



Apr 26th, 4:30 PM - 5:00 PM

Spatial and temporal variation in the biofilm communities on two cultivated kelp species

Katherine Davis
UBC

Logan Zeinert


Allison Byrne

Joth Davis

Cosmo Roemer

See next page for additional authors

Follow this and additional works at: <https://cedar.wwu.edu/ssec>

 Part of the [Fresh Water Studies Commons](#), [Marine Biology Commons](#), and the [Natural Resources and Conservation Commons](#)

Davis, Katherine; Zeinert, Logan; Byrne, Allison; Davis, Joth; Roemer, Cosmo; Wright, Michael; and Wegener Parfrey, Laura, "Spatial and temporal variation in the biofilm communities on two cultivated kelp species" (2022). *Salish Sea Ecosystem Conference*. 290.
<https://cedar.wwu.edu/ssec/2022ssec/allsessions/290>

This Event is brought to you for free and open access by the Conferences and Events at Western CEDAR. It has been accepted for inclusion in Salish Sea Ecosystem Conference by an authorized administrator of Western CEDAR. For more information, please contact westerncedar@wwu.edu.

Speaker

Katherine Davis, Logan Zeinert, Allison Byrne, Joth Davis, Cosmo Roemer, Michael Wright, and Laura Wegener Parfrey

Spatial and temporal variation in the biofilm communities on two cultivated kelp species

Katherine M. Davis*, Logan Zeinert, Allison Byrne, Joth Davis, Cosmo Roemer, Michael Wright, Laura Wegener Parfrey

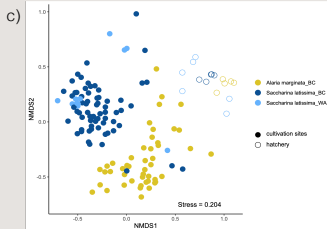
* kmdavis@zoology.ubc.ca



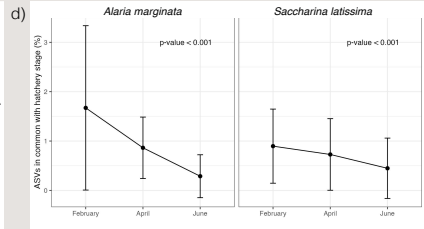
Background

Kelp are colonized by diverse microbes which can positively or negatively influence the growth and health their hosts. Consequently, the kelp microbiome could support kelp cultivation and habitat restoration efforts by improving yields, increasing stress tolerance, or promoting disease resistance. There are still fundamental questions about the cultivated kelp microbiome that need to be addressed before such microbiome-based approaches can be employed. Here we fill a critical knowledge gap regarding how the cultivated kelp microbiome develops as hosts grow and how different abiotic conditions and microbial source pools affect the kelp microbiome.

Results



c) The hatchery microbiome is distinct from the outplanted kelp microbiome.

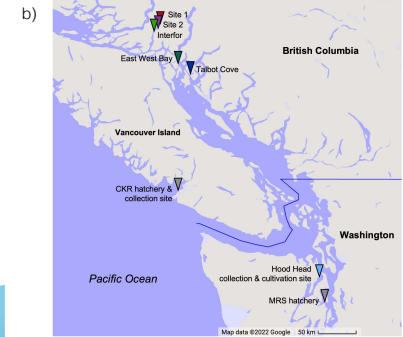
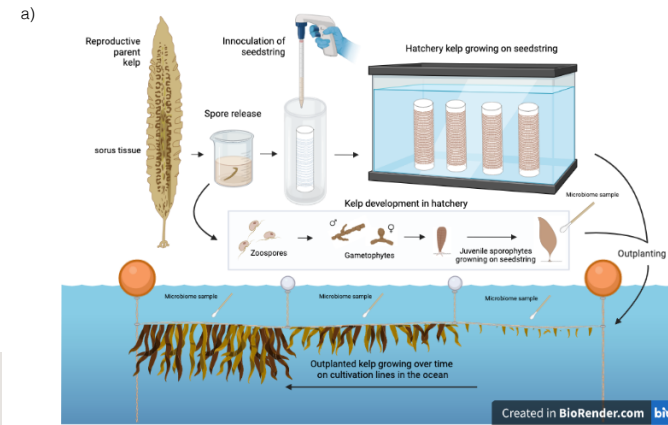


d) A limited subset of bacteria from the hatchery persist over time on outplanted kelp.

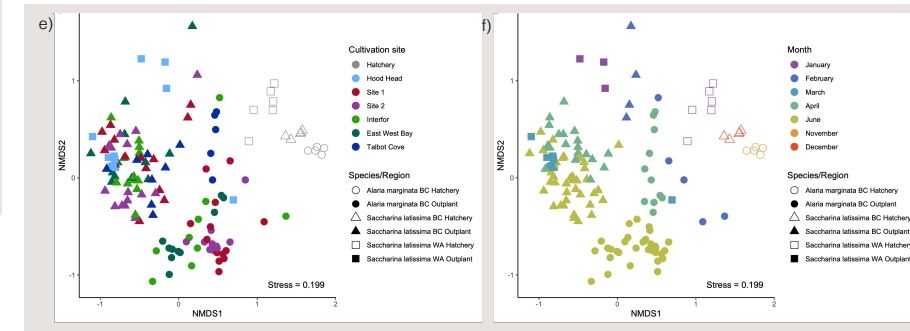
Conclusions

- Consistent microbiome turnover is likely driven by seasonal changes in host or abiotic factors.
- Provides baseline microbiome data for two economically and ecologically important Salish Sea kelp species.
- Preliminary evidence for hatchery stage as target for kelp microbiome manipulation.

Approach



a) Overview of kelp cultivation and microbiome sampling points b) map of hatchery, collection, and cultivation sites. CKR = Canadian Kelp Resources; MRS = Manchester Research Station (NOAA).



e) Cultivated kelp microbiome is structured by host species and geographic location. f) Monthly community succession is a common feature of the cultivated kelp microbiome.

Acknowledgements

We respectfully acknowledge that this research took place on the traditional and contemporary, unceded lands of many first nations and tribes including the We Wai Kai, We Wai Kum, Kwakwaka'wakw, Homalco, Klahoose, Coast Salish, K'ómoks, S'Klallam, Chimacum, and Suquamish. This work wouldn't have been possible without boat support from the Attegay Fisheries Society and special thanks to John Duncan. Thank you to Charlie Delius and Blue Dot Sea Farms for boat time and permission to sample cultivated kelp at Hood Head. Thanks to Max Calloway for facilitating sampling of hatchery kelp at the NOAA Manchester Research Station.

