

## SAV species list

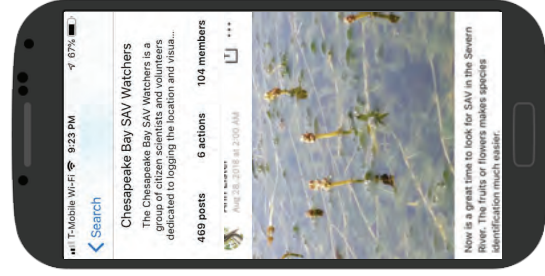
- Cd** - Hornwort - *Ceratophyllum demersum*  
**Cal** - Water starwort - *Callitriche* sp.  
**Egd** - Brazilian waterweed - *Egeria densa*  
**Ex** - Unknown waterweed - *Elodea* sp.  
**Ec** - Common waterweed - *Elodea canadensis*  
**En** - Western waterweed - *Elodea nuttallii*  
**Hd** - Water 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 guadalupensis*  
**Nm** - Spiny naiad - *Najas minor*  
**Px** - Unknown pondweed - *Potamogeton* sp.  
**Pc** - Curly pondweed - *Potamogeton crispus*  
**Pe** - Leafy pondweed - *Potamogeton ephedrus*  
**Pi** - Illinois pondweed - *Potamogeton illinoensis*  
**Ph** - 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



## 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

Oligohaline

Order Ceratophyllales • Family Ceratophyllaceae

6



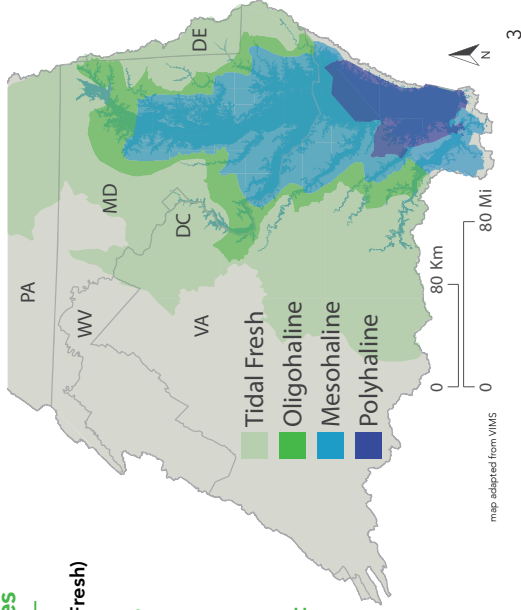
## Pocket Field Guide

4

# Sampling in the Chesapeake Bay

## Salinity Zones & Sampling Guidelines

- **Oligohaline (and Tidal Fresh)** & **August and September**
- **Mesohaline** & **Mid-July to mid-August**
- **Polyhaline** & **May**



map adapted from WIMS

# Field packing list



## Tier 1

- On-site reporting**
- Smartphone equipped with the Water Reporter app
- SAV species guide
- Off-site reporting**
- Paper
- Pencil
- Watch or Clock
- Camera
- GPS-enabled device
- SAV species guide

## Tier 2

- Datasheets
- Pencils
- Dry erase marker
- Clipboard
- SAV species guide
- Pocket field guide
- Watch or clock
- Camera
- GPS-enabled device
- 8" Secchi disk with attached measuring tape
- Device to classify sediment
- First aid kit

## Optional items

- Binoculars
- Dry bag
- Mask and snorkel
- Life jacket
- Hand lens
- Waterproof camera
- Boat
- Trash bag

# Hornwort

*Ceratophyllum demersum*



Oligohaline

Order Ceratophyllales • Family Ceratophyllaceae

# Tier 2 monitoring parameters

Basic observer and site information

- Secchi depth
- Water depth
- Total SAV density
- Epiphytes
- SAV at surface
- Bottom sediment

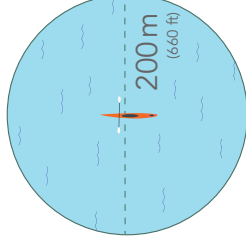
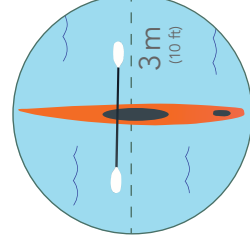
Photo Required (if present)

- SAV species
- Other macrophytes
- SAV flowers and seeds

Long-range data

- Shoreline type
- Visible shoreline erosion
- Marine debris
- Other human impact

Sampling ranges



## Water starwort

*Callitriche* sp.



**Location:** Fresh waters throughout Bay

**General ID:** Egg-shaped leaves are bright green and about 2 cm long and up to 8 mm wide. Each joint of the stem has two leaves, which may float on or emerge above surface of the water.

**Similar morphology:** Common waterweed

**Fun facts:**

- Multiple species occur in the Bay; *C. stagnalis* is shown at the left
- Provides habitat for insects
- Food source for ducks

Algalhaine

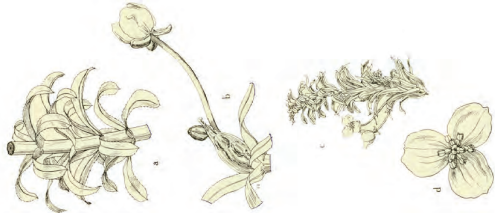
Eudicot • Order Callitrichales • Family Callitrichaceae

8

Cal

## Brazilian waterweed

*Egeria densa*



**Location:** Not common in the Bay; found in fresh waters

**General ID:** Forms thick mats at the surface of the water. Stems are highly branched. Leaves form in whorls of four and are densest near the top of the stem. Leaves are dark or bright green, serrated, long, and narrow (up to 2.5 cm long and 0.75 cm wide). Small white flowers form in the spring and the fall.

**Similar morphology:** Hydrilla, common waterweed

**Fun facts:**

- Native to South America
- Introduced to U.S. waters by aquarium owners emptying their aquaria in rivers and ponds

Algalhaine

Monocot • Order Alismatales • Family Hydrocharitaceae

10

Cal

## Common waterweed

*Elodea canadensis*



**Location:** Freshwater tributaries; occasionally in saltier waters where freshwater springs are found

**General ID:** Oval leaves grow directly on thin, branched stems (no leaf stalks). Leaves grow in whorls, with 3 per node. Tips of leaves are blunt and margins have fine teeth that are only visible using a hand lens. Leaves are densest toward stem tip.

**Similar morphology:** Hydrilla, western and Brazilian waterweeds

**Fun facts:**

- Food for beavers, muskrats, and ducks
- Can grow in deep or shallow waters
- Habitat for invertebrates, small fishes, and amphibians

Algalhaine

Monocot • Order Alismatales • Family Hydrocharitaceae

12

## Western waterweed

*Elodea nuttallii*



**Location:** Fresh waters and upper reaches of Bay tributaries

**General ID:** Long, slender, branched stems grow up to 1 m long. Whorled leaves grow directly on stems (in threes or fours) and are evenly spaced along stem. Leaves are short (up to 16 mm) and narrow. Leaves are pale green in color. Flowers are white.

**Similar morphology:** Hydrilla, common waterweed

**Fun facts:**

- Native to North America
- Invasive in Europe and Asia

Algalhaine

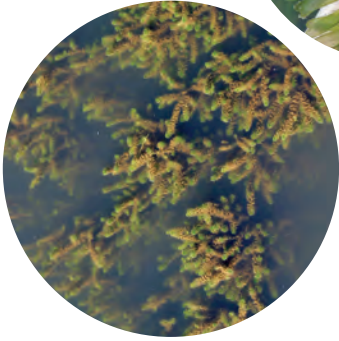
Monocot • Order Alismatales • Family Hydrocharitaceae

14

Ec

## Brazilian waterweed

*Egeria densa*



Monocot • Order Alismatales • Family Hydrocharitaceae

11

Oligohaline

## Water starwort

*Callitriche* sp.



Eudicot • Order Callitriciales • Family Callitricaceae

9

Oligohaline

## Western waterweed

*Elodea nuttallii*



Monocot • Order Alismatales • Family Hydrocharitaceae

15

Oligohaline

## Common waterweed

*Elodea canadensis*



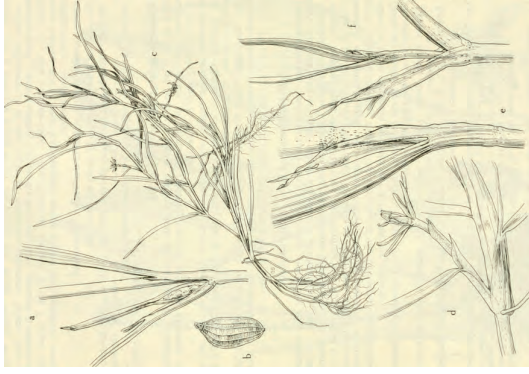
Monocot • Order Alismatales • Family Hydrocharitaceae

13

Oligohaline

## Water stargrass

*Heteranthera dubia*



**Location:** Freshwater tributaries

**General ID:** Tall, somewhat bushy plant with grass-like leaves that grow on branching stems. The bottom of each leaf wraps around the stem like a sheath. Leaves are arranged alternately. Yellow, 6-petaled flowers may grow above water in the summer.

**Similar morphology:** Naiads

**Fun facts:**

- Flowers only open above the surface of the water
- There is also a terrestrial form of this species

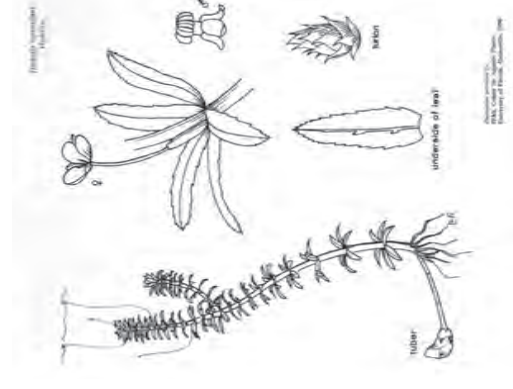
Monocot • Order Commelinales • Family Pontederiaceae

16

Algaline

## Hydrilla

*Hydrilla verticillata*



**Location:** Fresh and brackish waters of the Bay, in areas with muddy substrate

**General ID:** Stems are long and branching. Leaves grow in whorls of 3-5, and can be straight, lance shaped, or very small. Leaves are linear and serrated. Flowers are white and very small.

**Similar morphology:** Common waterweed

**Fun facts:**

- Non-native in the Chesapeake Bay
- Can live in lower light conditions than other SAV species
- Food source for migratory birds

Monocot • Order Alismatales • Family Hydrocharitaceae

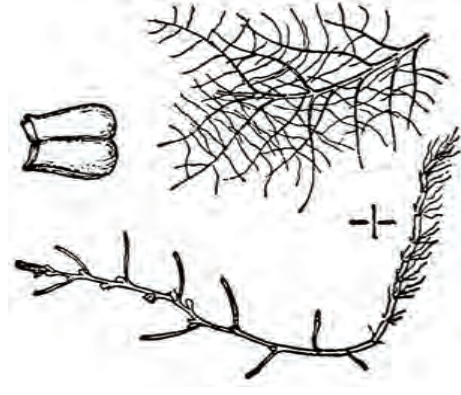
18

Algaline

## Hd

## Low watermilfoil

*Myriophyllum humile*



**Location:** Freshwater coastal ponds, lakes, and reservoirs along shoreline

**General ID:** Morphology is extremely variable depending on water level. Leaves are very fine and grow sub-oppositely or scattered along stems. Each leaf has up to 20 hair-like segments (up to 10 per side) that make this plant appear fuzzy.

**Similar morphology:** Eurasian watermilfoil

**Fun facts:**

- Not common in Chesapeake Bay

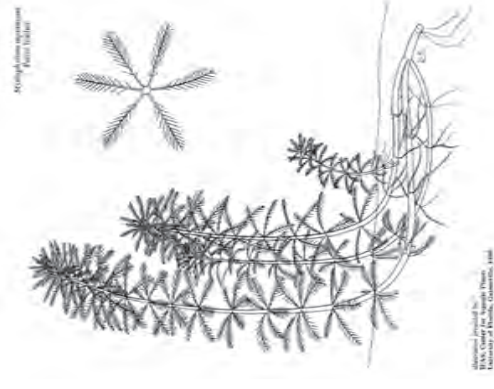
Eudicot • Order Saxifragales • Family Haloragaceae

20

Algaline

## Parrot feather milfoil

*Myriophyllum brasiliense (or aquaticum)*



**Location:** Fresh waters of the Bay

**General ID:** Stems are stout, with leaves occurring in whorls of five. Each side of the leaf has up to 25 hair-like protrusions that give it a feather-like appearance. Stems sometimes appear reddish.

**Similar morphology:** Eurasian watermilfoil

**Fun facts:**

- Can grow out of water and onto land
- No male plants exist outside of South America
- Native to the Amazon
- Introduced to the U.S. in Washington, D.C.

Eudicot • Order Saxifragales • Family Haloragaceae

22

Algaline

## Hydrilla

*Hydrilla verticillata*



Hv

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

19

## Water stargrass

*Heteranthera dubia*



Hd

Oligohaline

Monocot • Order Commelinales • Family Pontederiaceae

17

## Parrot feather milfoil

*Myriophyllum brasiliense* (or *aquaticum*)



Ma

Oligohaline

Eudicot • Order Saxifragales • Family Haloragaceae

23

## Low watermilfoil

*Myriophyllum humile*



Low watermilfoil

Oligohaline

Eudicot • Order Saxifragales • Family Haloragaceae

21

# Eurasian watermilfoil

*Myriophyllum spicatum*



*Myriophyllum spicatum* L.

**Location:** Widely distributed in fresh and brackish waters of the Bay and its tributaries

**General ID:** Delicate leaves resemble feathers and grow in whorls of 4 (usually) or 5. Leaves are pinnate and lose their shape when removed from the water. In the summer, reddish flowers grow in spikes above the water.

**Similar morphology:** Parrot feather milfoil, hornwort

**Fun facts:**

- Is an introduced species in the Bay
- Provides habitat for insects and aquatic species

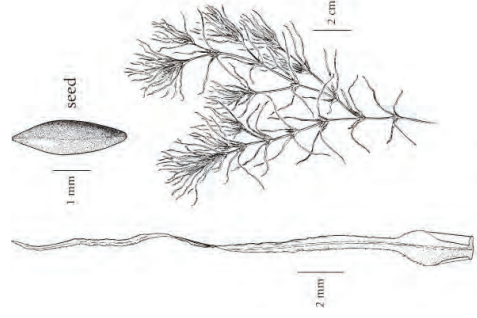
Mesohaline

Oligohaline

Monocot • Order Saxifragales • Family Haloragaceae

# Northern naiad

*Najas flexilis*



*Najas flexilis*

**Location:** Rivers and fresh and brackish Bay waters, in areas with sandy substrate

**General ID:** Narrow leaves are slightly broader at the base and grow up to 6 mm long. Leaves are opposite or in whorls, and curve out from the stem. Stem is slender and branching.

**Similar morphology:** Slender, southern, and spiny naiads

**Fun facts:**

- Also known as the "noddling watermymph"
- Sensitive to pollution
- Food source for water birds

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

# Slender naiad

*Najas gracillima*



Source: Wisconsin Lakes Partnership  
University of Wisconsin

# Ngr

**Location:** Rivers and fresh and brackish Bay waters, in areas with sandy substrate

**General ID:** Leaves are narrower than those of southern and northern naiads. Tiny teeth are very difficult to see on leaf edges. Leaves are opposite or whorled and grow up to 28 mm in length. Leaves grow more densely near the top of the slender, branching stem.

**Similar morphology:** Northern, southern, and spiny naiads

**Fun facts:**

- Also called the "thread-like watermymph"

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

# Southern naiad

*Najas guadalupensis*



# Ngd

**Location:** Rivers and fresh and brackish Bay waters, in areas with sandy substrate

**General ID:** Narrow, flat, straight leaves grow up to 33 mm long. Leaves are opposite or whorled on slender, branching stems.

**Similar morphology:** Slender, northern, and spiny naiads

**Fun facts:**

- Found across the Americas
- Considered a weed in some areas
- Food source for water birds and fish
- Also called "bushy pondweed"

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

# Nfi

**Northern naiad**  
*Najas flexilis*



Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

27

**Nfi**

**Eurasian watermilfoil**  
*Myriophyllum spicatum*



Mesohaline

Oligohaline

Eudicot • Order Saxifragales • Family Haloragaceae

25

**Ms**

**Southern naiad**  
*Najas guadalupensis*



Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

31

**Ngd**

**Slender naiad**  
*Najas gracillima*



Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

29

**Ngr**





## Spiny naiad

*Najas minor*



**Location:** Rivers and fresh and brackish Bay waters, in areas with sandy substrate

**General ID:** Leaves are narrower than those of Southern and Northern naiads. Tiny teeth on leaf edges are visible to the naked eye. Stiff, recurved leaves grow oppositely or whorled on slender, branching stems.

**Similar morphology:** Slender, southern, and northern naiad

**Fun facts:**

- Also called the “brittle water nymph”
- Introduced species from Europe

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

32

## Curly pondweed

*Potamogeton crispus*



**Location:** Widely distributed in fresh and slightly brackish waters of the Bay

**General ID:** Stems are flat and branching, with alternate or opposite leaves. Leaves are long and broad, with wavy edges and fine teeth. In the winter, leaves appear blue-green and flat; spring and summer leaves are curlier and reddish brown.

**Similar morphology:** Redhead grass

**Fun facts:**

- Introduced to the Chesapeake Bay in the 1800s
- Winter and summer forms look very different from one another
- Leaves appear crimped

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

34

## Leafy pondweed

*Potamogeton epiphydrus*



**Location:** Slow moving, fresh waters less than 2 m deep

**General ID:** Has both floating and submerged leaves, which are bright green with a light-colored stripe down the center. Floating leaves are paddle-like. Stems are flat and grow up to 18 cm long. Flowers are small and brownish green.

**Similar morphology:** Other pondweeds

**Fun facts:**

- Eaten by waterfowl
- Provides habitat for aquatic animals

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

36

## Illinois pondweed

*Potamogeton illinoensis*



**Location:** Rare in the Bay, may be found in freshwater areas

**General ID:** Long stems support ellipse-shaped leaves. Leaves grow submerged and floating. Submerged leaves are longer than floating ones, and have pointed tips. Floating leaves are paddle-like. Stems are long, cylindrical, slim, and branching. Small green flowers grow on spikes.

**Similar morphology:** Other pondweeds

**Fun facts:**

- Also known as “shining pondweed”

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

38

## Curly pondweed

*Potamogeton crispus*



Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

35

## Spiny naiad

*Najas minor*



Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

33

## Pc

## Illinois pondweed

*Potamogeton illinoensis*



Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

39

## Leafy pondweed

*Potamogeton epihydrus*



Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

37

## Pi

## Pe

## American pondweed

*Potamogeton nodosus*



**Location:** Rivers, ponds, and tidal fresh and brackish waters of the Bay

**General ID:** Floating leaves may appear dense at the surface. Stems can be up to 2 m long. Floating leaves are oval and are 10-18 cm long and up to 2-5 cm across. Underwater leaves are sparse, and are smaller and blade-like. Flower stalks grow above water.

**Similar morphology:** Other pondweeds

**Fun facts:**

- Also called "longleaf pondweed"
- Food source and shelter for turtles, fishes, ducks, and invertebrates
- Has submerged and floating leaves

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

40

## Redhead grass

*Potamogeton perfoliatus*



**Location:** Brackish waters with muddy substrate and slow currents

**General ID:** Flat, oval leaves are arranged alternately or oppositely. Leaf bases attach directly to the stems. Leaves are up to 7 cm long and 4 cm across, and have curled edges. Stems may be whitish or reddish, and branched near the top.

**Similar morphology:** Curly pondweed

**Fun facts:**

- Named for the redhead ducks that consume it
- Also a food source for other waterfowl

Mesohaline

Ppf

Monocot • Order Alismatales • Family Potamogetonaceae

42

## Slender pondweed

*Potamogeton pusillus*



Source: Crow and Hellquist © 2000

**Location:** Upper and middle Bay and fresh to brackish tributaries

**General ID:** Long, thin, grass-like leaves have pointed tips and may be purplish in color. Leaves are arranged alternately and have prominent mid-veins. Stems are slender and branching. Flowers grow in whorls on spikes.

**Similar morphology:** Sago pondweed, horned pondweed, and widgeongrass

**Fun facts:**

- Also called "small pondweed"
- Eaten by waterfowl

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

44

## Widgeongrass

*Ruppia maritima*



**Location:** Widely distributed in Bay

**General ID:** Long, narrow, threadlike leaves grow alternately on narrow stems. A sheath grows at the base of each leaf. Leaves grow up to 10 cm long and 0.5 mm wide. During the late summer, flower stalks grow and branch upwards.

**Similar morphology:** Horned and sago pondweed (when not flowering)

**Fun facts:**

- May be found growing with eelgrass
- Most common in sandy substrate
- Important food source for ducks, geese, and other waterfowl

Polyhaline

Rm

Monocot • Order Alismatales • Family Ruppiaceae

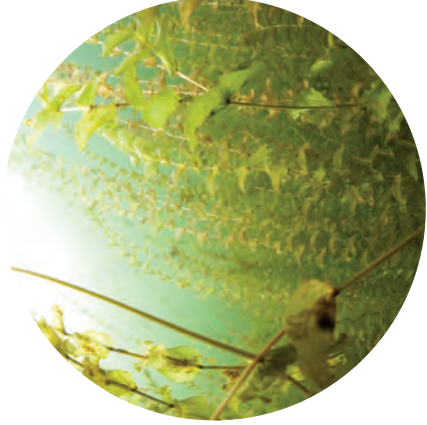
46

## Redhead grass

*Potamogeton perfoliatus*



Ppf



Mesohaline

Monocot • Order Alismatales • Family Potamogetonaceae

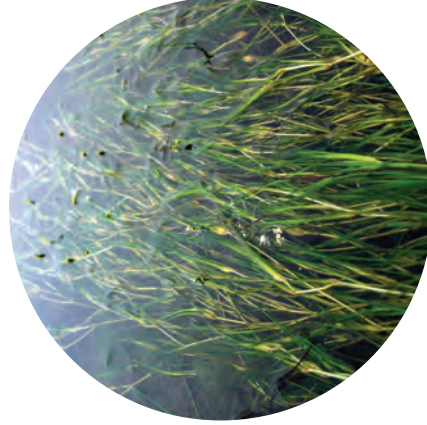
43

## Widgeongrass

*Ruppia maritima*



Rm



Mesohaline

Polyhaline

Monocot • Order Alismatales • Family Ruppiales

47

## American pondweed

*Potamogeton nodosus*



Pn

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

41

## Slender pondweed

*Potamogeton pusillus*



Ppu

Oligohaline

Monocot • Order Alismatales • Family Potamogetonaceae

45

# Bladderwort

## *Utricularia*



**Location:** Freshwater ponds and ditches

**General ID:** Typically found floating, with stems and leaves submerged.

Stems are branching and grow horizontally. Leaves are alternate, stem-like, linear, and may grow oppositely or whorled. Bladders grow on stems and leaves. True roots are absent. Flowers grow on leafless stems when present.

**Fun facts:**

- Several species inhabit the Chesapeake Bay
- Are carnivorous; they trap and digest organisms in bladders
- Free-floating and rootless
- Often called "ditch grass"

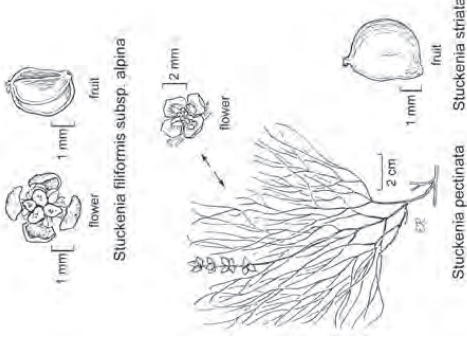
Oligohaline

Eudicot • Order Lamiales • Family Lentibulariaceae

50

# Sago pondweed

## *Stuckenia pectinata*



**Location:** Fresh to brackish waters throughout the Bay

**General ID:** Stems are slender and branching. Leaves are arranged alternately, and are long, threadlike, and tapered to a point. The basal sheath may be pointed. Stems and leaves may appear fan-like.

**Similar morphology:** Horned pondweed and widgeongrass

**Fun facts:**

- This species was formerly classified as *Potamogeton pectinatus*
- Inhabits the Americas, Europe, Africa, and Asia
- Easiest to differentiate from widgeongrass when seeds are present

Mesohaline

Monocot • Order Alismatales • Family Potamogetonaceae

48

# Up

# Bladderwort

## *Utricularia*

**Location:** Freshwater ponds and ditches

**General ID:** Typically found floating, with stems and leaves submerged.

Stems are branching and grow horizontally. Leaves are alternate, stem-like, linear, and may grow oppositely or whorled. Bladders grow on stems and leaves. True roots are absent. Flowers grow on leafless stems when present.

**Fun facts:**

- Several species inhabit the Chesapeake Bay
- Are carnivorous; they trap and digest organisms in bladders
- Free-floating and rootless
- Often called "ditch grass"

Oligohaline

Eudicot • Order Lamiales • Family Lentibulariaceae

50

# Eelgrass

## *Zostera marina*



**Location:** Saltier waters of the Bay

**General ID:** Leaves are ribbon-like and alternate, spaced at nodes up to 3.5 cm apart. Leaves have rounded tips and are wrapped at the base by a sheath up to 20 cm long. Leaves can grow up to 1.2 m in length, and may be long and wide (deep, muddy areas) or short and narrow (shallow, sandy areas).

**Similar morphology:** Wild celery

**Fun facts:**

- Eelgrass beds provide refuge for many species including seahorses, pipefish, juvenile fishes, blue crabs, and scallops.
- Eelgrass is the only true seagrass found in the Chesapeake Bay.

Polyhaline

Monocot • Order Alismatales • Family Zosteraceae

54

# Wild celery

## *Vallisneria americana*



**Location:** Fresh to slightly brackish tidal waters of the Bay

**General ID:** Ribbon-like leaves grow in clusters from the base of the plant. Leaves are long and flat with blunt, rounded tips and a light green center stripe. They grow up to 1.5 m long and 1 cm wide.

**Similar morphology:** Eelgrass

**Fun facts:**

- Provides food for migratory and overwintering birds

Oligohaline

Monocot • Order Alismatales • Family Hydrocharitaceae

52

**Sago pondweed**  
*Stuckenia pectinata*



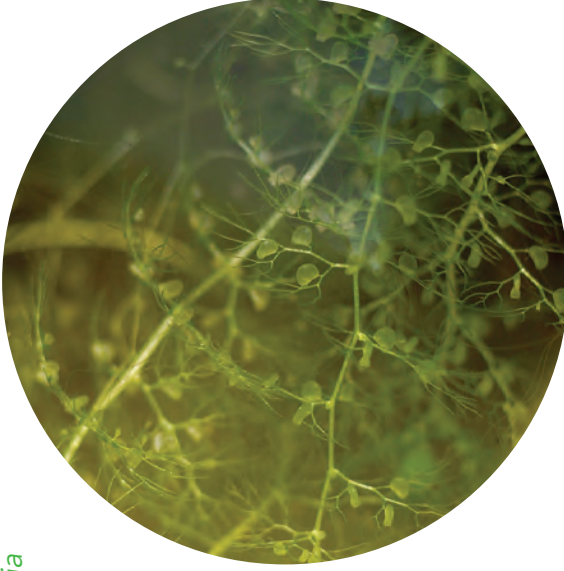
Mesohaline

**Sp**

Monocot • Order Alismatales • Family Potamogetonaceae

49

**Bladderwort**  
*Utricularia*



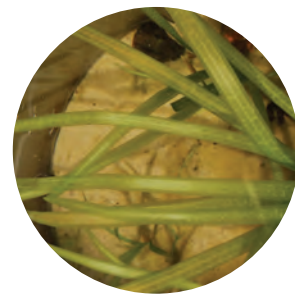
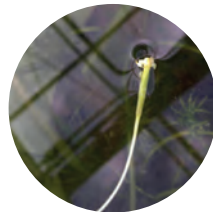
Oligohaline

**Up**

Eudicot • Order Lamiales • Family Lentibulariaceae

51

**Wild celery**  
*Vallisneria americana*



Oligohaline

**Va**

Monocot • Order Alismatales • Family Hydrocharitaceae

53

**Eelgrass**  
*Zostera marina*



Polyhaline

**Zm**

Monocot • Order Alismatales • Family Zosteraceae

55

# Horned pondweed

*Zannichellia palustris*

Zp



A. STONBÁRY, ZANNICHELLIA MAJORE BOENE  
B. SMÁŠÁRY, Z. REPPSSBOHN. C. SKATTSÁRY, Z. PEUCHELATÁ HECH

**Location:** Widely distributed in the Bay

**General ID:** Stems are slender and branching. Long, linear, threadlike leaves are arranged oppositely or in whorls. Leaf tips are pointed and the basal sheath of the leaves is thin. This plant can be distinguished by its horn-like seeds that appear in pairs or sometimes in a set of four.

**Similar morphology:** Sago pondweed, widgeongrass

**Fun facts:**

- Multiple variations of this species exist; several are shown on this page
- Two forms are found in the Bay: one grows upwards, the other grows along the bottom sediment with stems and roots together

Monocot • Order Alismatales • Family Potamogetonaceae

**Genera:** Chara, Nitella

**Common Name:** Muskgrass

**General ID:** Resemble some SAV species, but these are algae, not vascular plants. Leaves branch, and grow off branching stems in whorls.

Green freshwater macroalgae

# Epiphytes



**What are they?** Epiphytes are algal species that grow on SAV. In terrestrial systems, epiphytic plants may grow on other plants, such as trees.

**Are they parasites?** No. Epiphytes use SAV and other plants as a substrate on which to grow, and do not necessarily impact their host negatively. However, when nutrients are overly abundant, epiphytic algae may cover too much of the host SAV surface, blocking light and inhibiting photosynthesis.

**Location:** Often found growing on SAV in and around the Bay.

**General ID:** Varies immensely depending on species of epiphyte. May grow on stem or base of SAV.

# Green freshwater algae



# Red saltwater algae



**Genera:** Gracilaria, Agardiella

**Common Name:** Red algae

**General ID:** Red in color, highly branched structure.

Red saltwater macroalgae

# Lyngbya



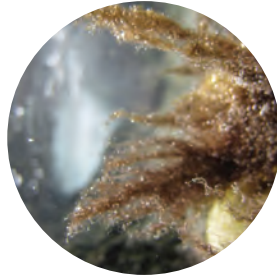
**What is it?** Lyngbya is a freshwater cyanobacteria.

**Location:** Lyngbya has been found in the northern Bay covering SAV beds, and in fishing gear during the summer.

**General ID:** Grows in strands that clump together and form mats in warm, fresh waters.

**Impacts on SAV species:** Can grow over SAV beds and inhibit photosynthesis.

**Warnings:** Associated toxins may cause skin and gastrointestinal inflammation; avoid direct contact with Lyngbya. Wash your skin with soap if contact occurs!



Bacteria • Phylum Cyanobacteria

59

# Brown saltwater algae



**Genus:** *Ascophyllum*

**Common Name:** Knotted wrack

**General ID:** Long fronds with rounded tips and air bladders.

Brown saltwater macroalgae



**Genus:** *Fucus*

**Common Name:** Bladder wrack

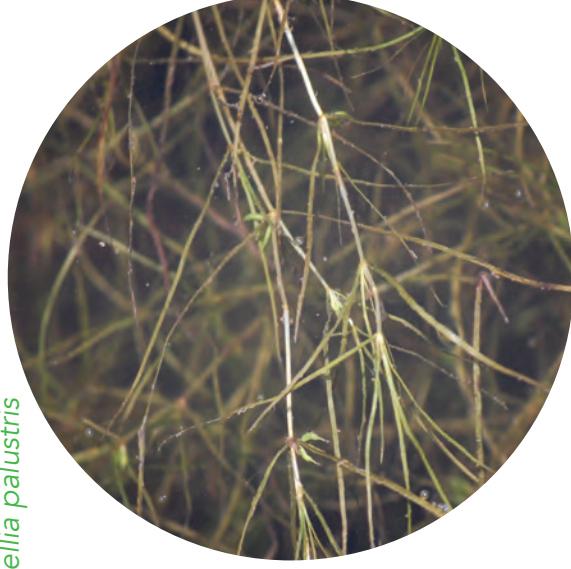
**General ID:** Long, branching fronds with air bladders.

63

# Horned pondweed

*Zannichellia palustris*

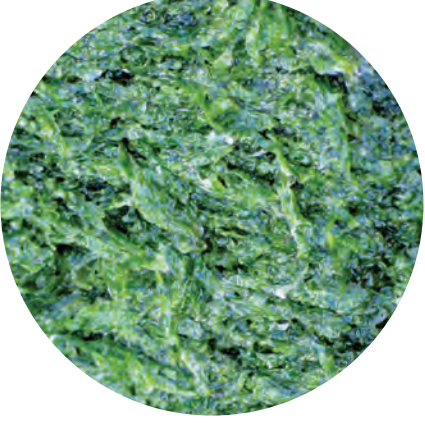
Zp



Monocot • Order Alismatales • Family Potamogetonaceae

57

# Green saltwater algae

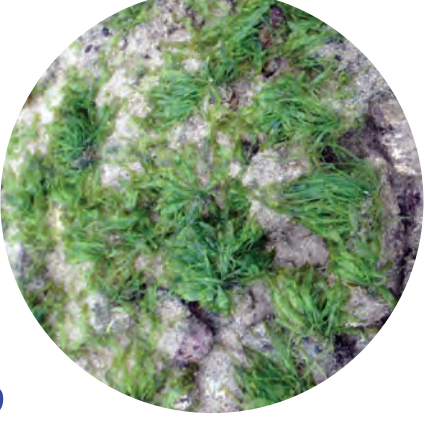


**Species:** *Ulva lactuca*

**Common Name:** Sea Lettuce

**General ID:** Bright green in color, with thin, leaf-like fronds.

Green saltwater macroalgae



**Genus:** *Ulva*

**Common Name:** Enteromorpha

61

Polyhaline

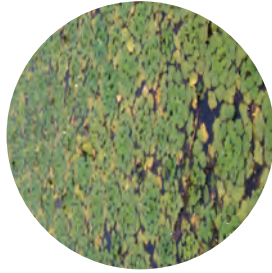
Mesohaline

Oligohaline



# Water chestnut

*Trapa natans*



**What is it?** Water chestnut is an invasive floating aquatic plant that is actively managed in the Chesapeake Bay.

**Location:** Has been found in upper Chesapeake Bay tributaries and in the Potomac River.

**General ID:** Triangle-shaped leaves form rosettes that float on the surface of the water. The plant itself is bulky but the flowers are small and white.

**Impacts on SAV species:** Leaves can block sunlight from reaching SAV, competes for space.

**What to do if you see it:** If you see water chestnut while sampling SAV, alert MD DNR at (410) 260-8630.

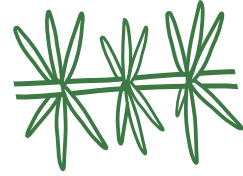
# Leaf arrangement vocabulary

These four diagrams introduce you to terminology that is used throughout this pocket guide to denote leaf arrangement.

**Basal**



**Whorled**



**Alternate**



**Opposite**



Note: Do not determine leaf arrangement based on where the stem divides, as this will likely reflect an atypical arrangement from the majority of the plant.

Quick conversions: 1 cm = 0.4 in 1 m = 3 ft

# Harmful algal blooms

**What is it?** Certain algae species can produce toxins dangerous to humans and aquatic species. When these species reproduce very quickly, or "bloom", they can form a harmful algal bloom, or "HAB".

**General ID:** May look like thick mats or clumps are growing on or near the water surface. May be red, green, or brown in color.

**What should you do?** It is difficult to distinguish a harmful algal bloom from a non-harmful one, so it is best not to sample in areas with an algal bloom. Instead, report suspicious algal blooms to the Chesapeake Bay Safety and Environmental Hotline at (877) 224-7229.



# Photo attribution

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## Creatures you may see near SAV



Snails



Amphipods



Seahorses



Crustaceans



Bivalves



Fishes

## Lily pads

Genus *Nuphar* • Genus *Nymphaoides* • *Nelumbo lutea*



**What is it?** Various species of lily pad that inhabit the Chesapeake Bay.

**Location:** Fresh waters in the Chesapeake Bay watershed.

**General ID:** Rounded leaves with waxy coatings float on water surface.

**Impacts on SAV species:** Can block sunlight from reaching SAV.



## Site ID:

(YYMIDD.hhmm.FL)

## Contact list

- To report suspicious algal blooms, call the Chesapeake Bay Safety and Environmental Hotline at (877) 224-7229.
- To report a stranded marine mammal or sea turtle, call the Maryland Marine Mammal and Sea Turtle Stranding Response Program at 1-800-628-9944.
- For a natural resources emergency or to request assistance, call the Maryland Department of Natural Resources at 1-800-628-9944 or (410) 260-8888.
- To report a fishing or wildlife violation, contact Maryland Wildlife Crimestoppers at (443) 433-411.