Supplementary Tables and Figures

Table S1: Description of the nine functional traits used in the analysis, including their units and functional interpretation.

Trait	Description	Units	Functional Interpretation
Exoskeleton material	The primary material used in forming the exoskeleton	Calcium carbonate, chitin	Defense mode
Body plan	The general layout of the organism	Articulate (cylindrical, laterally-compressed, ventrally-compressed), bulloid, turbinate, turriform	Habitat use and partitioning, defense mode
Trophic group	The primary trophic guild of the organism	Detritivore, filter feeder, grazer, omnivore, predator	Resource partitioning
Specific diet	The general group that forms the majority of the diet based on published analyses of diet preferences and/or gut contents	Benthic microalgae, bivalves, crustaceans, detritus, epibionts, epiphytic microalgae, hydroids, macroalgae, microalgae, polychaetes, sponges	Resource partitioning
Maximum length	The largest recorded size of the organism	Continuous, in mm	Habitat use and partitioning, resource partitioning
Water column position	Where the organisms spends the majority of its time	Benthos, epibenthos	Habitat use and partitioning
Mobility	The general state of activity of the organism	Crawling, free-swimming, tube-building	Habitat use and partitioning, colonization potential
Egg retention	Whether the organism retains its eggs or releases them into the water column	Brooding, external release	Colonization potential
Development mode	Whether the organism has a larval stage, and, if so, if that larvae disperse in the plankton	Direct, larval (non-planktonic), larval (planktonic)	Colonization potential

Table S2: (See attached file) Raw trait data, metadata, bibliography, and excluded species for the present study.

Figure S1: Importance plots derived from random forests for each community metric. The x-axis is the percent increase in the mean-squared error (MSE) and represents how poorly the model does at predicting the response when the variable on the y-axis is omitted. Points are scaled based on the size of the increase in MSE.

Figure S2: Functional diversity (FD) through time for all traits, and suites of traits relating to diet (trophic level and specific diet), habitat use (position in the water column and mobility), life history (brooding vs. non-brooding and larval dispersal mode), morphology (exoskeleton material and body plan), and body size. Left panels are weighted by relative abundance; right panels are weighted by presence-absence.

Figure S3: The proportion of individuals through time that possess traits relating to habitat use (benthos vs. epibenthos) for Chincoteague and South Bay.

Figure S4: The proportion of individuals through time that possess traits relating to mobility (crawling vs. free-swimming vs. tube-building) for Chincoteague and South Bay.

Figure S5: The proportion of individuals through time that possess traits relating to exoskeleton type (calcium carbonate vs. chitin) for Chincoteague and South Bay.

Figure S6: The proportion of individuals through time that possess traits relating to egg retention (brooding vs. external release) for Chincoteague and South Bay.

Figure S7: The proportion of individuals through time that possess traits relating to development mode (direct development vs. larval, non-planktonic vs. larval, planktonic) for Chincoteague and South Bay.

Figure S8: Times series plotting the annual mean ± 1 SE for various community properties representing only gastropods. Light grey circles represent the mature bed in Chincoteague Bay. Black triangles represent the restored bed in South Bay. FD = functional diversity, calculated as Rao's quadratic entropy from all nine functional traits.

Figure S8: Non-metric multidimensional scaling (NMDS) conducted on relative abundance data for **(a)** algal, and **(b)** eelgrass habitats over the course of the survey.

Figure S10: Relationships among species based on all nine functional traits generated using principal coordinates analysis. The two axes together explain 68% of the variance in functional traits.

Figure S11: Times series plotting the monthly mean ± 1 SE for various community properties. Light grey circles represent the mature bed in Chincoteague Bay. Black triangles represent the restored bed in South Bay. FD = functional diversity, calculated as Rao's quadratic entropy from all nine functional traits.

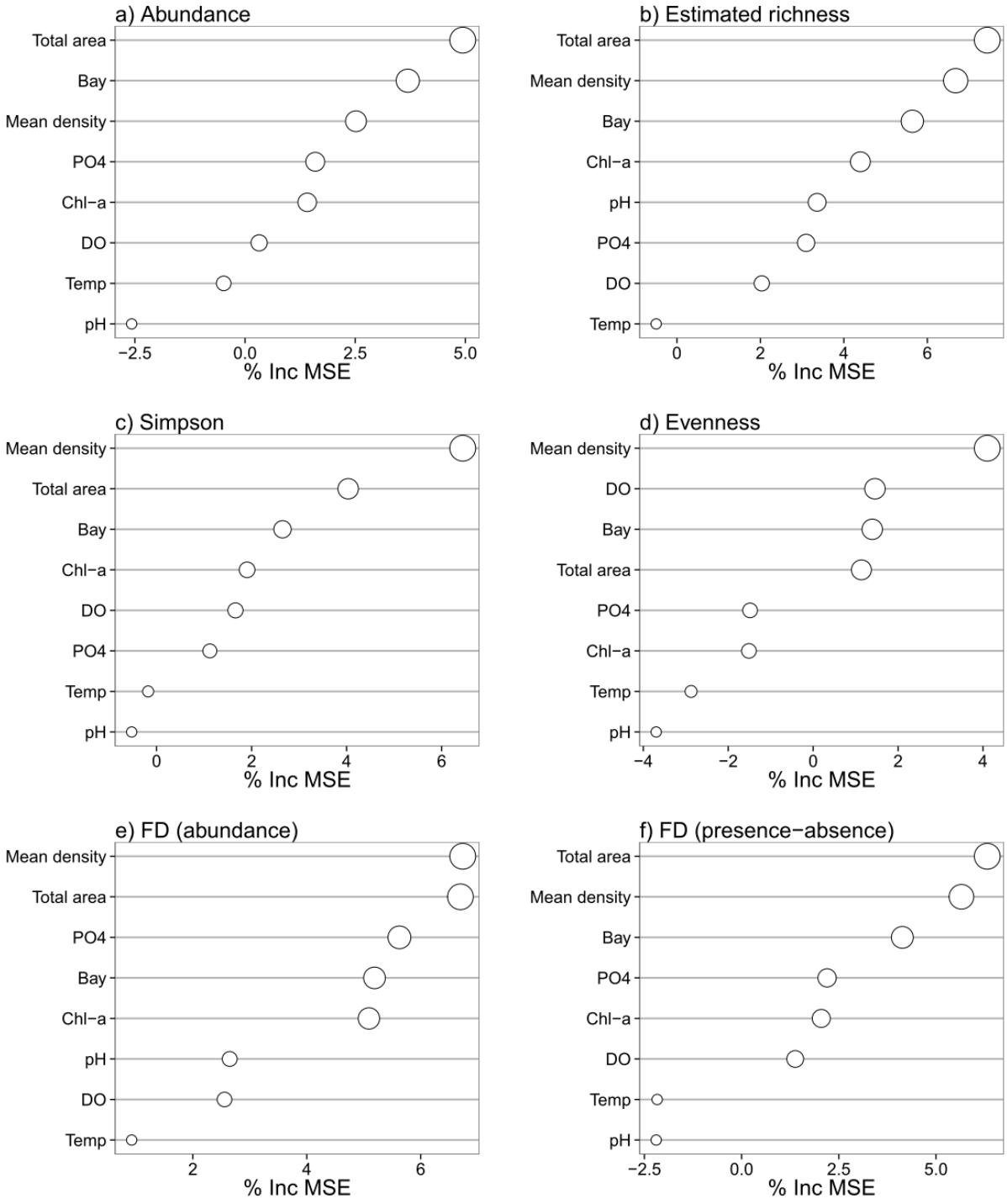

a) Abundance
Total area
Bay
Mean density
PO4
Chl−a
DO
Temp
pH
−2.5
0.0
2.5
5.0
% Inc MSE
b) Estimated richness
Total area
Mean density
Bay
Chl−a
pH
PO4
DO
Temp
0
2
4
6
% Inc MSE
c) Simpson
Mean density
Total area
Bay
Chl−a
DO
PO4
Temp
pH
0
2
4
6
% Inc MSE
d) Evenness
Mean density
DO
Bay
Total area
PO4
Chl−a
Temp
pH
−4
−2
0
2
4
% Inc MSE
e) FD (abundance)
Mean density
Total area
PO4
Bay
Chl−a
pH
DO
Temp
2
4
6
% Inc MSE
f) FD (presence−absence)
Total area
Mean density
Bay
PO4
Chl−a
DO
Temp
pH
−2.5
0.0
2.5
5.0
% Inc MSE

Figure S1

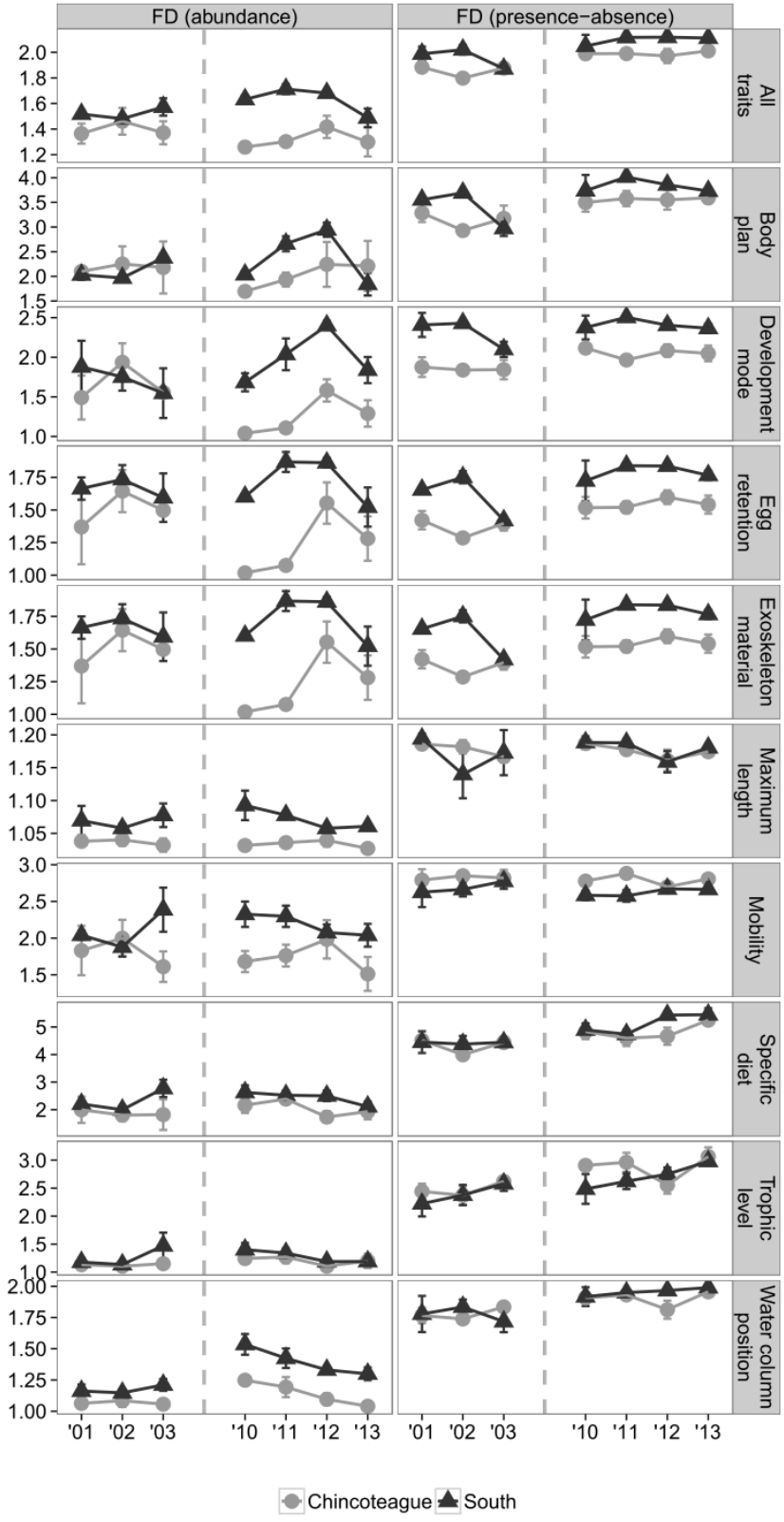

FD (abundance)
FD (presence−absence)
All traits
Body plan
Development mode
Egg retention
Exoskeleton material
Maximum length
Mobility
Specific diet
Trophic level
Water column position
'01 '02 '03 '10 '11 '12 '13
Chincoteague
South

Figure S2

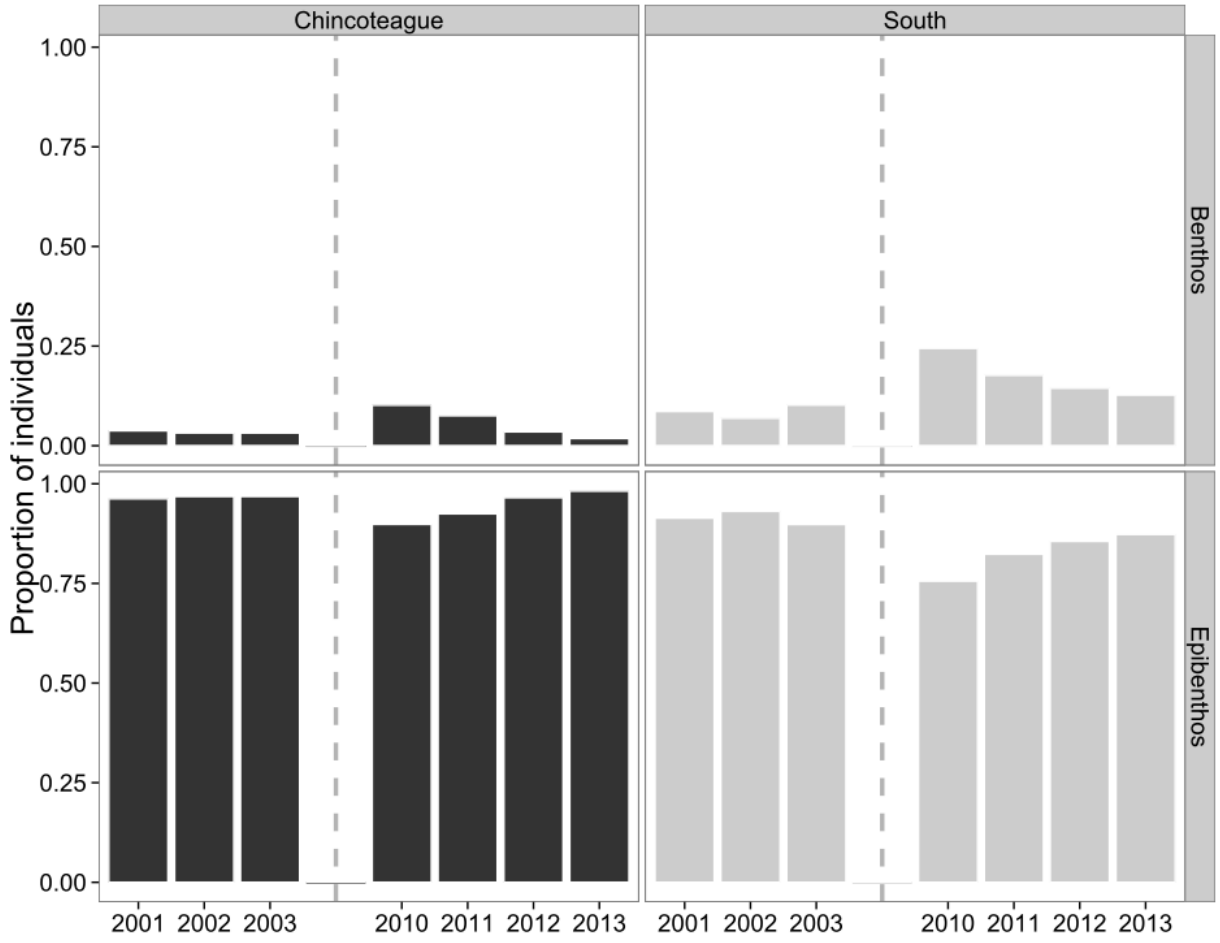

Chincoteague
South
Benthos
Epibenthos
Proportion of individuals
1.00
0.75
0.50
0.25
0.00
2001
2002
2003
2010
2011
2012
2013

Figure S3

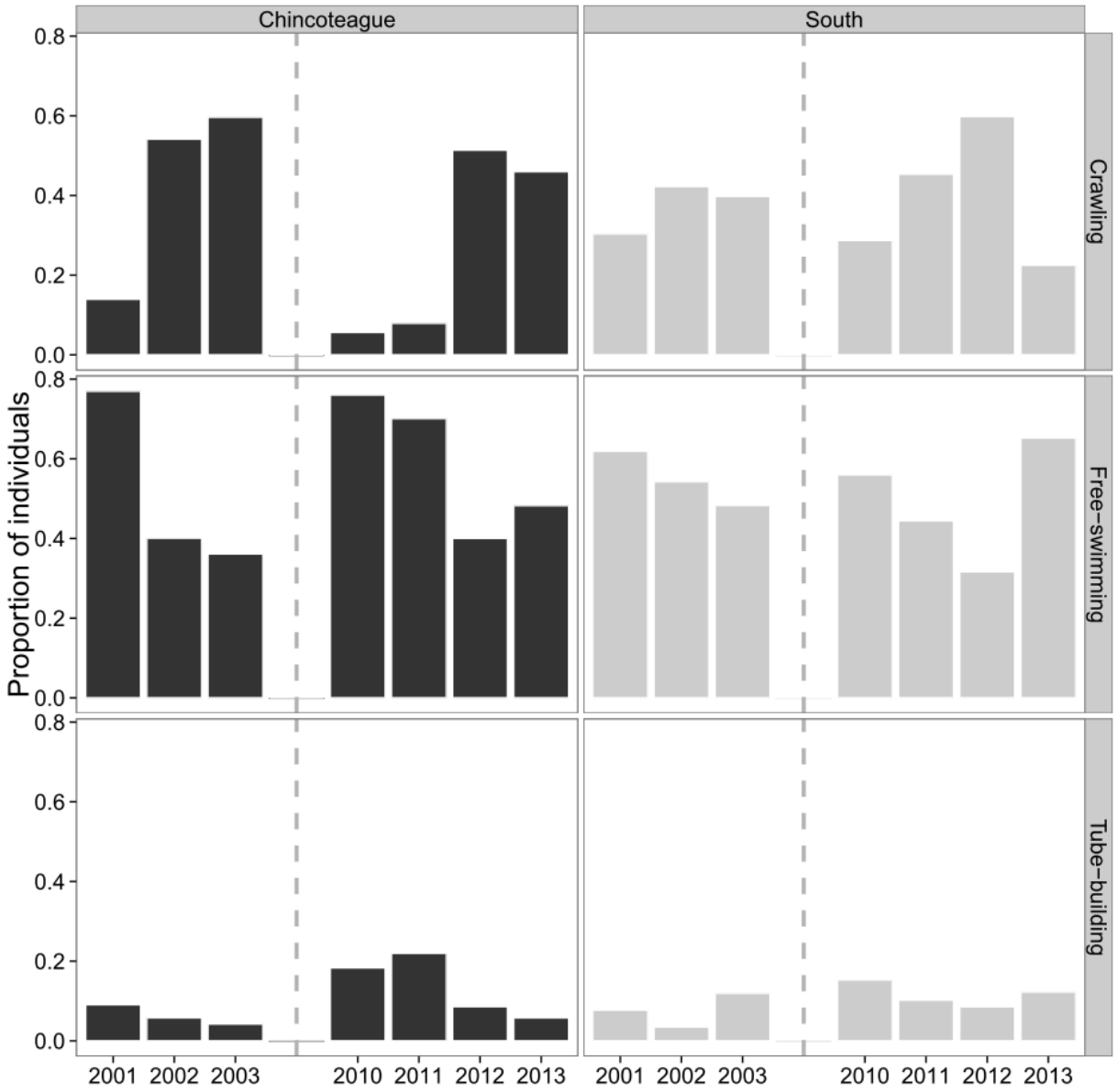

Chincoteague
South
Crawling
Free−swimming
Tube−building
Proportion of individuals
0.0
0.2
0.4
0.6
0.8
2001
2002
2003
2010
2011
2012
2013

Figure S4

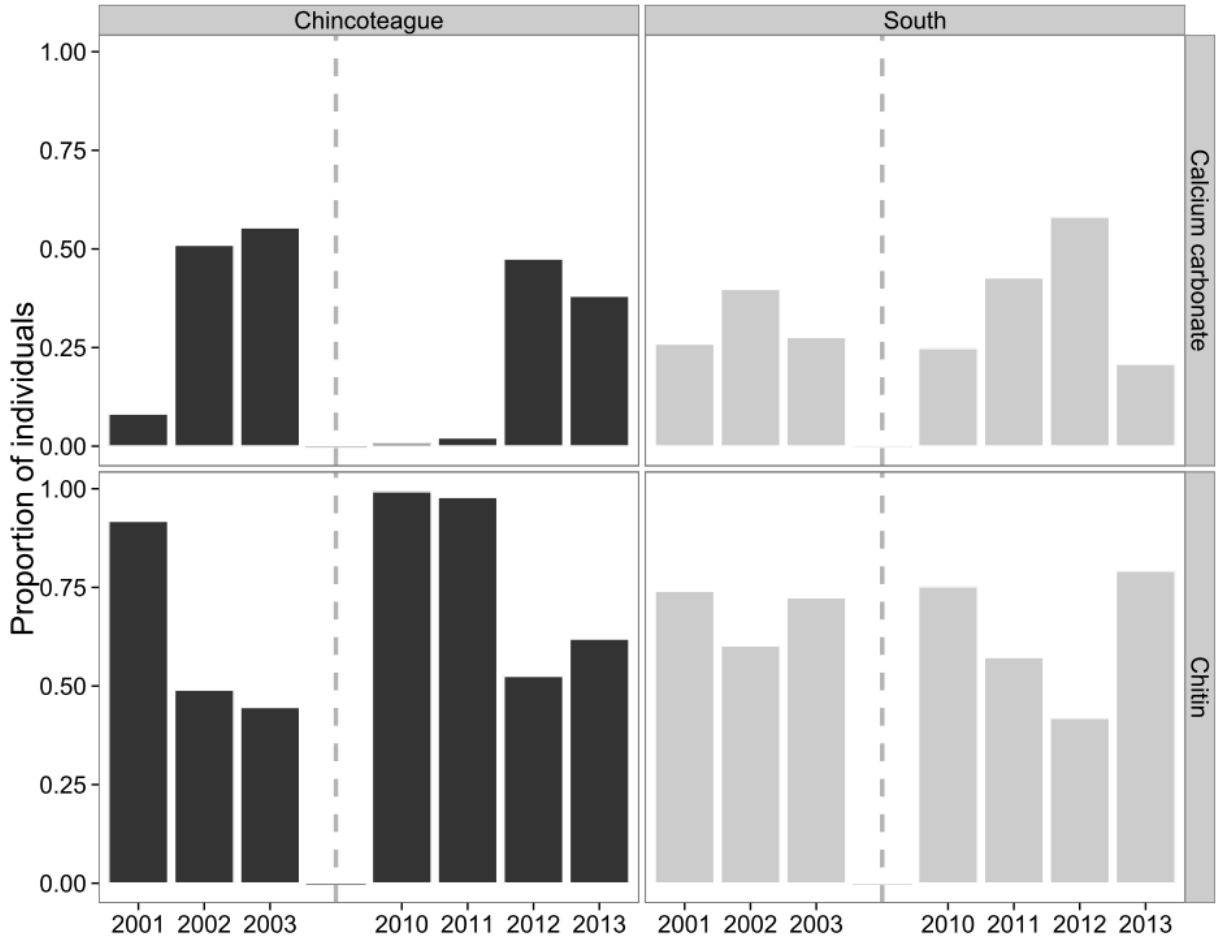

Chincoteague
South
Calcium carbonate
Chitin
Proportion of individuals
1.00
0.75
0.50
0.25
0.00
2001
2002
2003
2010
2011
2012
2013

Figure S5

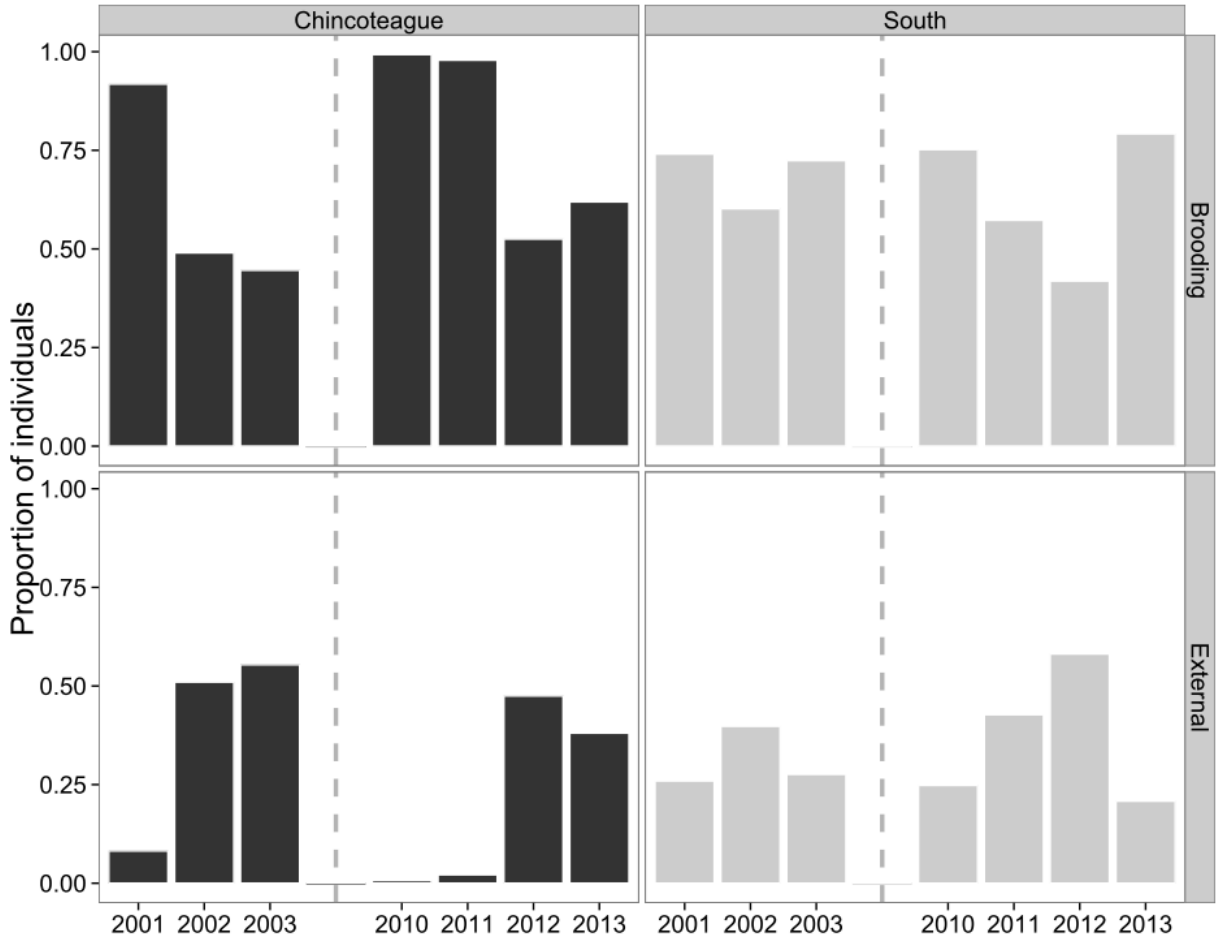
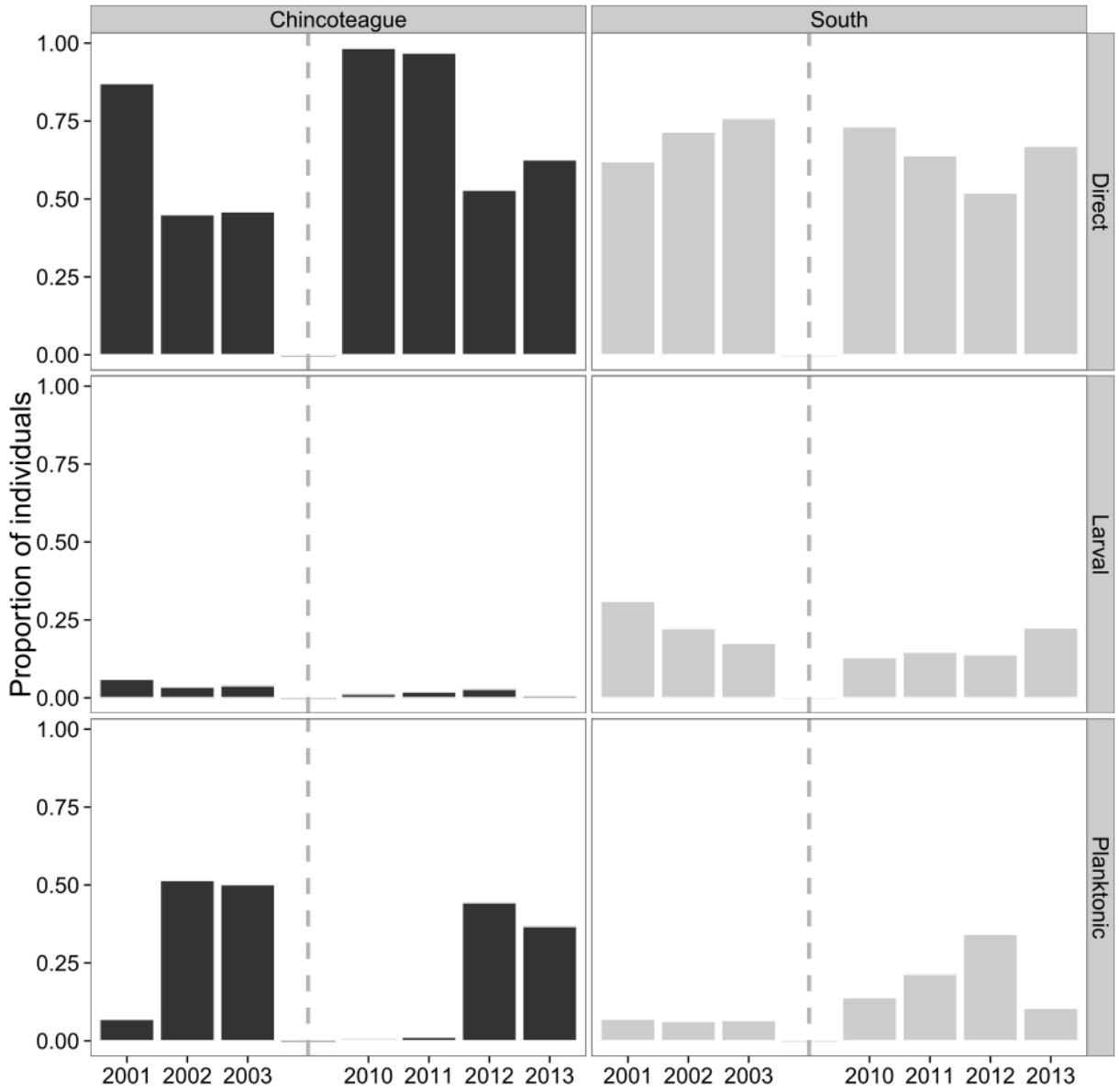

Chincoteague
South
Brooding
External
Proportion of individuals
1.00
0.75
0.50
0.25
0.00
2001
2002
2003
2010
2011
2012
2013

Figure S6



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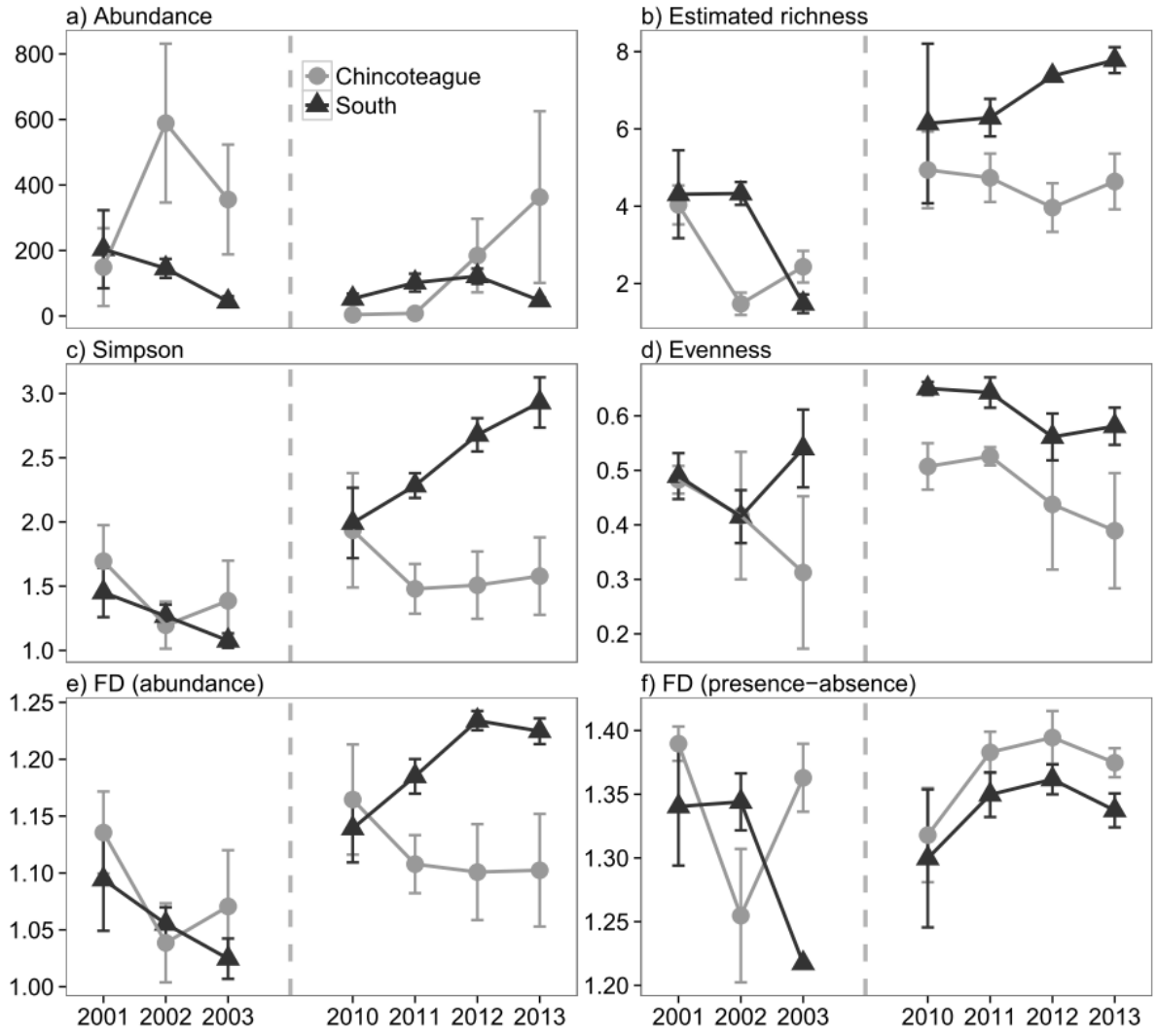
55 **Figure S7**



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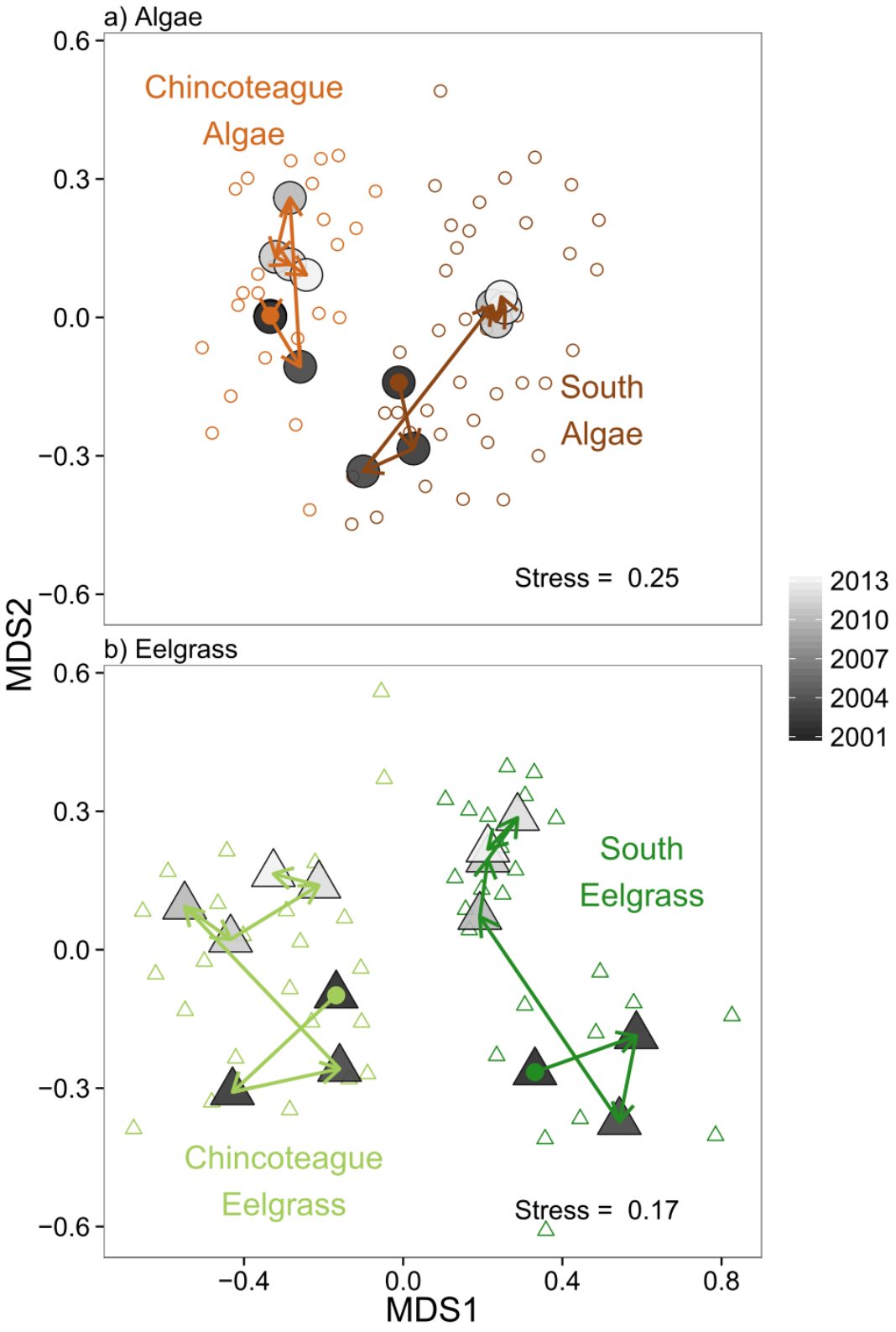
57 **Figure S8**



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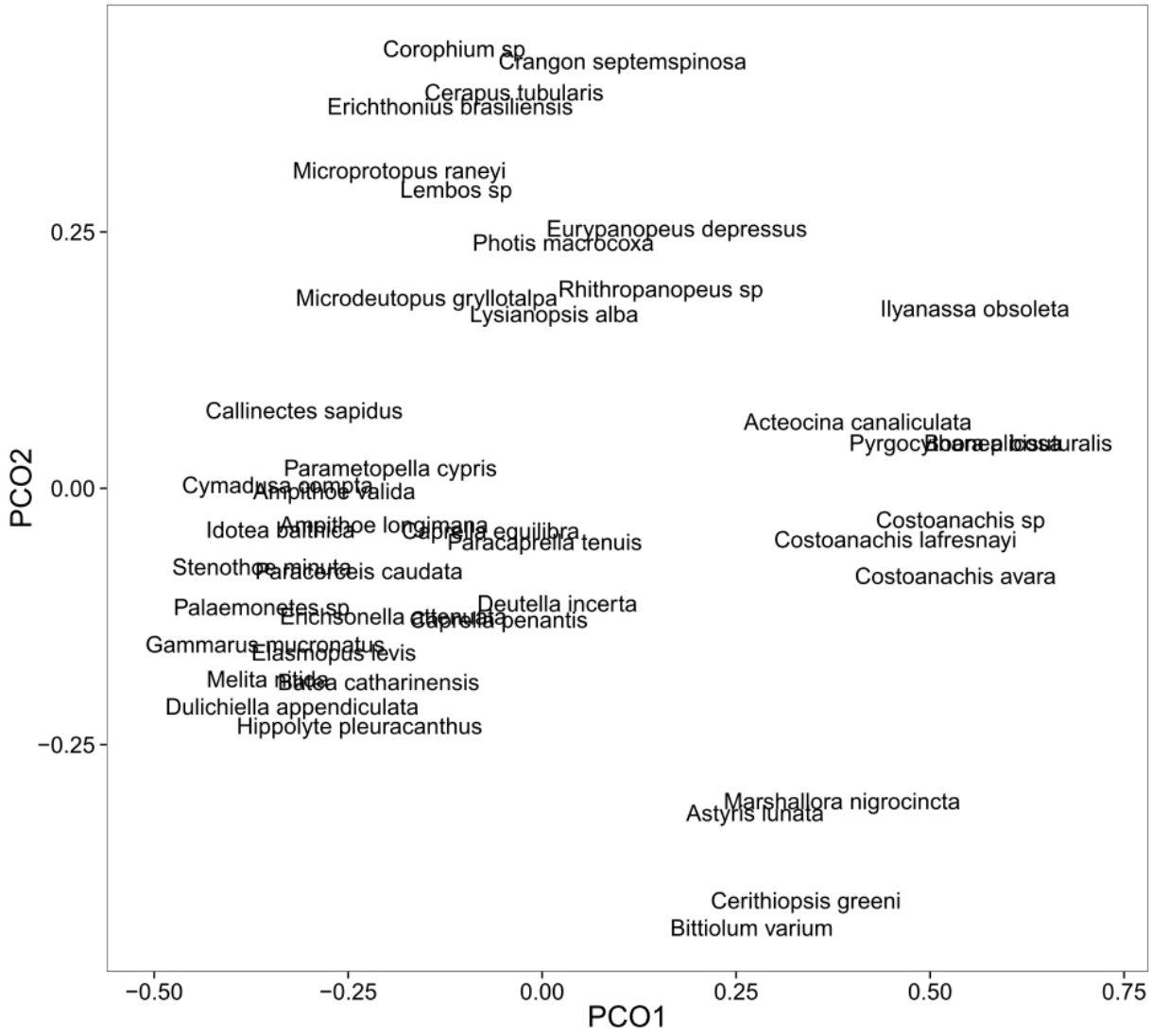
59 **Figure S9**



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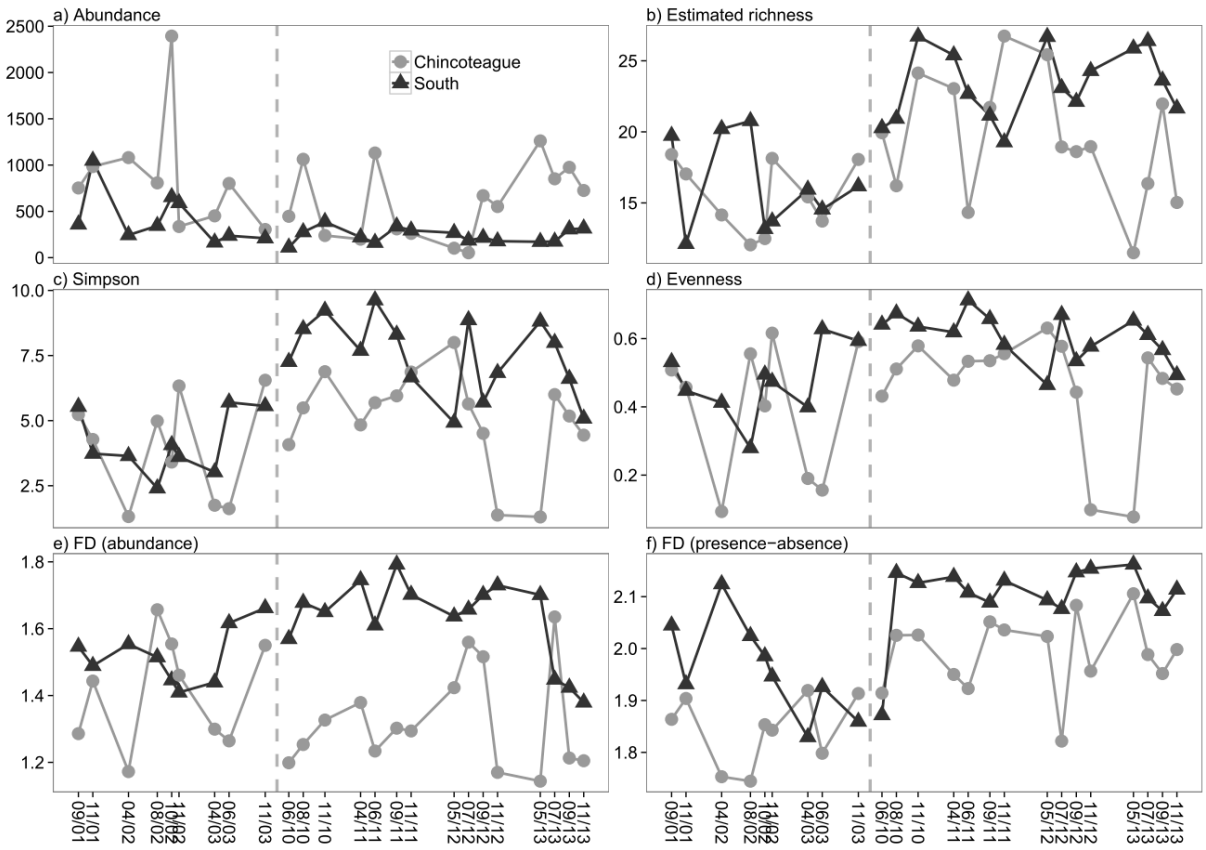
61 **Figure S10**



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63 **Figure S11**