Biogeographic & temporal changes in mobile fauna community on pelagic *Sargassum* in the Caribbean Sea, 2015-2016

[1,2]Madalyn Taylor, [1,3]Amy Siuda, [1]Deb Goodwin, [1]Grayson Huston & [1]Jeffrey Schell

[1]Sea Education Association [2]Barnard College of Columbia University [3]Eckerd College

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SEA Semester

S·E·A

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Outline

- *Sargassum* & mobile fauna background
- Research focus: differences in mobile fauna between two *Sargassum* forms
  - Community composition
  - Geographic variation
  - Temporal changes


Sailors for the Sea


Amandala News, Belize

Sargassum Ecology

- Pelagic macroalgae
- 2 species
  - *S. fluitans (SfIII)*
  - *S. natans (SnI, SnVIII*)
  - Different morphological forms
- Caribbean inundation events


S. fluitans III (Parr)


S. natans I (Parr)

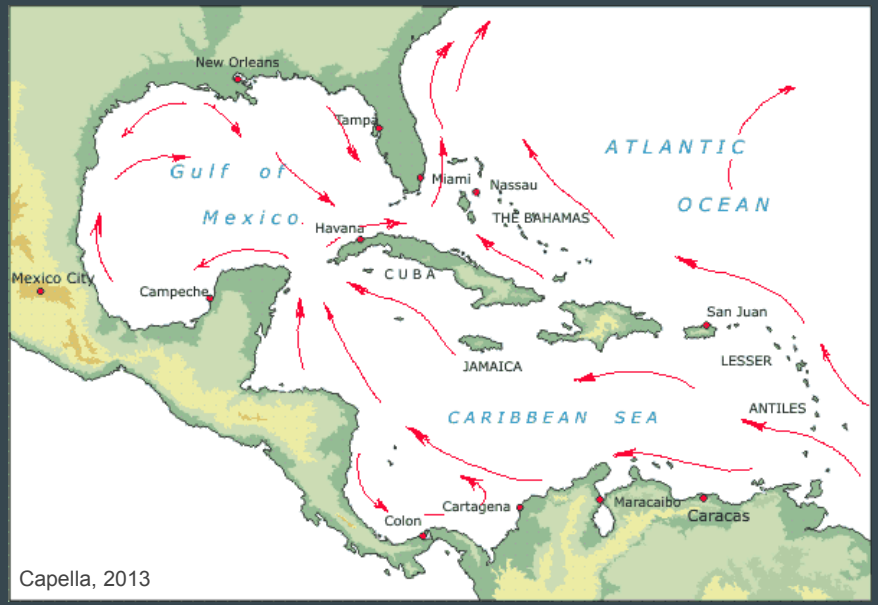

S. natans VIII (Parr)

Solvin Zankl

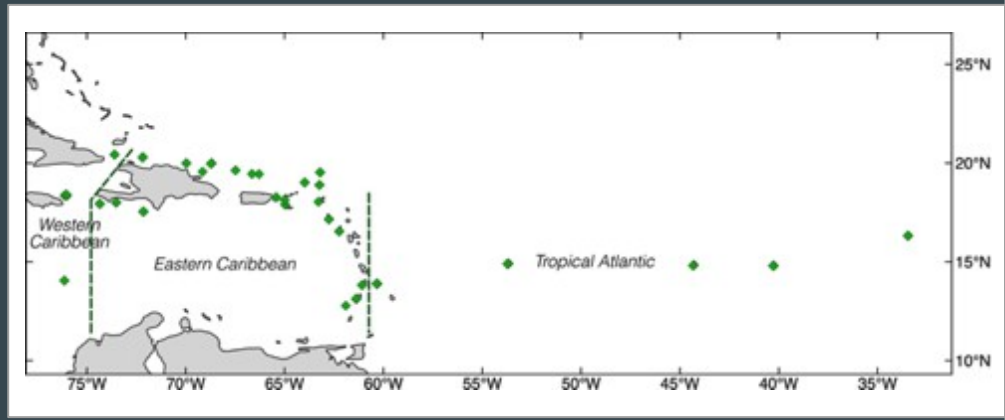
Sargassum Mobile Fauna

- Over 100 species utilize as habitat
- Drivers of community variation between *Sargassum* forms
  - Biogeography?
  - Time?
  - Environmental conditions?
  - Something else?

Sargassum Distribution Patterns



Capella, 2013



How does mobile fauna community composition change as *Sargassum* is transported into new environments?

Project Overview

- Differences in mobile fauna between two *SnVIII* & *SfIII*
  - Community composition
  - Geographic variation
  - Temporal changes

Methods

- Dip net collections from the *Corwith Cramer*
- Shipboard analysis of *Sargassum* (n_{SfIII}=43, n_{SnVIII}=70)
- Laboratory identification of mobile fauna species

Community Composition Results

- 10 taxa, 20 species
- Differences in species richness

Taxonomic Group	Species	Frequency of Occurrence (% samples)	
		***S. fluitans* Parr**	***S. natans VIII* Parr**
Crabs	*Portunus sayi*	65.1	39.4
Shrimp	*Leander tenuicornis*	72.1	91.5
	Latreutes fucorum	100.0	91.5
	Hippolyte zostericola	2.3	0.0
	Hippolyte coerulescens	0.0	1.4
Amphipods	*Biancolina sp.*	27.9	4.2
	Sunampithoe pelagica	2.3	0.0
	Ampithoe longimana	4.7	1.4
Isopods	*Paradynamene benjamensis*	2.3	0.0
	P. latreuticola (Parasites)	20.9	22.5
	Bagatus minitus	18.6	19.7
Snails	*Litiopa melanostoma*	95.3	83.1
Nudibranchs	*Corambella depressa*	2.3	2.8
	Doto pygmaea	0.0	1.4
	Scyllaea pelagica	0.0	1.4
Flatworms	*Gnescioceros sargassicola*	18.6	12.7
	Hoploplana grubei	7.0	8.5
	Acerotisa notulata	4.7	0.0
Polychaete worms	*Platynereis dumerillii*	11.6	16.9
Fish	*Histrio histrio*	2.3	0.0
Cumulative Species Richness		17	15

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- Shrimp & snails most common

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Community Composition Results

- 10 taxa, 20 species
- Differences in species richness
- Shrimp & snails most common
- 12 species shared
- Distinct differences in composition

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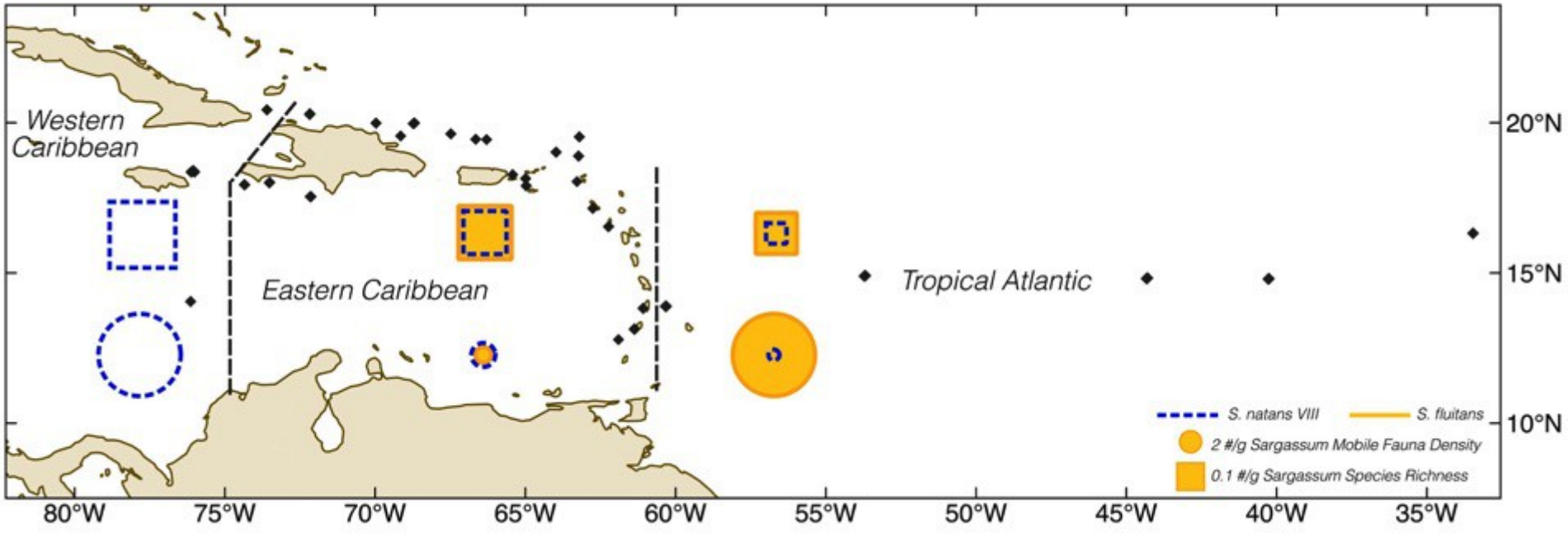
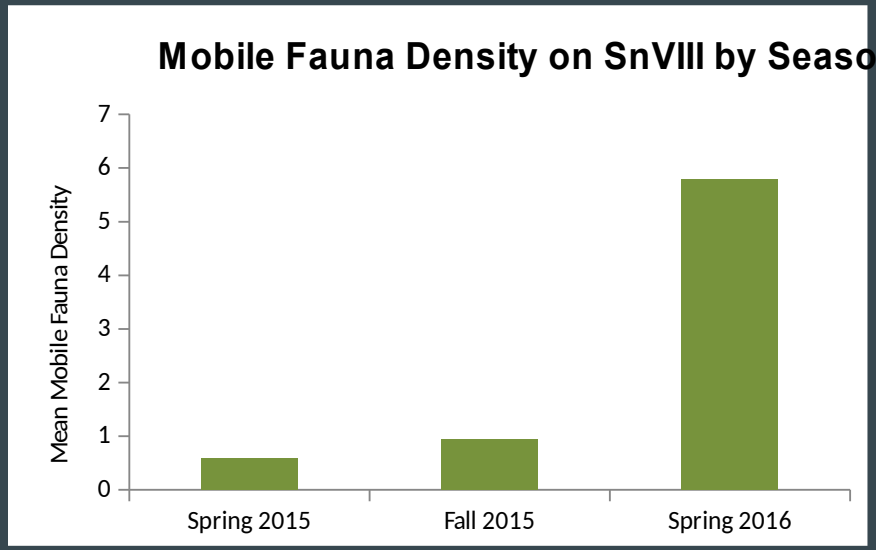
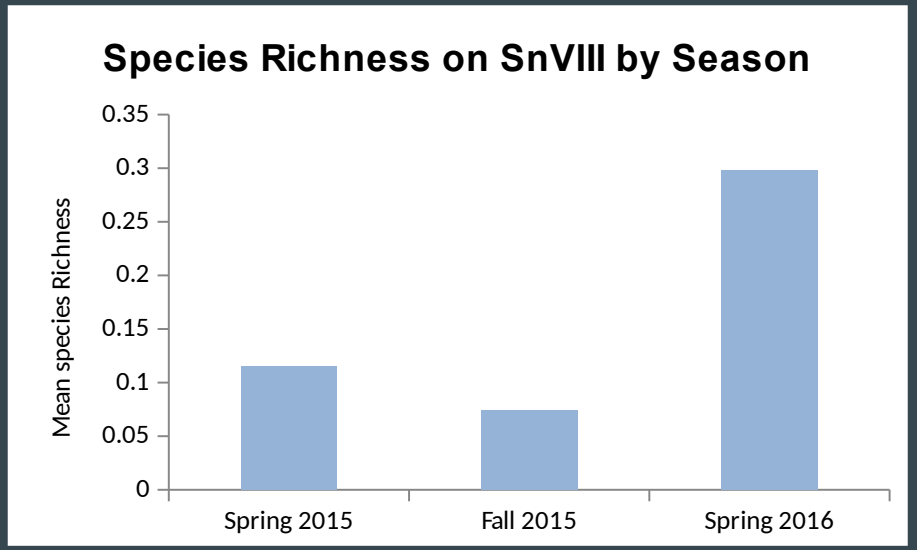
Biogeographic Results



Temporal Results





Conclusions

- Ecological value of *SnVIII*
  - 5 & 9X increases in density & richness
- Changing understanding of *SfIII*
- Similarities & differences between communities across forms
- Other effects on community composition may be at play


Questions?