



Bruce Museum Seaside Center Activity: Let's Identify Seaweeds!

*A Dichotomous Key for use on the Fairfield and Westchester Coastline
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**Note: This is the first in a series of educational pamphlets and activities released as part of the Seaside Center's Digital 2020 Season. For access to all our content, please visit: <http://www.storagetwo.com/seaside-center>*

Introduction

If you've ever walked along the beach at low tide, you've probably noticed lots of "seaweed" washed up along the shore or drifting in the shallow water. Have you ever stopped to look at it? Many people think seaweed is gross (and OK, it's definitely not fun to swim through), but we shouldn't pass it off-- like many of the other organisms you find along the shore, seaweeds are fascinating and deserve our curiosity! There are many different types of seaweed in the world, but here in the Sound we have only a handful of common species. Each of these species have distinctive features, and learning to identify them can be a fun activity for summer days at the beach.

What are seaweeds?

What we call "seaweeds," scientists call **macroalgae**. Unlike free floating single-celled algae, macroalgae (aka seaweed) grows attached to a substrate, such as rocks or shells.

Seaweeds are generally divided into three major groups, and learning these groups is the first step for identification. These groups are color-coded, making things easy! There are green algae (**Chlorophyta**), brown algae (**Phaeophyta**) and red algae (**Rhodophyta**). In this guide, we'll use these categories as our starting point. Let's begin!



How to use this guide

This guide is set up as a *dichotomous key*, a type of field guide that uses a series of questions to lead you to an identification.

Each question will ask you about a feature of the seaweed you're looking at, and your answer will tell you where in the guide to turn to next. For example, if the question was:

1. *Does the seaweed have legs and feet?*

And the options were...

- a) **Yes** ... *you are not looking at a seaweed.*
- b) **No** ... *proceed to question 2, page 2*

... hopefully you would select option b and turn the page to Question 2, as instructed. The instructions may have you skip several questions, or even pages, to reach your ID. In the example above, choosing "*option a*" would have been the end of your journey through this guide. Hopefully, all journeys here end in the identification of whatever seaweed you're looking at. It is always possible you are looking at an unusual seaweed not included in the scope of this guide: we'll cover only the most common species. If that's truly the case, congratulations! You've found something unusual-- I'll link to more expansive resources at the end of this guide, where you might find more options.

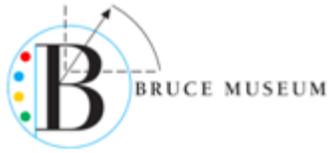
Let's Identify Seaweeds!

Question 1: What color is the seaweed?

- a) **Green (Chlorophyta)** ... *proceed to Question 2, page 3*
- b) **Brown (Phaeophyta)** ... *proceed to Question 4, Page 3*
- c) **Red (Rhodophyta)** ... *proceed to Question 8, page 4*

Note: These color categories are broad, and some seaweeds may not seem to fit in them neatly. Many "brown" algae are slightly greenish, for example. For the purposes of this guide, "Green" Seaweed is *bright* green.

Green Seaweeds (Chlorophyta)



Question 2: Is the green seaweed flat, tubular (like a finger), or stringy?

- a) **Flat** ... *Sea Lettuce* (see page 4)
- b) **Like a finger!** ... *Dead Man's Fingers* (see page 5)
- c) **Stringy** ... proceed to Question 3, page 3

Note: The two "Stringy" species are both often found coating large intertidal rocks.

Question 3: Is the stringy seaweed...

- a) **Short and fine (like wet hair?)**... *Stone Hair* (see page 5)
- b) **Longer and coarse, with flattened components?**... *Gut Weed* (see page 5)

Brown Seaweeds (*Phaeophyta*)

Question 4: Does the seaweed have "air bladders?" (small inflated pockets)

- a) **Yes**... continue to question 5
- b) **No**... continue to question 6

Question 5: Are the air bladders...

- a) **On their own, branching out from a central strand?**... *Knotted Wrack* (see page 5)
- b) **Within or at the end of flat, branching arms?**... *Rockweed Sp.* (see page 6)

Note: There are three species of Rockweed (*Fucus*) common around the Sound, and they are very similar. Some details on their separation are provided at the end.



Question 6: Is the seaweed large, flat, and leathery?

- a) **Yes...** *Sugar Kelp (see page 6)*
- b) **No...** *continue to question 7, below*

Question 7: Is the seaweed fine, branching, and tufted, and floats like a cloud underwater?

- a) **Yes...** *Ectocarpus (see page 6)*
- b) **No...** *maybe you've found something unusual? See "additional resources," page*

Red Seaweeds (Rhodophyta)

Question 8: Is the seaweed flat and fanning out from a joined base?

- a) **Yes...** *Irish Moss (see page 6)*
- b) **No...** *continue to question 9, below*

Question 9: Is the seaweed thin (like a pipe cleaner) with tapered branches?

- a) **Yes...** *Red Woolly Grass (see page 7)*
- b) **No...** *maybe you've found something unusual? See "additional resources," page*

Species Profiles



Sea Lettuce, *Ulva lactuca*

- Filmy, bright green.
- Abundant on beaches, rocky intertidal-- pretty much anywhere.



Dead Man's Fingers, *Codium fragile*

- Also called "Green Fleece"
- Non-native; spread from East Asia in 20th century



Stone Hair, *Blidingia minima*

- Forms mats on inter and subtidal rocks
- often in association with Gut Weed



Gut Weed, *Ulva intestinalis*

- Like Stone Hair, but is longer and coarser



Knotted Wrack, *Ascophyllum nodosum*

- Often grows on rocks-- long strands with tough air bladders splitting off. Has a texture like braided hair



Rockweed, *Fucus sp.*

- Three similar species in this genus.
 - ***Fucus vesiculosus***
 - Paired, rounded bladders contained within blade
 - ***Fucus distichus***
 - Bladders only at flattened blade tips; longer and pointed
 - ***Fucus spiralis***
 - Blades twisted, bladders at tip rough and wrinkled



Sugar Kelp, *Laminaria saccharina*

- Large, thick and leathery



Ectocarpus siliculosus

- Often seen attached to larger seaweeds, like *Ascophyllum* or *Fucus*
 - Drifts in cloudy clumps
 - No common name used



Irish Moss, *Chondrus crispus*

- Color variable: red, maroon, dark purple, bleached (in sun)
- Smooth rounded blades, tips always split in two



Red Woolly Grass, *Agardhiella subulata*

- Bushy, tangled, dark red/maroon

Further Resources:

<https://digitalcommons.conncoll.edu/cgi/viewcontent.cgi?article=1039&context=arbulletins>

https://www.inaturalist.org/observations?place_id=any&iconic_taxa=Plantae