

Plant Pathology Seminar Series

“Diseases of Algae in Aquaculture”

By: Alex Cross



The cultivation of macroalgae, or seaweed, is a relatively new practice compared to other areas of aquaculture and is dominated by East and South East Asian countries. Currently, only small-scale farms exist in the U.S., mainly on the East Coast. Attempts of farming have been made in the western U.S. but problems such as weather patterns and difficulty obtaining licenses have made it a challenge⁴

In 2018, over 32 million metric tons of seaweed were produced which is expected to rise in the coming years due to demands for healthier food sources². Seaweed is mainly produced for consumption although extraction of carrageen is starting to become more prevalent. Production for the negation of climate change has also been proposed, as certain types of seaweed grow fast and can reach lengths of 5 meters, making them good carbon sinks. As a result, they can serve as buffers for delicate ecosystems, such as reefs, which are succumbing to acidified conditions as a result of climate change¹. Similar to other farming practices, challenges present themselves in many ways including biotic and abiotic diseases which can greatly impact yield.

A wide range of pathogens affect the many different species of seaweed grown including oomycetes, bacteria, viruses and other algae. Abiotic conditions such as changes in salinity, temperature and light intensity can stress the algae, making it easier for opportunistic pathogens to bypass the host's defenses⁵. Of the many diseases found, the most destructive are *Olpidiopsis* disease, green-spot disease and red rot disease which are caused by two different oomycetes and a virus respectively. These diseases have been reported to cause losses of 20-30% in some areas⁵.

In this seminar, I will review many aspects of seaweed aquaculture including the history, current farming practices used, and overall production of seaweed. Environmental impacts of farming as well as use for CO₂ mitigation will be touched on briefly and then focus will switch to the diseases that currently impede production.

4:10 pm | November 16th, 2020 | Plant Pathology 515, Fall 2020

Zoom Link and ID: <https://wsu.zoom.us/j/91621814000?pwd=MDVOY1prS0QybDRaMXNvTVNxTS82UT09>

Meeting ID: 916 2181 4000 Passcode: 5353 Call in number: 1 253 215 8782



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References

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5. Ward, GM, Faisan, JP, Cottier-Cook, EJ, et al. A review of reported seaweed diseases and pests in aquaculture in Asia. *J World Aquacult Soc*. 2020; 51: 815– 828. <https://doi.org/10.1111/jwas.12649>



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