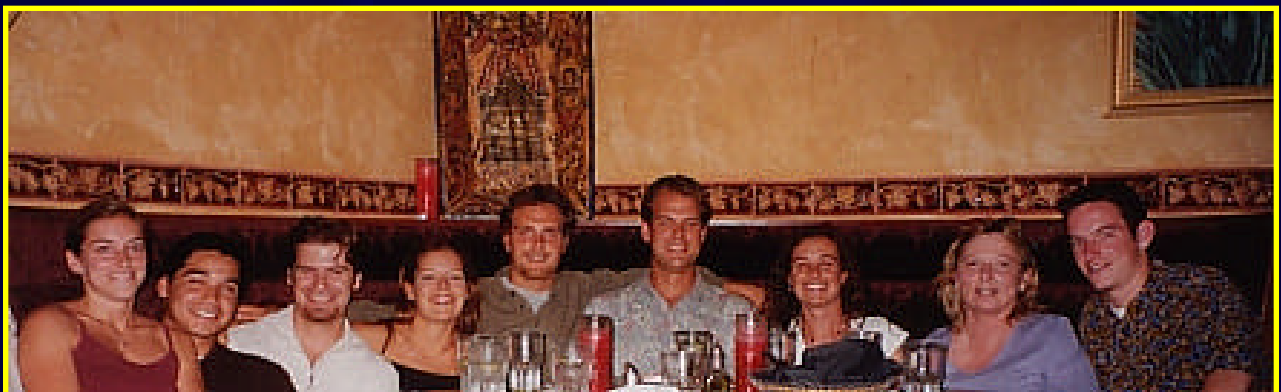




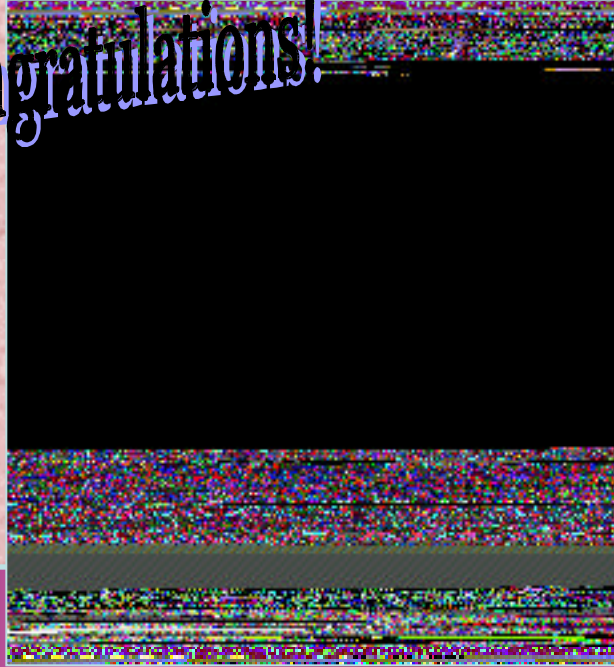
Kindness in words creates confidence.
Kindness in thinking creates profoundness.
Kindness in giving creates friendship.



Teamwork is the ability to work as a group toward a common vision,
even if that vision becomes extremely blurry.

Roxanna !!!

Congratulations!



Congratulations!



JOE !!
Hurray!!

Chantal...

**You are our wise women who knows
that there is something to be learned
from everyone.**

**Congratulations
on the completion of your 1st year !**



our thoughtful friend,
at our side as the tide washes in and out



These struggling tides of life that seem
In wayward, aimless course to tend,
Are eddies of the mighty stream
That rolls to its appointed end.

Toni.. When we first talked to each other
I knew we would always be friends.



thank you for all you for all of us !



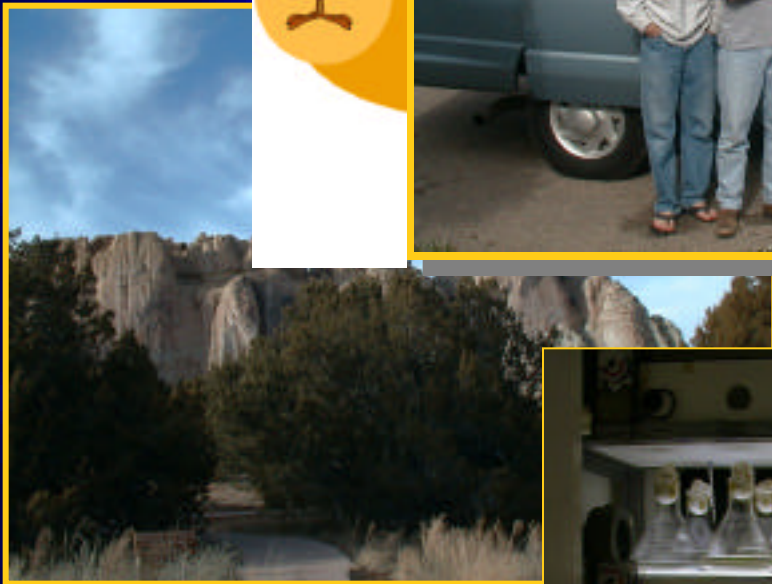
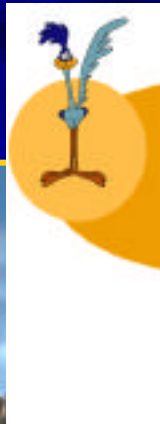
**Beer is proof that God loves us
and wants us to be happy**

**STEVE.. always
ready to lend a
helping hand..
thank you so much!!**





On the road to Santa Fe...



Joe wins Best Poster Award !!



Roxanna presents her research to California State Legislature !!

go girl go!!

Abstract

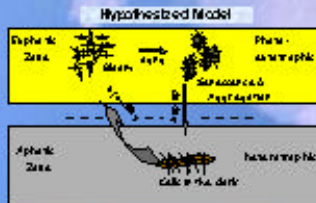
Due to the increased concentrations of organic and inorganic nitrogen from anthropogenic eutrophication, much effort has gone into studying possible effects on phytoplankton. This study intends to test whether the growth of *Pseudo-nitzschia multiseries* is enhanced by the addition of dissolved organic nitrogen (DON) under various light condit'ns. Previous studies have shown that some phytoplankton species can use DON, and that *P. multiseries* might be included among this list (Pantek et al., 1990; Hillbrand & Sommer, 1996; Selzinger et al., 1997 & 2002; Mengelt & Pr ezzel, submitted). Examining the heterotrophic abilities that this species has in the dark will further the knowledge on the link between eutrophication and eutrophication via the extended survival of a "seed population" in the dark. This is especially important since *P. multiseries* is a marine planktonic diatom that produces the neurotoxin domoic acid. This neurotoxin is potentially deadly to humans and other marine mammals when consumed via contaminated shellfish and fish, such as anchovies (Wass, 2001). Consequently, *P. multiseries* can cause large economical and environmental damage. Therefore, this study presents results from organic and inorganic nitrogen addition experiments under various light/dark condit'ns. Our experimental results show enhanced light-growth with the addition of glutamate, one form of DON, confirming a heterotrophic ability of *P. multiseries*.

Introduction:

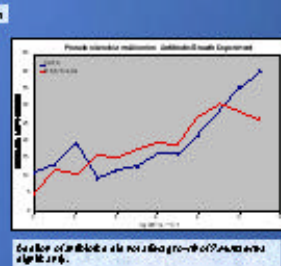
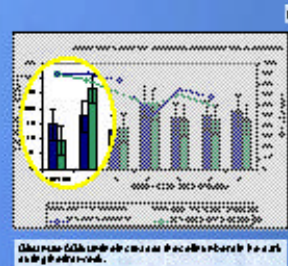
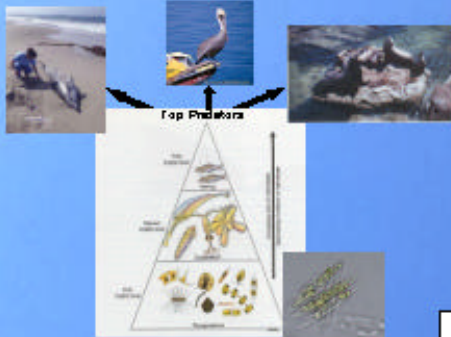
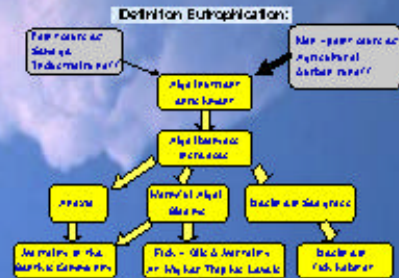
Research Question: Can *Pseudo-nitzschia multiseries* grow in the dark and under various light levels on organic nutrients?

Significance:

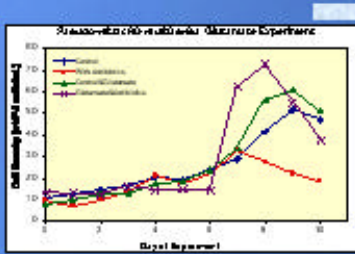
- *Pseudo-nitzschia* blooms cause high mortality among higher trophic levels.
- Blooms result in significant economic loss for fisheries and potentially tourism.
- Eutrophication has been implicated in other harmful algal blooms events.



Conceptual model of the study. This diagram shows a phytoplankton bloom in the euphotic zone, which sinks to the aphotic zone. The model predicts that a 'seed population' will survive in the dark, leading to a secondary bloom in the euphotic zone.



Experimental Setup. The growth chambers are arranged in a 2x2 grid. The top row is under light, and the bottom row is under dark. The left column is control, and the right column is experimental. The experimental chambers receive different concentrations of glutamate, urea, and other nutrients.



Results and Discussion

- > Antibiotics affects the growth rates in initially
- > Glutamate increases growth rates significantly
- > Glutamate increases the maximum cell density

This confirms *Pseudo-nitzschia multiseries*' ability to utilize glutamate as a growth supplement.

REFERENCE

Wass, S. J. G. (2001). Domoic acid poisoning of humans and animals. *Marine Biotechnology*, 13(1), 1-10.

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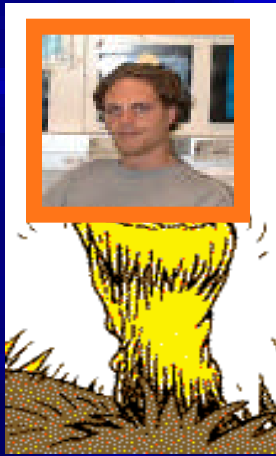
Selzinger, H. B., et al. (1997). Domoic acid production by the diatom *Pseudo-nitzschia multiseries* under different nutrient conditions. *Journal of Phycology*, 33(1), 1-10.

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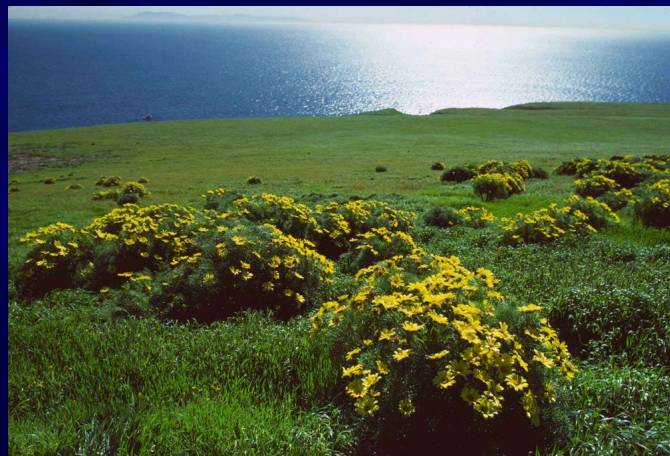
ACKNOWLEDGMENT

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UC Marine Center, #07-02-00-00001
Fellowship of Prof. David, Charles Mengelt, Joseph C. Long,
John M. Hargrave, 1st 1st 1st.



**I am the Lorax. I speak for the trees.
I've come here to celebrate Earth Day, so please
Come join me and help spread the message I bring.
Be a friend to the trees and to each living thing.**

- Dr. Seuss



Way back in the days when the grass was still green
and the pond was still wet
and the clouds were still clean,
and the song of the Swomee-Swans rang out in space...
one morning, I came to this glorious place.
And I first saw the trees!
The Truffula Trees!
The bright-colored tufts of the Truffula Trees!
Mile after mile in the fresh morning breeze