Exploring SAV satellite-based assessment – What considerations are needed for updating the protocol for using SAV cover in an assessment of our water quality standards if an assessment method change occurred in the future?

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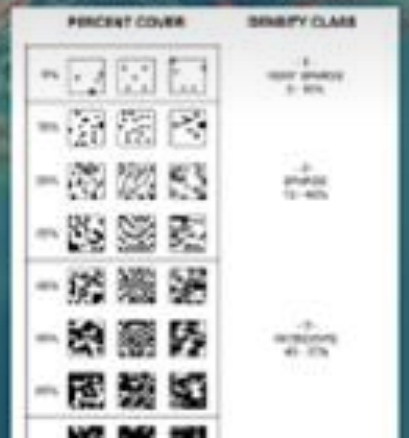
CAP WG

July 22, 2021

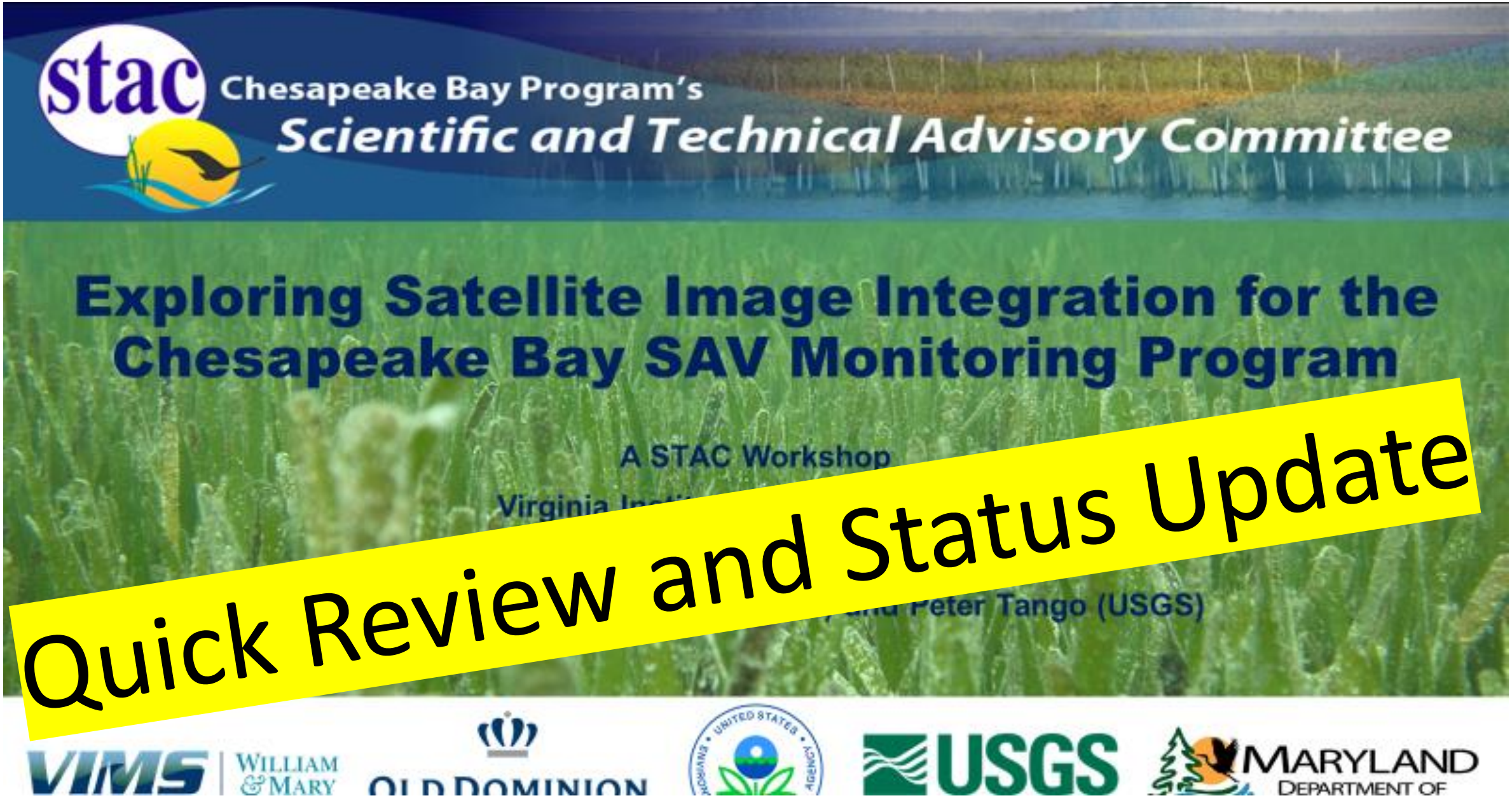


Outline

- Work is underway to develop alternative approaches to the traditional SAV cover assessments

- Efforts continue to assess opportunities with program efficiencies and cost-effective monitoring assessments

- Given that different methods may produce different results, what considerations and concerns do you have regarding introducing a new method of 1) imaging and 2) potentially accounting?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Chesapeake Bay Program's
Scientific and Technical Advisory Committee
Exploring Satellite Image Integration for the Chesapeake Bay SAV Monitoring Program
A STAC Workshop
Peter Tango (USGS)
Quick Review and Status Update
VIMS
William & Mary
Old Dominion
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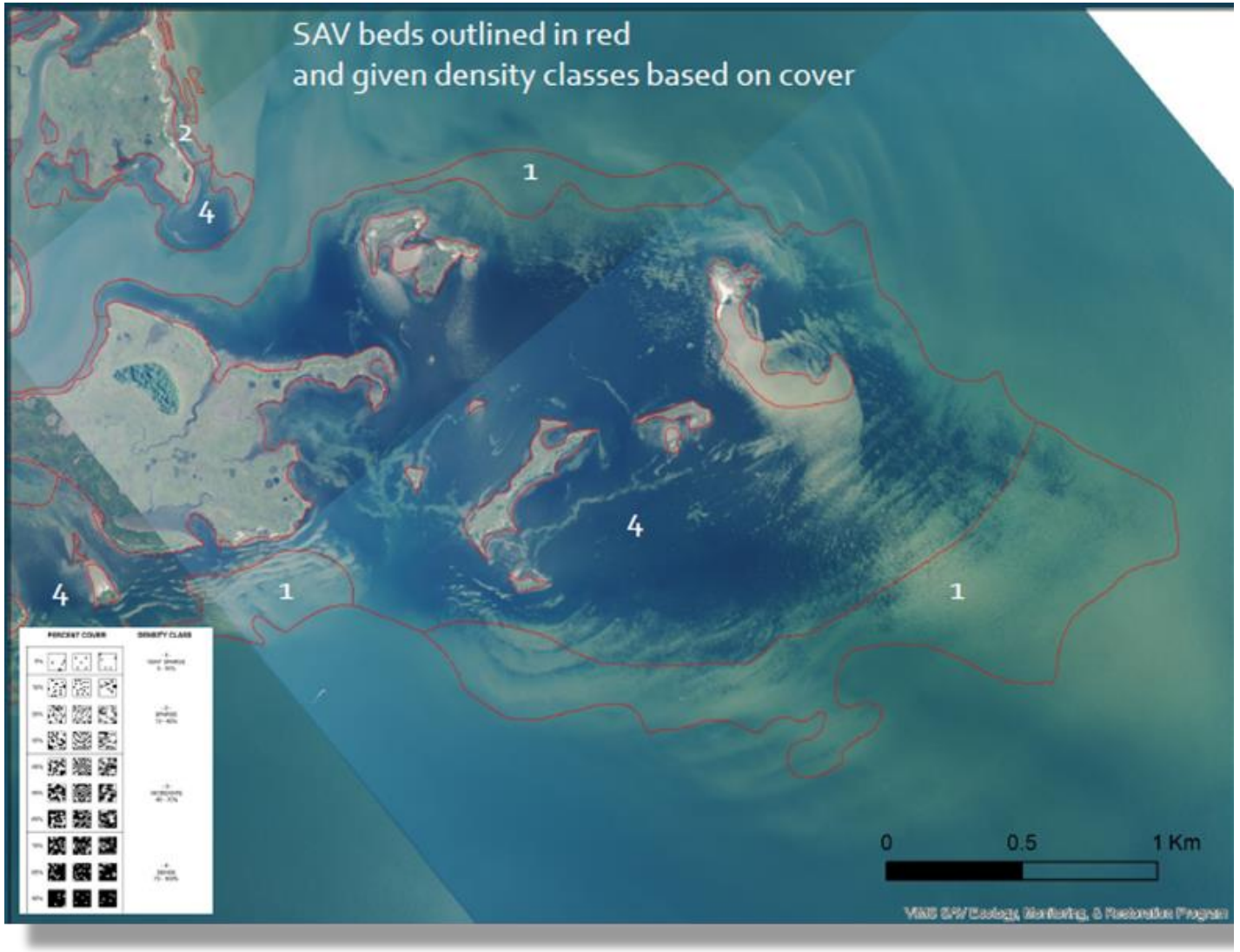
Maryland Department of



Basic workshop findings

Good news!

* Satellite images can provide comparable assessment of SAV to aerial-fixed wing aircraft based images.

Challenges:

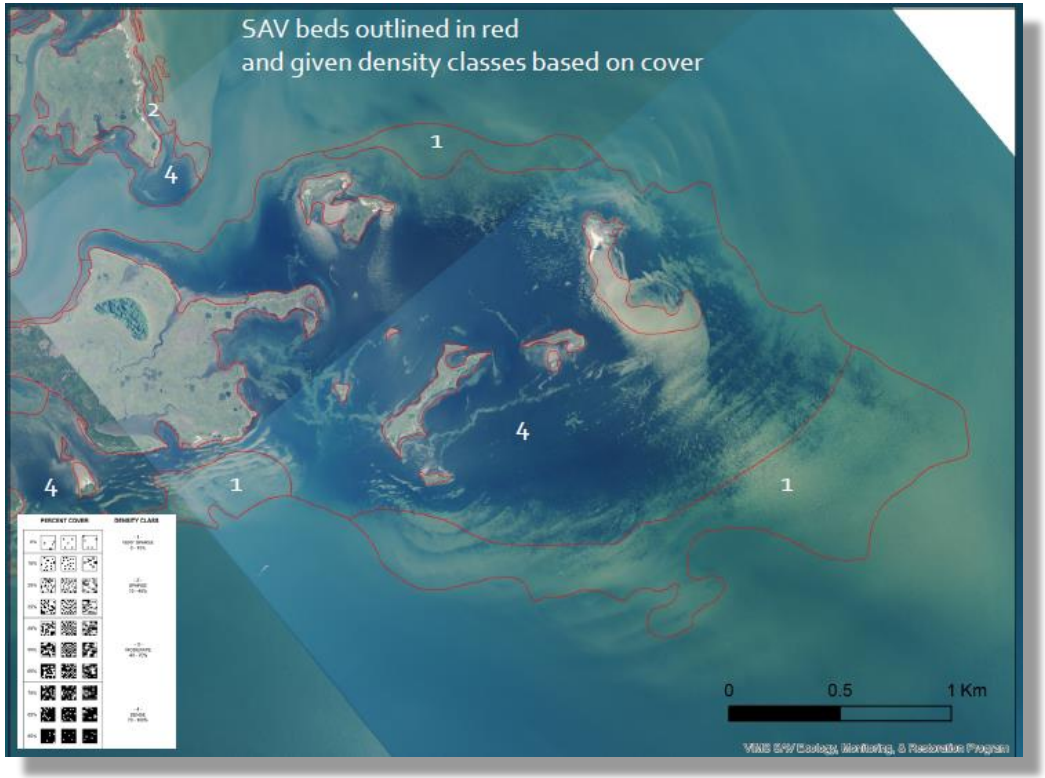
* Getting suitable images requires a different process from the aerial images.

* There are issues of ownership with the specific satellite we worked with

Workshop Results: Take Home Points

Algorithms/AI/machine learning will eventually automate mapping:
With funding, algorithms could be ready in 3-5 years.

Using AI may yield more precise results but we need to assess the relationship between AI derived and hand-mapped SAV:
Current method of hand delineation clumps SAV patches, whereas AI would split them, excluding the sparsely populated space in between patches. May be able to fix this by then clumping the patches together to more closely replicate VIMS methodology.



Since the end of the workshop/on the horizon, momentum continues on an effective a satellite-based SAV assessment:

- Workshop participants are continuing to work on the challenges of
  - 1) working with available images – removing glint, etc.
  - 2) understanding the limitations on tasking effectiveness
  - 3) satellite access to commercial high-resolution imagery
    - New agreements have been put in place to access the Digital Globe source of imagery used in the pilot study assessment during the workshop
    - New agreements are being developed to explore additional satellite alternatives
    - New satellites are being planned for launch and NASA is requesting input on how to develop sensors for those satellites that can help with specific resource assessments
  - 4) AI algorithm image interpretation

Question - Given the tidal wave of research momentum on overcoming the challenges of having an effective satellite-based survey of SAV for the bay…

- What considerations and concerns do you have regarding introducing a new method of 1) imaging and 2) potentially the accounting mechanism?

Some ideas

- Historical technique results comparison/calibration with any change in method.
- Criteria protocol documentation regarding method of assessment if and when adopting a new approach occurs
- Others? Thanks!