Stone Living Lab

Intertidal Biodiversity Monitoring

Field Identification Guide

UMASS BOSTON

Group 1: **Shelled Animals**

This group of animals, which includes Molluscs and Crustaceans, are **invertebrates** - they do not have a backbone or spine. This is a broad category of organisms including animals like mussels, oysters, snails, and barnacles. These species have hard outer **shells** to protect them from the elements.

Blue Mussel
Mytilus edulis

Taxon: **Bivalve**

Blue Mussels are typically 2 - 4 inches long, with a **dark blue, brown,** or **black** exterior and a shiny purple interior. They have a curved **triangular** shell and are able to attach themselves to almost any surface.

Ribbed Mussel
Geukensia demissa

Taxon: **Bivalve**

The Ribbed Mussel can grow up to 4 inches long. The shell coloring can be a mix of **yellow, brown,** or **black**. They are similar in shape to the blue mussel, but have a distinct **ridged** texture. They are usually found burrowed in sediment.

American Oyster
Crassostrea virginica

Taxon: **Bivalve**

American Oysters are typically between 2 - 6 inches long. The exterior shells are **white** or **gray, rough,** and **oval** in shape. The thick bottom shell will attach itself to a hard substrate. The top shell is smaller and flatter. They often grow in clusters.

European Oyster
Ostrea edulis
Taxon: **Bivalve**

European Oysters are typically 1.5 - 5 inches across, with **oval or pear-shaped shells**. One shell is larger and concave, and the other is small, flat, and fits inside the large shell. The shells have **many concentric ridges** that give them a ruffled appearance. European oysters were introduced to North America but are not considered invasive.

Dog Whelk
Nucella lappilus

Taxon: **Gastropod**

Dog whelks are fierce predators, usually 1 inch long and 3/4 inch wide. Their shells can be **whitish grey, orange, yellow, black,** and even **striped.** The shells are fairly round with a small pointed end. When held vertically with the pointed end upwards, the opening in the snail's shell is on the right.

Common Periwinkle
Littorina littorea
Taxon: **Gastropod**

This small snail is usually 1.5 inches long and 1/2 inches wide. Their shells are **dark greyish-brown**, sometimes with visible stripes. Introduced to North America in the mid 1850s, Common Periwinkles are now the most common marine snail on the North Atlantic coast. They are edible and especially enjoyed in Europe!

Northern Rock Barnacle

Semibalanus balanoides
Taxon: **Cirripedia**

These sessile (immobile) animals are about 1/2 an inch in diameter and live attached to rocks, walls, and other animals. They are white to grey in color, and at low tide they close up their hard outer shell to avoid getting dried out. Dead barnacles have an empty hole in the center.

Group 2: **Crabs**

Crabs are one of the most familiar intertidal invertebrates found around Boston Harbor. These small **crustaceans** always have 10 legs, and some species have a hard upper shell called a **carapace**. As **scavengers**, crabs are not picky eaters and will consume anything they can get their claws on. Be careful - crabs can deliver powerful pinches with their front claws!

Green Crab
Carcinus maenas

Taxon: **Decapoda**

This highly invasive crab grows to about 3.5 inches wide. The carapace has five points on either side of the eye, and three points in between the eyes. Green crabs can be green, brown, or even reddish in color.

Asian Shore Crab
Hemigrapsus sanguineus

Taxon: **Decapoda**

This small invasive crab has a square-ish carapace that can be 2 inches wide. The carapace has three points on either side of the eye. Asian Shore Crabs can be green, purple, or orange-brown in color, with light and dark stripes on its legs.

Hermit Crab
Pagurus longicarpus

Taxon: **Decapoda**

A crowd favorite, hermit crabs only reach a 1/2 inch in size. The body can be grey or greenish in color, and Hermit Crabs have an oversized right claw. These crabs don't make their own shell, but live in old periwinkle or snail shells!

Group 3: **Tunicates**

Tunicates are unique organisms found in intertidal areas. Adults usually grow in **colonies** and are **sessile** - they are permanently attached the surface they live on. Tunicates are **filter-feeders** so they do not their prey, but instead suck in food like a siphon.

Sheath Tunicate (Yellow)
Botrylloides violaceus

Taxon: **Tunicate**

Colonies of adult yellow Sheath Tunicates will be found attached to rocks in the intertidal zone. They are smooth but slimy to the touch, and have a **yellow** coloring that will be lighter than the orange variety.

Sheath Tunicate (Orange)
Botrylloides violaceus

Taxon: **Tunicate**

Colonies of adult orange Sheath Tunicates will be found attached to rocks in the intertidal zone. They are smooth but slimy to the touch, and have a distinct **orange** coloring that is darker than the yellow variety but not red.

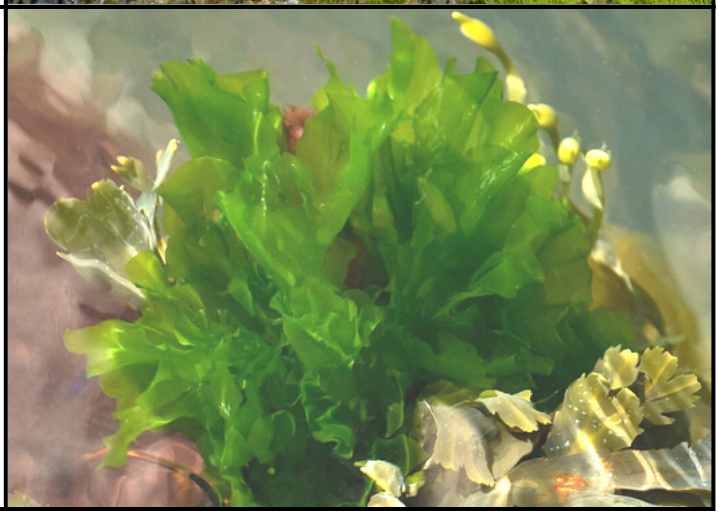
Sheath Tunicate (Red)
Botrylloides violaceus

Taxon: **Tunicate**

Colonies of adult red Sheath Tunicates will be found attached to rocks in the intertidal zone. They are smooth but slimy to the touch, and have a deep **reddish or brown** color that will be darker than the yellow and red varieties.

Group 4: **Seaweed**

A seaweed isn't a plant, but a **marine algae**! **Marine** means that it is found in the sea, and **algae** are organisms that use the sun to create energy. Unlike plants, algae do not have roots, pollen, or seeds. The long long "leaves" of a seaweed are called **fronds** or **blades**. There are many kinds of seaweed, which can be sorted into three categories: green, brown, and red. Be careful - some seaweeds can be many different colors!

Stone Hair *Blidingia minima* Taxon: **Green Seaweed** The fronds of this small seaweed are only 0.3 – 4 inches long and are **light green**. It grows in clumps, with many individual fronds growing from a single central spot. If you look closely, you can see that the fronds are actually hollow tubes!	
Sea Lettuce *Ulva latuca* Taxon: **Green Seaweed** This seaweed has thin, flat fronds, that can look ruffled or torn on the edges. It is typically **bright green and translucent** (light can shine through). It can reach 7 inches or more in length and up to 12 inches wide. This algae is edible and is often eaten in soups or salad!	

Wrack Siphon Weed
Polysiphonia lanosa

Taxon: **Red Seaweed**

This **dark red** algae is often found living on Knotted Wrack (*A. nodosum*). It grows in dense red tufts, resembling pom-poms. It isn't harmful to the host seaweed it lives on, and just uses the host as physical support.

False Irish Moss
Mastocarpus stellatus

Taxon: **Red Seaweed**

False Irish Moss only reaches about 6.5 inches, and is **reddish or purplish brown.** The fronds may be covered in small bumps called papillae. This seaweed is edible, and has been used in cooking and as a natural cold remedy.

Flat red invasive
Grateloupia turuturu

Taxon: **Red Seaweed**

This edible seaweed has wide, flat fronds, that are a **deep red or maroon** in color. The fronds can grow up to almost 3 feet long. It is an invasive seaweed, native to the Asian Pacific. In many areas, it out-competes native species and is significantly changing the habitat. This seaweed is also edible!

Group 4: **Seaweed (continued)**

Knotted Wrack
Ascophyllum nodosum

Taxon: **Brown Seaweed**

Knotted Wrack has long, tough, and leathery fronds with large, egg-shaped air bladders. These air bladders feel like tiny balloons when squeezed. The fronds can reach 6 feet in length. This seaweed can be **olive green or olive brown** in color. It is used often used as packing material for lobster shipments!

Rockweed
Fucus distichus

Taxon: **Brown Seaweed**

This seaweed has tough, flat, tufted fronds, and can range from **olive green to yellow green** in color. The fronds can grow to about 11 inches in length. Rockweed has airbladders at the very end of the fronds. In the ocean, this seaweed grows in a dense canopy that provides important habitat for other creatures!