



Western Washington University
Western CEDAR

Salish Sea Ecosystem Conference

2014 Salish Sea Ecosystem Conference
(Seattle, Wash.)

May 1st, 3:30 PM - 5:00 PM

The direct impacts of an introduced seaweed *Mazzaella japonica* on benthic seaweed communities in Baynes Sound and possible interaction with the invasive seaweed *Sargassum muticum*.

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Pawluk, Kylee and Cross, Stephen Fredrick, "The direct impacts of an introduced seaweed *Mazzaella japonica* on benthic seaweed communities in Baynes Sound and possible interaction with the invasive seaweed *Sargassum muticum*." (2014). *Salish Sea Ecosystem Conference*. 247.
<https://cedar.wvu.edu/ssec/2014ssec/Day2/247>

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The direct impacts of an introduced seaweed *Mazzaella japonica* on benthic seaweed communities in Baynes Sound and possible interaction with the invasive seaweed *Sargassum muticum*

Kylee Pawluk

Stephen Cross

Department of Geography

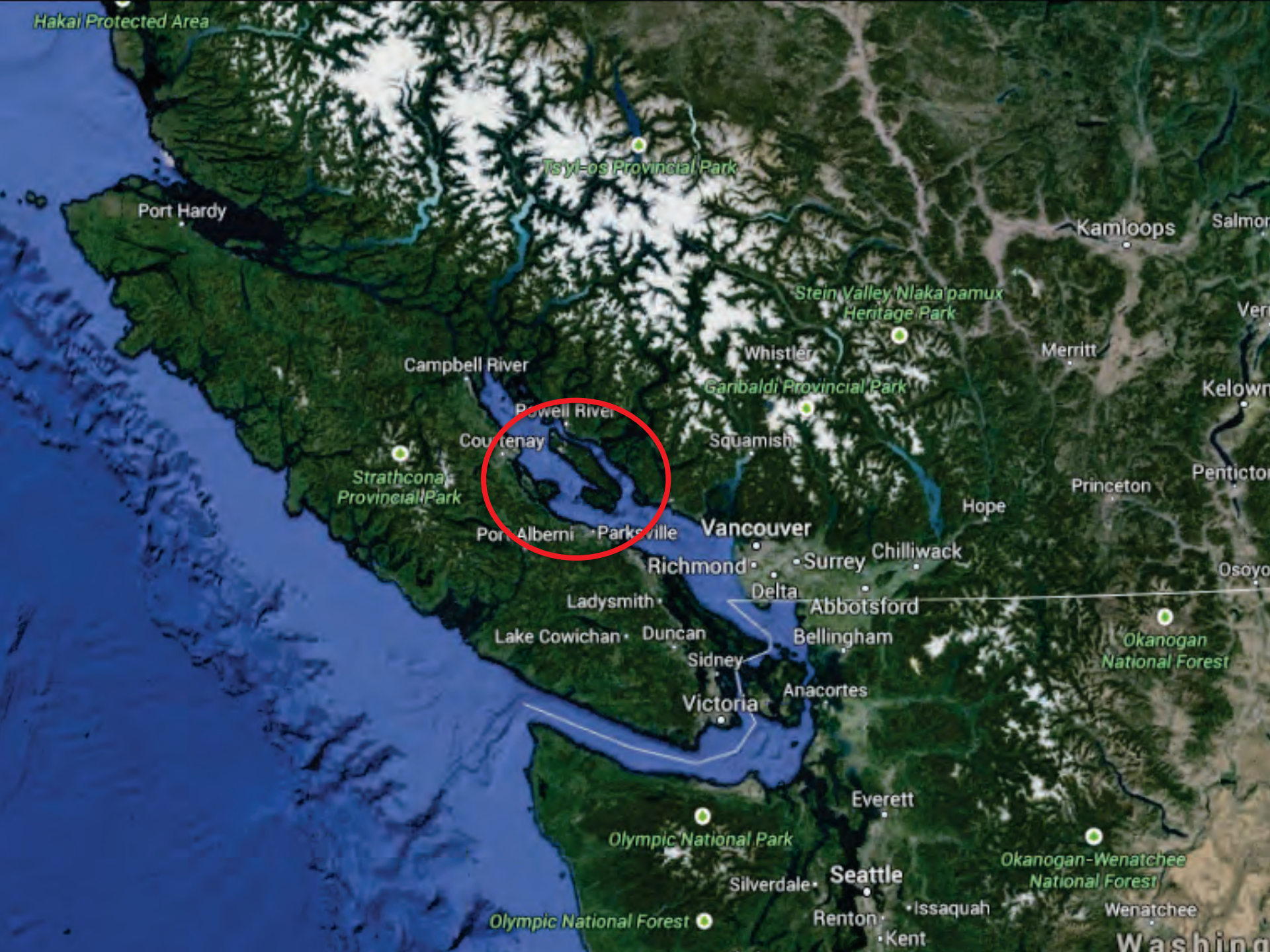
University of Victoria



**University
of Victoria**



**University
of Victoria**



Hakai Protected Area

Tsy-l-os Provincial Park

Port Hardy

Kamloops

Stein Valley Nlaka'pamux
Heritage Park

Campbell River

Whistler

Merritt

Garibaldi Provincial Park

Powell River

Squamish

Courtenay

Strathcona
Provincial Park

Port Alberni

Parksville

Vancouver

Richmond

Surrey

Chilliwack

Ladysmith

Delta

Abbotsford

Lake Cowichan

Duncan

Bellingham

Okanogan
National Forest

Victoria

Anacortes

Everett

Olympic National Park

Okanogan-Wenatchee
National Forest

Silverdale

Seattle

Olympic National Forest

Renton

Issaquah

Wenatchee

Washington





How does the removal of *Mazzaella japonica* affect the recovery of native species?



Denman Island

Hornby Island

Mailbox Beach

Buccaneer Beach

Vancouver Island

6.00 km

Image © 2013 IMTCAN
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2013 DigitalGlobe
© 2013 Cnes/Spot Image

Google earth

Imagery Date: 8/4/2012

49°29'21.89" N 124°41'51.72" W elev 18 m

Eye alt 26.80 km

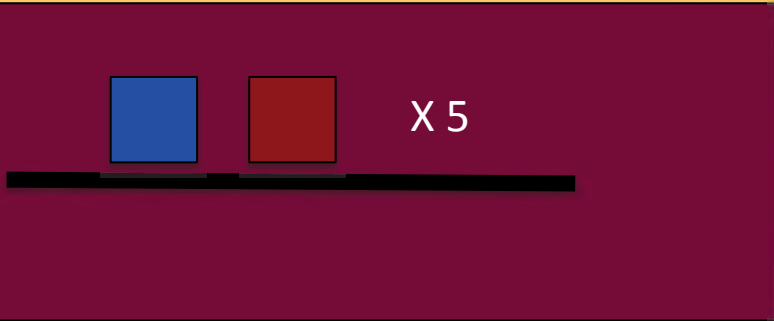


Mailbox Beach

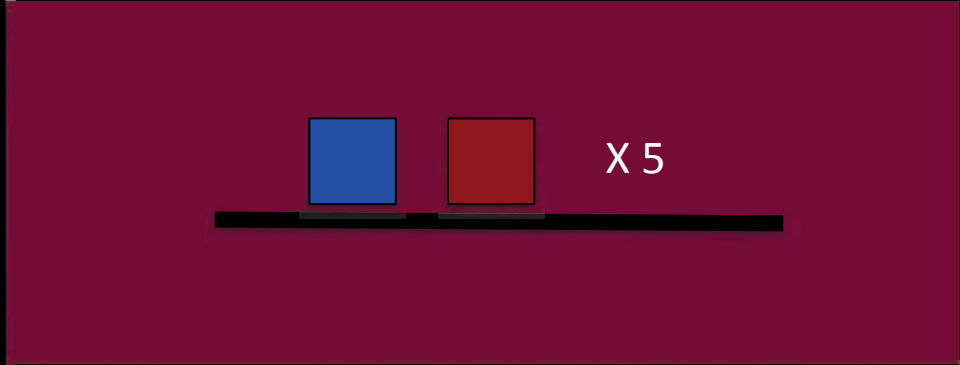
Buccaneer Beach



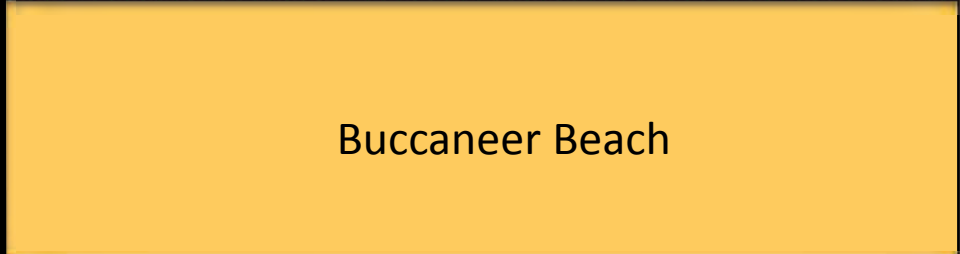
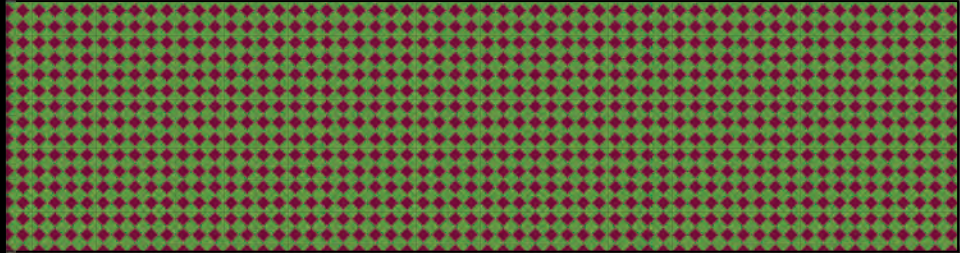
Mailbox Beach



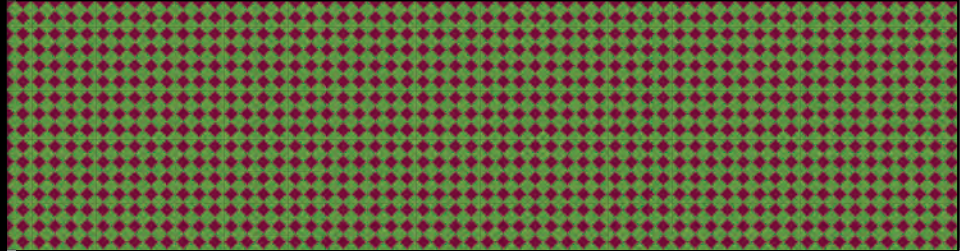
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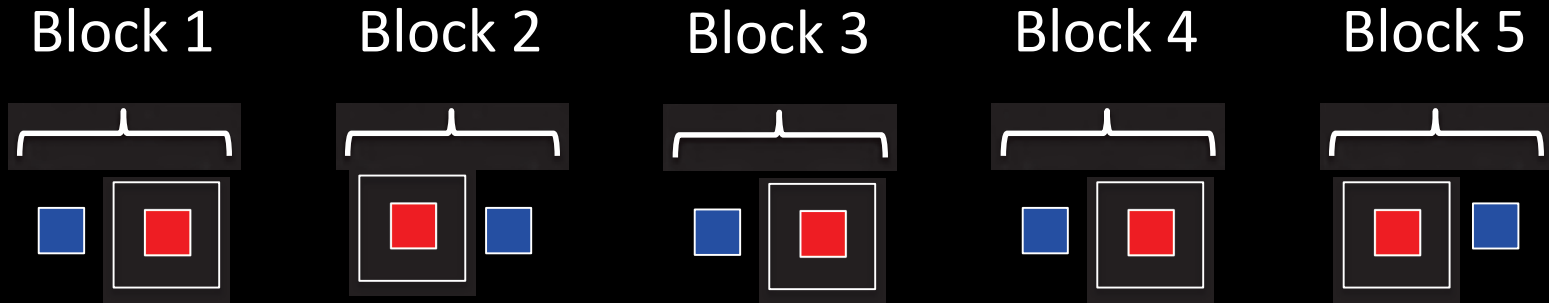
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Buccaneer Beach



Long-Term Removal Experiment



■ *Mazzaella* removal

■ Control

□ Buffer zone

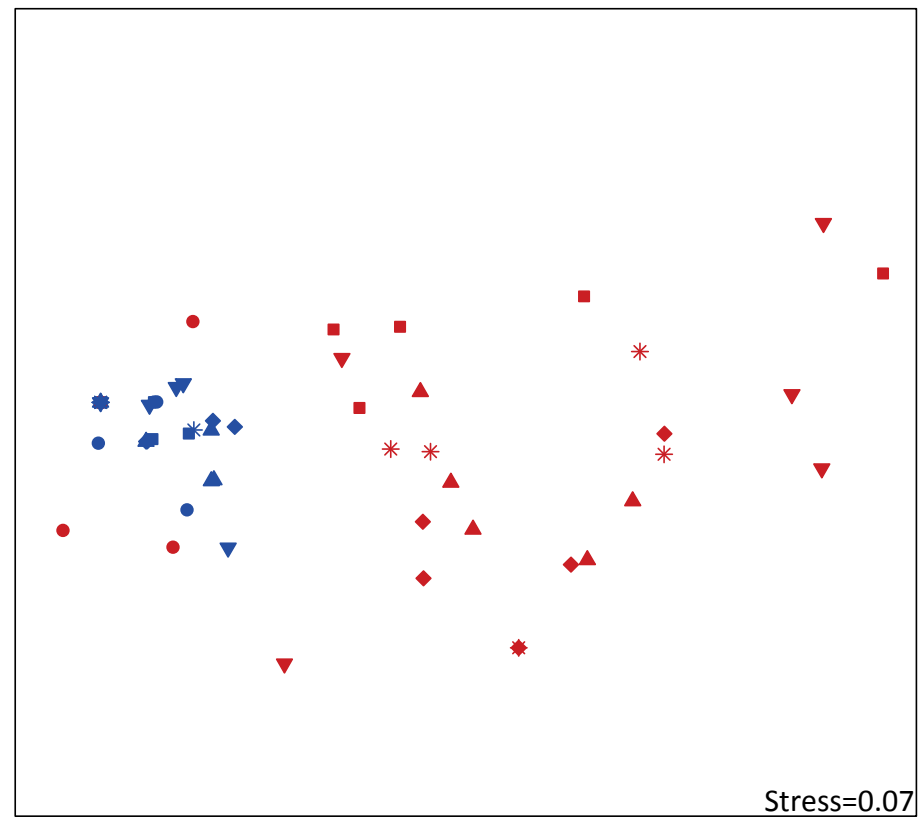
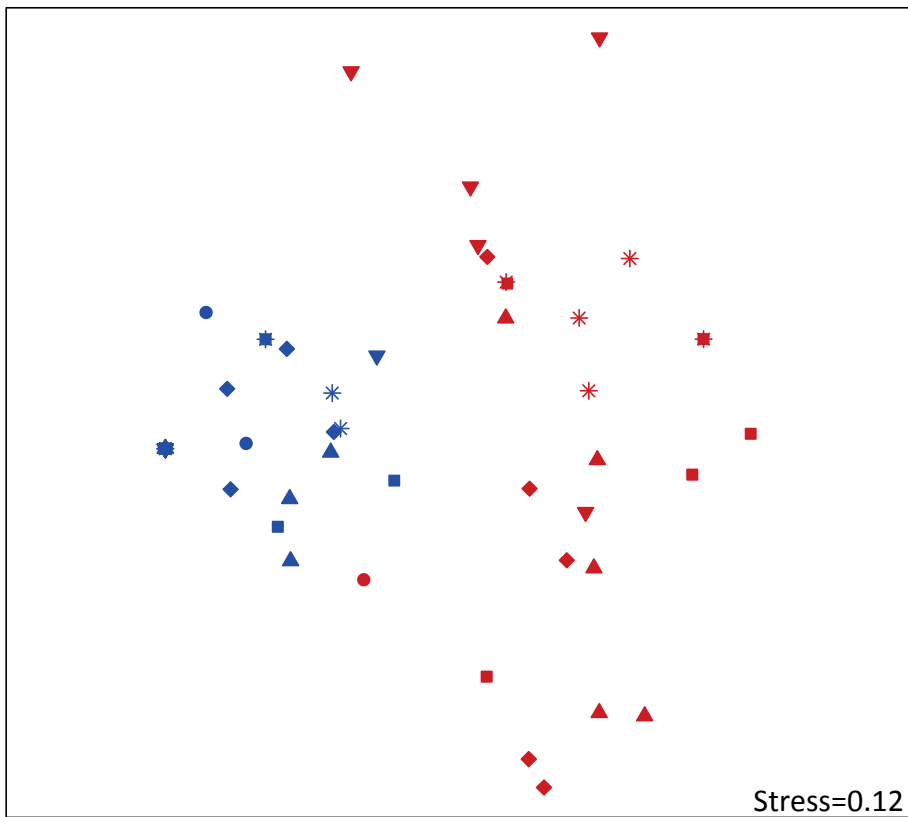
2 Sites

5 Replicates

Randomized Block



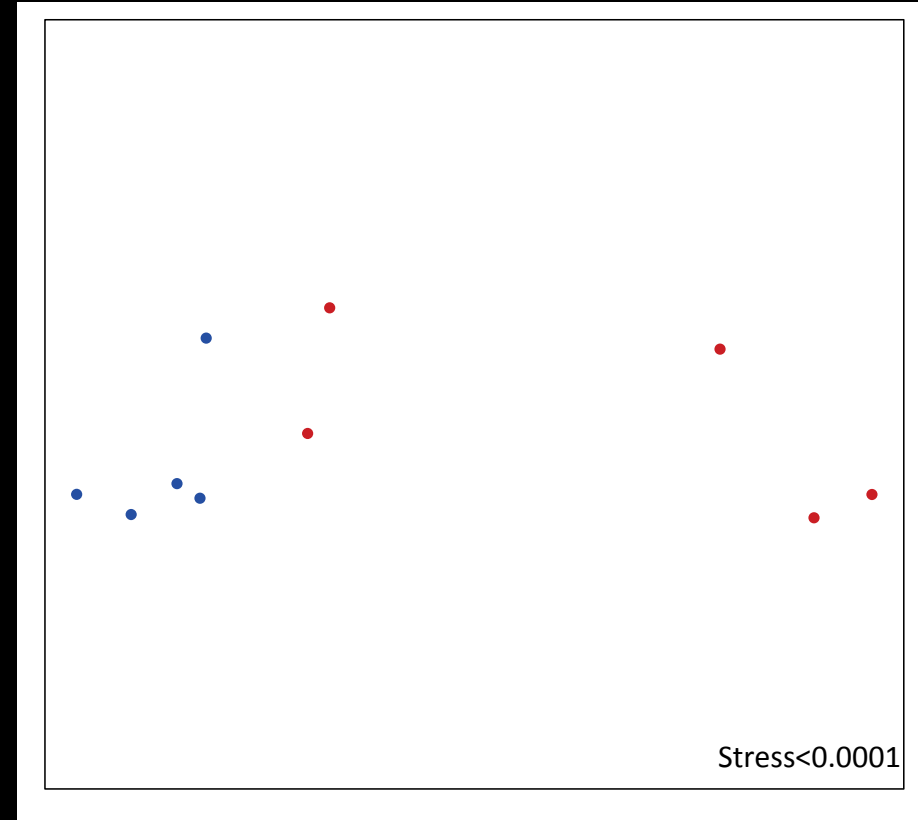
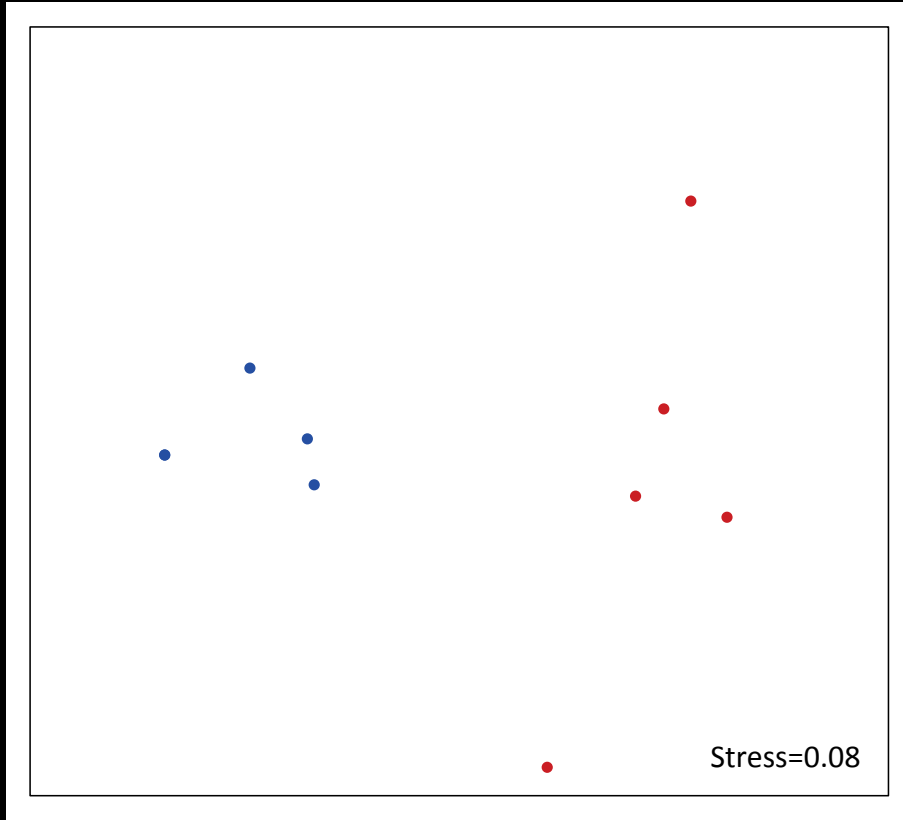
Algal Community Data



Buccaneer Beach	df	SS	MS	Pseudo-F	P
Date	5	2.8007	0.5601	4.273	0.001
Treatment	1	6.4230	6.4230	48.997	0.001
Date* Treatment	5	2.6429	0.5286	4.032	0.001
Residuals	48	6.2923	0.1311		

Mailbox Beach	df	SS	MS	Pseudo-F	P
Date	5	3.1503	0.6301	5.898	0.001
Treatment	1	6.6667	6.6667	62.409	0.001
Date* Treatment	5	3.1050	0.6210	5.813	0.001
Residuals	48	5.1275	0.1068		

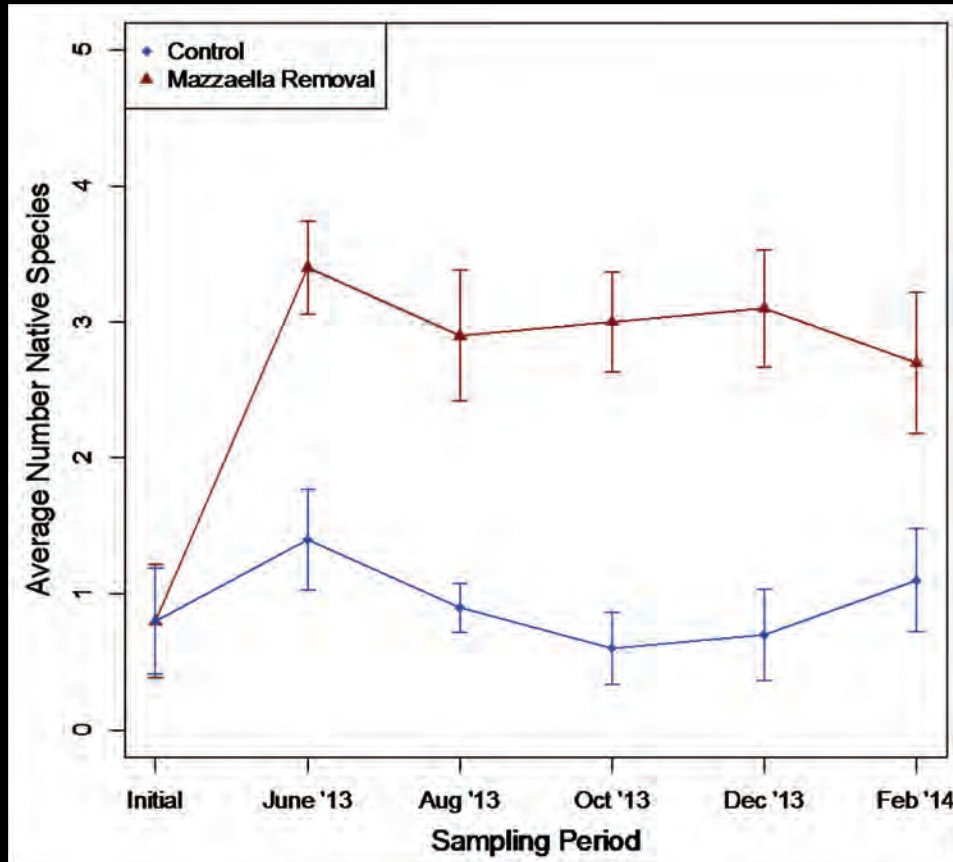
Algal Community Data – February 2014



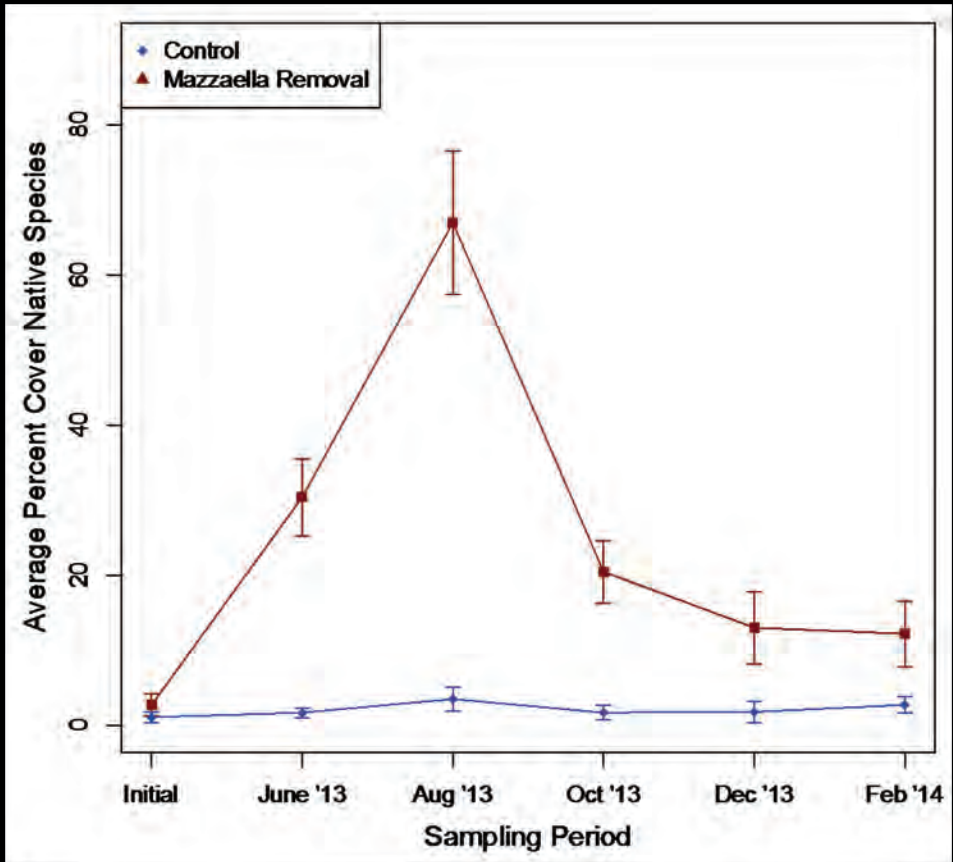
Buccaneer Beach	df	SS	MS	Pseudo-F	P
Treatment	1	1.98171	1.98171	20.044	0.006
Residuals	8	0.79096	0.09887		

Mailbox Beach	df	SS	MS	Pseudo-F	P
Treatment	1	1.5076	1.50761	6.4198	0.011
Residuals	8	1.8787	0.23484		

Native Algal Species Recovery



$w=17, p=0.011$

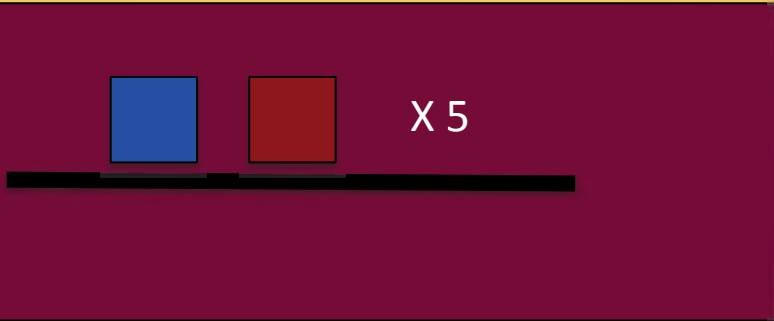


$w=23.5, p=0.0486$

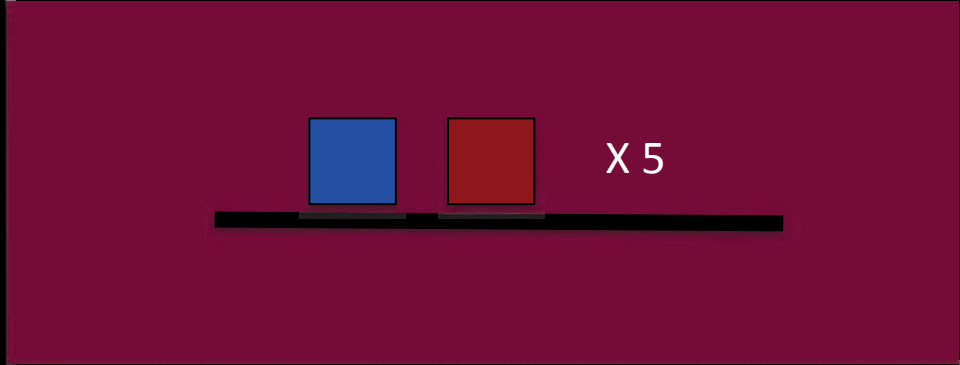




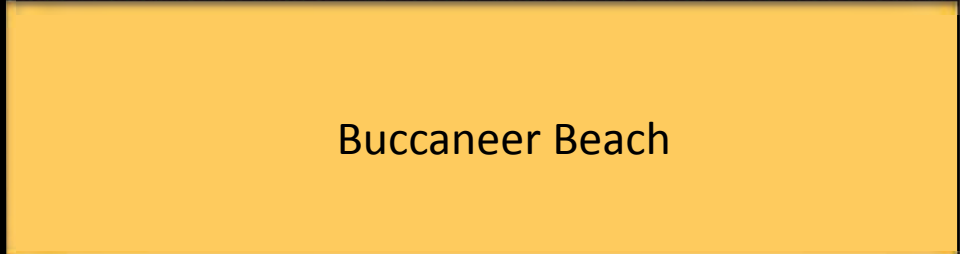
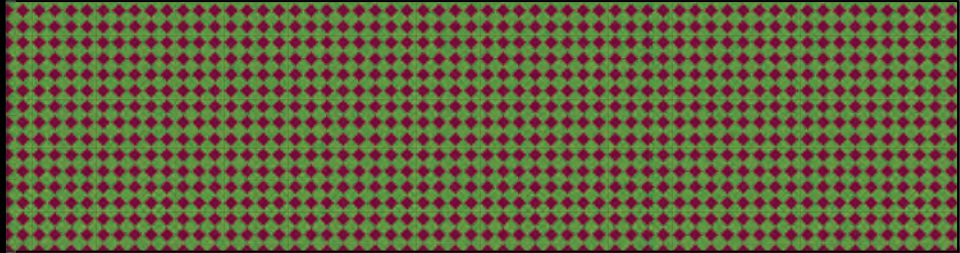
Mailbox Beach



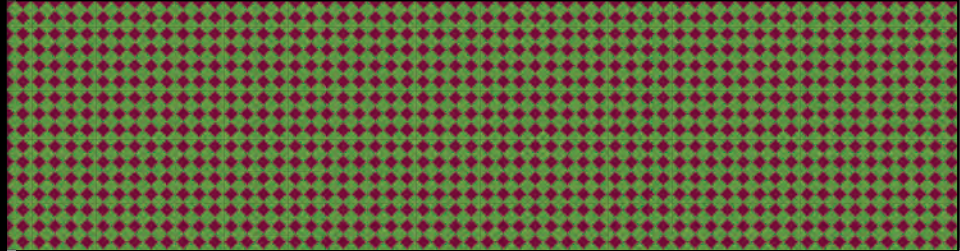
X 5



X 5



Buccaneer Beach



Future Directions and Management



Thank you

Academic Committee

Courtney Edwards

Joel White

Linda Daniels

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Matthew Hopkins

Maryann Watson

Nataschia Tamburello

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Nick Sherrington

Shawn Glover

