

January 2021 Water Quality Beach / Update

Report to PBA from Nicole Corbett

[PBA has funded Nicole's testing of our offshore water quality since 2019. See more about Nicole at her website: [Popponeset Water Stewardship Alliance](#) and her Facebook Page: [Mashpee Clean Waters](#)]

Since last winter, I have been monitoring a red seaweed species in Popponeset where I have been working as a volunteer scientist with the Center for Coastal Studies collecting water samples along the beach to check for nitrogen and phosphorous levels. I was concerned nutrients were helping to instigate the large seaweed "blooms" the beach had had during the summer months. I did not expect during my testing I would run into blooms of seaweed in the middle of the winter. As a result, I have spent the last year trying to understand this species, called *Dasysiphonia japonica*/*Hetersiphonia japonica* (scientists still call it both names) or siphoned feather weed. Over the last year, myself as well as volunteers in Popponeset have been documenting this species pretty intensely. As a result, we figured out a rough pattern of when it will be spotted coming into the beach and where it is most likely to build up. What I did not have a good grasp on, however, is where it was coming from.

For the first part of its life, feather weed is attached to the coarse sediment, rocks, and shells found in shallow coastal waters. After it gets too big, it breaks off the bottom and begins to "drift". As it drifts, it continues to grow rapidly depending on the conditions it is in and drops its spores in the process, continuing this cycle again a few months later.

Our current seaweed inundation began on 10/31. The algae drifted into Popponeset Beach where it has continued to thrive since. Right as it came in, people in the community, including myself, a local fisherman, and a resident with a jet ski, went offshore to find the source. This seaweed was confined to the first 200 feet of shoreline, drifting along the offshore current with large concentrations coming from the direction of Cotuit and Popponeset Bay. Hans Brings Jr., continued monitoring offshore in November, traveling to Cotuit, through Popponeset Bay, to South Cape Beach, to Falmouth, and over to Martha's Vineyard. He confirmed time and time again that this seaweed was not offshore but in the first 200 feet of our coastline.

In the meantime, I have continued to take water samples monitoring for nutrients that may be prolonging and stimulating further growth of this species. Feather weed, in ideal conditions, can double its mass every few days even as it drifts along if it has enough nutrients to feed it. It also can survive in water down to 32 degrees.

I also put a blast out on the local Mashpee Facebook page asking residents if they visited beaches in the area and saw this species if they could send along pictures both in November and at the end of December. I got many responses saying that this has been seen in Barnstable, Mashpee, and Falmouth. I also had someone I know tell me it has been in Hyannisport for the past few years. Recently, I was sent pictures from Barnstable showing their coastline inundated as well.

At this point, I am theorizing that the bays in the region as well as inlets over towards Cotuit and Barnstable are providing the ideal habitat for this to grow during the first few months of its lifecycle before it breaks off and drifts. Waquoit Bay has been confirmed not to

have this species in the area but Popponesset Bay, based on the observations gathered this year, does. Cleaning up the bays locally and curbing stormwater runoff and nutrient-filled groundwater that enters Nantucket Sound ideally would likely help to curb this. However, I am also looking for potential suggestions on how to deal with this locally from science organizations and state researchers. The fact that it is hanging on the coastline for months at a time, continuing to propagate, is of concern. This is now becoming a year-long problem in this region and I am concerned of the implications environmentally this is causing. I am also concerned about this drifting down the coast and impacting fragile areas in Falmouth as it already seems to be making a move.

I have started a local group, the Popponesset Water Stewardship Alliance, with the goal of addressing this seaweed inundation, educating the public about potential causes of this inundation, and working towards finding solutions as a community. You can learn more about this group at poppywater.org or follow up on Facebook at the Popponesset Water Stewardship Alliance.

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