

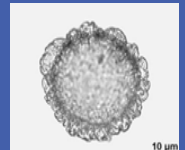


Alnus (Alder)

Pollen Record Analysis of Surface Sediment in Sequim Bay, WA

Anna Rose Wallace, Jerry Desmul, Julie Masura

UNIVERSITY of WASHINGTON | TACOMA



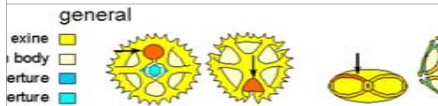
Tsuga (Hemlock)

Abstract

Flora and fauna in the Puget Sound region have changed dramatically over the last hundred years due to logging, industrialization, and development. Pollen analysis is a valuable way to learn about the paleoclimates of this region and can give valuable insight into the historic landscape. This study is the first one done in the Sequim Bay area, and looks at the pollen distribution of the surface sediment in Sequim Bay.

Palynology: the Study of Pollen

The Science that studies contemporary and fossil palynomorphs, including pollen, dinoflagellates and others.



Pollen size range 10 µm to 120 µm.

The exine is a tough chemical resistant shell made up of complex polymer carbinoids that protects the pollen from abrasion.

This exoskeleton yields identifying characteristics that can be seen microscopically.

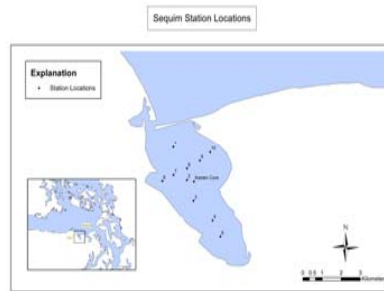
Hypothesis

With the analysis of the diversity of the pollen surface samples in Sequim Bay, we hope to see if they relate to the present condition of the watershed.

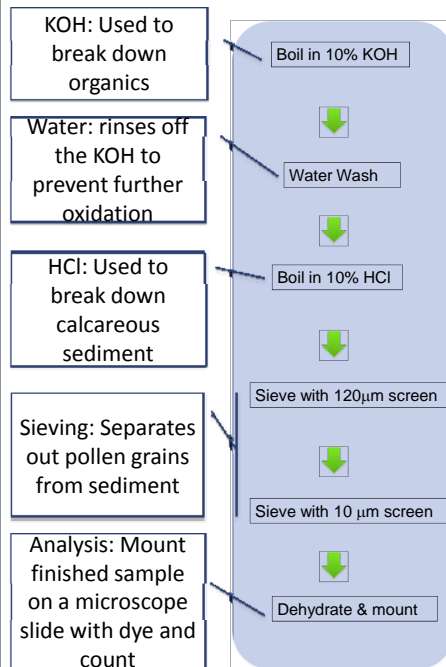
Methods

Sampling

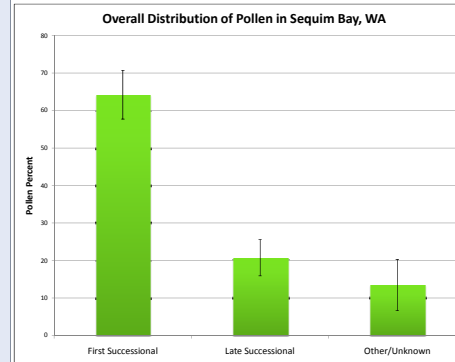
Surface sediment samples were taken with a van Veen at ten different locations in Sequim Bay. A Kasten core sample was taken as well.



Flow chart of Pollen Processing (Method adapted from Shane 2002)



Results



To the northwest of the Bay is the City of Sequim, which is entirely industrialized and has little to no forestation. Forested landscape to the southeast is thin and patchy.

First successional pollen including alder, birch, and grass dominate the land around Sequim Bay.



Alnus (Alder)

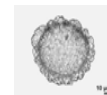


Gramineae (Grass)



Betula (Birch)

Late Successional species such as hemlock, pine and fir are less prominent in the region



Tsuga (Hemlock)



Pinus strobus (White pine)



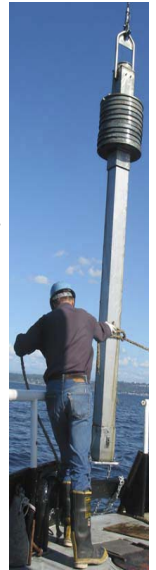
Abies alba (Fir)

Conclusions and Future Work

Pollen records coincide with industrialization in the area with a 64% average of early successional species and an average of only 21% late successional species. Other/Unknown species which consist of 16% of the data are most likely grasses or other obscure small plant species.

Continuing work will analyze historic pollen data to identify when major changes in the regional flora occurred.

Utilize past land use land change records to pair development trends with the changes to the ecological landscape.



Acknowledgements

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References

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