Satellite Work Update

SAV Workgroup Meeting 2/19/21

David Wilcox, VIMS SAV Monitoring and Restoration Program
dwilcox@vims.edu

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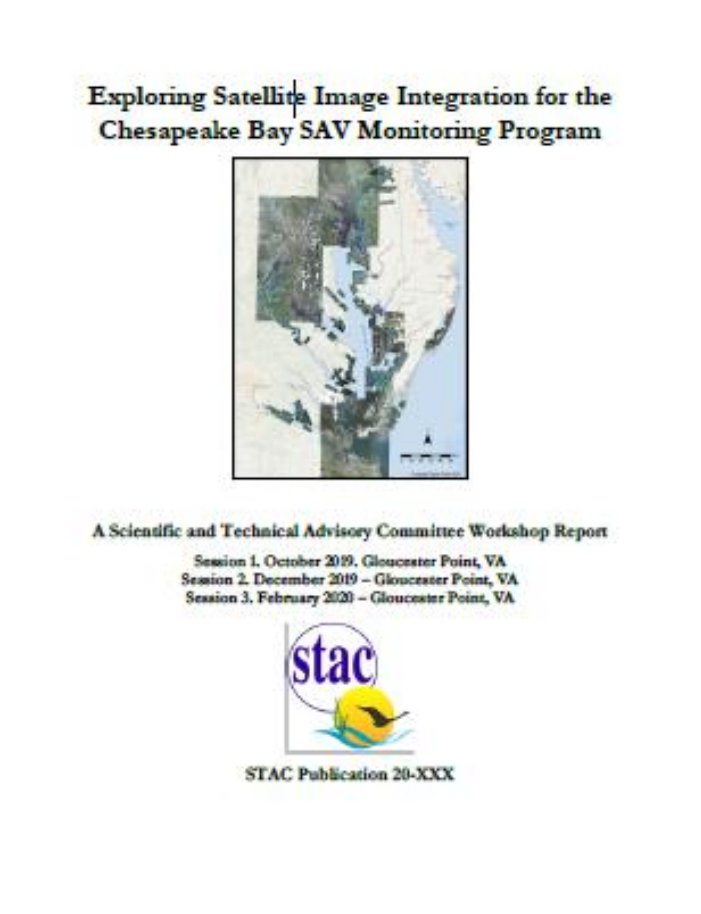
Satellite Work Update

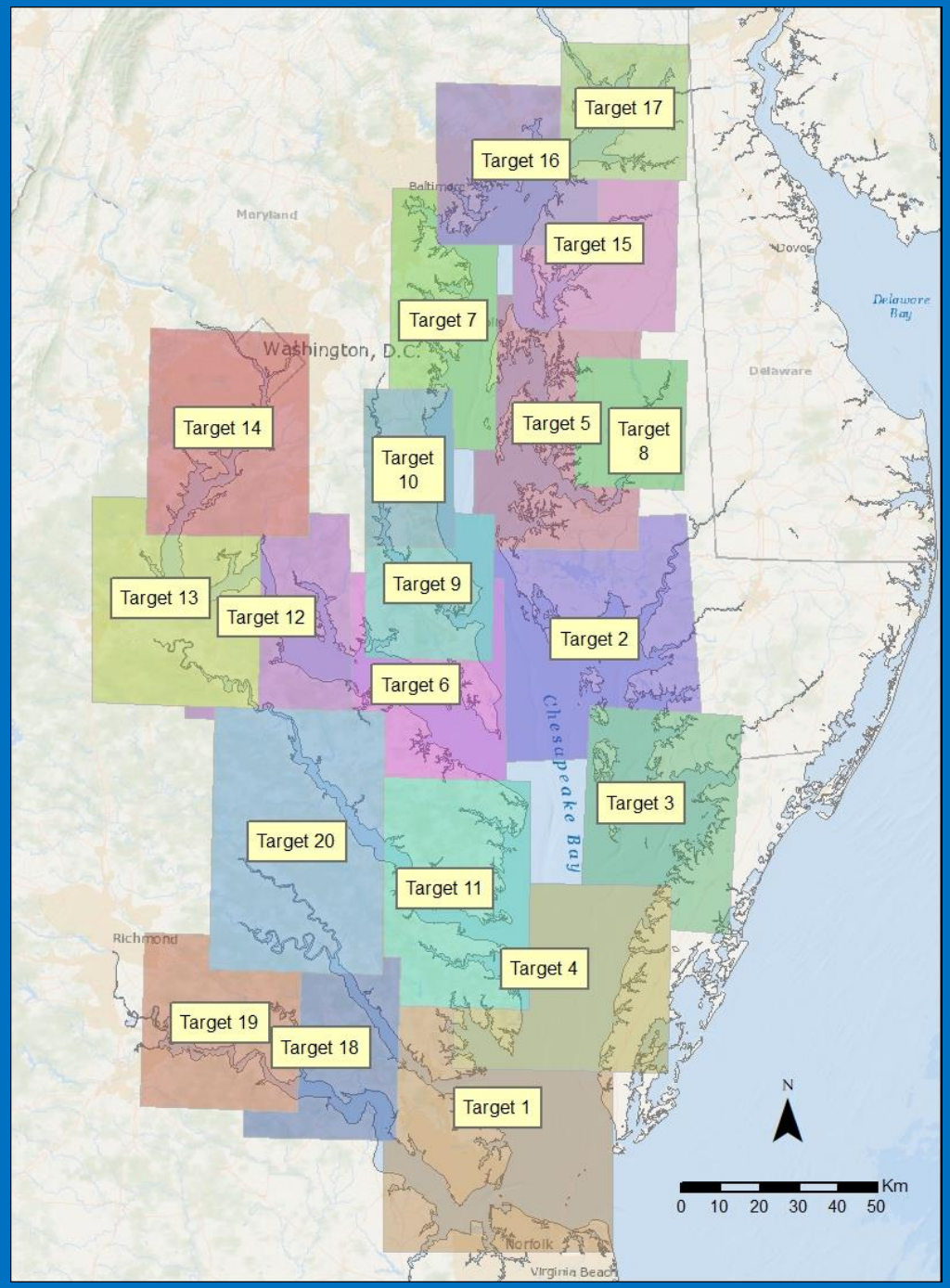
David Wilcox, VIMS



STAC SAV Workshop

October 2019, December 2019, February 2020

- Trial of full Bay acquisition in 2020
- Comparison of SAV monitoring using satellite and aerial imagery



- We divided the Bay into 20 target areas for potential satellite imagery acquisition.
- Only one area was selected per day to avoid competing with ourselves.
- Little ability to adjust target based on daily conditions.

WordView-2

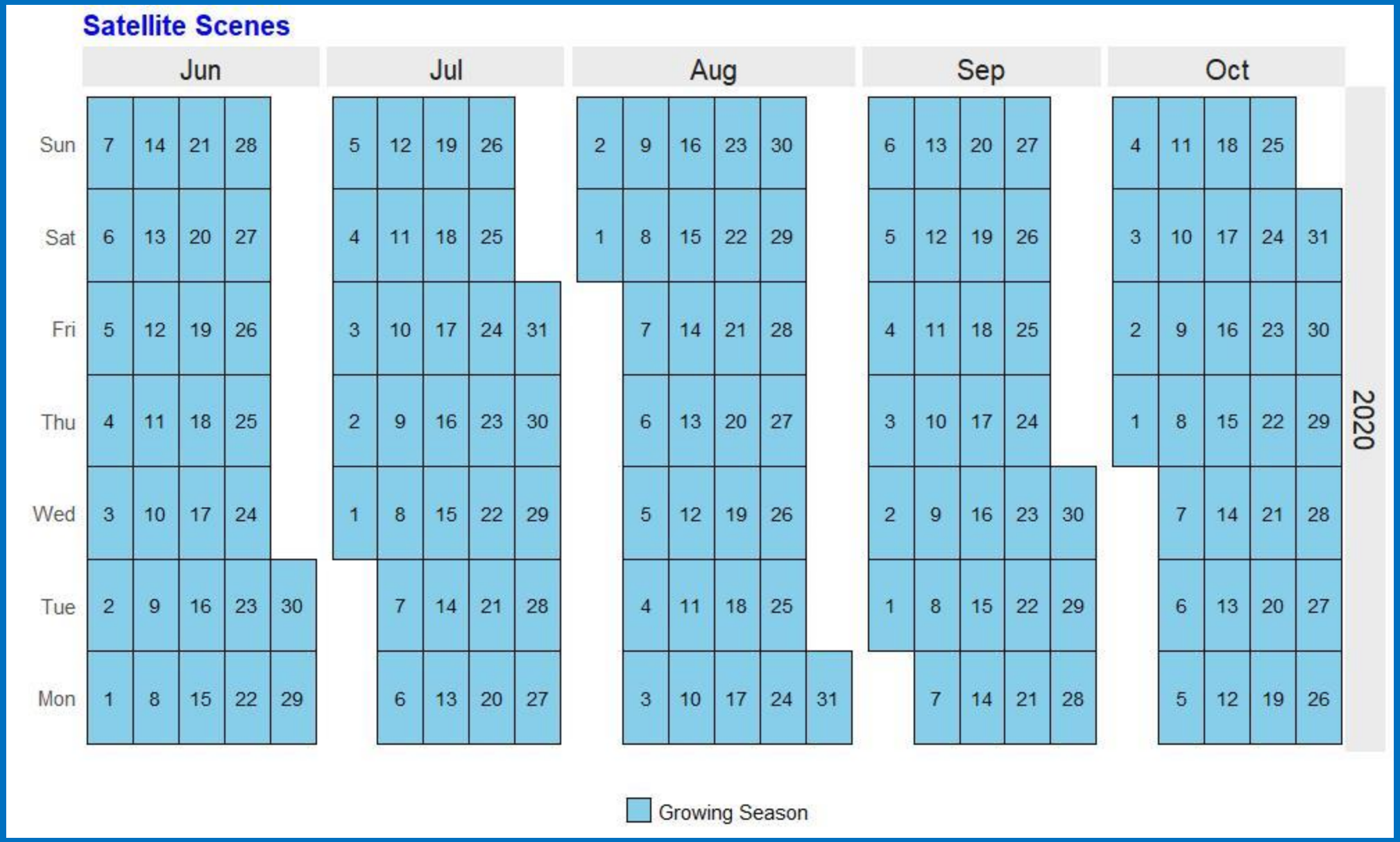
Bands: Panchromatic: 450-800 nm
8 Multispectral: (red, red edge, coastal, blue, green, yellow, near-IR1 and near-IR2) 400 nm – 1040 NM n, yellow, near-IR1 and
near-IR2) 400 nm – 1040 NM
Resolution: 0.46 m Panchromatic
1.84 Multispectral
Swath width: 16.4 km

GeoEye-1

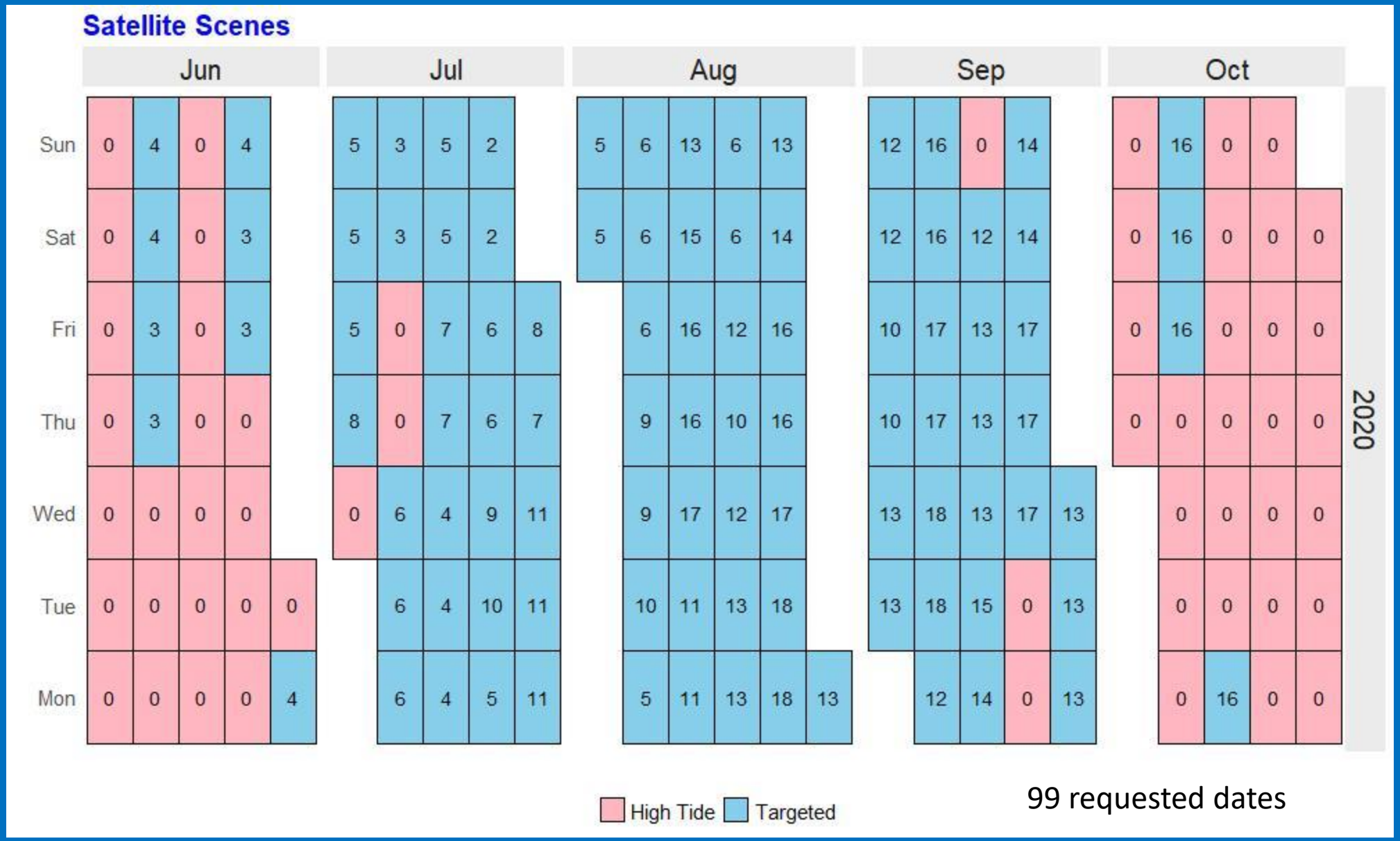
Bands: Panchromatic: 450 - 800 nm
Blue: 450 - 510 nm
Green: 510 - 580 nm
Red: 655 - 690 nm
Near Infra Red: 780 - 920 nm
Resolution: 0.46 m Panchromatic
1.84 Multispectral
Swath width: 15.2 km

WordView-3

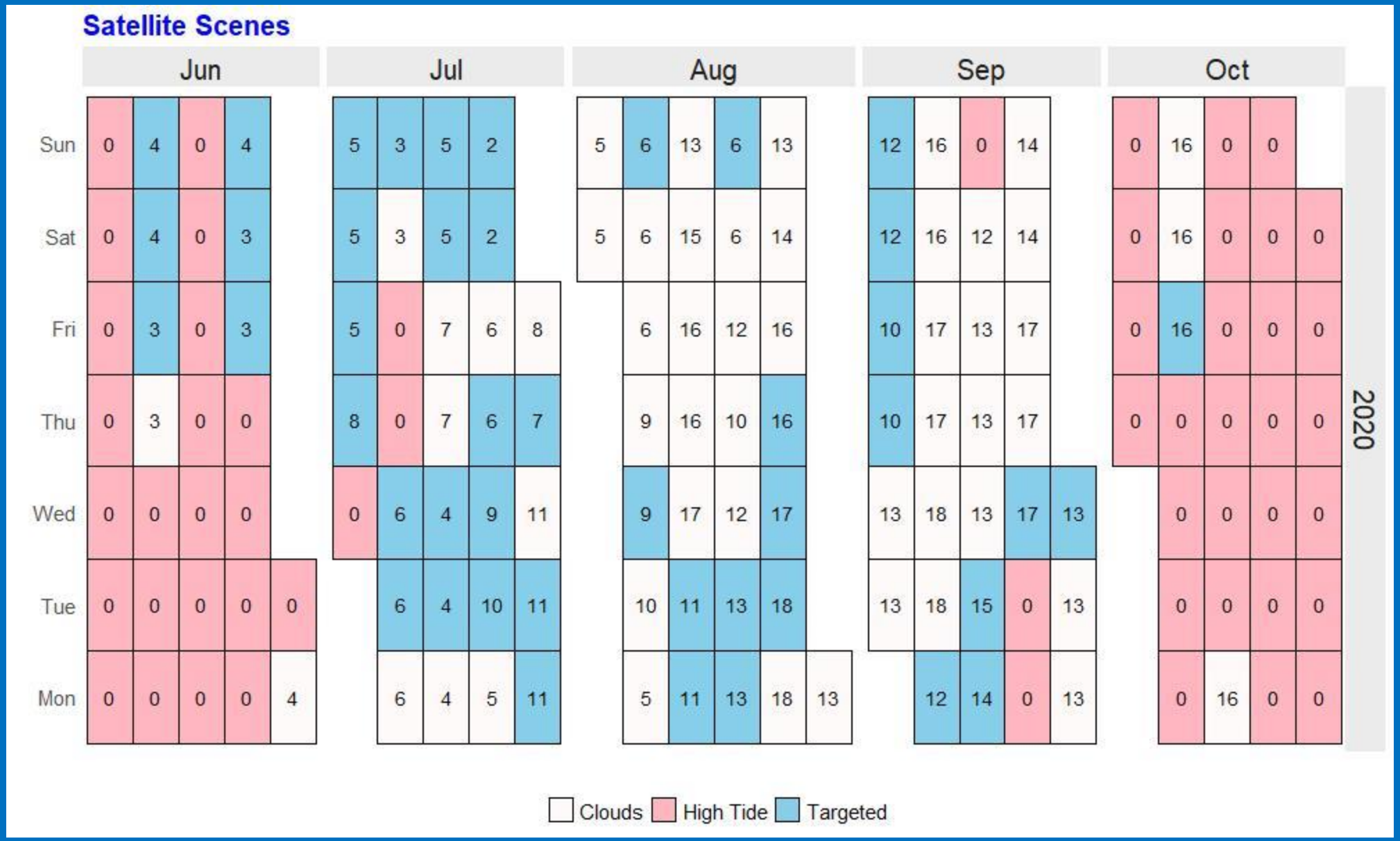
Bands: Panchromatic: 450-800 nm
8 Multispectral: (red, red edge, coastal, blue, green, yellow, near-IR1 and near-IR2) 400 nm – 1040 NM
Resolution: 0.31 m Panchromatic
1.24 Multispectral
Swath width: 13.1 km



N.B. Numbers in cells represent days in the month



N.B. Numbers in cells represent different sections of the Bay



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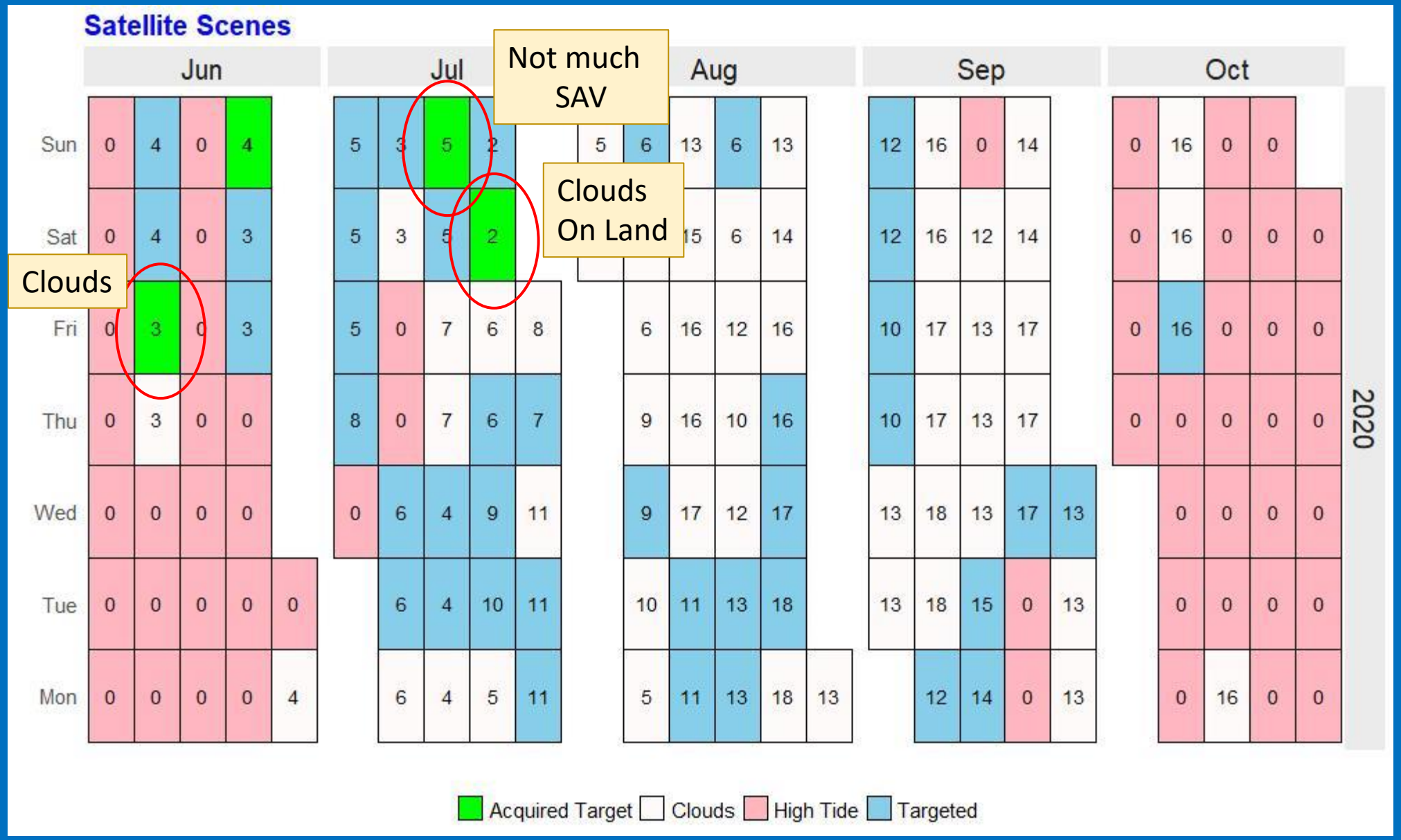
***Four** out of 99 requests were successful.*

One out of four were usable.



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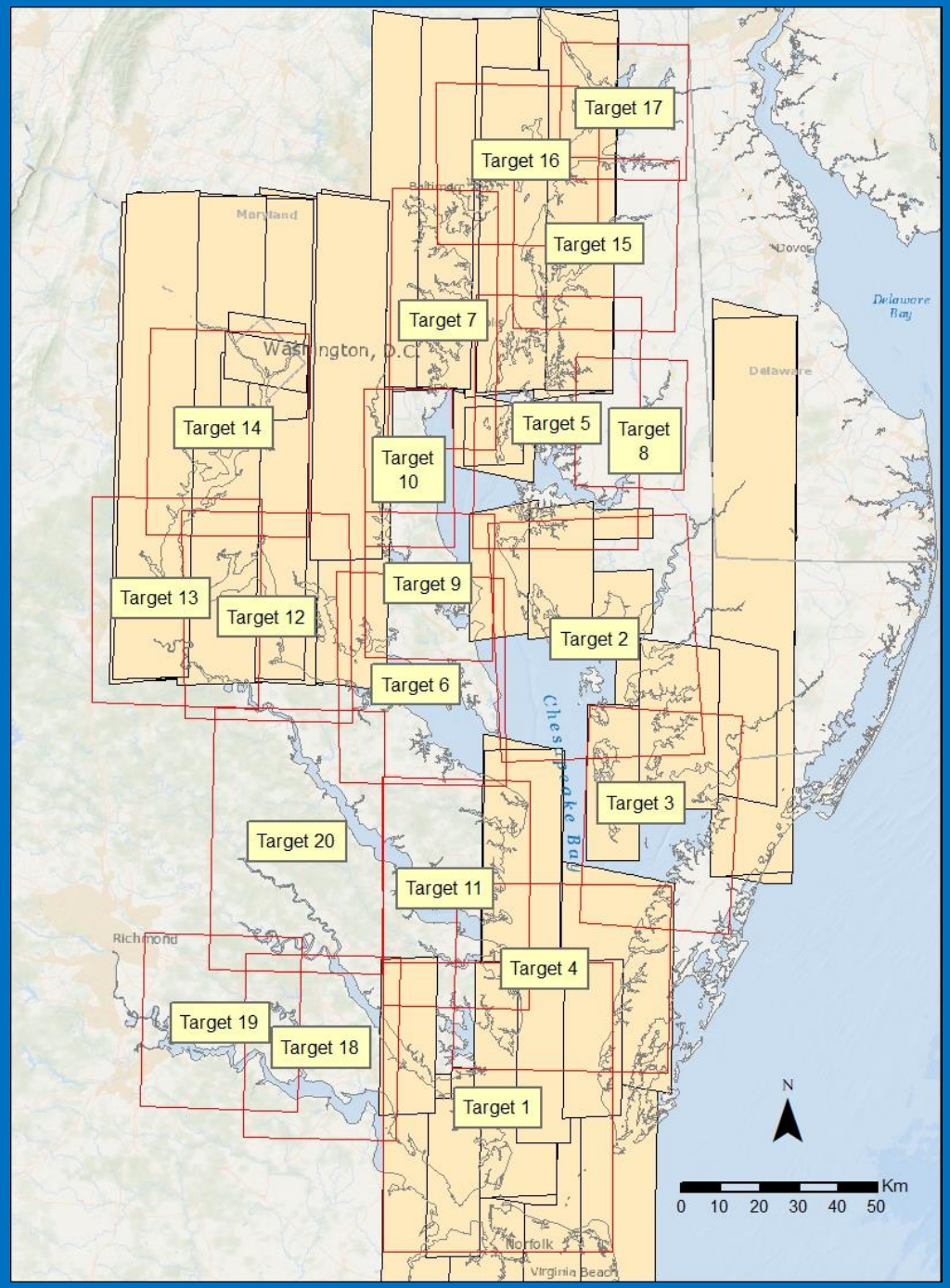


Satellite Scenes Captured

79 scenes were captured over Chesapeake Bay

- 4 of the scenes were specifically requested
- 75 scenes from areas that may have wrong tide or growing season

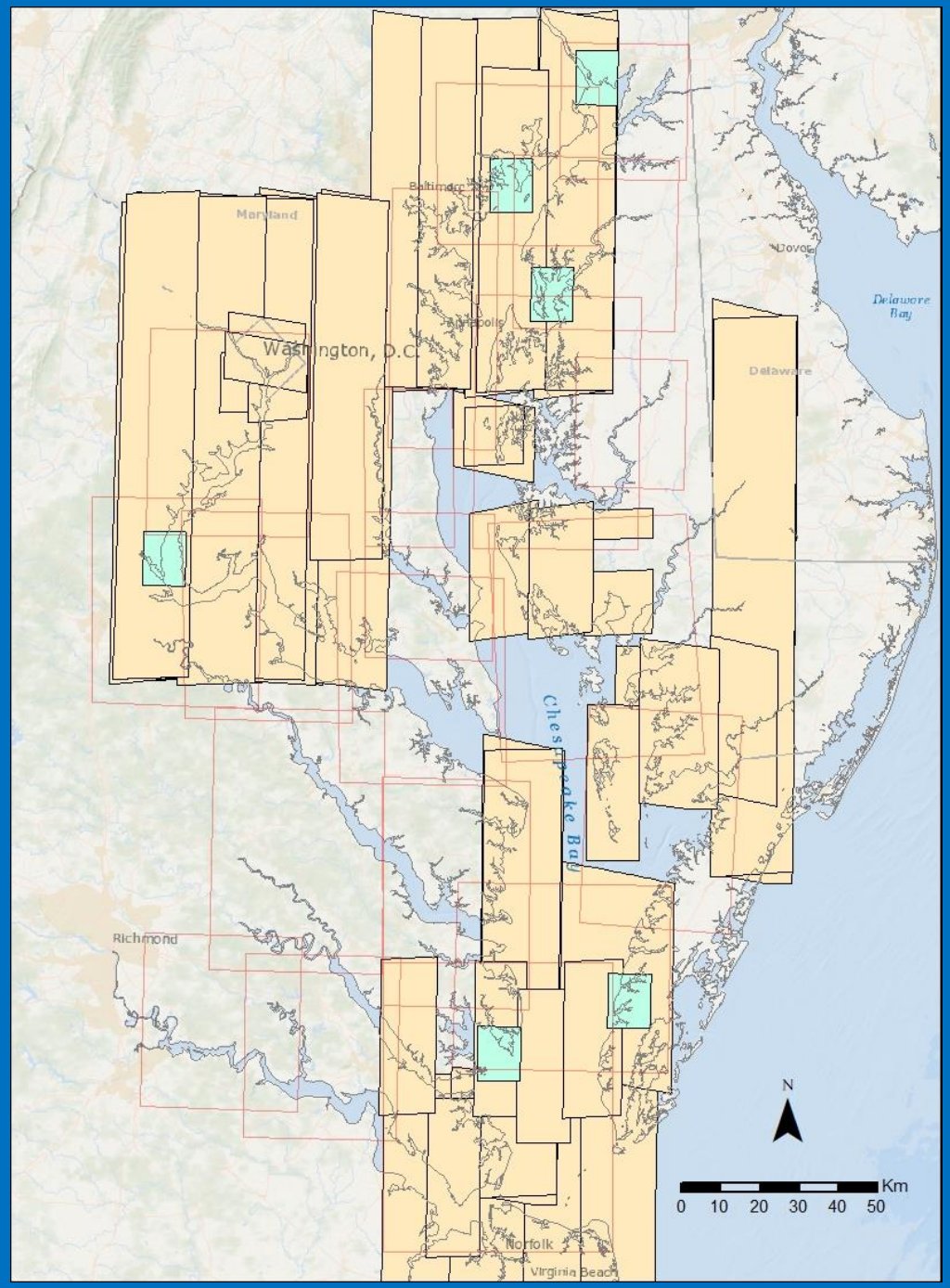
26 scenes were rejected immediately

- Covered non-tidal areas only
- Obscured by clouds
- Extensive sun surface reflection

53 scenes were downloaded for a closer look

The scenes

- cover 24 dates
- are large, covering a wide tidal range
- often contain at least some cloud cover
- will require additional funding to fully evaluate usability for SAV monitoring



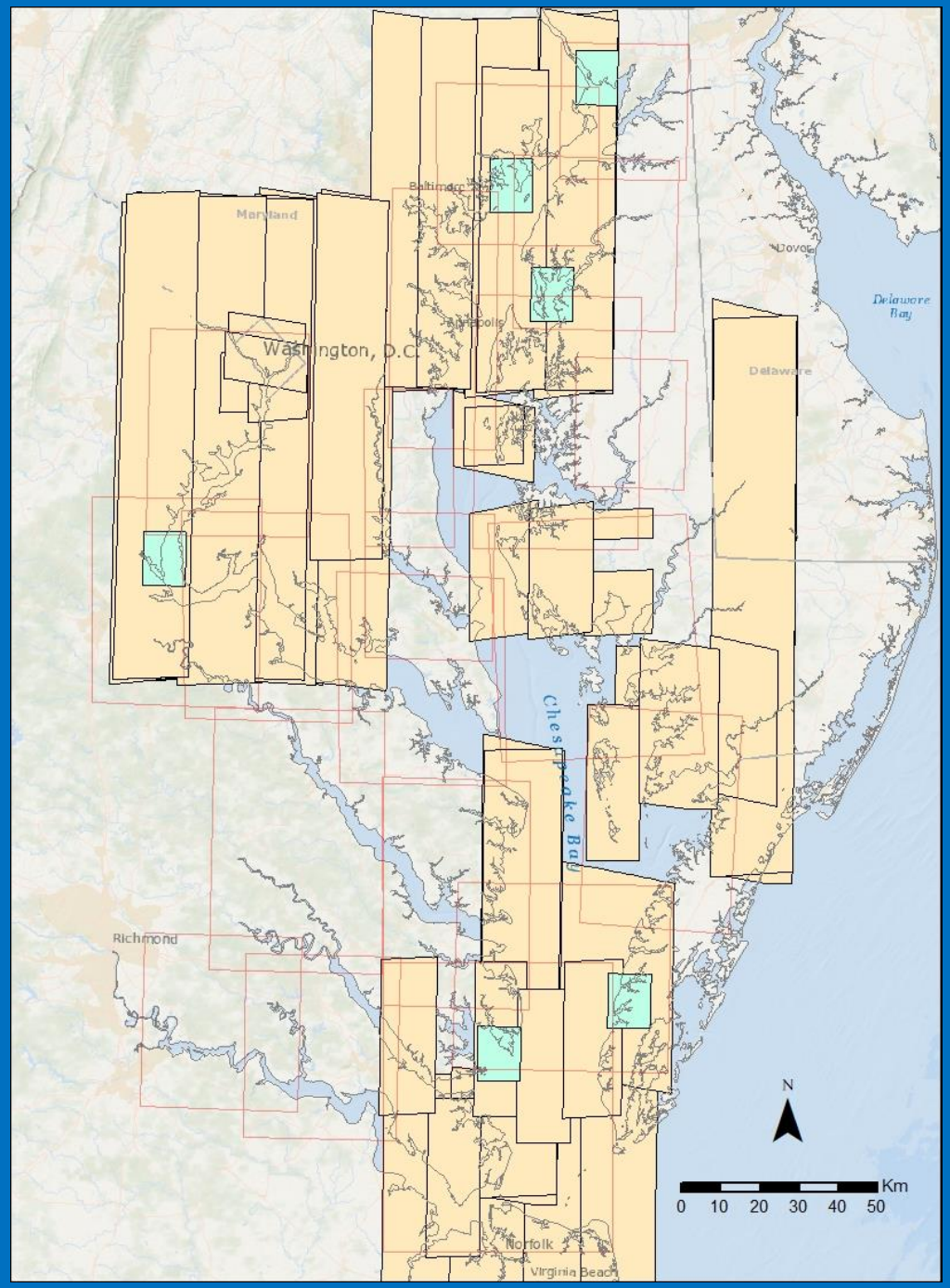
Satellite vs. Aerial Comparison

Six areas were selected

- Satellite imagery was available
- Aerial and satellite imagery in the same time frame
- No obvious defects in the satellite imagery
- Covering the majority of a USGS quadrangle
- Fairly large amount of SAV in the area

Process

- Each area is mapped by two analysts
  - One using the satellite imagery
  - One using the aerial imagery
- The resulting raw SAV polygons are compared
- Once both are complete, the area is reviewed by both analysts and the PI to evaluate potential sources of difference



Questions?

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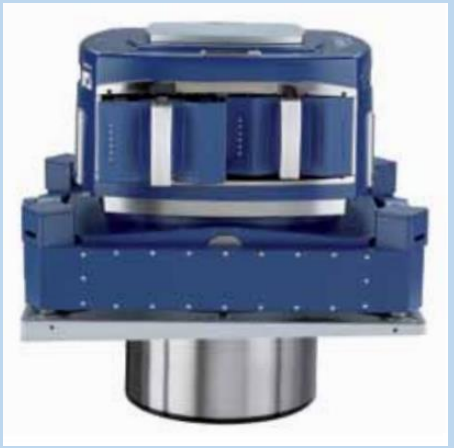

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