

The Algae That Won't Leave Our Beaches

The public and the Department of Conservation and Recreation (DCR) are victims of the nuisance conditions generated by the algae because it inhibits use of the beaches to their full advantage.

The DCR has been managing the algae, known as *Pilayella littoralis*, on our beaches for more than 40 years and has contributed over \$300,000 in research and studies. In 1987 the Metropolitan District Commission (MDC; now DCR), assisted by academic institutions completed the first phase of research which resulted in the documentation of the biology of the organism in Nahant Bay. The abundance of *Pilayella* spreading to Broad Sound in the 1980's resulted in the establishment of the Algae Task Force. Since then, additional research has been conducted on the biology of *Pilayella* (including genetic analysis, detachment experiments, current meter and bottom-drifter observations), oceanographic features of Nahant Bay, and alternative uses and removal methods for the algae. More research must be done to help establish ways to efficiently control as well as how to handle, remove and dispose of this algae that has plagued our beaches.



The Brown Algae of Nahant Bay and Broad Sound

Q & A



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Free-living Nahant Bay *Pilayella littoralis*

What is this stuff?

The brown material that washes up on the beach and floats in the water near the shoreline is a rapidly growing, free-floating form of brown algae, named *Pilayella littoralis*. The algal mass is not sewage, nor is it found in polluted areas of the coast, although, like any plant it may grow faster in response to excess nutrients.

Where did it come from?

The species has been in Nahant Bay since at least 1902, its ultimate origin is not known. This type of brown seaweed is unique to our area. No one, including scientists, is entirely sure why *Pilayella littoralis* occurs in such large quantities or why it is mostly limited to Nahant Bay and Broad Sound.

How does it grow?

It grows vegetatively. The characteristics (temperature, light, depth, and nutrients) of Nahant Bay/Broad Sound are ideal for abundant growth. The plant begins as an attached form on rocks. Fragmentation of individual plants can lead to new ball shaped free-floating individuals. Under ideal growing conditions it can double its weight in 6-10 days.

How does it get on the beach?

It is transported toward the shore and ultimately on the beach by prevailing winds, currents, tides, and waves.

What is the stench?

As the plant material decays on the beach and in the sand it produces an odor. The odor is a sulfide containing gas. There are no documented detrimental health effects from the beach generated odors.

Can it be killed?

No. The application of herbicides to kill it may disrupt healthy marine ecosystems.

Is it unhealthy?

Pilayella is not toxic or dangerous to humans or animals. *Pilayella* itself does not indicate poor water quality.

Does the algae serve a purpose?

Drift algae provide habitat for smaller marine animals and have a large appetite for nitrogen compounds. The smaller marine animals provide food to other organisms like fish and birds.

Areas where *Pilayella littoralis* can be found year-round.



What's being done about it?

How is the DCR presently managing the algae on the beach?

The DCR (Department of Conservation and Recreation) is presently using both a front end loader and a sand rake hauled by a tractor to remove algae from the beach. Presently the algae is removed from the beach to reduce potential odors and to decrease algal productivity in the surf zone. Removal is typically during the warmer months when heavy accumulations begin to cause nuisance conditions. Additional removal is done as necessary given available resources and cost constraints.

Does the DCR foresee any better management strategies in the future?

The optimum solution is preventing the algae from accumulating on the beaches. Future needs are for better equipment to collect the algae without the removal of sand, either onshore or offshore. Investigations must be conducted to determine any beneficial re-use of the algae or environmentally sound alternative disposal methods. Alternative management methods require additional State, Municipal, and Federal agencies to join efforts and financially support research and management of the algae problem.