Chesapeake Bay SAV Watchers
A 2018 GIT-Funded Project

HGIT Meeting

Havre de Grace Maritime Museum Environmental Center

Havre de Grace, MD   ~Brooke Landry~

May 21, 2019   Chair, SAV Workgroup

Biologist, Maryland Department of Natural Resources

Development of Citizen Scientist SAV Monitoring Protocol/Manual and Training/Certification Program

GIT Lead: Brooke Landry, Contracted to UMCES, IAN

>Project goal: SAV Monitoring Protocol, Training, and Certification Program for citizen scientists

> Funding requirement: $25,000 for one year

> How is this project related to outcome progress: Increase data collection capacity, facilitate better siting of restoration projects, and improve outreach, citizen involvement, and stewardship

> How does it relate to previous GIT funded projects: Follow up to 2017 Riverkeeper SAV Project

> Is the project sustainable into the future: The products developed will be used for the foreseeable future
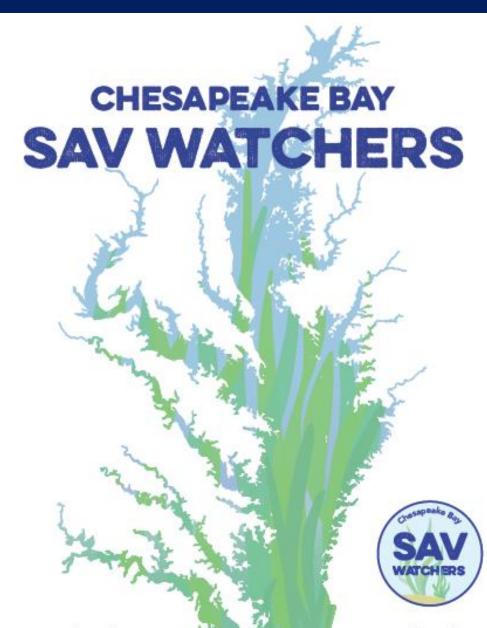
CHESAPEAKE BAY
SAV WATCHERS

A methods manual for volunteers monitoring submerged aquatic vegetation

CHESAPEAKE BAY
SAV WATCHERS

Guide to the Introductory Monitoring Program (Tier 1)

Download the *Water Reporter* app to your smartphone

All *Chesapeake Bay SAV Watchers* volunteers will use the *Water Reporter* platform to submit data for the Introductory Monitoring Program. It is recommended that volunteers collect and submit data using a smartphone equipped with the *Water Reporter* app. This section will review the steps involved in this process.

Android

1. Open the Google Play Store.

2. Type "The Water Reporter" into the search bar to locate the app. A list of suggested results will appear as you type.

3. Select the *Water Reporter* app from the list to open its Play Store page.

4. Tap the "Install" button to download the free app to your device and install it.

Apple

1. Open the App Store.

2. Tap the magnifying glass icon in the bottom right corner to open the search bar.

3. Type "The Water Reporter" into the search bar to locate the app. A list of suggested results will appear as you type.

4. Select the *Water Reporter* app from the list to open its App Store page.

5. Tap the "Get" button to download the free app to your device and install it.

Create your *Water Reporter* user account

In order to contribute data to the *Chesapeake Bay SAV Watchers* Introductory Monitoring Program, all observers will need to create a user account. This can be done using the *Water Reporter* app on a smartphone or online at https://www.waterreporter.org. This section will review the steps involved in this process.

WATER REPORTER

Chesapeake Bay SAV Watchers volunteers should use the Water Reporter platform to submit Tier 1 SAV observations.

On a smartphone

1. Open the *Water Reporter* app and select "SIGN UP" to create a new account.

2. Enter your email address and a password. Use an address that you check regularly so that you receive an email notification when *Chesapeake Bay SAV Watchers* administrators or other users connect with you via the app.

Chesapeake Bay SAV WATCHERS

Pocket Field Guide

SAV species list

Cd - Hornwort - *Ceratophyllum demersum*
Cal - Water starwort - *Callitriche sp.*
Egd - Brazilian waterweed - *Egeria densa*
Ex - Unknown waterweed - *Elodea sp.*
Ec - Common waterweed - *Elodea canadensis*
En - Western waterweed - *Elodea nuttallii*
Hd - Water stargrass - *Heteranthera dubia*
Hv - Hydrilla - *Hydrilla verticillata*
Mx - Unknown milfoil - *Myriophyllum sp.*
Mh - Low watermilfoil - *Myriophyllum humile*
Ma - Parrot feather milfoil - *Myriophyllum brasiliense/aquaticum*
Ms - Eurasian watermilfoil - *Myriophyllum spicatum*
Nx - Unknown naiad - *Najas sp.*
Nfl - Northern naiad - *Najas flexilis*
Ngr - Slender naiad - *Najas gracillima*

Ngd - Southern naiad - *Najas guadelupensis*
Nm - Spiny naiad - *Najas minor*
Px - Unknown pondweed - *Potamogeton sp.*
Pc - Curly pondweed - *Potamogeton crispus*
Pe - Leafy pondweed - *Potamogeton epihydrus*
Pi - Illinois pondweed - *Potamogeton illinoensis*
Pn - American pondweed - *Potamogeton nodosus*
Ppf - Redhead grass - *Potamogeton perfoliatus*
Ppu - Slender pondweed - *Potamogeton pusillus*
Rm - Widgeongrass - *Ruppia maritima*
Sp - Sago pondweed - *Stuckenia pectinata*
Ut - Bladderwort - *Utricularia*
Va - Wild celery - *Vallisneria americana*
Zm - Eelgrass - *Zostera marina*
Zp - Horned pondweed - *Zannichellia palustris*
U - Unknown species

2

Tier 1 monitoring parameters

Basic observer and site information
Photo required (if present)
SAV species

WATER REPORTER

4

Hornwort
Ceratophyllum demersum

Location: Freshwater tributaries

General ID: Lacks true roots, but stems can grow up to 3 m long. Brittle, stiff leaves grow in whorls of 9 or 10. Whorls are denser toward the end of the stem. Leaves fork into linear, flat segments. Fine teeth grow on one side of the leaf margin.

Similar morphology: Eurasian watermilfoil

Fun facts:
- Neither a dicot nor a eudicot, but is closely related to eudicots
- Found in all 50 states
- Most often found in slow-moving waters

Order Ceratophyllales • Family Ceratophyllaceae

Cd

Oligohaline

6

Chesapeake Bay SAV Watchers

Name _____ (First and Last)   Date _____ (Month / Day / Year)   Tides _____ (High) _____ (Low)

Group ID _____   General area description _____

Site ID format: YYMMDD.hhmm.FL (year month day hour minute initials)

Density scale key:
0: Absent
1: <10%
2: 10-<40%
3: 40-<70%
4: 70-100%

Site ID: _____

GPS coordinates (Decimal degrees to 6 places)
Lat _____
Long _____
Sampling time (Use 24-hour format) _____

Secchi Depth _____ cm
Water Depth _____ cm
Bottom sediment (Check one box) ☐ Mud ☐ Sand ☐ Peat ☐ Hard
Shoreline type(s) _____ (List up to three within 100m)

SAV Species (Order by abundance, provide picture if present)
_____
_____
_____
_____
_____
_____

Flowers / seeds — Present (picture) ☐ Absent ☐ (for each species row)

	Present	Absent
SAV at surface	☐	☐
Epiphytes	☐	☐
Erosion	☐	☐
Human Impact	☐	☐
Emergent plants (Provide picture if present)		
Water chestnut	☐	☐
Lily pads	☐	☐

(Use density scale key for the following)
Total SAV _____
Lyngbya _____ (Provide picture if present)
Macroalgae _____ (Provide picture if present)
Type(s) _____
Notes

Site ID: _____

GPS coordinates (Decimal degrees to 6 places)
Lat _____
Long _____
Sampling time (Use 24-hour format) _____

Secchi Depth _____ cm
Water Depth _____ cm
Bottom sediment (Check one box) ☐ Mud ☐ Sand ☐ Peat ☐ Hard
Shoreline type(s) _____ (List up to three within 100m)

SAV Species (Order by abundance, provide picture if present)
_____
_____
_____
_____
_____
_____

Flowers / seeds — Present (picture) ☐ Absent ☐ (for each species row)

	Present	Absent
SAV at surface	☐	☐
Epiphytes	☐	☐
Erosion	☐	☐
Human Impact	☐	☐
Emergent plants (Provide picture if present)		
Water chestnut	☐	☐
Lily pads	☐	☐

(Use density scale key for the following)
Total SAV _____
Lyngbya _____ (Provide picture if present)
Macroalgae _____ (Provide picture if present)
Type(s) _____
Notes

Site ID: _____

GPS coordinates (Decimal degrees to 6 places)
Lat _____
Long _____
Sampling time (Use 24-hour format) _____

Secchi Depth _____ cm
Water Depth _____ cm
Bottom sediment (Check one box) ☐ Mud ☐ Sand ☐ Peat ☐ Hard
Shoreline type(s) _____ (List up to three within 100m)

SAV Species (Order by abundance, provide picture if present)
_____
_____
_____
_____
_____
_____

Flowers / seeds — Present (picture) ☐ Absent ☐ (for each species row)

	Present	Absent
SAV at surface	☐	☐
Epiphytes	☐	☐
Erosion	☐	☐
Human Impact	☐	☐
Emergent plants (Provide picture if present)		
Water chestnut	☐	☐
Lily pads	☐	☐

(Use density scale key for the following)
Total SAV _____
Lyngbya _____ (Provide picture if present)
Macroalgae _____ (Provide picture if present)
Type(s) _____
Notes

SAV species (abbreviation and common name)

Cd: Hornwort
Cal: Water starwort
Egd: Brazilian waterweed
Ex: Waterweed
Ec: Common waterweed

En: Western waterweed
Hd: Water stargrass
Hv: Hydrilla
Mx: Milfoil
Mh: Low watermilfoil

Ma: Parrot feather milfoil
Ms: Eurasian watermilfoil
Nx: Naiad
Nft: Northern naiad
Ngr: Slender naiad

Ngd: Southern naiad
Nm: Spiny naiad
Px: Pondweed
Pc: Curly pondweed
Pe: Leafy pondweed
Pi: Illinois pondweed
Pn: American pondweed
Ppf: Redhead grass

Ppu: Slender pondweed
Rm: Widgeongrass
Sp: Sago pondweed
Ut: Bladderwort
Va: Wild celery
Zm: Eelgrass
Zp: Horned pondweed
U: Unknown species

Shoreline types

>100m
Be: Beach
Ma: Marsh
Fo: Forest
La: Lawn
Bu: Bulkhead

On: On-shore stone
Ne: Near-shore stone
Of: Off-shore stone
So: Soft structure
Oth: Other (describe)

Macroalgae types

Gf: Green freshwater
Gs: Green saltwater
R: Red saltwater
B: Brown saltwater

Chesapeake Bay Program
Science. Restoration. Partnership.

Chesapeake Bay
SAV WATCHERS

This is to certify that

_____

has successfully completed the

Chesapeake Bay SAV Watchers

Volunteer Monitor Trainer Certification course on

_____

(date of completion)

_____   _____

(name of watershed group or riverkeeper)   J. Brooke Landry
                                                   Chair, Chesapeake Bay Program's
                                                   SAV Workgroup

File | Home | Insert | Page Layout | Formulas | Data | Review | View | ACROBAT | ♀ Tell me what you want to do...

I5 | A

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		**Name:**	Suzi Spitzer	**Date:**	06/28/2018			**High tide:**	05:30							
2		**Group ID:**	Example group name	**General area description:**	Spa Creek			**Low tide:**	10:30							
3		**Site ID:** *(YYMMDD.hhmm.FL)*	180628.1358.SS	**Secchi depth:**	20			**SAV Species**	**Flowers/ seeds?**	*Image file name*	**SAV at surface:** P			**Total SAV:** 2		
4		**Latitude:**	38.970906	**Water depth:**	B		1) Ppf		P	180628.1358.SS_Ppf-seed	**Epiphytes:** A					*Image file n*
5		**Longitude:**	-76.481753	**Bottom Sediment:**	Mud		2) Ms		A	0628.1358.SS_Ms	**Erosion:** A			**Lyngbya:** 0		
6		**Sampling time:**	13:58	**Shoreline type(s):**	1) Fo		3)				**Human Impact:** A			**Macroalgae:** 1		180628.135
7					2) Bu		4)						*Image file name*	*Macroalgae type(s)* 1) Gs		
8					3)		5)				**Water chestnut:** A			2)		
9				*shoreline comments:*			6)				**Lily pads:** A			3)		
10							7)							**Notes:**		
11							8)									
12																
13		**Site ID:** *(YYMMDD.hhmm.FL)*	180628.1415.SS	**Secchi depth:**	15			**SAV Species**	**Flowers/ seeds?**	*Image file name*	**SAV at surface:** P			**Total SAV:** 2		

1. datasheet- FILL OUT SHEET | 2. excel converter- DO NOT TYPE | 3. PASTE FINAL DATA here | reference- DO NOT TYPE

Ready | 90%