



Field Observations of Pelagic *Sargassum*



Dr. Amy Siuda, Sea Education Association

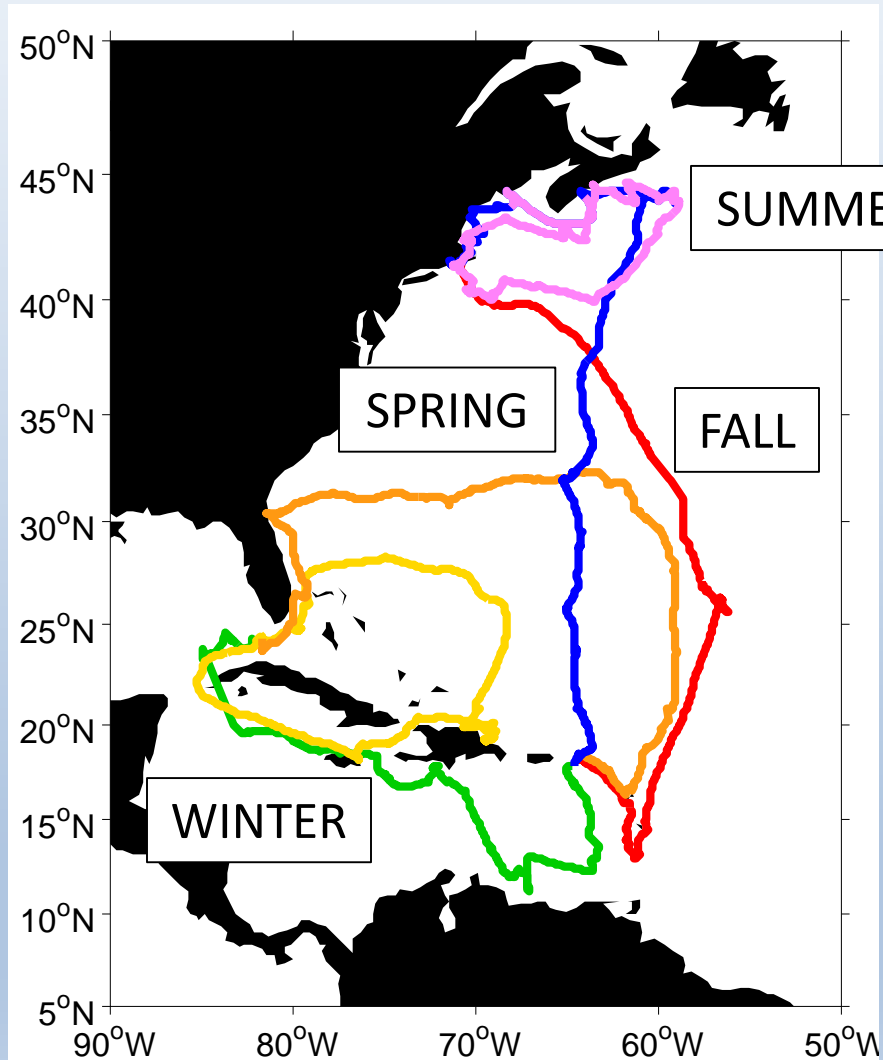
NASA/Sargasso Sea Commission Workshop/Meeting - 21 March 2016



Sargassum Research Themes

- **Concentration/Distribution/Circulation**
 - geographic patterns
 - temporal patterns
 - aggregation/dispersion patterns
- **Community Ecology**
 - composition: abundance, richness, diversity
 - between *Sargassum* forms
 - between regions
 - with *Sargassum* age
 - with *Sargassum* clump size/structure
 - connectivity between populations

Shipboard Pelagic *Sargassum* Sampling



- 6-week *SEA Semester* cruises
- annually-repeated tracks
- data collected by > 7500 undergraduates

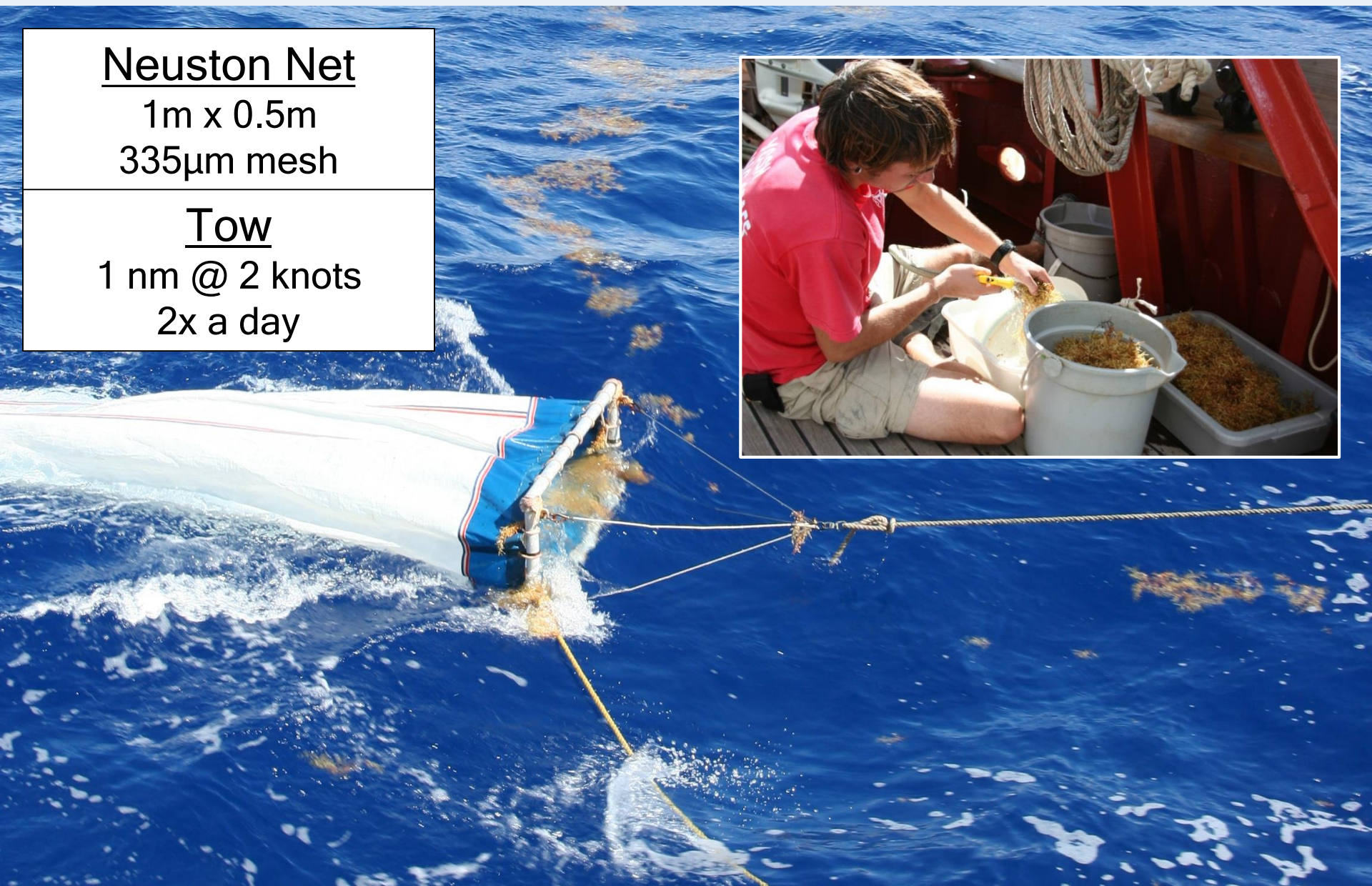
Shipboard Pelagic *Sargassum* Sampling

Neuston Net

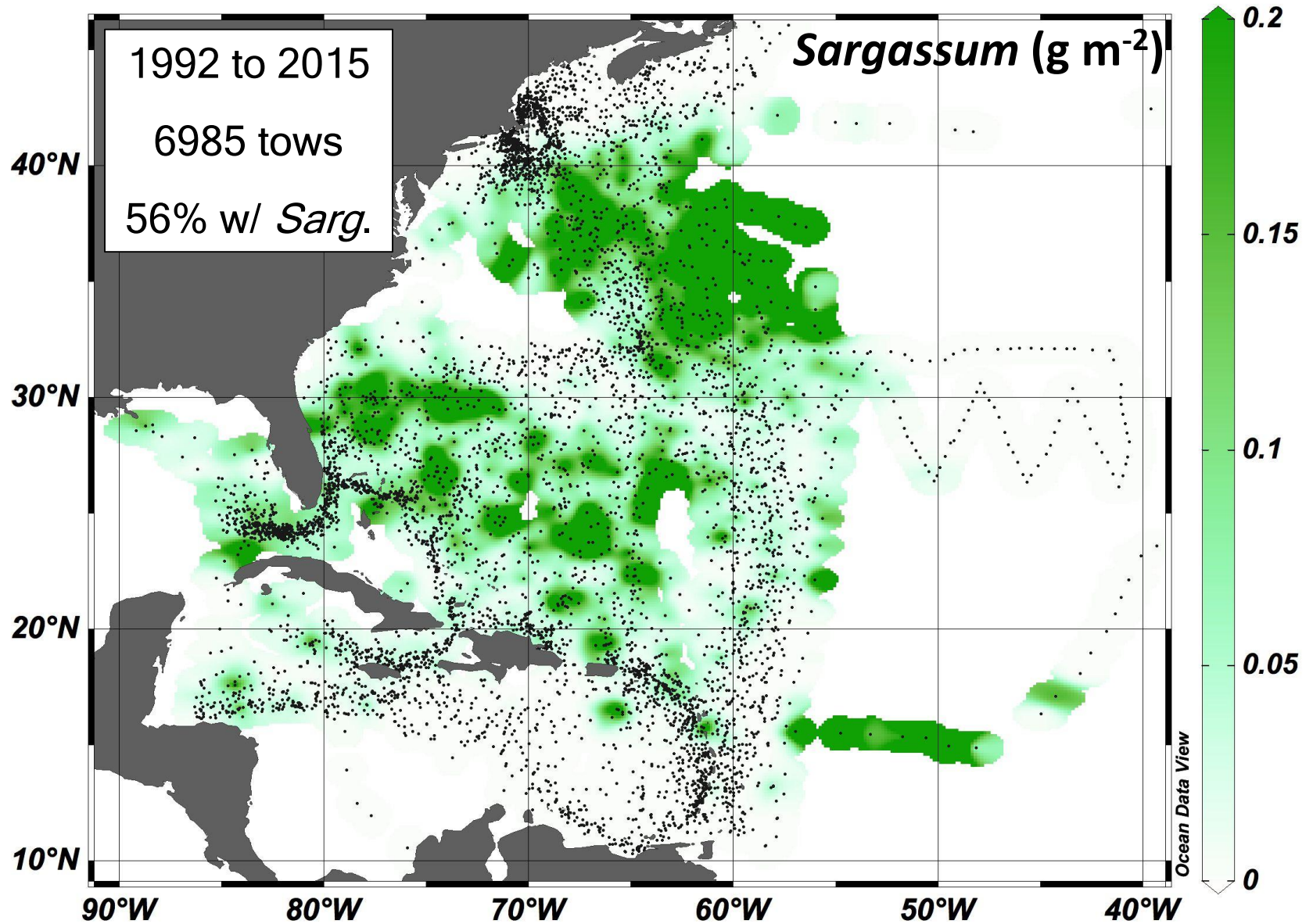
1m x 0.5m
335 μ m mesh

Tow

1 nm @ 2 knots
2x a day



Shipboard Pelagic *Sargassum* Sampling



Sargassum: Two Pelagic Species

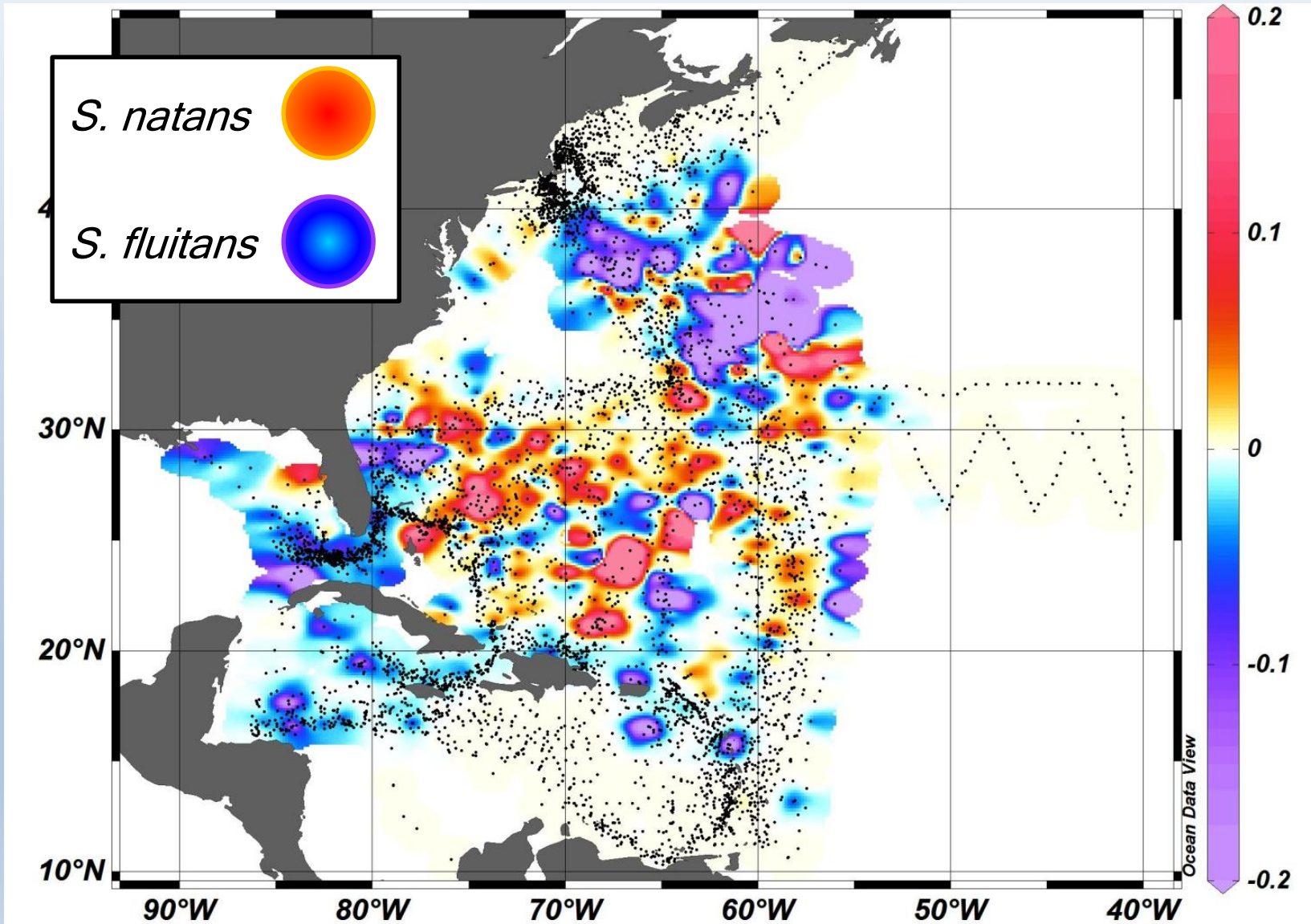
Sargassum natans



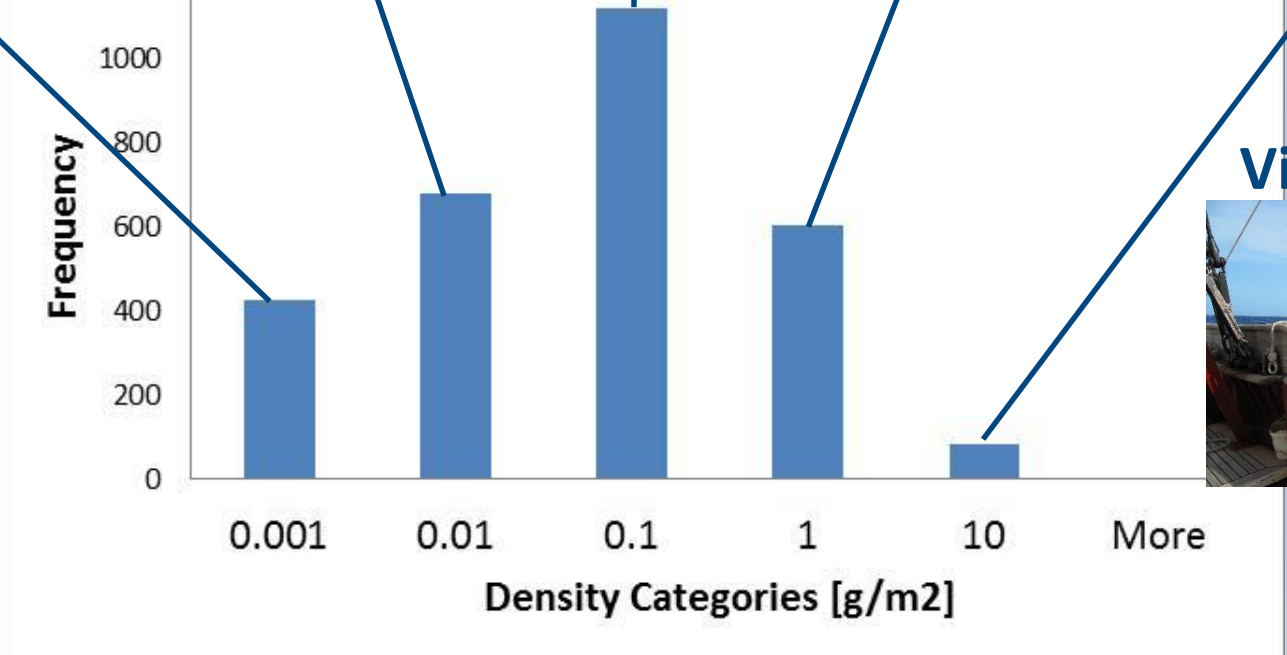
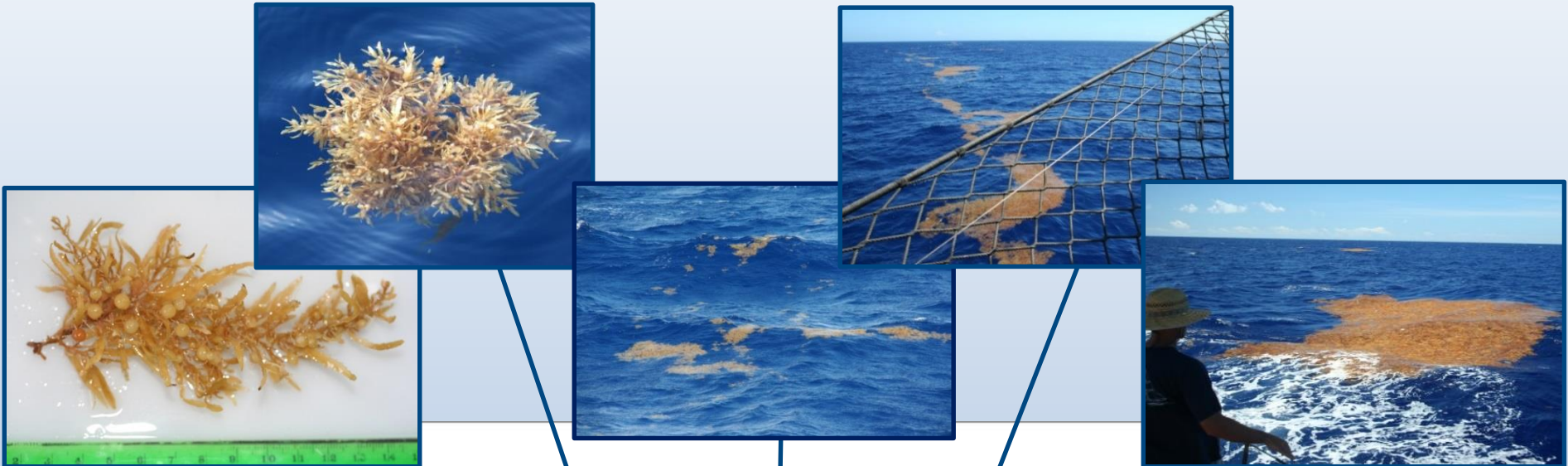
Sargassum fluitans



Sargassum Species Dominance (Sn-Sf)



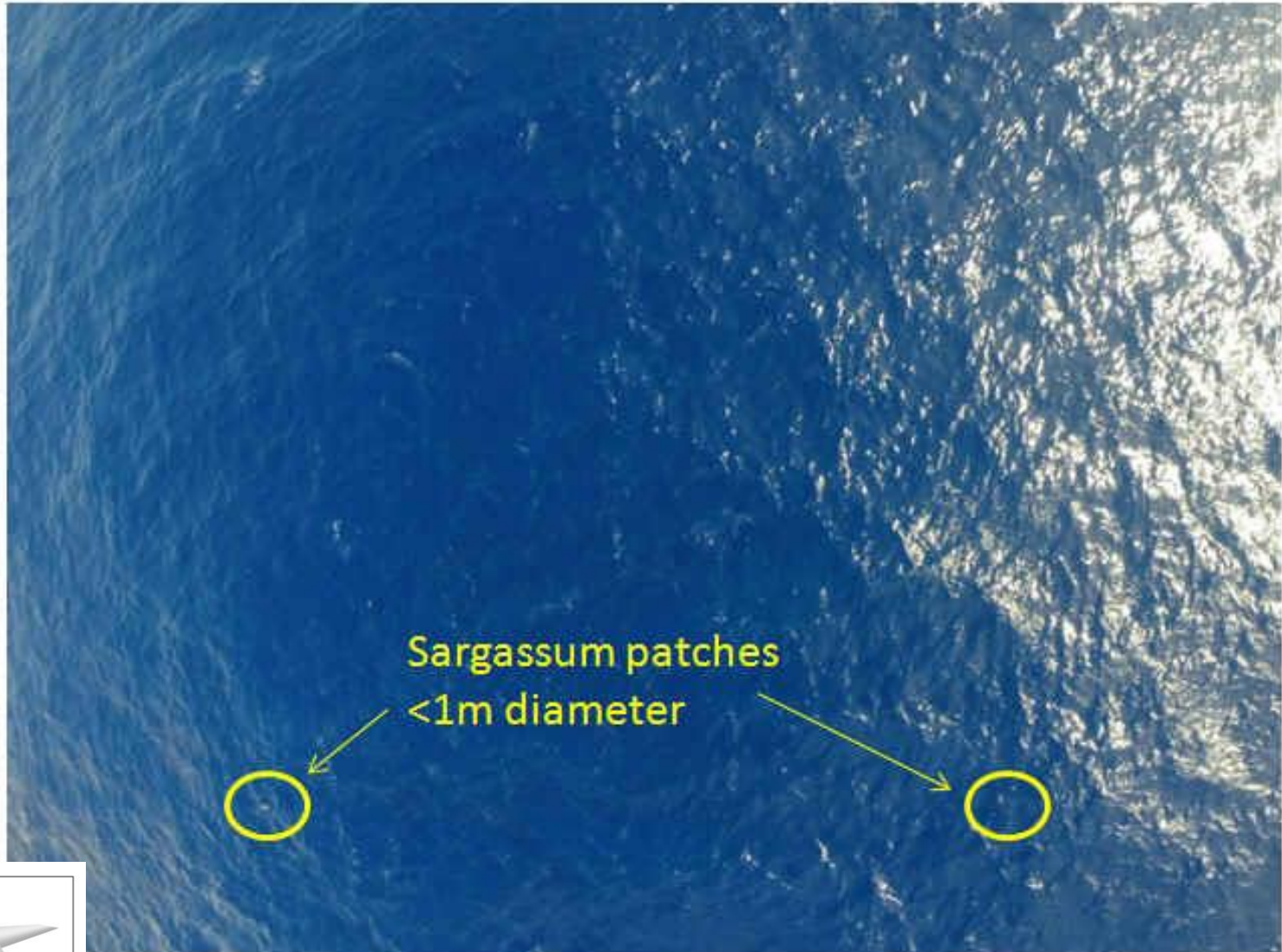
Frequency of Aggregation Patterns



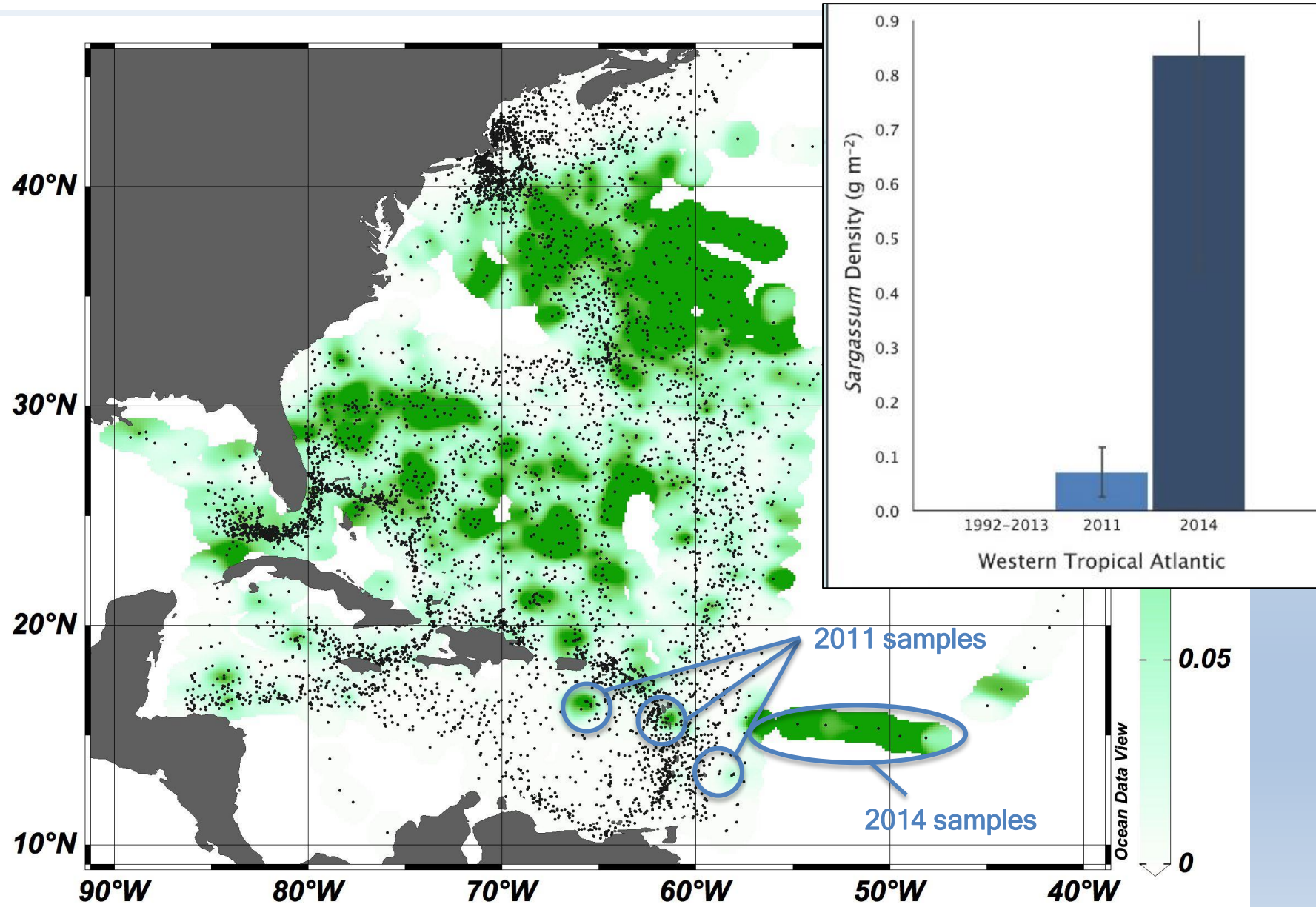
Near-Earth Pelagic *Sargassum* Observation



Near-Earth Pelagic *Sargassum* Observation



Recent Caribbean Inundations



Pelagic *Sargassum*: 2 Species, Many Forms

S. natans-I



S. fluitans-III



S. natans-VIII



S. natans-I

S. fluitans-ssp.

S. natans-VIII

Thorns on stem (Parr, 1939)

absent

present

absent



Spines on float (scale = 5mm)

present

absent

rare



Blade Shape and Size (scale = 5mm)

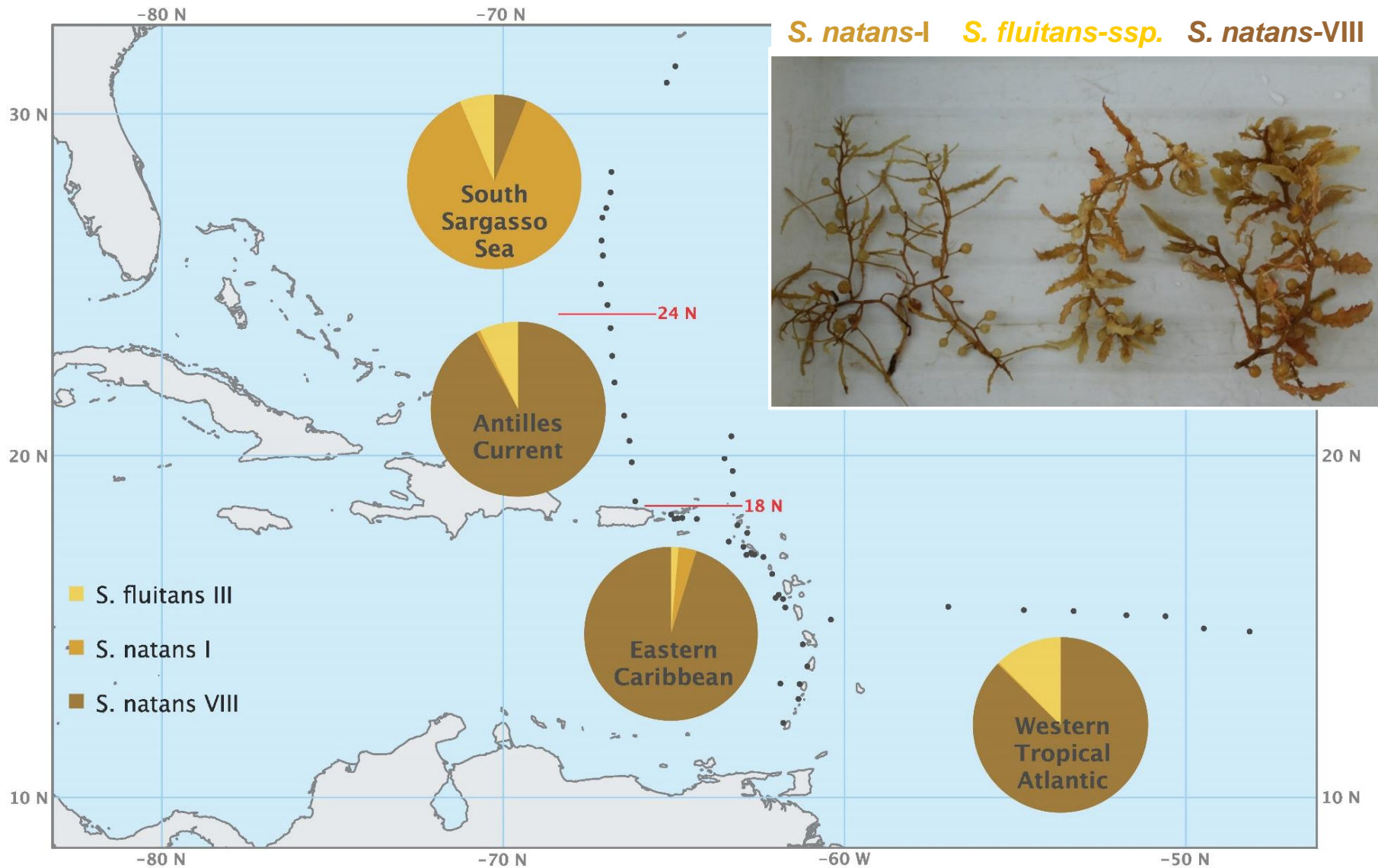
long, narrow

short, wide

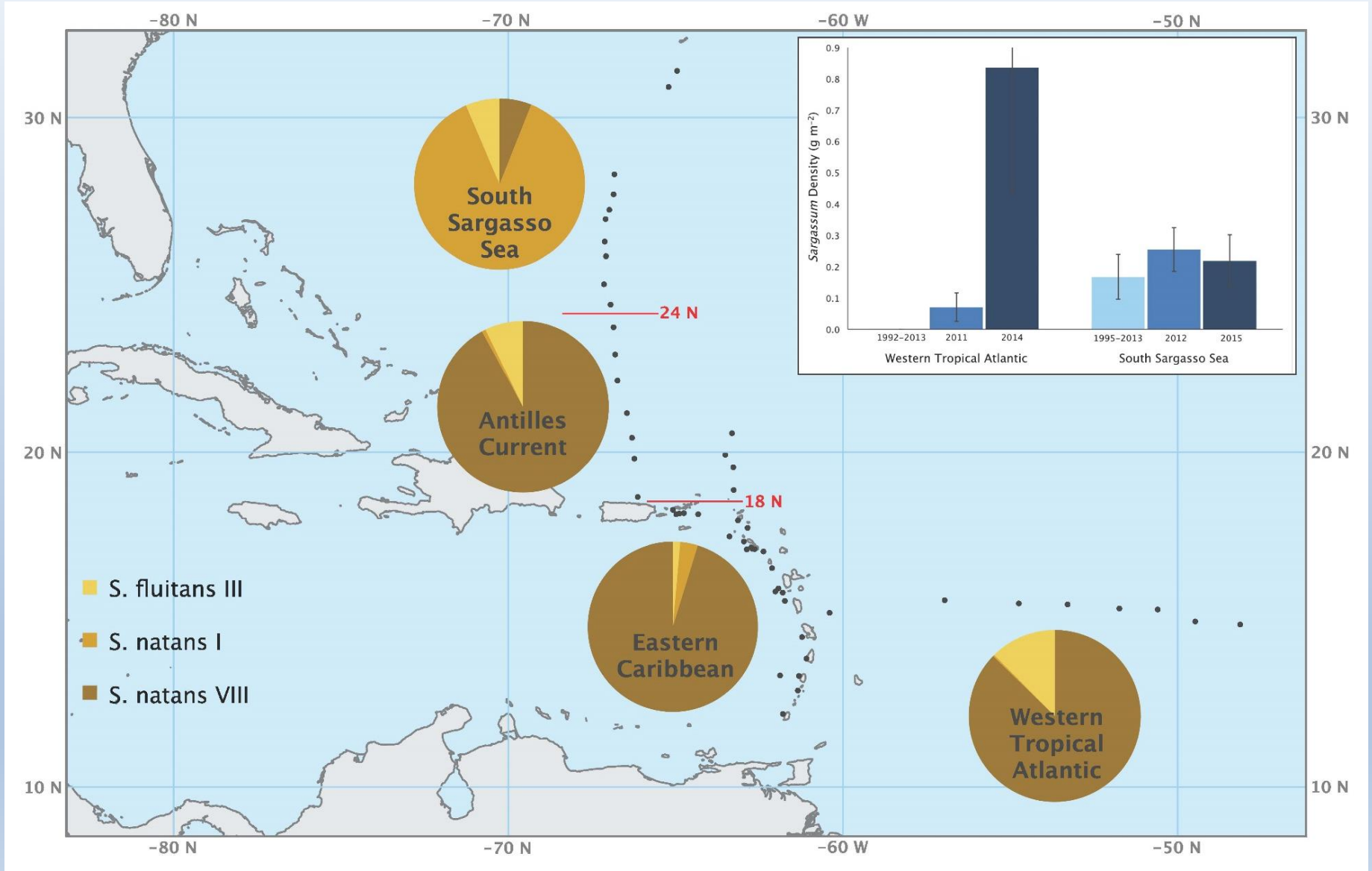
long, wide



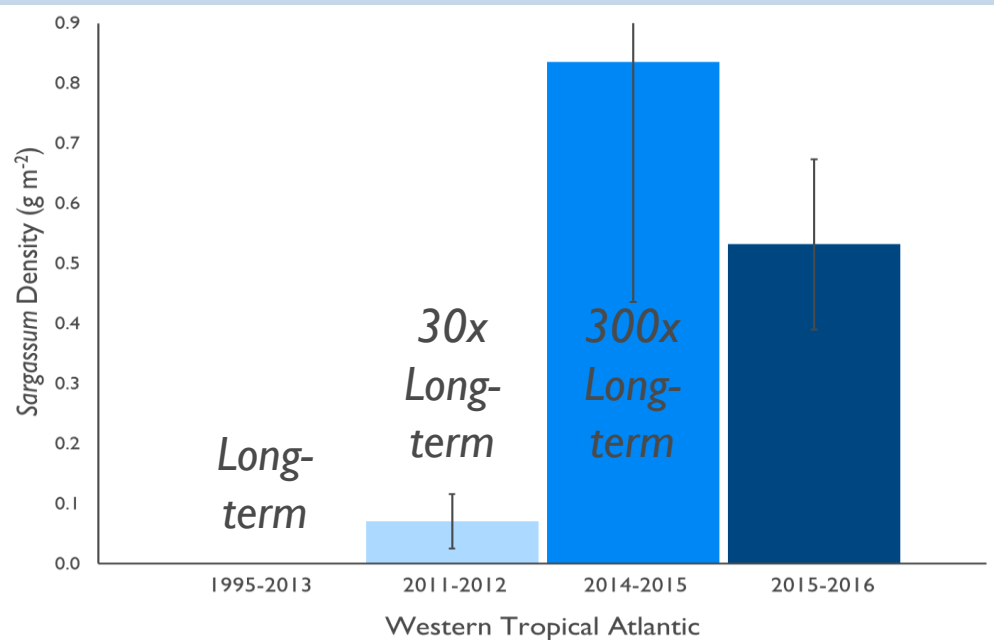
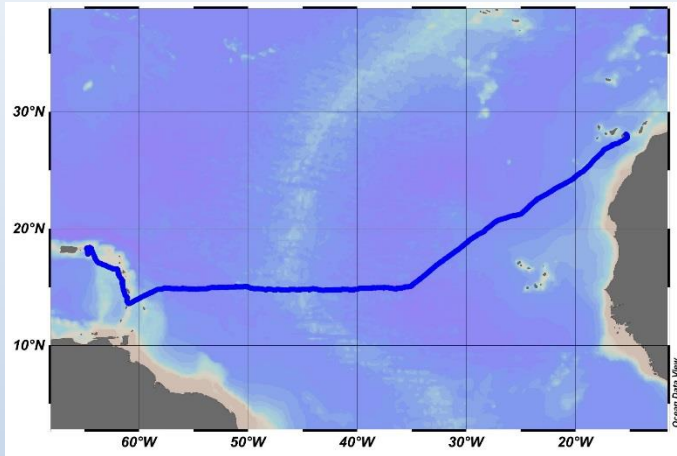
3 Common Forms, Distinct Distributions



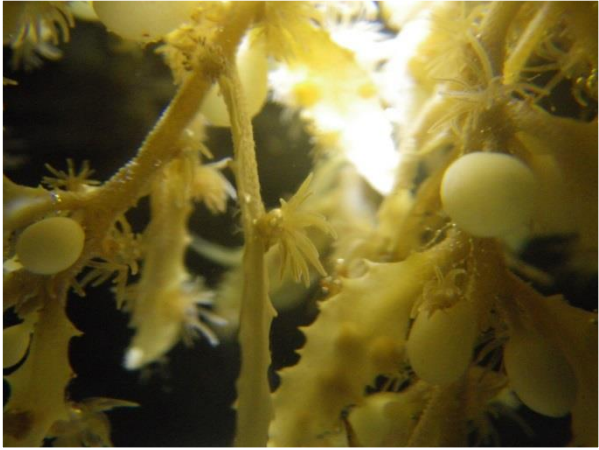
Caribbean Disconnected from Sargasso Sea



November 2014 v. 2015 Observations



Sargassum Community - Sessile



sea anemones



bryozoans



hydroids

Sargassum Community - Mobile



shrimp



snails



nudibranchs



crabs



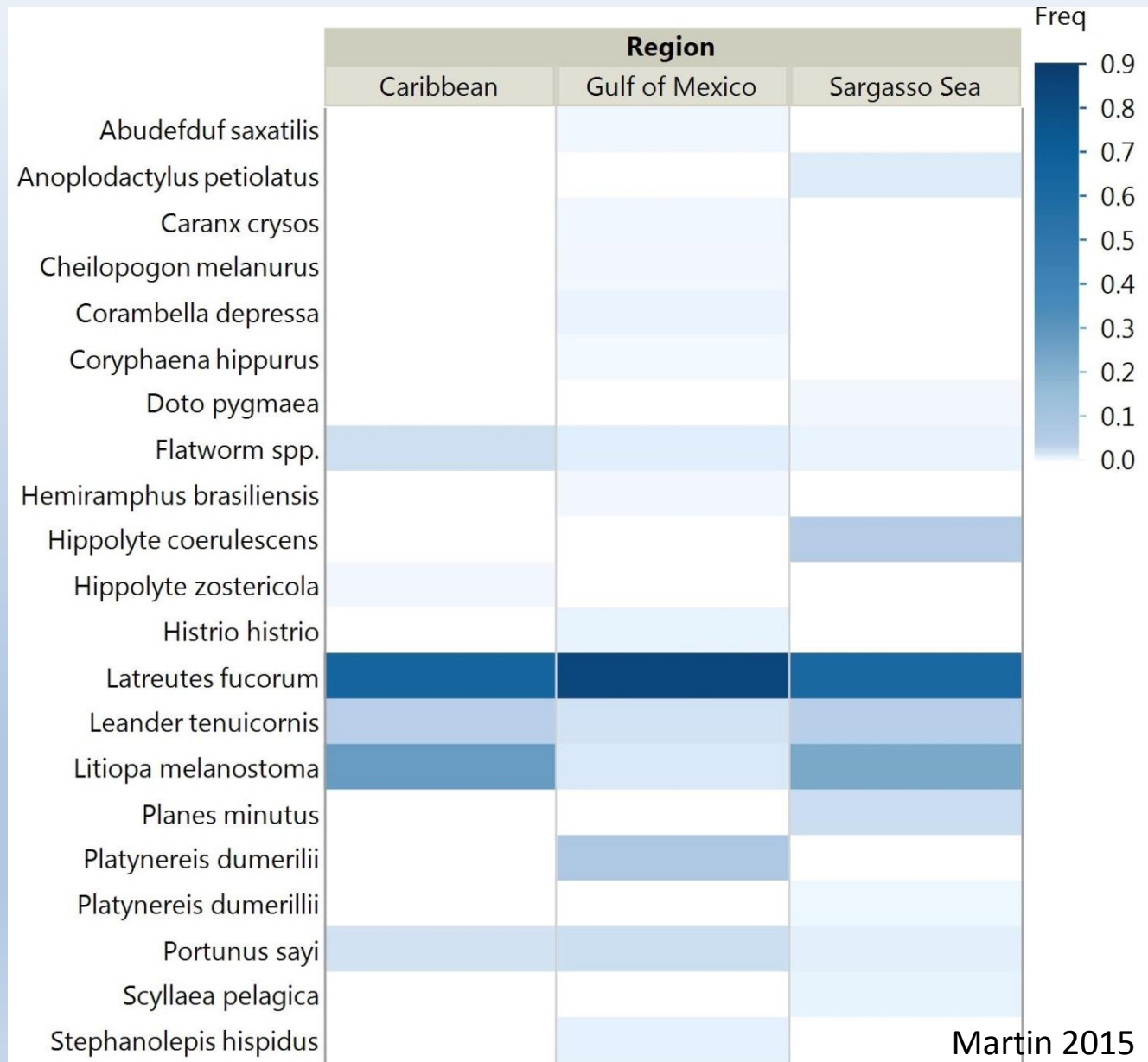
fishes

Detailed Clump/Fauna Analysis



Sargassum Community - Sessile

- **Caribbean**
 - Total: 6 species
 - Unique: 1 species
- **Gulf of Mexico**
 - Total: 15 species
 - Unique: 9 species (mostly fish)
- **Sargasso Sea**
 - Total: 12 species
 - Unique: 5 unique



Collaborators: Lesley-Ann Dupigny-Giroux (UVM)
Deborah Goodwin (SEA)
John Hanning (Archimedes Aerospace)
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