

## **Work Group Business**

Erin: We recently created an elevation work group gmail ([MSGICElevation@gmail.com](mailto:MSGICElevation@gmail.com)) and will begin using this to communicate with members and to organize and save documents (agendas, notes, presentations, etc. We also attended the MSGIC Exec meeting and discussed potential site enhancements. Requests for blog posts, announcements, site additions, etc will continue to be sent to Patrick Callahan. We are developing a survey to be sent to all MSGIC members to gather feedback on the work group: Lidar derivative products, work group initiatives, speaker topics, potential improvements to the group, and how involved people would like to be in the work group.

## **Current Acquisitions**

### *2018 QL2 Montgomery & Prince George's*

Roger: 2018 PG / Mont has been received by MNCPPC

Jim and Erin to coordinate data exchange. ESRGC will process and make derivative products available via MD iMAP.

Jim: Deliverables include LAS, DEM, breaklines, intensity image files, metadata, tile layout, classified LiDAR to QL2 standards

Roger: valuable dataset for Mont to replace QL3 2013 coverage  
QL2 data for Howard Co funded to replace QL3 2011 coverage

### *2018 QL1 Ellicott City / QL2 Howard County*

Roger: 42sq mil of QL1 data for Ellicott City - funded but not acquired - estimated delivery by March 2019. Roger has been in communication with MEMA, Howard County, others to make them aware of the project. Acquisition is linked with another project in VA for admin/contracting purposes

### *2019 QL2 Lower Eastern Shore: Somerset, Wicomico, Worcester*

Roger: Scott Phillips, USGS Chesapeake Bay Science Coordinator - confirmed interest in Somerset, Wicomico, Worcester data at QL2. Will continue to pursue other partners for this acquisition along with NRCS. Use cases for this include: a waterfowl feeding and migratory stop over, USGS/NRCS Pocomoke River project.

Erin: Gretchen Esbensen, NRCS on the call and has been actively involved in pursuing funding for lidar acquisition for the lower eastern shore. Karen Zera, Town of OC reached out regarding providing funding for the project. Perhaps an interest meeting to discuss would be appropriate? Will follow up with email to determine who would like to participate in an interest meeting.

Gretchen: Good news to hear about Ocean City interest. New fiscal year may bring more opportunities for funding. Hoping to piece together enough funding to make this data tidal coordinated since so much of this area is low lying, agricultural, and bordered by marsh. With tidal data we could have a baseline dataset for which to perform future change analysis.

Roger: Agrees that tidal coordination is important

Julie: In VA the tide coordination will be MLW +/- 2hrs as oppose to MLLW.

Roger: As long as everyone agrees on one datum to collect at, the other tide datums can be extracted from a known collection datum.

Gretchen: ML opens up more opportunities for data capture since MLLW window is even smaller than MLW.

#### *2018 QL2 District of Columbia*

Roger: DC collected 2018 QL2 Lidar - receiving data very shortly.

#### *Chesapeake Bay Topo/Bathy*

Roger: project in St Mary's will be due for delivery end of 2018. Confirmation from NOAA that status map online is correct.

City of Annapolis and surrounding area will collect in coming leaf-off season but does not know the exact schedule. Quantum is vendor on this and will provide update. Roger sits on flood mitigation committee "silver jackets" Several reps from the US Naval Academy attended recent meeting. They are adding infrastructure to campus and they are interested in getting topo/bathy to facilitate further study. All data will be made available through MD iMAP data portal upon receipt.

### **Potential Acquisitions**

#### *Harford and Cecil*

Scott Phillips interested in Harford and Cecil however data is more recent and does not meet the 8year min cycle for 3DEP. Potential to tie into the lower eastern shore acquisition?

### **Open Discussion: Community Updates, Potential Products**

Roger: BAA open now, closes Nov 9. Initial funding decisions will be announced early Dec.

Criteria used to evaluate proposals include the amount of federal funding required, presence/absence of existing data, age of data, and use cases.

USGS timeframe for Lower Eastern Shore would be 2018/2019.

Erin: Watershed DEM discussion with Kathy B, TNC. Kathy has reached out to Roger and the ESRGC for assistance in delineating new watershed boundaries using new lidar but has come up against processing limitations with her machine. ESRGC is currently reviewing methodology and other processing options with the high performance computing lab.

Kathy: The lidar data we currently have is county based and the watersheds often cross over those boundaries and even across state boundaries so they often run into issues creating a DEM mosaic that they can use as a basis to delineate major tributary basins which they need in

order to perform further analysis as part of the development of watershed implementation plans. Any help that can be provided would give them a huge advantage as the current watershed boundaries do not match up well with the new Lidar.

Erin: This has been a topic of discussion for many years. The ESRGC will continue to test with some of the watersheds on the Eastern Shore to determine best strategy moving forward. This depends on data for other states: VA, DE.

Roger: For Eastern Shore, USGS National holdings should be able to bridge any state boundaries.

Kathy: The same issue presents itself in the Potomac with the PA, MD watersheds.

Roger: Expecting the delivery of 16 counties in PA along the Susquehanna watershed in Feb. That would help this watershed effort. This is QL2 data to replace 2007 QL3 data.

Kathy: Could we use this opportunity to discuss the status of NY lidar data?

Roger: That is a conversation probably best had offline as it's more complicated than other situations.

Mike B: MDSHA is in demand for Lidar more and more over traditional survey. I can assist where and when needed.

Erin: Perhaps this is another topic for expanded discussion.

Roger: I think this links directly with the watershed DEM and if he has a pilot area he's interested in we can potentially use that as a shake-down project to figure out how to do this.

Erin: That is what we are currently working with Kathy to accomplish as well.

Roger: Would be good to have both pilot areas

Erin: Other items under this agenda topic include contours, lidar derived shoreline

Roger: I have a particular interest in the lidar derived shoreline. The current USGS shoreline is quite old for Chesapeake bay and tidal areas so a new dataset would benefit the NHD in particular which shows shoreline in conjunction with streamlines. Do not have USGS funding so would need partners and identify a pilot area.

Richard Ortt: NOAA produces a continuous shoreline vector and over last several years has completed the western shore and working on eastern shore now. vDatum has been corrected.

Tide coordinated shoreline vector. Produce on a county basis and they typically complete ½ county per year. Accuracy within 1ft horizontal. Publish at 1:2400.

Dave White: Fugro does a lot of the shoreline work for NOAA. Would the goal be that for every coastal county that shoreline would be delivered as part of features derived from lidar?

Roger: would prefer it to be done thru vDatum so we have that reference and not done directly from the lidar.

Richard Ortt: I agree

Roger: And we would want both the near shore topo/bathy lidar and not just the topo

Dave: This along with the potential requirement for collecting the data at MLW?

Roger: MLW would be preferable but if it's collected at MHW which is typically of more interest to the state we could work with that.

Richard: Yes and no. If you have a decent beach with low runoff, if you collect at MHW you will never get the elevation at MLW unless you use blue/green lidar and seeing thru water.

Dave: Right now the projects that have been listed and discussed there has not been a pilot or requirement or funding to demonstrate a lidar shoreline or a DEM that has been discussed.

Roger: No, not to my knowledge

Kathy: Would it be possible to think about collecting these data at tidal anomalies to show the extent of flooding during events?

Roger: USGS does place gauges prior to storms and collects high water marks which are posted on their website. The data is public but they don't make any contours from the data but it's point data so veg on bridge abutments from high water and other marks observed in the field as well as the gauges they deploy prior to and collect after are all documented. Roger can get URL for meeting minutes

Kathy: Is there a specific place we are looking to get this data. Thinking more about increasing understanding of the transition zone between freshwater and tidal areas and how that might be shifting due to SLR. A map of tidal inundation or inundation patterns associated with those anomalies could be really helpful to understanding those interactions.

Roger: I'm sure there's been some work in that area particularly with waterfowl nesting and migratory patterns due to SLR

Richard: Dept of Ag is also doing lots of work with that due to loss of forest and farm land especially on the eastern shore. This does become concerning though because if we only look at one aspect of climate change as one reason for this nuisance flooding, yes tidal anomalies are one reason but also for example this year since we've had so much fresh water one would argue the tidal floodings might be causing that saltwater/freshwater line to be moving up the Bay but also in contrast to what's actually happening we've had so much freshwater, we are pushing the salt/freshwater lens up the Bay so isolating on one aspect is concerning and has lots of caveats with it.

Seems like the lidar flyovers could help tease that apart as opposed to the point data that the USGS stations are set up to track

Gretchen: Has heard of some studies re: salt migration into rivers and marshes.

Kathy: concerned with effects on coastal agriculture, nesting habitats, but not just direct effects of sw intrusion but also the increased inundation at the intersection where watershed discharge meets the base level to coastal sea level under varying conditions.

Gretchen: if we could get the funding for tidal coordinated lidar in lower shore that will make a lot of steps in that direction bc if it's all done at the same tide we could begin to do analysis such as including soils data and water testing, and bring it all together. Seems like an analysis with the lidar and validate on a high tidal event by driving out to a few spots. Want to push for coordination as this is something that would benefit many so want to get as many organizations involved as possible including TNC. One last thing - something to think about is that all data is in different projections. Perhaps an effort down the road to ensure new data is in the same projection/datum or doing some transformation even at lower resolution to get countywide or watershed wide datum.

Roger: 3DEP will go with whoever brings the most funding to the table. Conversions can be done more easily now than in the past through tools so it's not as much of a concern but the less manipulation that is required, the better.

Other issue is that NRCS is reliant upon the data services at this point to ingest the data it would be great that they'd all be in the same datum.

Kathy: echos Gretchen's statement

Erin: as a group to keep discussing this issue. One of the items on the developing survey is a FAQ and metadata standards and guidelines document that could assist organizations in the lidar data procurement process who may not know all the questions to ask vendors including this topic of projection and datum. Or perhaps DoIT or ESRGC converts the data to a common projection/datum and makes that available as a service so not everyone is doing this on their own.

Gretchen: NRCS has developed watershed tools based on the DoIT/ESRGC statewide DEM service to extract from so that she didn't have to have 4 diff versions of the extraction tool to clip from each countywide service. This works 80% of the time but 20% of the time the values that are exported are incorrect. Foot services are overlaid on a meter projection which when performing a flow length analysis, the output is in meters. Gretchen to send Erin notes on these errors.

Erin: If the statewide service worked as intended and we could eliminate the 20% errors that are being experienced, would that meet all needs or is there other functionality needed beyond what is currently available?

Gretchen: If the service worked, that would be all that is needed. If anything we could use it at a lower resolution - lowest available at the state would be fine. It doesn't need to be at 1m or certainly 1ft.

Eric Stetsor via chat: should a lidar feedback portal be created to report suspected errors by users.

Erin: Any kind of feedback loop would be great. Ties into work group initiative to develop a more informal communication strategy rather than just emails from Roger and I.

Roger: Yes, and what we need to do is find contacts on the 3DEP level or state contract level to provide those error reports to.

There is a geodesy fundamentals webinar tomorrow, 2pm given by National Geodetic Survey. Link will be distributed to members.



