, Data), a Contents pane on the left, and a Catalog pane on the right. The Catalog pane shows a list of layers and datasets, including "Bedrock Geology 24k" and "Bedrock Geology 100k".

Guiding Principles for Complying with GeMS

- Minimal disruption to current map production
- Minimal level of additional work by the mapping geologists and information management staff
- Treat GeMS as a data standard, not map standard
- Only GeMS Level 3 submissions
- Create a defined, scripted, documented workflow for GeMS conversion of bedrock and surficial maps at 24K and 100K scales
- GeMS is opportunity to improve MGS workflows around GeoLex, feature-level metadata, map text

What Was Missing?

Inventoried MGS feature classes to discover additional required GeMS attributes that needed to be captured.

GeMS Field	MGS Feature Class
IDENTITY_CONFIDENCE	<ul style="list-style-type: none"> • Bedrock_Contacts • Bedrock_Line_Features • Bedrock_Overlay_Polygons • Bedrock_Units • Bedrock_XSection_Lines • Bedrock_XSection_Overlay_Polygons • Bedrock_XSection_Units • tbl_Bedrock_Feature
EXISTENCE_CONFIDENCE	<ul style="list-style-type: none"> • Bedrock_Contacts • Bedrock_Line_Features • Bedrock_XSection_Lines
LOCATION_CONFIDENCE	<ul style="list-style-type: none"> • Bedrock_Contacts • Bedrock_Line_Features • Bedrock_XSection_Lines • tbl_Bedrock_Points
ORIENTATION_CONFIDENCE	<ul style="list-style-type: none"> • tbl_Bedrock_Feature
LOCATION_METHOD	<ul style="list-style-type: none"> • tbl_Bedrock_Points

List of additional fields needed for GeMS compliance in Bedrock 24K mapping feature classes and tables.

What Was Missing?

MGS map explanation table needed a number of new fields to control GeMS destination feature classes and description of map units.

Example of GeMS fields added to the MGS Explanation table (red box).

MGS Explanation Table				GeMS Data Entry								
Symbology	Unit	Description	Review	Feature Class	Name	FGDC Symbol No.	Re-purposed Symbol	Hierarchy Key	FullName / GeoLex	Age	Paragraph Style	GeoMaterial
	Pg	Light gray, fine-grained to medium-grained, unfoliated, muscovite-biotite granite. A U-Pb monazite age of 278 ± 2 million years before present from <bol>Location B</bol> is interpreted to represent the crystallization age of the granite (Tomascak and others, 1996). Based on lithologic similarities, some other granite bodies in the vicinity are interpreted to have intruded at the same time.	N	MapUnitPoly	Granite		1.1.1		Granite	Permian	DMUUnit2	Coarse-grained, felsic-c
			Y	MapUnitPoly	Carboniferous-Devonian(?) [CD]		1.2				DMUHeading6	
	CDcp	Light gray, medium-grained to coarse-grained, weakly to moderately foliated, biotite ± muscovite ± garnet ± tourmaline granite. Dikes of pegmatite are locally abundant. Remnants of country rock occur locally as variably sized xenoliths within the granite body. The name is taken from Cox Pinnacle, Brunswick, where the granite is exposed.	N	MapUnitPoly	Cox Pinnacle Granite (new name)		1.2.1		Cox Pinnacle Granite	Carboniferous-Devonian	DMUUnit2	Coarse-grained, felsic-c
	CDg	Light gray, medium-grained to coarse-grained, nonfoliated to moderately foliated, biotite ± muscovite ± garnet ± tourmaline granite. Dikes of pegmatite are locally abundant. These granite bodies may be related to the larger Cox Pinnacle Granite in the central portion of the quadrangle, but more detailed studies are needed to establish their relationship.	N	MapUnitPoly	Granite		1.2.2		Granite	Carboniferous-Devonian	DMUUnit2	Coarse-grained, felsic-c
			Y	MapUnitPoly	STRATIFIED ROCKS		2				DMUHeading2	
			Y	MapUnitPoly	Vassalboro Group		2.1				DMUHeading4	

Reference Tables

Reference tables for geomaterials, paragraph styles, and FGDC colors, symbols, and patterns were created in the MGS database to control data entry. In the case of colors and patterns, these tables also provide a crosswalk between the values traditionally used by MGS and the FGDC values.

Menu GIS Lookups X

Domains Domain Usage Colors Patterns GeMS Symbols

Color Range Comparison

MGS 28 29 30 31 32 33 34 35 36

FGDC 397 498 10 21 31 63 84 95 196

Update FGDC Color Match

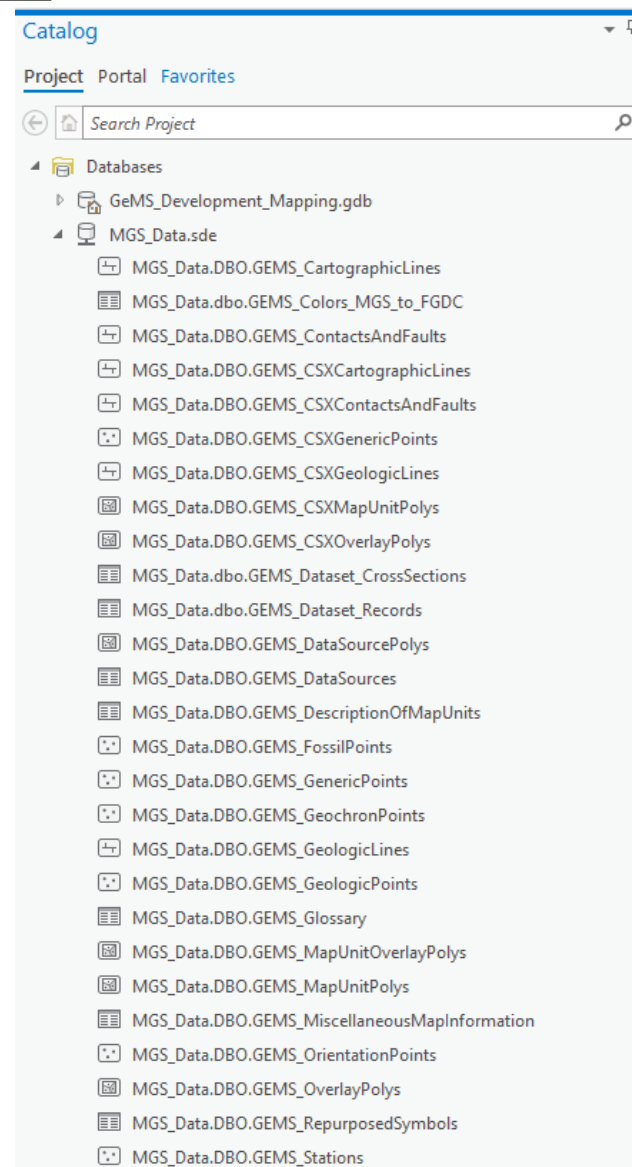
View Full Color Palette

ID	Color	ColorName	Red	Green	Blue	C	M	Y	K	Pattern	StyleSet	Color Used in StyleSet	Used In Domain	Used In GIS	GIS Polygons	FGDC_Color	FGDC_C	FGDC_M	FGDC_Y	FGDC_K
32		color-032	255	231	201	0	9	21	0		MGS_Bedrock	CMYK	Yes	Yes	49	31	0	8	20	0
33		color-033	255	205	140	0	20	45	0		MGS_Bedrock	CMYK	Yes	Yes	78	63	0	20	50	0
34		color-034	255	181	86	0	29	66	0		MGS_Bedrock	CMYK	Yes	Yes	253	84	0	30	70	0
35		color-035	255	148	10	0	42	96	0		MGS_Bedrock	CMYK	Yes	Yes	27	95	0	40	100	0
36		color-036	245	137	0	0	42	96	7		MGS_Bedrock	CMYK	Yes	Yes	88	196	8	50	100	0
37		color-037	245	137	0	0	42	96	15		MGS_Bedrock	CMYK	Yes	Yes	36	296	13	50	100	0
38		color-038	245	137	0	0	42	96	22		MGS_Bedrock	CMYK	Yes	Yes	20	396	20	50	100	0
39		color-039	245	137	0	0	42	96	33		MGS_Bedrock	CMYK	Yes	Yes	39	497	30	60	100	0
40		color-040	255	251	242	0	1	5	0				No	No		10	0	0	8	0
41		color-041	255	247	227	0	3	11	0				No	No		20	0	0	13	0
42		color-042	255	239	200	0	6	22	0		MGS_Bedrock	CMYK	Yes	Yes	24	31	0	8	20	0

GeMS Staging Tables

The GeMS Create New Database tool was used to create a file geodatabase with all the default tables and feature classes. These objects were imported into the MGS enterprise geodatabase to serve as staging tables/feature classes for GeMS data.

Field data types weren't always correctly transformed between file and enterprise geodatabase.



Data Mapping

The existing MGS feature classes and tables, or subsets of features, were mapped to the required GeMS feature classes and tables.

MGS Feature Class (criteria)	GeMS Feature Class
Units	MapUnitPolys
Contacts (not overlapped by Bedrock_Lines)	ContactsAndFaults
Lines (with GEMS_FeatureClass = 'ContactsAndFaults')	
Units (dissolved units to make map boundary)	
Points	Stations
Points_Labels_Symbol (with GEMS_FeatureClass = 'OrientationPoints')	OrientationPoints
Points_Labels_Symbol (with GEMS_FeatureClass = 'GeologicPoints')	GeologicPoints
Units_Labels	GenericPoints
Line_Features_Labels	
Miscellaneous_Points (SYMBOLOLOGY <> 'Geochronology point')	
Line_Features (GEMS_FeatureClass = 'GeologicLines')	GeologicLines
Line_Features (GEMS_FeatureClass = 'CartographicLines')	CartographicLines
Leaders	
Units (SYMBOLOLOGY_OVERLAY IS NOT NULL)	MapUnitOverlayPolys
Overlay_Polygons	OverlayPolys
Quadrangle_Split_Authors	DataSourcePolys
tbl_Publications	MiscellaneousMapInformation
XSection_Units	CSXMapUnitPolys
XSection_Lines (with GEMS_FeatureClass = 'CSXContactsAndFaults')	CSXContactsAndFaults
XSection_Overlay_Polygons	CSXOverlayPolys
XSection_Lines (with GEMS_FeatureClass = 'CSXCartographicLines')	CSXCartographicLines
XSection_Leaders	
XSection_Lines (with GEMS_FeatureClass = 'CSXGeologicLines')	CSXGeologicLines
XSection_Labels	CSXGenericPoints
XSection_Miscellaneous_Points	

Data Mapping

Individual feature types in existing MGS feature classes can be mapped to their GeMS destination feature class using the GeMS:Feature Class field in the MGS Map Explanation table.

Example of different feature types in a single MGS feature class being mapped to two different GeMS feature classes.

Find Project: Name: Lisbon Falls South				Data Views:		GeMS Data Entry						
Series: Detailed bedrock geology		GIS Layer: Bedrock_Line_Features		Needs Review	MGS Comment	Feature Class	Name	FGDC Symbol No.	Re-purposed Symbol	Hierarchy Key	FullName / GeoLex	Age
Cross-section		Line of cross section.	N		Cartographic	Cross-section	3.10	N				
Line and two dots		Contact of uncertain origin. May represent a stratigraphic contact or a fault.	N		ContactsAndI	Contact of uncertain origin	1.6	N				

MGS source feature class and feature types

GeMS destination feature class and feature types

GeMS Build Process Steps

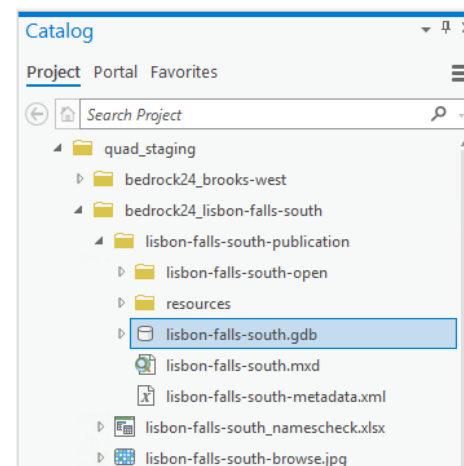
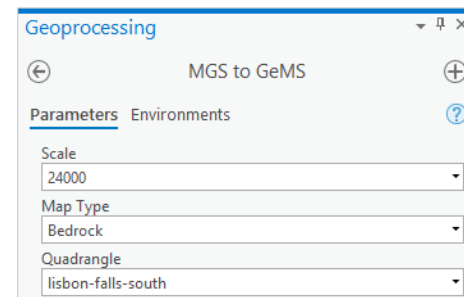
Process Step	Manual	MGS Tool	GeMS Tool
Check topology on MGS Data	fixes	X	
Copy data from MGS to GeMS tables		X	
Create GeMS folder structure		X	
Export GeMS tables to a file gdb		X	
Create metadata XML file		X	
Validate metadata with USGS mp (optional)	X	Planned	
Load metadata to fgdb		X	
Copy GeMS Checklist PDF file to quad folder		X	
Run Validate Database			X
Delete Validation fgdb and unneeded validation files		In progress	
Run Translate to Shapefiles		Planned	X
Run Geologic Names Check			X
Fill out Geologic Names file	X		
Copy map PDF into quad folder		X	
Copy map mxd into /publication folder	X	Planned	
Repoint disconnected layers in map mxd	X	Planned	
Copy map text, photos, figures, captions, references into /resources folder	X	In progress	
Copy fonts and style files into /resources folder		X	
Create transmittal letter PDF		X	
Fill out GeMS Checklist PDF	X		
Create GeMS quad zip file	X	Planned	

GeMS Build Process Steps

Process Step	Manual	MGS Tool	GeMS Tool
Check topology on MGS Data	fixes	X	
Copy data from MGS to GeMS tables		X	
Create GeMS folder structure		X	
Export GeMS tables to a file gdb		X	
Create metadata XML file		X	
Validate metadata with USGS mp (optional)		X	
Load metadata to fgdb		X	
Copy GeMS Checklist PDF file to quad folder		X	
Run Validate Database			X
Delete Validation fgdb and unneeded validation files		X	
Run Translate to Shapefiles		X	
Run Geologic Names Check			X
Fill out Geologic Names file	X		
Copy map PDF into quad folder		X	
Copy map mxd into /publication folder		X	
Repoint disconnected layers in map mxd		X	
Copy map text, photos, figures, captions, references into /resources folder		X	
Copy fonts and style files into /resources folder		X	
Create transmittal letter PDF		X	
Fill out GeMS Checklist PDF	X		
Create GeMS quad zip file		X	

MGS GeMS Automation Tools

- MGS tools are a combination of:
 - Database stored procedures that extract data from MGS database into staging tables and perform some validation
 - Python scripts that
 - Call stored procedures
 - Create folders and copy files with native Python
 - MS Access VBA that
 - Call stored procedures for data review
 - Runs reports
- All tools execute for the selected quadrangle, scale (24K or 100K), and map type (bedrock or surficial)
- This provides the flexibility to create GeMS submissions for any map published by MGS.



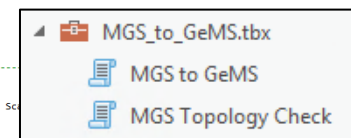
MGS GeMS Automation Costs & Benefits

Costs

- Code maintenance
 - SQL Server (Example: stored procedure for staging data is 355 SELECT statements ~3200 lines of code)
 - New MGS Python toolbox
 - New or revised MS Access forms and reports
- Changes to the GeMS standard will create work for MGS to revise tools
- Dependency on broad IT platform and IT staff

Benefits

- GeMS file preparation by mappers, not GIS/IT staff
- Consistency in submission
- Time savings
- Recover costs of data entry
- Data driven – smaller risk from vendor software change



```

395 -----MapUnitPolys-----
396 TRUNCATE TABLE GEMS_MapUnitPolys;
397 INSERT INTO GEMS_MapUnitPolys
398 SELECT CAST(ROW_NUMBER() OVER (ORDER BY QUADNAME, Map, Sc
400      ,[MapUnit]
401      ,[IdentityConfidence]
402      ,[Label]
403      ,[Symbol]
404      ,[DataSourceID]
405      ,[Notes]
406      ,[MapUnitPolys_ID]
407      ,[Shape]
408      ,[Symbol_MGS]
409 FROM (
410 --Bedrock 24K
411 SELECT
412     REPLACE(REPLACE(REPLACE(REPLACE(REPLACE(REPLACE(UNIT,'Cb','C'),'T#','T'),'M#','M'),'P#','P'),'Cz#','Cz'),'Pz#','Pz')
413     --'Cb'='Cambrian', 'T#'='Triassic', 'M#'='Mesozoic', 'P#'='Pennsylvanian', 'Cz#'='Cenozoic', 'Pz#'='Paleozoic'
414     ,IDENTITY_CONFIDENCE AS IdentityConfidence
415     ,UNIT AS Label
416     ,CAST(tbl_GEMS_Colors_MGS_to_FGDC.FGDC_Color AS nvarchar(50)) AS Symbol
417     ,(SELECT DataSourcees_ID FROM GEMS_DataSourceses WHERE SOURCE = 'this report') AS DataSourceID
418     ,GENS_NOTES AS Notes
419     ,'MUP' + CAST(Bedrock_Units_eww.OBJECTID AS nvarchar(10)) AS MapUnitPolys_ID --COMPID??
420     ,SHAPE
421     ,Bedrock_Units_eww.QUADNAME
422     ,'Bedrock' AS Map
423     ,'24000' AS Scale
424 FROM Bedrock_Units_eww
425 JOIN tbl_GEMS_Colors_MGS_to_FGDC ON Bedrock_Units_eww.SYMBOLGY = tbl_GEMS_Colors_MGS_to_FGDC.ColorName
426 WHERE Bedrock_Units_eww.QUADNAME = @Quad
427
428 --Surficial 24K
429 UNION ALL
430 SELECT
431     UNIT AS MapUnit
432     ,IDENTITY_CONFIDENCE AS IdentityConfidence
433     ,UNIT AS Label
434     ,CAST(tbl_GEMS_Colors_MGS_to_FGDC.FGDC_Color AS nvarchar(50)) AS Symbol
435     ,UNIT AS Symbol_MGS
436     ,(SELECT DataSourcees_ID FROM GEMS_DataSourceses WHERE SOURCE = 'this report') AS DataSourceID
437     ,GENS_NOTES AS Notes
438     ,'MUP' + CAST(Surficial_Geology_Units_eww.OBJECTID AS nvarchar(10)) AS MapUnitPolys_ID --COMPID??
439     ,SHAPE
440     ,Surficial_Geology_Units_eww.QUADNAME
441     ,'Surficial' AS Map
442     ,'24000' AS Scale
443 FROM Surficial_Geology_Units_eww
444 JOIN tbl_GEMS_Colors_MGS_to_FGDC ON Surficial_Geology_Units_eww.UNIT = tbl_GEMS_Colors_MGS_to_FGDC.ColorName
445 WHERE Surficial_Geology_Units_eww.QUADNAME = @Quad
446
447 --Bedrock 100K
448 UNION ALL
449 SELECT
450     REPLACE(REPLACE(REPLACE(REPLACE(REPLACE(REPLACE(UNIT,'Cb','C'),'T#','T'),'M#','M'),'P#','P'),'Cz#','Cz'),'Pz#','Pz')
451     --'Cb'='Cambrian', 'T#'='Triassic', 'M#'='Mesozoic', 'P#'='Pennsylvanian', 'Cz#'='Cenozoic', 'Pz#'='Paleozoic'
452     AS MapUnit
453     ,IDENTITY_CONFIDENCE AS IdentityConfidence
454     ,UNIT AS Label
455     ,CAST(tbl_GEMS_Colors_MGS_to_FGDC.FGDC_Color AS nvarchar(50)) AS Symbol
456     ,SYMBOLGY AS Symbol_MGS
457     ,(SELECT DataSourcees_ID FROM GEMS_DataSourceses WHERE SOURCE = 'this report') AS DataSourceID
458     ,GENS_NOTES AS Notes
459     ,'MUP' + CAST(Bedrock_100K_Units_eww.OBJECTID AS nvarchar(10)) AS MapUnitPolys_ID --COMPID??
460     ,SHAPE
461     ,Bedrock_100K_Units_eww.QUADNAME
462     ,'Bedrock' AS Map
463     ,'100000' AS Scale
464 FROM Bedrock_100K_Units_eww
465 JOIN tbl_GEMS_Colors_MGS_to_FGDC ON Bedrock_100K_Units_eww.SYMBOLGY = tbl_GEMS_Colors_MGS_to_FGDC.ColorName
466 WHERE Bedrock_100K_Units_eww.QUADNAME = @Quad
467

```

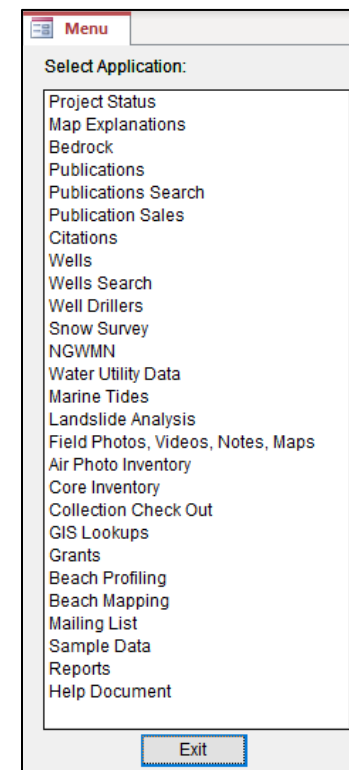
Why Didn't We Just Transition to "regular" GeMS?

Because...

- *Existing deep integration in a single system used by all staff*
- *File geodatabases would have been a major step backward*

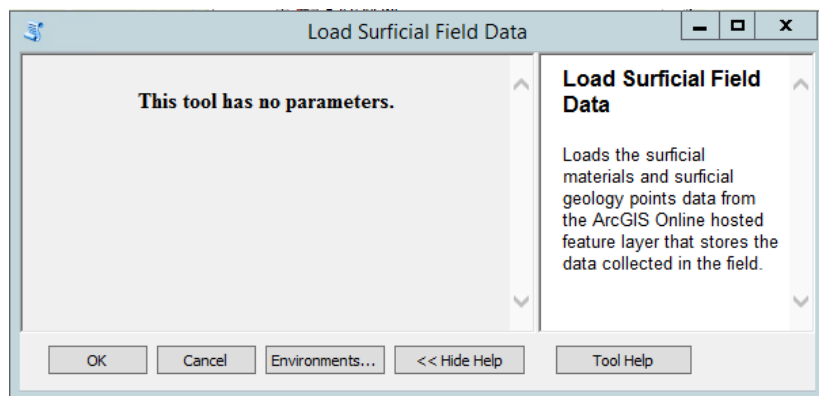
Examples of existing, pre-GeMS integration:

- Field data collection automation with MGS EGDB
- Bedrock Excel datasheet automation with MGS EGDB
- Map symbology functionality
- Map explanations (DMU) stored in the MGS EGDB
- MGS EGDB provides extent lat/long for Publications module
- Project Status module
- Citations module
- Grants module
- Photos module
- Web pages and web applications using services published from EGDB
- StateMap and Mapping Priorities dashboards linked to EGDB



Example: Field data collection automation with MGS EGDB

- iPad with Field Maps, Survey123, Photo app - disconnected editing and basic navigation
- With cell signal, data continuously uploaded to ESRI cloud.
- Without cell signal, data stored on iPad and uploaded to ESRI cloud ASAP.
- Surficial Mapping:
 - Custom script brings data collected with Survey123 into MGS database.
 - Ready for map production.



Example: Bedrock Excel datasheet automation with MGS EGDB

Tools and database triggers to load Excel datasheet and creating points in feature classes from non-spatial database tables

Localities		General Instructions — Click here —		
SITE IDENTIFICATION		Datum: NAD83/WGS84		LOCALI DESCRIP
UTM COORDINATES (Zone 19)				
Map ID (Integer) **** <i>Required</i>	Geologist's field number	Easting	Northing	Locality description (text) (one description per point)
611		429512	4868999	Nearly 100% exposure around Pleasant Point.
612		429434	4869019	Nearly 100% exposure around Pleasant Point.
613		429313	4868947	Nearly 100% exposure around Pleasant Point.
614		429278	4867960	Beautiful front yard exposure.
615		423862	4872305	Large road cut.

Data Sheet		General Instructions — Click here —								
Bedrock features and Orientation data					Lithology		Fossils			
Map ID (Integer) **** <i>Required</i>	Feature type code (2 characters) **** <i>Required</i>	Feature type modifier (max 3 characters)	Strike or Trend (0 to 360)	Dip or Plunge (0 to 90) (use -1 if unknown)	Feature description (text)	Lithology code (max 5 characters)	Standard MGS mineral codes (separated by commas)	Lithologic description (text)	Standard MGS fossil codes (separated by commas)	Fossil description (text)
HELP	HELP	HELP	HELP	HELP	HELP	HELP	HELP	HELP	HELP	HELP
662	fo		11	53		schgr		interlayered muscovite schist and feldspathic quartzite		
662	jt		117	77						
663	fo		18	58		schgr		interlayered muscovite schist and feldspathic quartzite. Road cut through garnet and muscovite pegmatite sill in between stations 162 and 163		

Menu Bedrock Data Bedrock Points Review Features

Project: Lisbon Falls South Edit Utilities

Source: Localities Feature Type Codes Lithology Codes Modifier Codes Data Views:

StateID	QuadID	FieldID	Locality Description	UTM X Loaded	UTM Y Loaded	Datum	Source	Needs Review	MGS
96615	411211		big outcrops off the driveway		418270	4858432	NAD27	David P. West, Jr., Middlebury Col	Y
96616	412212		Driveway pavement		418468	4858388	NAD27	David P. West, Jr., Middlebury Col	Y
96617	413213		low road cut on south side of the exit ramp		418416	4862906	NAD27	David P. West, Jr., Middlebury Col	Y
96618	414214		low road cut on south side of the exit ramp		418511	4862882	NAD27	David P. West, Jr., Middlebury Col	Y
96619	415215		low road cut on south side of the exit ramp		418571	4862846	NAD27	David P. West, Jr., Middlebury Col	Y
96620	416216		big woods outcrop		418621	4862575	NAD27	David P. West, Jr., Middlebury Col	Y
96621	417217		freshly blasted road cut in new subdivision		416747	4862890	NAD27	David P. West, Jr., Middlebury Col	Y
96622	418218		freshly blasted road cut in new subdivision		416794	4862947	NAD27	David P. West, Jr., Middlebury Col	Y

Record: 468 of 553 No Filter Search

Features Lithology Fossils

FeatureID	Feature Type	Modifier	Azimuth	Angle	Feature Description	Needs Review	MGS Comment
131198	jt	Joint	85	90		Y	
131199	lm	Mineral lineation on foliation surface	46	12		Y	
131200	gn	Gneissic compositional layering	23	29		Y	
(New)						Y	

Record: 1 of 3 No Filter Search

Example: Map symbology functionality

Map symbology controlled in GIS by non-spatial database tables

Project: Brunswick

Menu Bedrock Data

Source Localities Feature Type Codes Lithology Codes Modifier Codes Data Views:

Feature Code Submitted	Feature Type Code	Explanation	Standard Feature Code	Needs Review	MGS Comment	Symbol Code	-2	-1	0	90	45	-99	type	pos	text	aflag	tflag	mflag	Num	size	symbol font	color	Num	size	angle	font	emph	color	Num	size	font	emph	color
ad		axis of minor folds, dextral	hr	N	Added by MGS from feature description	L14	?	?	?	?	?	?	linear	edge	N	N	N	N	N	39	100	MGS_Font29	black	32	35	Arial	italic	black	11	35	Arial	black	
ap		axial plane of minor folds	fk	N		P17	?	?	?	?	?	?	planar	center	N	N	N	N	N	35	100	MGS_Font28	black	32	35	Arial	italic	black	11	35	Arial	black	
as		axis of minor folds, sinistral	hl	N	Added by MGS from feature description	L13	?	?	?	?	?	?	linear	edge	N	N	N	N	N	39	100	MGS_Font29	black	32	35	Arial	italic	black	11	35	Arial	black	
ax		axis of minor folds	fa	N		L10	?	?	?	?	?	?	linear	edge	N																		
bd		Compositional layering (Includes bedding and gneissic layering in metasedimentary and metavolcanic rocks).	bl	N	From Bath 100K	P01	?	?	?	?	?	?	planar	center	N																		
be		bedding (Hussey)	bk	N	"or basalt/diabase dike" removed per HNB 20180208	P01	?	?	?	?	?	?	planar	center	N																		
bl		recorded metamorphic compositional layering	bl	N		P04	?	?	?	?	?	?	planar	center	N																		
bl		Metamorphic compositional layering		Y	MGS reassigned from Lisbon Falls South quadrangle.	P11	?	?	?	?	?	?	planar	center	N																		
cl		Schistosity in metamorphic rocks; layering and foliation in igneous rocks.	fo	N	From Bath 100K	P05	?	?	?	?	?	?	planar	center	N																		
db		basalt/diabase dike (Hussey)	db	N	Added per HNB 20180208 to account for single dike in quad	P10	?	?	?	?	?	?	planar	center	N																		
fa		fold axis recorded	fa	N		L10	?	?	?	?	?	?	linear	edge	N																		

Example: Map explanations (DMU) stored in the MGS EGDB

Map Explanations					
Find Project:		Name: Brunswick	Data Views: Missing Explanations		
		Series: Detailed bedrock geology	Missing Explanations - Quad		
		GIS Layer: Bedrock_Units	Missing Explanations - All		
Symbology	Unit	Description	Needs Review	MGS Comment	
	Pg	Granite. Light gray, medium-grained, muscovite-biotite ± garnet granite. This rock is only exposed in the southwest portion of the quadrangle around a small, inactive quarry. A U-Pb monazite age of 278 ± 2 million years before present (Ma) from a location approximately 3 kilometers to the southwest is interpreted to represent the crystallization age of the granite pluton (Eaton and others, 2010).	Y	INTRUSIVE ROCKS Permian [P]	
	Dhb	Hornbeam Hill Gneiss. Deformed, metamorphosed pluton containing light to medium gray, medium grained, feldspar-quartz-biotite-garnet ± hornblende tonalitic to granodioritic gneiss, characterized by poikilitic garnet. This pluton is better exposed to the north in the Bowdoinham 7.5' quadrangle (West and Cukley, 2010). Based on U-Pb studies of sample zircon from the Hornbeam Hill Gneiss (Eaton and others, 2010).	Y	INTRUSIVE ROCKS Devonian [D]	
	Dg	Granite and pegmatite. Light gray, medium-grained to pegmatitic, non-foliated to moderately foliated, biotite ± muscovite ± garnet ± tourmaline granite.	Y	INTRUSIVE ROCKS Devonian(?) [D]	
	SOv	Vassalboro Group, undifferentiated (Marvinney and others, 2010). Gray weathering, medium gray, fine-grained, plagioclase-quartz-biotite granofels and gneiss interlayered with calc-silicate granofels.	Y	STRATIFIED ROCKS Northwest of the Flying Point	
	Oma	Mount Ararat Gneiss. Hornblende ± biotite granite.			

Map Explanations					
Find Project:		Name: Brunswick	Data Views: Missing Explanations		
		Series: Detailed bedrock geology	Missing Explanations - Quad		
		GIS Layer: Bedrock_Line_Features	Missing Explanations - All		
Symbology	Unit	Description	Needs Review	MGS Comment	
▶ Anticlinal fold axis - blue		Approximate axial trace of major anticline.	Y		
Cross-section		Line of cross section.	Y		
HA Fault dashed		High-angle fault, interpreted from truncation of map units, disruption of stratigraphic sequence, or rock deformation. Arrows indicate sense of strike-slip motion. U (up) and D (down) indicate sense of dip-slip motion (approximately located).	Y		
HA Fault dotted		High-angle fault, interpreted from truncation of map units, disruption of stratigraphic sequence, or rock deformation. Arrows indicate sense of strike-slip motion. U (up) and D (down) indicate sense of dip-slip motion.	Y		

Example: MGS EGDB provides extent Publications module

Automatically derived lat/long values from quadrangle feature class

The screenshot displays the 'Publications' module interface. At the top, there is a search bar with 'Find Publication: PubCode: 22-5' and 'Title:'. Below this, the publication details are shown: Pubcode 22-5, Date 2022, Exact Date 4/28/2022, and PublicationID 18758. The title is 'Bedrock geology of the Fish River Lake quadrangle, Maine', the author is 'Wang, Chunzeng', and the source is 'Maine Geological Survey, Geologic Map 22-5'. A red box highlights the 'Spatial Extent in GIS' field, which contains the coordinates: -68.875, 46.875, -68.750, and 46.750. The interface also includes a 'Bibliography' tab and a 'Subject Description' field.

Field	Value
Pubcode	22-5
Date	2022
Exact Date	4/28/2022
PublicationID	18758
Title	Bedrock geology of the Fish River Lake quadrangle, Maine
Author(s)	Wang, Chunzeng
Source	Maine Geological Survey, Geologic Map 22-5
Series	Detailed bedrock geology
Status	published
Publisher	MEGS
Type	Geologic Map (USGS Series Name)
Map Status	mapped
Map Level	detailed
Quadrangle Tile	fish-river-lake
USGS File #	ME
Map Scale	24000
Spatial Extent in GIS	-68.875, 46.875, -68.750, 46.750
Entered Date	4/4/2022 7:46:36 AM
Entered By	christian.h.halsted
Edited Date	5/19/2022 9:12:01 AM
Edited By	christian.h.halsted

Example: Project Status module

Tracks assignments, open issues, and completed tasks over the life of mapping project

Menu Project/Map Status X

Find Project: Name: Phippsburg Series: Detailed bedrock geology Clear Filter Add New Edit Utilities:

StatusID: 1367 Geologist: Dave West Mapping Priority: High
 Project Name: Phippsburg Editor: Amber Whittaker GeMS Priority: High
 Publication Series: Detailed bedrock geology Cartographer: Amber Whittaker
 Quadrangle Name: phippsburg Project Deadline: 5/31/2022
 Scale: 24000 Completed On:
 PubCode: Description: Art Hussey originally worked on the quadrangle. STATEMAP21; Art Hussey first autho]

Updates Links

Date	Task	Assigned To	Status	Old Status	Entered Date	Entered By	Edited Date	Edited By
11/25/2019 8:19:54 AM	Evaluate status of map and outline steps for publication.	Amber Whittaker	D: Done		11/25/2019 8:21:36 AM	amber.h.whittaker	3/22/2022 1:17:16 PM	amber.h.whittaker
12/16/2021 9:07:06 AM	Features archived	Amber Whittaker	D: Done		12/16/2021 9:07:28 AM	amber.h.whittaker	12/16/2021 9:07:28 AM	amber.h.whittaker
3/22/2022 1:16:56 PM	Transcribed Art Hussey points from Dave West. Digitizing locations from field map.	Amber Whittaker	D: Done		3/22/2022 1:17:35 PM	amber.h.whittaker	4/20/2022 8:07:01 AM	amber.h.whittaker
4/20/2022 8:06:35 AM	Phippsburg points in database and on map. Exported lithology, locality, and structure maps for Dave West to review.	Dave West	D: Done		4/20/2022 8:06:58 AM	amber.h.whittaker	5/10/2022 1:32:55 PM	amber.h.whittaker
4/25/2022 6:30:47 AM	Map explanation draft received.	Dave West	D: Done		4/25/2022 6:31:12 AM	amber.h.whittaker	4/25/2022 6:31:12 AM	amber.h.whittaker
4/25/2022 6:30:57 AM	Some edge matching edits to apply from Dave West. Discussion with Dave and Henry on 4/21/2022 on nomenclature - the central part of Phippsburg seems to be a shear zone, units will be moved to general Casco Bay Group, rather than Cane Elizabeth.	Dave West	D: Done		4/25/2022 6:32:27 AM	amber.h.whittaker	4/25/2022 6:32:27 AM	amber.h.whittaker
5/10/2022 1:32:48 PM	Map edits, map explanations, photos received from Dave.	Dave West	D: Done		5/10/2022 1:33:16 PM	amber.h.whittaker	5/10/2022 1:33:16 PM	amber.h.whittaker
5/10/2022 1:32:58 PM	Work on applying map edits and constructing map layout.	Amber Whittaker	P: In Progress		5/10/2022 1:33:33 PM	amber.h.whittaker	5/10/2022 1:33:33 PM	amber.h.whittaker

Example: Citations module

Map references entered, ordered, and formatted for map layout

Menu Citations X

Find Citations: Name: Fish River Lake Series: Detailed bedrock geology Clear Filter

Select a publication to add to the map citations.

PubCode: Format: GSA View Citation Add Citation

Title:

Load citations from another map.

Name: Load Citations

Entry Format

Citation Text	Order	Entered Date	Entered By	Edited Date	Edited By
Allen, J.P., and Gastaldo, R.A., 2006, Sedimentology and taphonomy of the Early to Middle Devonian plant-bearing beds of the Trout Valley Formation, Maine: in Greb, Stephen F., and DiMichele, William A. (editors), Wetlands through time: Geological Society of America, Special Paper 388, p. 27-37.	1	3/25/2022 11:10:29 AM	amber.h.whittaker	3/25/2022 11:10:29 AM	amber.h.whittaker
Ayuso, R.A., and Schulz, K.J., 2003, Nd-Pb-Sr isotope geochemistry and origin of the Ordovician Bald Mountain and Mount Chase massive sulfide deposits, northern Maine: in Goodfellow, Wayne D., McCutcheon, Steven R., and Peter, Jan M. (editors), Massive sulfide deposits of the Bathurst mining camp, New Brunswick, and northern Maine: Economic Geology, v. 98, p. 630-639.	2	3/25/2022 11:10:29 AM	amber.h.whittaker	3/25/2022 11:10:29 AM	amber.h.whittaker
Ayuso, R.A., Wooden, J.L., Foley, N.K., Slack, J.F., Sinha, A.K., and Persing, H., 2003, Pb isotope geochemistry and U-Pb zircon (SHRIMP-RG) ages of the Bald Mountain and Mount Chase massive sulfide deposits, northern Maine; mantle and crustal contributions in the Ordovician sulfide deposits of the Bathurst mining camp, New Brunswick, and northern Maine: Economic Geology, v. 98, p. 630-639.	3	3/25/2022 11:10:29 AM	amber.h.whittaker	3/25/2022 11:10:29 AM	amber.h.whittaker
Boone, G.M., 1958, The geology of the Fish River Lake-Deboullie area, northern Maine: Ph.D. dissertation, Yale University, New Haven, Conn., 182 p.					
Boone, G.M., 1970, The Fish River Lake Formation and its environments of northern Maine: Shorter Contributions to Maine Geology: Maine Geological Survey (Department of Economic Development), Bulletin 23, p. 27-41.					

Menu Citations X

Find Citations: Name: Fish River Lake Series: Detailed bedrock geology Clear Filter

Select a publication to add to the map citations.

PubCode: Format: GSA View Citation Add Citation

Title:

Load citations from another map.

Name: Load Citations

Entry Format

Font Times New Roman Font Size 10 Text Box Width (in) 4 Indent spaces 3 Format

Citations with hanging indent. Copy this text into a text box in ArcPro.

Allen, J.P., and Gastaldo, R.A., 2006, Sedimentology and taphonomy of the Early to Middle Devonian plant-bearing beds of the Trout Valley Formation, Maine: in Greb, Stephen F., and DiMichele, William A. (editors), Wetlands through time: Geological Society of America, Special Paper 388, p. 27-37.

Ayuso, R.A., and Schulz, K.J., 2003, Nd-Pb-Sr isotope geochemistry and origin of the Ordovician Bald Mountain and Mount Chase massive sulfide deposits, northern Maine: in Goodfellow, Wayne D., McCutcheon, Steven R., and Peter, Jan M. (editors), Massive sulfide deposits of the Bathurst mining camp, New Brunswick, and northern Maine: Economic Geology, v. 98, p. 630-639.

Ayuso, R.A., Wooden, J.L., Foley, N.K., Slack, J.F., Sinha, A.K., and Persing, H., 2003, Pb isotope geochemistry and U-Pb zircon (SHRIMP-RG) ages of the Bald Mountain and Mount Chase massive sulfide deposits, northern Maine; mantle and crustal contributions in the Ordovician sulfide deposits of the Bathurst mining camp, New Brunswick, and northern Maine: Economic Geology, v. 98, p. 630-639.

Boone, G.M., 1958, The geology of the Fish River Lake-Deboullie area, northern Maine: Ph.D. dissertation, Yale University, New Haven, Conn., 182 p.

Boone, G.M., 1970, The Fish River Lake Formation and its environments of northern Maine: Shorter Contributions to Maine Geology: Maine Geological Survey (Department of Economic Development), Bulletin 23, p. 27-41.

Example: Grants module

Tracks grant dates, grant documents, and maps due. Includes a link to the map in the Publications module when completed.

Menu Grants

Find Grant: Source: Year:
Clear Filter View Dashboard

Source: GrantsID: Add New Edit
 Award Number:
 Fiscal Year:
 Award Description:
 Award Amount:
 Start Date: End Date:
 Comments:

Entered Date: Entered By: Edited Date: Edited By:

Projects:	Description	Scale	Project	Publication	ID	Entered Date	Entered By	Edited Date	Edited By
▶	Bedrock Geology of the Fish River Lake quadrangle	24000	Fish River Lake	22-5	341	10/7/2020 3:39:13 PM	christian.h.halsted	4/28/2022 5:25:55 PM	christian.h.halsted
	Surficial Geology of the Unity Pond quadrangle	24000	Unity Pond	22-4	342	10/7/2020 3:39:58 PM	christian.h.halsted	3/30/2022 1:49:16 PM	christian.h.halsted
	Surficial Geology of the Unity quadrangle	24000	Unity	22-2	343	10/7/2020 3:40:04 PM	christian.h.halsted	3/30/2022 1:49:19 PM	christian.h.halsted
	Bedrock Geology of the Bristol quadrangle	24000	Bristol		345	10/7/2020 3:40:15 PM	christian.h.halsted	10/7/2020 3:59:29 PM	christian.h.halsted
	Bedrock Geology of the Phippsburg quadrangle	24000	Phippsburg		346	10/7/2020 3:40:20 PM	christian.h.halsted	10/7/2020 3:59:33 PM	christian.h.halsted
	Bedrock Geology of the Boothbay Harbor quadrangle	24000	Boothbay Harbor		347	10/7/2020 3:40:27 PM	christian.h.halsted	10/7/2020 3:59:37 PM	christian.h.halsted
	Bedrock Geology of the Pemaquid Point quadrangle	24000	Pemaquid Point		348	10/7/2020 3:40:33 PM	christian.h.halsted	10/7/2020 3:59:45 PM	christian.h.halsted
	Surficial Geology of the Norridgewock quadrangle	24000	Norridgewock		349	10/7/2020 3:40:38 PM	christian.h.halsted	10/7/2020 3:59:50 PM	christian.h.halsted
	Bedrock Geology of the northern half Lewiston quadrangle	24000	Lewiston		351	10/7/2020 3:40:50 PM	christian.h.halsted	10/7/2020 4:00:00 PM	christian.h.halsted
	Bedrock Geology of the Carr Pond quadrangle	24000	Carr Pond	22-6	352	10/7/2020 3:40:57 PM	christian.h.halsted	4/28/2022 5:26:03 PM	christian.h.halsted
	Surficial materials of the Norridgewock quadrangle	24000	Norridgewock		354	5/4/2021 4:20:53 PM	christian.h.halsted	5/4/2021 4:21:25 PM	christian.h.halsted
	Surficial materials of the Unity Pond quadrangle	24000	Unity Pond	22-3	355	5/4/2021 4:20:55 PM	christian.h.halsted	3/30/2022 1:49:29 PM	christian.h.halsted
	Surficial materials of the Unity quadrangle	24000	Unity	22-1	356	5/4/2021 4:21:01 PM	christian.h.halsted	3/30/2022 1:49:33 PM	christian.h.halsted
*		24000			(New)				

Record: 1 of 13 No Filter Search

Documents:	Title	Description	File Location	ID	Entered Date	Entered By	Edited Date	Edited By
▶	Maine 2021 STATEMAP Proposal.pdf	Proposal as submitted 12/16/2020	K:\STATEMAP\STATEMAP21\Proposal_docs\Fir	29	8/4/2021 11:55:09 AM	henry.n.berry	8/4/2021 12:08:32 PM	henry.n.berry
	Maine-revised-SF-424-budget-5-19-21.pdf	Revised deliverables and budget	K:\STATEMAP\STATEMAP21\Award_docs\Maine	32	8/4/2021 12:21:57 PM	henry.n.berry	8/4/2021 12:24:07 PM	henry.n.berry
	G21AC10604-00_Notice_of_Award.pdf	FY21 STATEMAP Notice of Award 8/4/21	K:\STATEMAP\STATEMAP21\Award_docs\G21A	33	8/5/2021 9:42:58 AM	henry.n.berry	8/5/2021 9:44:07 AM	henry.n.berry
*				(New)				

Example: Photos module

Tracks photos and their location that are used on the maps.

Menu Field Visit Resources X

Search Photos, Videos, Field Notes, or Maps from Field Visits

Search Type Wildcard Product Type Clear Search Fields Utilities:

ID	Photographer	Owner	Title	Description	Date Exact	Date Approx	Original File Location
67542	Spigel, Lindsay	Spigel, Lindsay		Video handling soft Presumpscot Form			S:\mapping_applications\surface_geology_
▶ 67543	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 1:</FNT> La	5/1/2021 10:46:00 AM		S:\mapping_applications\bedrock_geology_
67544	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 2:</FNT> Alt	5/1/2021 11:06:00 AM		S:\mapping_applications\bedrock_geology_
67545	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 3:</FNT> Th	5/1/2021 10:40:00 AM		S:\mapping_applications\bedrock_geology_
67546	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 4:</FNT> Mo	1/29/2022 10:33:00 AM		S:\mapping_applications\bedrock_geology_
67547	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 5:</FNT> Th	7/18/2021 10:13:00 AM		S:\mapping_applications\bedrock_geology_
67548	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 6:</FNT> A	5/22/2020 9:32:00 AM		S:\mapping_applications\bedrock_geology_
67549	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 7:</FNT> Ma	6/17/2018 11:02:00 AM		S:\mapping_applications\bedrock_geology_
67550	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 8:</FNT> We	5/6/2020 11:11:00 AM		S:\mapping_applications\bedrock_geology_
67551	Wang, Chunzeng		Bedrock24k Fish River Lake P	<FNT style="Bold">Photo 9:</FNT> Wi	7/18/2021 10:50:00 AM		S:\mapping_applications\bedrock_geology_

Record: 27270 of 27311 No Filter Search

ID: 67543 Type: Field Photo Edit

Photographer: Wang, Chunzeng

Owner:

Title: Bedrock24k Fish River Lake Photo 1

Description: <FNT style="Bold">Photo 1:</FNT> Large fragments of plant fossils <ita>Psilophyton</ita> and <ita>Pertica</ita>, St. Froid Lake Formation (<FNT style="Bold">Photo 1:</FNT>

Date: 5/1/2021 10:46:00 AM

Approx. Date:

Town:

Keywords: bedrock mapping; outcrop; STATEMAP

Comment:

Share MGS? Yes

Archive? Yes

Share Public? Yes

Project Name: STATEMAP Fish River Lake Bedrock24k


Copyright Not MGS: No

Copyright By:

Entered Date: 4/4/2022 2:02:37 PM Entered By: amber.h.whittaker

Edited Date: 5/12/2022 5:30:23 PM Edited By: christian.h.halsted


Photo Map Digital Maine Publications Load Image Files



Original File: S:\mapping_applications\bedrock_geology_24k\fish-river-lake\geologist_files\photo

Archive File: \\som.w2k.state.me.us\data\dacf-mgs-digital-docs\field_photos\67543.JPG Full Size

Example: Web pages and web apps using services from EGDB



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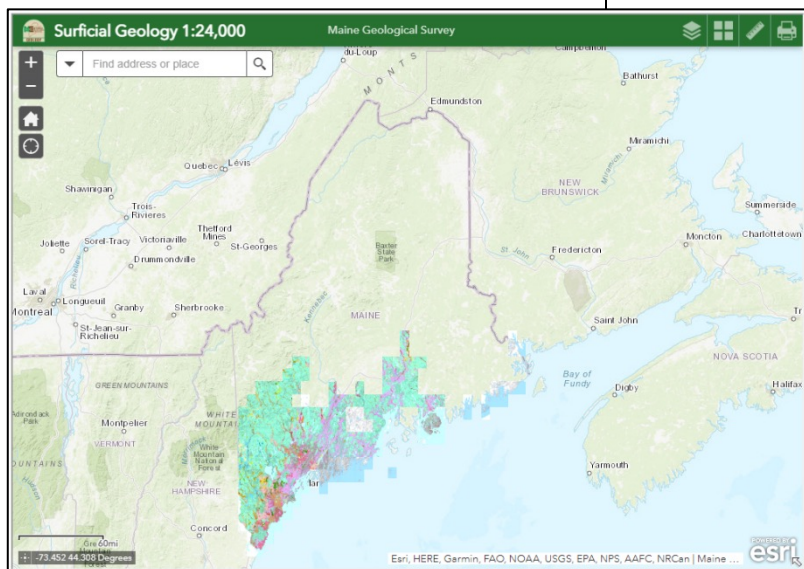
Online Bedrock Geology Maps and Reports, Scale 1:24000

Printed copies of publications are [available for sale](#). Older publications may not be available online. Use the [Maps and Publications Search](#) to identify printed and online publications available from the Maine Geological Survey.

- [Description of detailed bedrock geology map series](#)
- [Tips for reading detailed bedrock geology maps](#)
- [Digital bedrock geology data](#)

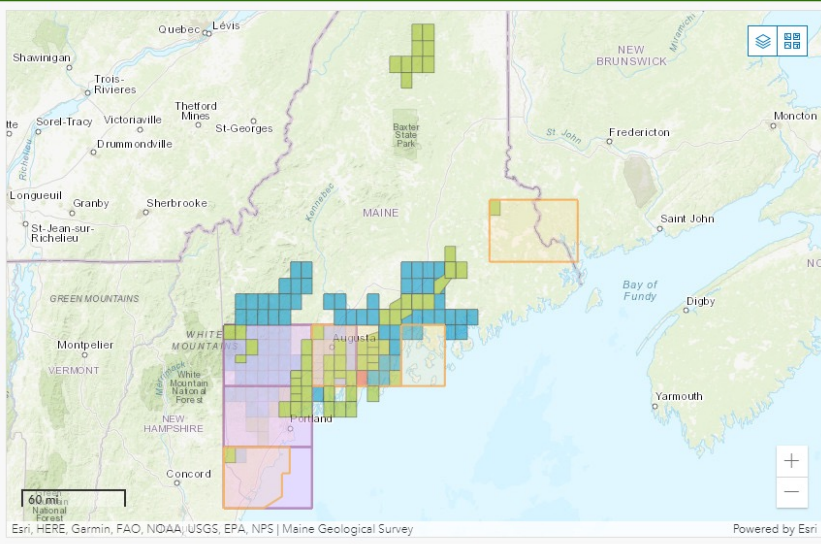
Search:

Title	Quadrangle Name	Publication No.	Citation	Associated Report
Bedrock geology of North Haven and Vinalhaven Islands		01-352	Gates, Olcott, 2001, Bedrock geology of North Haven and Vinalhaven Islands ; Maine Geological Survey, Open-File Map 01-352, color map, cross section, scale 1:24,000.	01-373
Bedrock geology of North Haven and Vinalhaven Islands		01-373	Gates, Olcott, 2001, Bedrock geology of North Haven and Vinalhaven Islands ; Maine Geological Survey, Open-File Report 01-373, 28 p. report.	
Bedrock geology of the Augusta quadrangle, Maine	Augusta	12-36	Marvinney, Robert G., and Barker, Daniel S., 2012, Bedrock geology of the Augusta quadrangle, Maine ; Maine Geological Survey, Open-File Map 12-36, color map, scale 1:24,000.	
Bedrock geology of the Bangor quadrangle, Maine	Bangor	11-57	Pollock, Stephen G., 2011, Bedrock geology of the Bangor quadrangle, Maine ; Maine Geological Survey, Open-File Map 11-57, color map, scale 1:24,000.	11-147
Bedrock geology of the Bar Mills quadrangle, Maine	Bar Mills	95-75	Marvinney, Robert G., 1995, Bedrock geology of the Bar Mills quadrangle, Maine ; Maine Geological Survey, Open-File Report 95-75, 7 p. report, color map, 6 figs, scale 1:24,000.	
Bedrock geology of the Bartlett Island quadrangle, Maine	Bartlett Island	19-8	Braun, Duane D., 2019, Bedrock geology of the Bartlett Island quadrangle, Maine ; Maine Geological Survey, Open-File Map 19-8, color map, scale 1:24,000.	
Bedrock geology of the Bath quadrangle, Maine	Bath	20-12	West, David P., Jr., and Hussey, Arthur M., II, 2020, Bedrock geology of the Bath quadrangle, Maine ; Maine Geological Survey, Open-File Map 20-12, scale 1:24,000.	



Example: Dashboards linked to EGDB

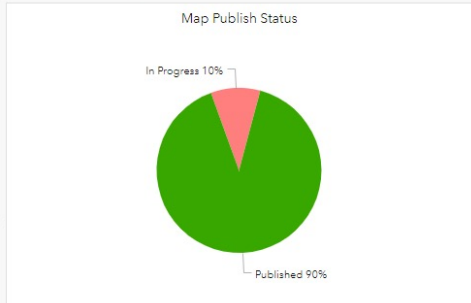
Maine Geological Survey StateMap Production Status



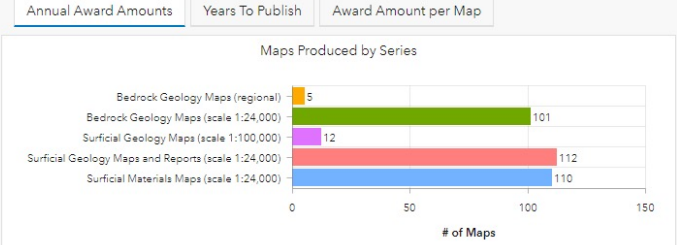
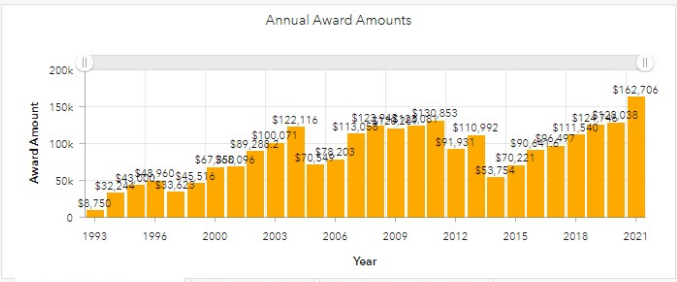
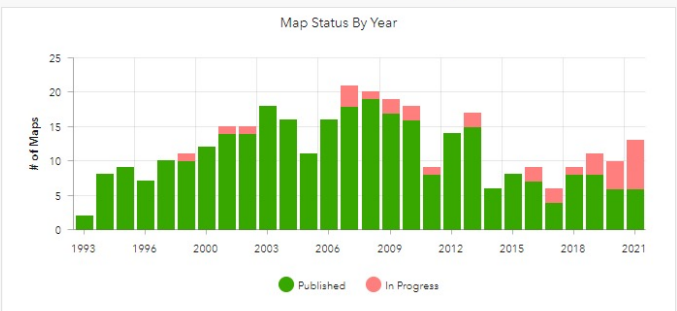
- In Progress Map List**
- Bedrock geology of the Augusta quadrangle, Maine
 - Bedrock Geology of the Boothbay Harbor quadrangle
 - Bedrock Geology of the Bristol quadrangle
 - Bedrock geology of the Cumberland Center quadrangle, Maine
 - Bedrock geology of the Friendship quadrangle, Maine
 - Bedrock geology of the Gardiner quadrangle, Maine
 - Bedrock geology of the Lincolnville quadrangle, Maine
 - Bedrock geology of the Lisbon Falls North quadrangle, Maine
 - Bedrock geology of the Mooseleuk Lake quadrangle, Maine
 - Bedrock geology of the Morrill quadrangle, Maine
 - Bedrock geology of the Northern Half of Greenwood quadrangle, Maine
 - Bedrock geology of the Northern Half of North Waterford quadrangle, Maine
 - Bedrock geology of the Northwestern Half Morrill quadrangle, Maine
 - Bedrock Geology of the northern half Lewiston quadrangle
 - Bedrock Geology of the Pemaquid Point quadrangle
 - Bedrock Geology of the Phippsburg
- Map Publish Status**
- In Progress Maps
 - Proposed Maps

- StateMap Projects**
- MapSeries
- Surficial Geology 1:24,000-scale
 - Surficial Materials 1:24,000-scale
 - Bedrock Geology 1:24,000-scale
 - Surficial Geology 1:100,000-scale
 - Bedrock Geology 1:100,000-scale

Total Maps
340



Maps In Progress
33



Example: Dashboards linked to EGDB

Maine Geological Survey Priorities Review

Use the filter options below to control the features that are drawn on the maps and the data that displays in the graphs.

Map Filters

Map Type

- Bedrock
- Surficial Geology

Scale

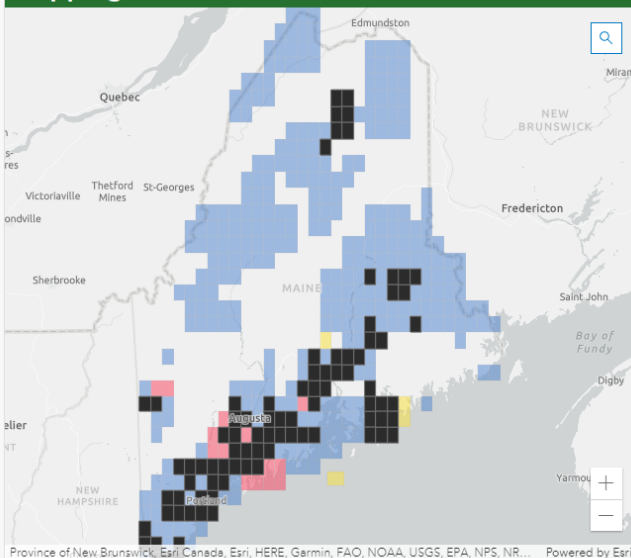
- 24000
- 100000

Quadrangle

All

Use this dashboard to explore and review the geologic mapping and GeMS data submission priorities and progress. For questions, contact MGS at mgs@maine.gov.

Mapping Priorities

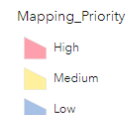


Mapping Priorities

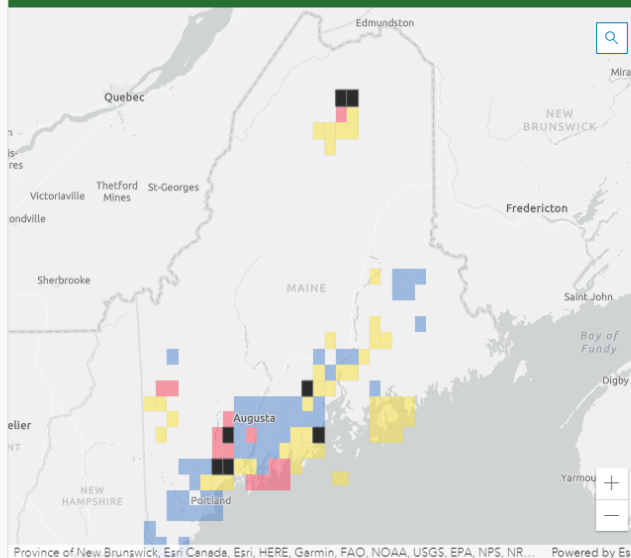
Mapping Complete



Mapping Priority



GeMS Priorities

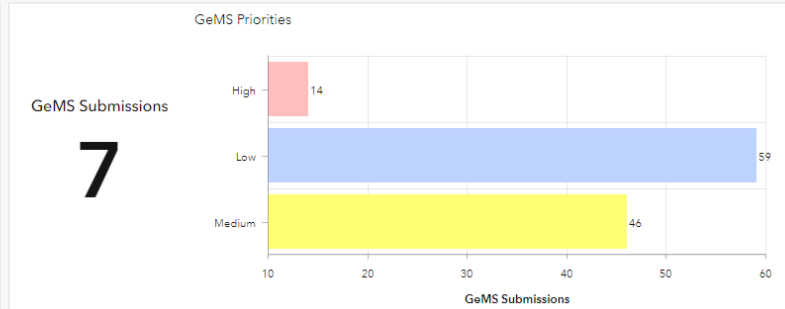
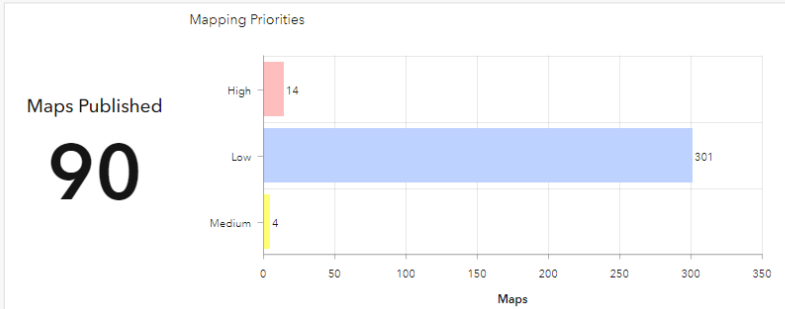
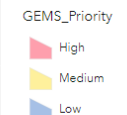


GeMS Priorities

GeMS Data Submitted



GeMS Priority



Possible Next Steps and Improvements

- Link database components to map layout – photos, citations, map text, and references – to automate more of map production
- Build contractor field data web mapping and data submission interface

Anyone interested in collaborating on:

- Incorporating some or all of the Validate Database tool into EGDB or updating tool to run against an EGDB
- Building GeMS web map service

Accomplishments and Conclusions

- Integration = consistency, repeatability, efficiency
- MGS to GeMS translation logic centralized in MGS database
- Geologic mapping staff trained in GeMS
- GeMS submission process fully documented
 - MGS Help document (19 pages)
 - GeMS Conversion Process Workflow (STATEMAP FTR)
- Eleven Level 3 and one Level 1 GeMS packages successfully submitted
- Costs quantified so improvements can be measured
 - 8-12 hours for author geologist to review and complete GeMS data entry on a published quadrangle (longer if not the author)
 - 6-10 hours for data manager to compile and validate GeMS submission package

Questions?

THANKS!