



## Exploring Satellite Image Integration for the Chesapeake Bay SAV Monitoring Program -A STAC Workshop-

Background: This is a STAC workshop with invited technical and management personnel convened to review and determine the science and technology essential to integrate satellite image assessment into the Chesapeake Bay SAV Monitoring Program. During the workshop, we will define the feasibility of the integration (related to the science), and document costs, benefits, and any potential disadvantages of the integration (logistical, financial, scientific). With that, we will then determine the steps, information necessary, and timeline in which to officially integrate satellite data and imagery into the SAV monitoring program.

This workshop will include three separate two-day sessions that will take place every other month between October, 2019 and February, 2020 and culminate in a final two- to three-day synthesis effort that will take place in April, 2020 (four sessions total). The proposed schedule is below. Timing is, of course, flexible. We anticipate no more than fifteen participants at each of the first three sessions and up to twenty-five at the final session.

- Session 1:** Oct 2019 – Initial meeting of the minds. Review proposal for a common understanding of workshop objectives. Review of the state of the programming and science for assessing Chesapeake Bay SAV. Develop game plan details for the remaining sessions that will inform our objectives and support development of the workshop report product.
- Session 2:** Dec 2019 – Review of remote sensing approaches and assessment methods successfully used elsewhere to measure and report on SAV. Bring in outside experts. Include review of satellite alternatives (e.g., drone-, kite-, balloon-based sensor applications) to consider their potential role for inclusion in hybrid assessment design.
- Session 3:** Feb 2020 – Review approach and comparisons of recent SAV survey results (between satellite-based and plane-based assessments). Establish calibration needs, method needs, limits in space and time on satellite based assessments as well as value-added benefits of repeated image availability throughout the year to inform SAV condition and trend assessments.
- Session 4:** Apr 2020 – Final Meeting. Develop final product and review materials. Develop an integrated strategy for the overall program, including defining data acquisition responsibilities and pathways, data storage responsibilities, MOU development if necessary, initial data processing approach and targeted data processing modifications, historical data calibration with changes to satellite based imagery, add-on assessment applications (e.g. drone sensed SAV in sub-estuaries/small waterways/previously unassessed refuge areas, and data synthesis/communication).

Each meeting will follow the two “half-days” format, commencing at approximately 10:00 am the first day and adjourning at approximately 3:00 pm the following.

## Session 1 Agenda

**Location: VIMS (Owens-Bryant Board Room, 102A/B, Davis Hall, 7539 State Rte 1203, Gloucester Point, VA 23062)**  
**Date: October 15<sup>th</sup> -16<sup>th</sup>, 2019**

### Day 1, Oct 15<sup>th</sup>, 2019

11:00 am – Welcome and Introductions

11:15am - Review our session agenda, proposed workshop objectives, expected outputs from this session and product development from the overall workshop. (Brooke Landry, Peter Tango)

11:30 am – **Chesapeake Bay Program Annual SAV Survey: How it works. (Bob Orth and Dave Wilcox)** This presentation will provide some of the survey's background, evolution, and an in-depth description of the logistics of the program, including data acquisition, processing, interpretation and mapping, costs, grant management, flight sub-contractors, etc.

1:00 pm – Lunch, provided

1:45 pm – Tour of the VIMS SAV computer lab space and demonstration of data interpretation.

2:30 pm – Break, coffee provided

3:00 pm – **Using satellite imagery for mapping SAV habitats in Chesapeake Bay (Dick Zimmerman)** This presentation will review the process used at ODU to map SAV habitats in Chesapeake Bay, including satellite image acquisition, processing, interpretation and mapping, AI/machine learning, etc.

4:00 pm – **Discussion 1:** Why satellites, why not before and why now? Given publicly available products such as Google Earth maps, why haven't we already jumped on this bandwagon? Discuss data gaps, technical and logistical barriers, etc.

5:00 pm – Adjourn. Group dinner.

### Day 2, October 16<sup>th</sup>, 2019

9:00 am – Regroup. Coffee provided.

9:15 am – Recap of Day 1

9:30 am - Discussion 2: Based on the information presented on Day 1, what can we do today to use satellite image assessment for estimating annual coverage of bay grasses? Is image

availability the primary limitation now that resolution is comparable among plane and satellite based images?

10:30 am – Break, coffee provided

11:00 am – Discussion 3: Planning. Revisit objectives: recommend revisions based on discussions to help focus the remaining sessions and product development. This time will be dedicated to mapping out the rest of the workshop and determining who should be included in each session. We will set an agenda for each of the remaining sessions, draft their content and outputs, determine potential dates and locations for each session, develop an invite list for each session, and draft an outline for the final report product.

12:30 pm – Lunch, provided

1:30 pm – Final thoughts. During this time we'll make sure all topics have been covered and any additional thoughts or concerns are addressed prior to departure.

2:00/2:30 pm - Adjourn