

Algae Guide to the Nahant Rocky Intertidal



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Glossary of Terms Used

Air bladder - An air-filled sac found along algae

Blade - Similar to a leaf

Calcareous - Containing (hard) calcium carbonate

Carrageenan - A substance extracted from algae that is used to thicken food products

Chlorophyta - Green algae

Epiphyte - An organism that grows on another

Frond - Similar to a large, divided leaf

Indicator - An organism used to infer conditions in a particular habitat

Invasive – An organism that causes ecological or economic harm in a new environment where it is not native

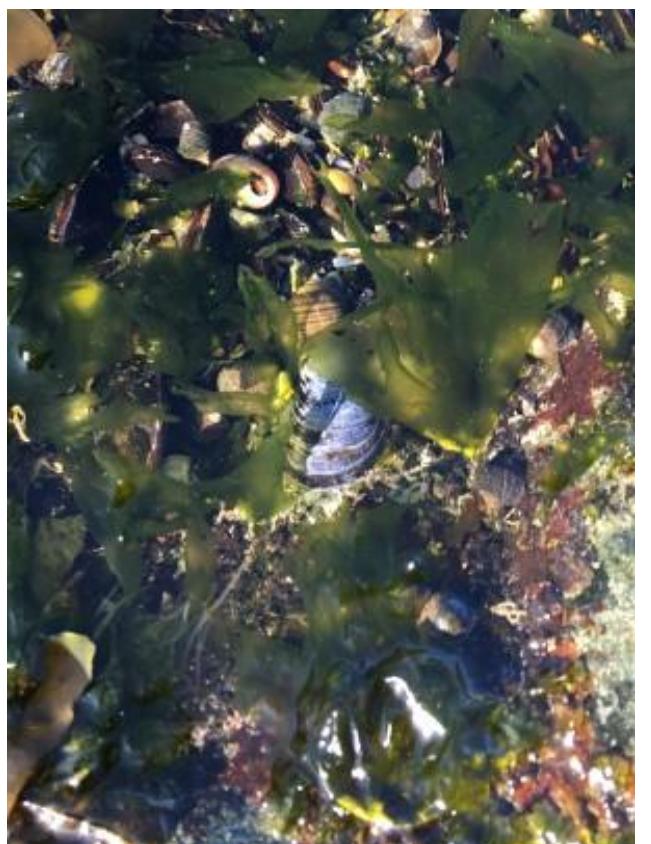
Phaeophyceae – Brown algae

Rhodophyta – Red algae

Stipe – A stalk or stem

Introduction

Nahant, MA is an interesting area to explore with its diverse habitats on land and in the ocean. The rocky intertidal is special because it is a combination of both these landscapes. In the intertidal, the rocks meet the ocean. This interaction creates little pools of seawater in rock crevices called tidepools. A variety of animals live here, such as snails, mussels, crabs, and sea stars. Without the existence of algae in these tidepools, the resident animals would not be able to survive. Since tidepools are isolated, the algae produce the necessary oxygen that the animals need to breathe. Therefore, studying algae and being able to identify the different species is not only important to understand, but also fun!



Green Algae

Chlorophyta



Ulva lactuca
Sea lettuce



*Monostroma
grevillei*
Green laver



Codium fragile
Dead man's fingers

Description: A thin and delicate light green sheet with no **stipe**—only 2 cell layers thick.

Facts: This alga can be used as an **indicator** for areas with high pollution. *U. lactuca* can tolerate toxic waste that other algae cannot. When in high quantities, this alga indicates a toxic area.

Description: When young, the body is sac-like, but when mature in adult form, the body is a singular sheet that is green and only 1 cell layer thick.

Facts: When this alga is mature it can bore into **calcareous** material such as shells of mussels, barnacles, and clams.

Description: A dark green and spongy body with branches that fork and resemble fingers, hence the common name dead man's fingers.

Facts: This species of algae is **invasive** to the Nahant area. It is originally from Asia and was introduced to places all around the world.

Brown Algae

Phaeophyceae



*Ascophyllum
nodosum* Knotted
wrack



Fucus distichus
Rockweed



*Fucus
vesiculosus*
Rockweed

Description: A brown algae that is a dark green/light yellow in color. It forms strap-like **fronds** that have **air bladders** along it.

Facts: The age of this algae can be determined by counting the number of air bladders (bumps/bubbles) down the longest branch.

Description: A dark green to yellow-brown body that consists of flattened **fronds** that fork at the end. Tips are usually light green or yellow in color and have a bumpy texture.

Facts: This species grows in higher numbers on sloped rocks rather than vertical ledges.

Description: A dark green to yellow brown body with paired **air bladders** throughout the length of the flattened **frond**.

Facts: This species of *Fucus* was one of the original sources of iodine that was used to help treat some diseases and disorders.

Red Algae

Rhodophyta



*Chondrus
crispus*
Irish moss



*Mastocarpus
stellatus*
False Irish moss



*Vertebrata
lanosa*
Wrack siphon weed

Description: A dark purple to red body that is almost iridescent at the tips. The **stipe** is flattened and then splits into branches.

Facts: This species is commonly used by humans in food products for its **carageenan**, but also for its protein and mineral matter.

Description: Similar to *C. crispus* in both shape and color—dark purple-red body with a flattened **stipe** and branching **fronds**. However, *M. stellatus* has inrolled blades that form a channel.

Facts: *M. stellatus* is a shade tolerant species and is well-adapted to areas with little light.

Description: Densely tufted dark red-purple **fronds** that fork multiple times. Almost always found in association with *A. nodosum*.

Facts: *V. lanosa* is an obligate **epiphyte**, which means that it only can survive when growing on other organisms - in this case, other algae.

Red Algae

Rhodophyta



*Palmaria
palmata*
Dulse



*Corallina
officinalis*
Common coral weed

Description: Flattened, leathery red-brown **fronds** connected by a short **stipe**. **Blade** is a long oval that occasionally splits at the tips.

Facts: This specific species of alga is also known as Dulse and is commonly used in food products.

Description: Pink to white **calcified fronds** that have irregular branching. Typically short in height – around 6 centimeters maximum.

Facts: The white patches on the **fronds** are where the calcium carbonate is more densely concentrated in the tissue.

