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## The presence of *Alexandrium catenella* harmful algal bloom cysts in Port Gardner, WA in 2019

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# The presence of *Alexandrium catenella* harmful algal bloom cysts in Port Gardner, WA in 2019

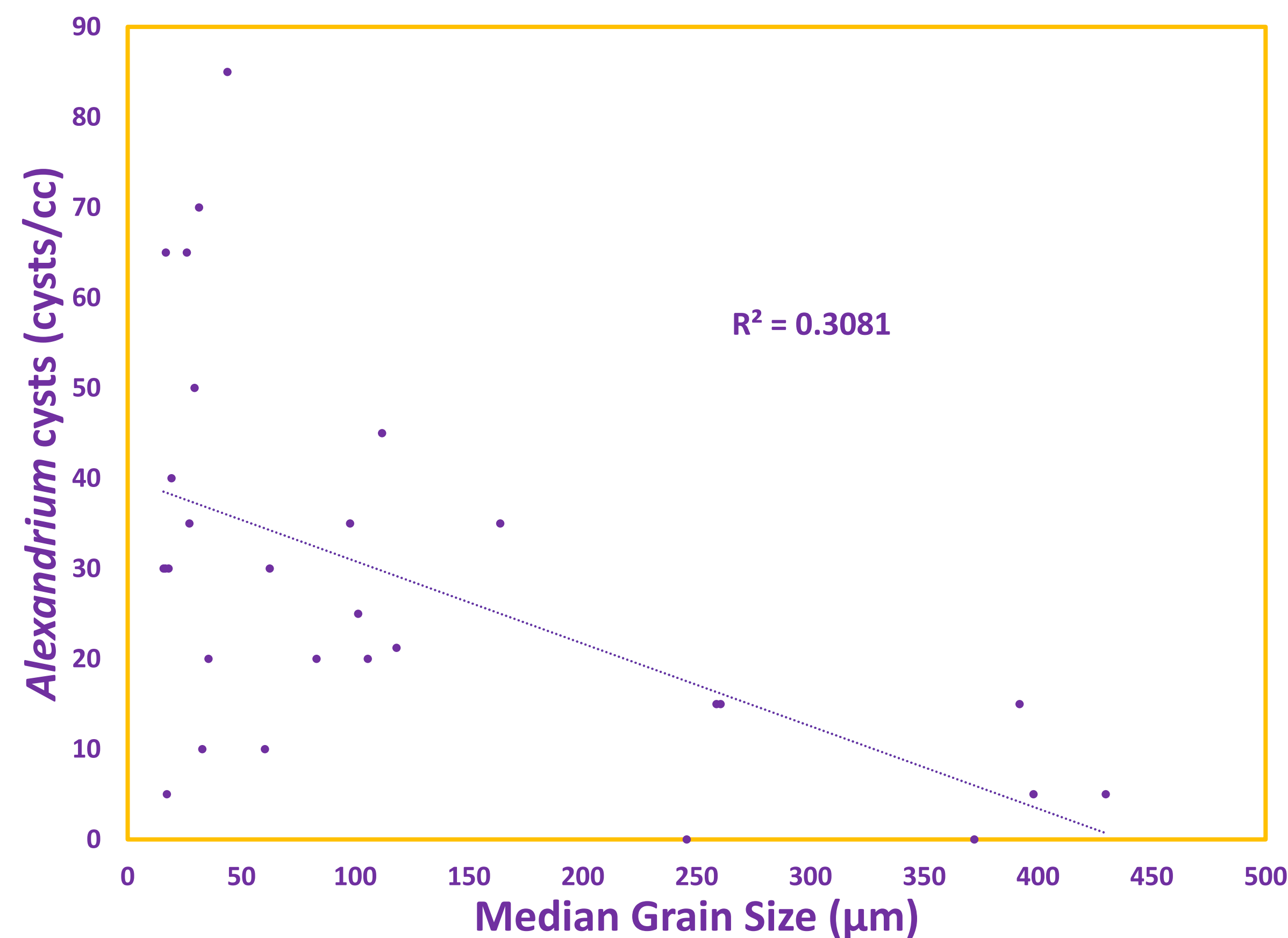


Caitlyn McFarland, Julie Masura, Cheryl Greengrove

## Introduction

- Harmful algal blooms of the dinoflagellate, *Alexandrium catenella* cause paralytic shellfish poisoning in the Pacific Northwest
- This study was conducted during 2019 as an effort to quantify the amount of *Alexandrium* cysts in Port Gardner near Everett, WA. There has not been a prior extensive analysis before by UWT for harmful algal blooms within in this bay.
- Information from findings will be given to the Department of Ecology's PSEMP monitoring group.

## Results

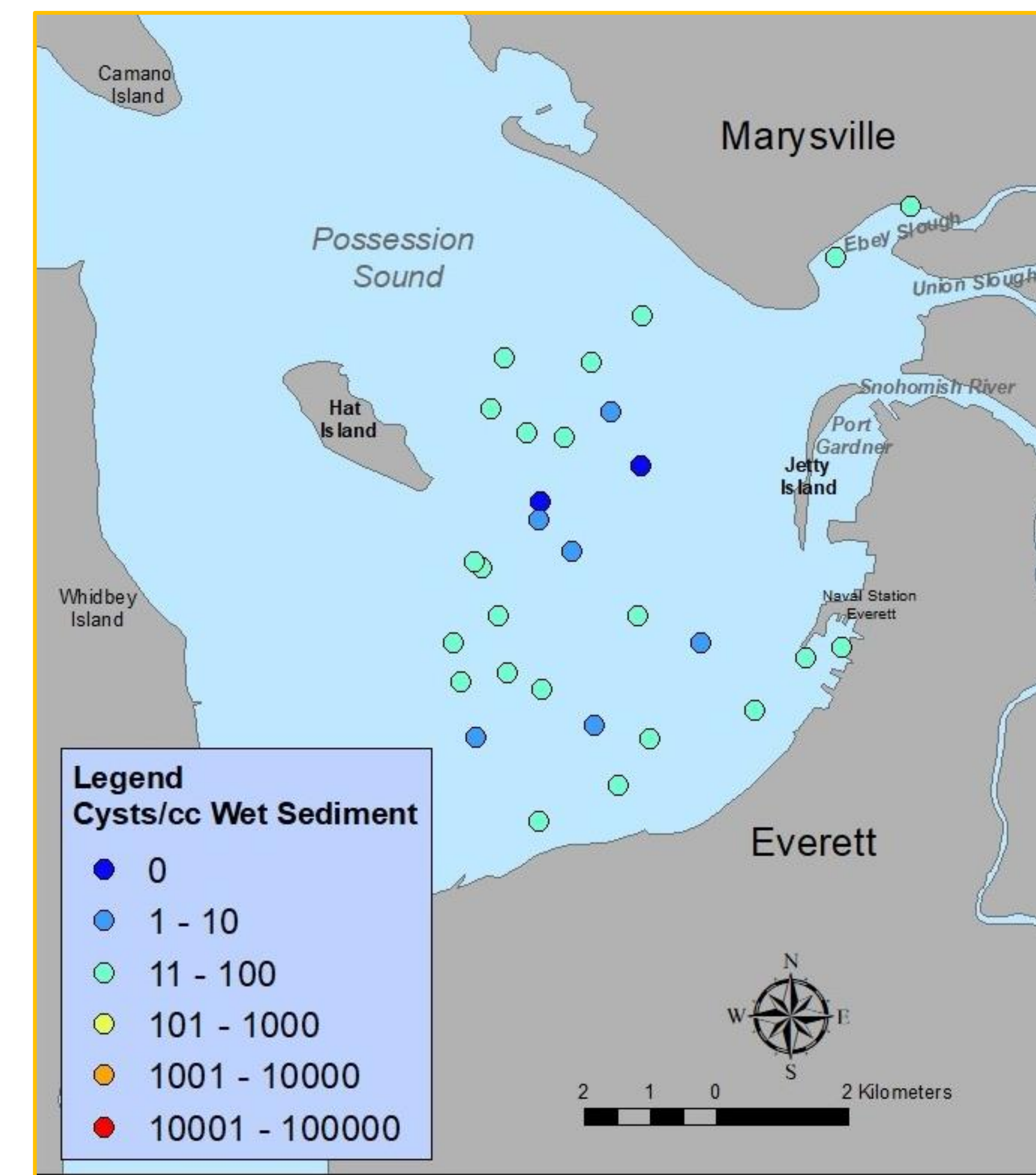
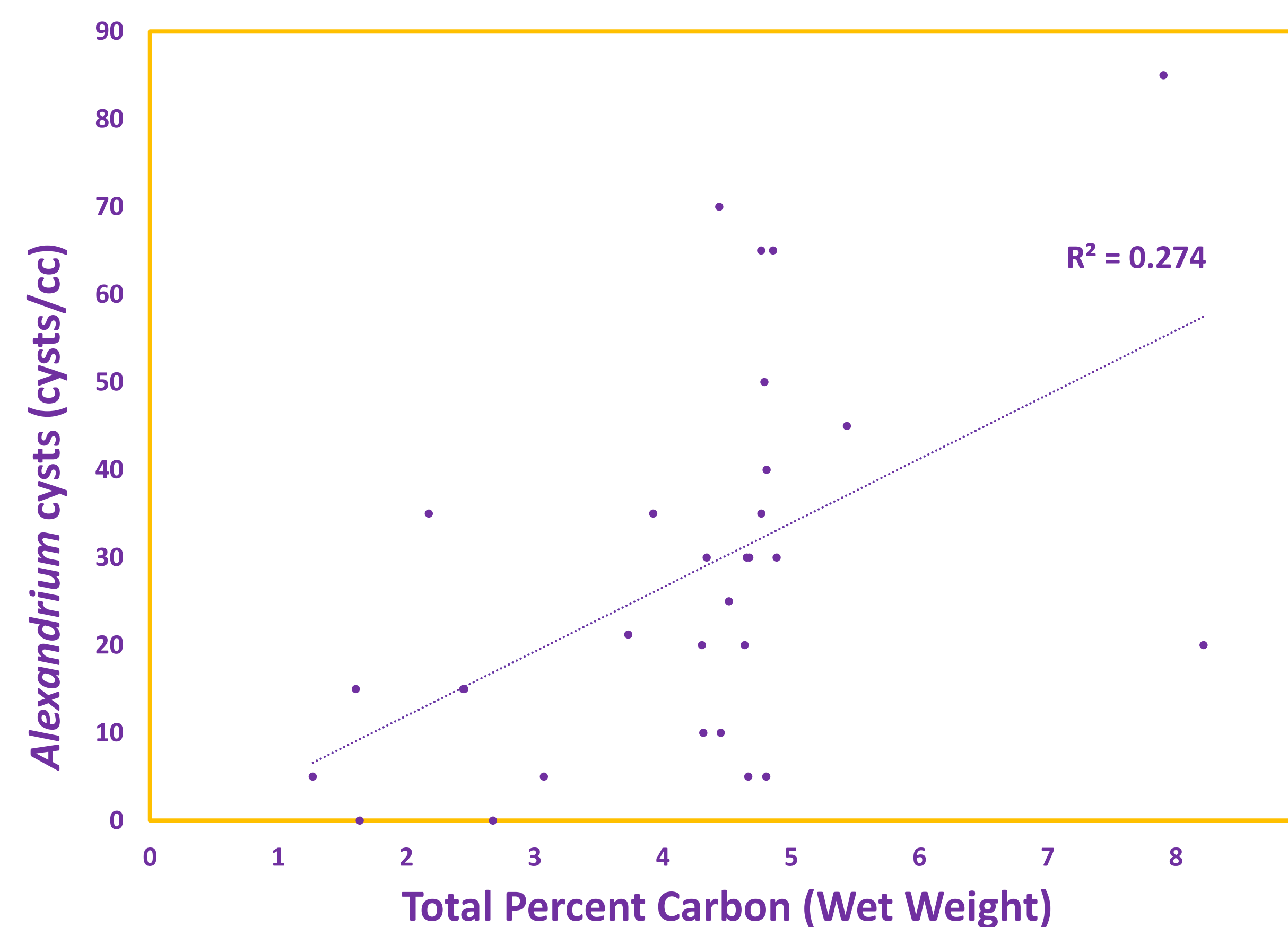


Above: Median Grain Size vs Cyst Count

- A correlation coefficient of 0.3081 was found for median grain size vs wet cyst quantification.
- A correlation coefficient of 0.2152 was found for total organic content vs wet cyst quantification.

*Alexandrium catenella* cysts were found at all but 2 stations. The minimum average wet cyst count was 0 cysts/cc at 2 stations east of Hat Island. The maximum average wet cyst count was 85 cysts/cc at a station next to Naval Station Everett. The average wet cyst count for all stations was 28 cysts/cc.

Below: Total Organic Carbon vs Cyst Count.



Above: Map of Port Gardner Stations and Cysts/cc

## Discussion and Conclusion

- Port Gardner contained low amounts of *Alexandrium catenella* cysts and vegetative cells in 2019 at most sample sites. A consistent presence of *Alexandrium* cysts indicates a need for continued monitoring in this bay.
- When compared with TOC and PSA data, significant correlations were found between cyst quantification and organic content/particle size, contrasting other studies in 2019 within Puget Sound.
- Port Gardner sediment is considered contaminated from historic oil discharge, lumber operations, and various mills/factories along the Snohomish River. It is unclear whether the contamination of the sediment influences *Alexandrium* cyst presence.
- Future study of harmful algal blooms throughout the region will continue annually while the organism is still present in Puget Sound waters.

## Sources

For more information:  
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## Acknowledgements

➤ Thank you to Danny Dyer and for running the PSA analysis for this project