

Assessing the Chesapeake Bay Forage Base:

Existing Data and Research Priorities

Scientific and Technical Advisory Committee Workshop

Solomons, MD

12 - 13 November 2014

What Managed Predators Should Be Our Focus?

What Forage Species Are Most Vital to Consider / Manage?

The Existing Data

Chris Bonzek, VIMS

Field and Lab Staffs for ChesMMAP, CHESFIMS, VIMS Trawl

Tom Ihde, NOAA

Data Sources

Surveys:

ChesMMAP:

- Chesapeake Bay Multispecies Monitoring and Assessment Program

CHESFIMS:

- Chesapeake Bay Fishery Independent Monitoring Survey

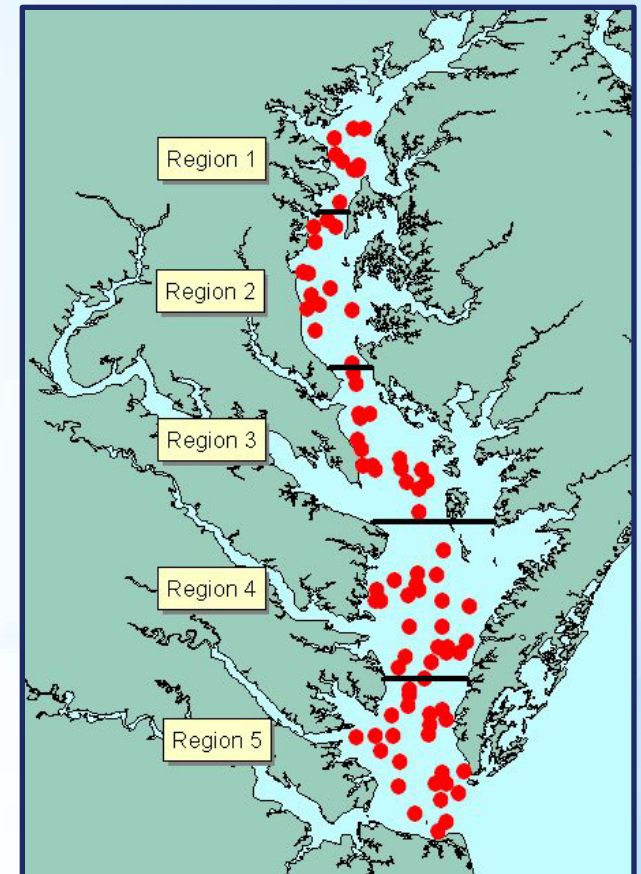
VIMS Trawl/CTILS:

- Chesapeake Trophic Interactions Laboratory Services

Data Sources

ChesMMAP:

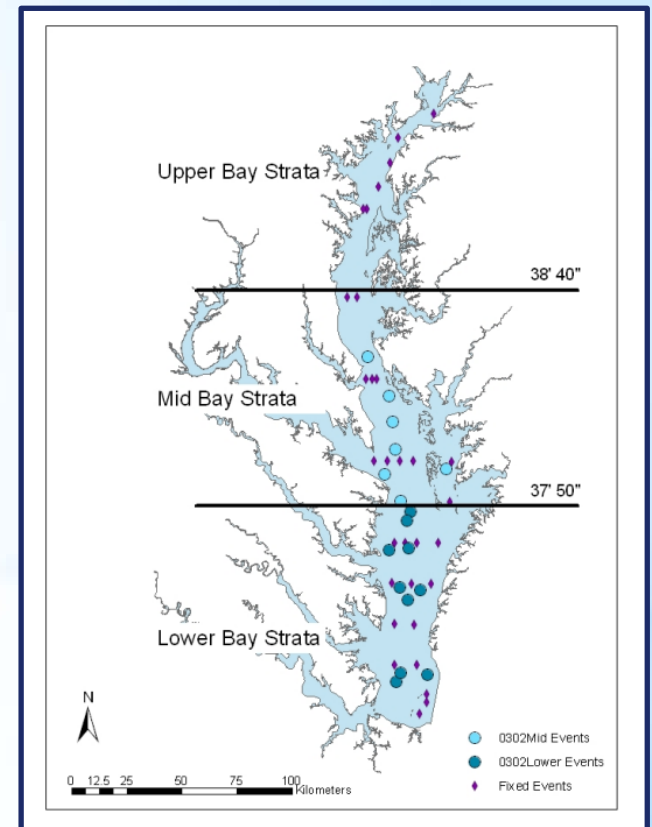
- 2002 - Present (Ongoing)
- Bottom Trawl Survey
- Design: Random Stratified
- Targets Late-Juvenile-to-Adult Fishes
- Bay Main-Stem (Baltimore to Bay Mouth)
- Five Cruises per Year (Mar-May-Jul-Sep-Nov)
- ~80 Stations per Cruise
- Counts-Biomass-Lengths-Sex-Maturity-Age-Diets (Nearly all species encountered)



Data Sources

CHESFIMS:

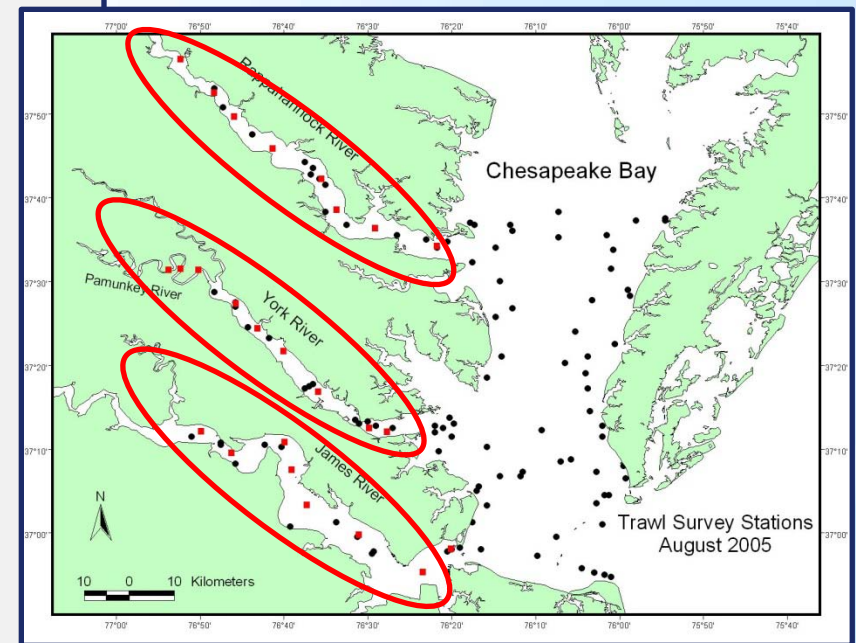
- 2001 - 2006
- Midwater Trawl Survey
- Design: Combination Random/ Fixed
- Primarily Juvenile Fishes
- Bay Main-Stem (Baltimore to Bay Mouth)
- Three Cruises per Year (Spring - Summer - Fall)
- ~40 Stations per Cruise
- Counts-Biomass-Lengths-Sex-Maturity-Age-Diets (Selected Species)



Data Sources

VIMS Trawl / CTILS:

- VIMS Trawl: 1955-Present
CTILS: 2003-2007
- Bottom Trawl Survey
- Design: Random Stratified
- Primarily Juvenile Fishes
- Bay Main-Stem and Major Rivers
CTILS Samples From the Rivers Only
- Twelve Cruises per Year
- ~110 Stations per Cruise
- Counts-Lengths



Representative Species / Summaries

Species:

Baywide Piscivores:

- Summer Flounder
- Striped Bass

Baywide Benthic Feeder:

- Atlantic Croaker

Upper Bay Species:

- White Perch

Lower Bay Species:

- Clearnose Skate

Analyses Presented:

Length Frequencies & Catch Maps

- By Survey if Available

Diets: All Data Pooled

- By Survey if Available

Diets: Annual Variability

- ChesMMAP Only

Diets: By Size/Age

- By Survey if Available

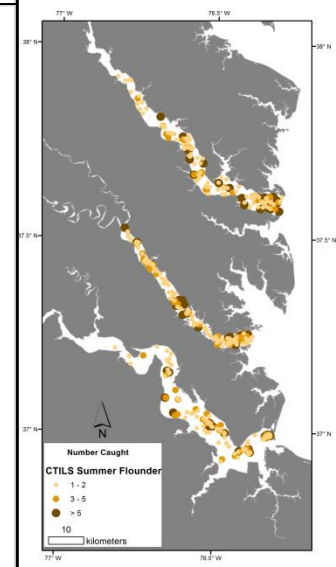
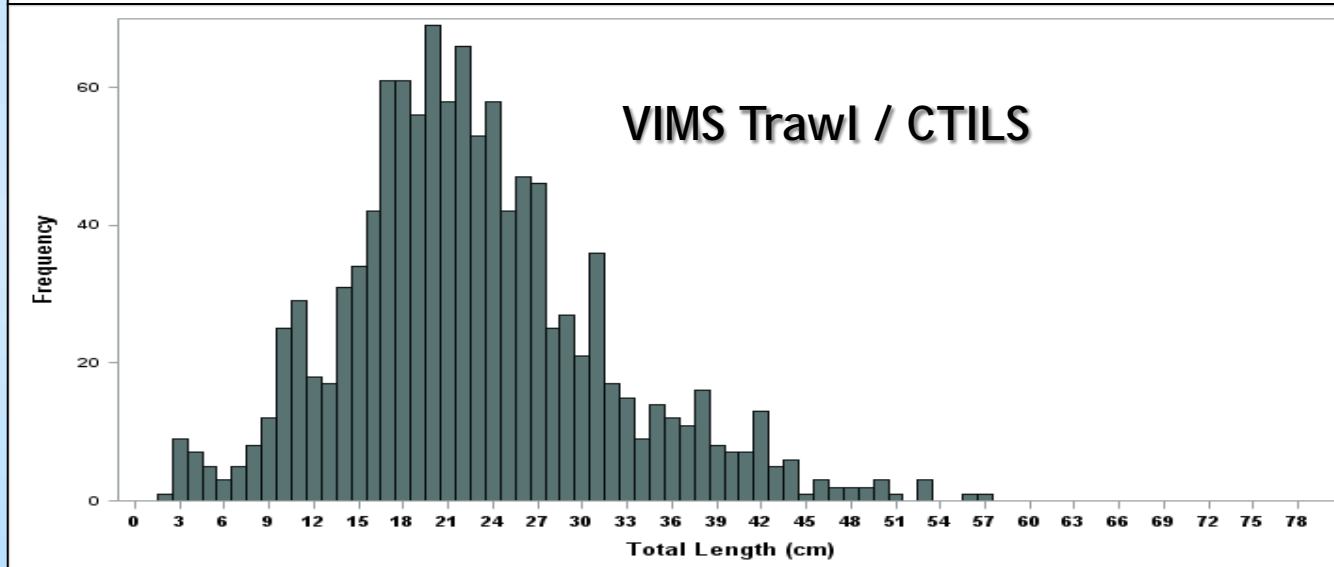
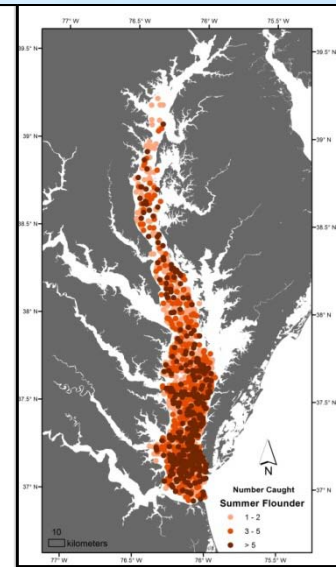
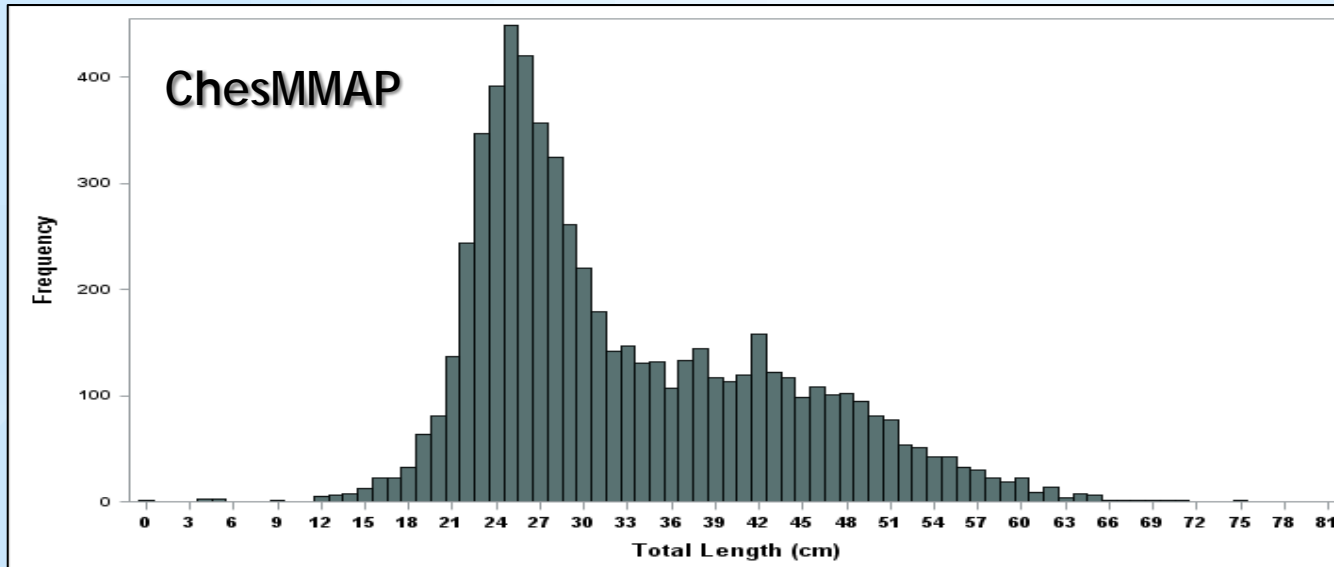
Diets: Upper v. Lower Bay

- ChesMMAP Only

Diets: Variability of Main Forage

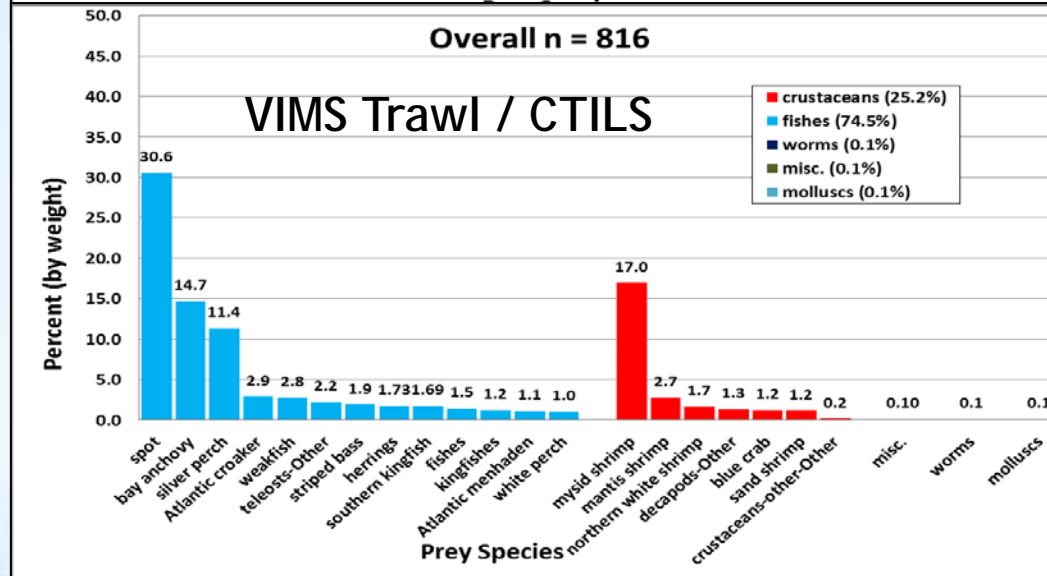
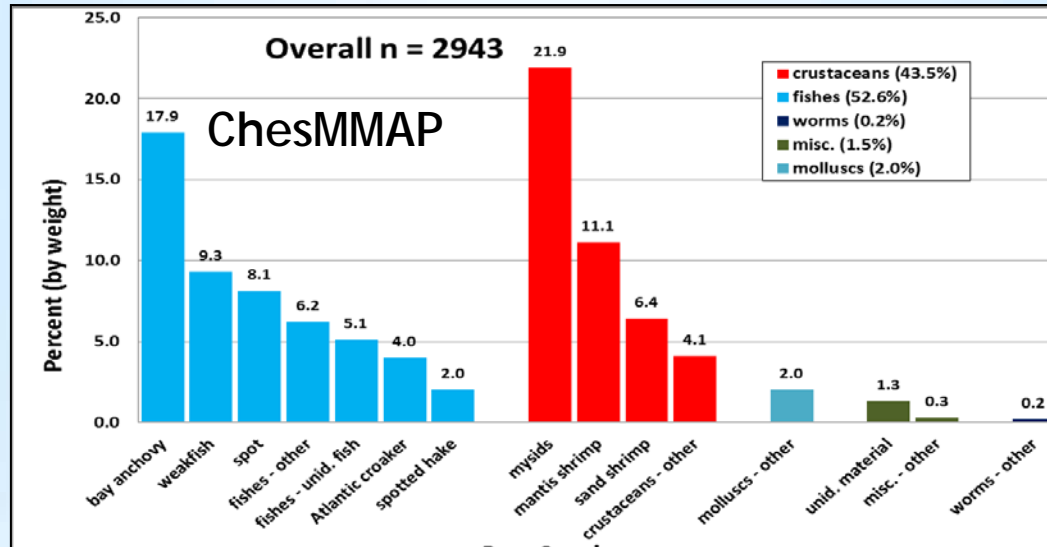
- ChesMMAP Only

Summer Flounder

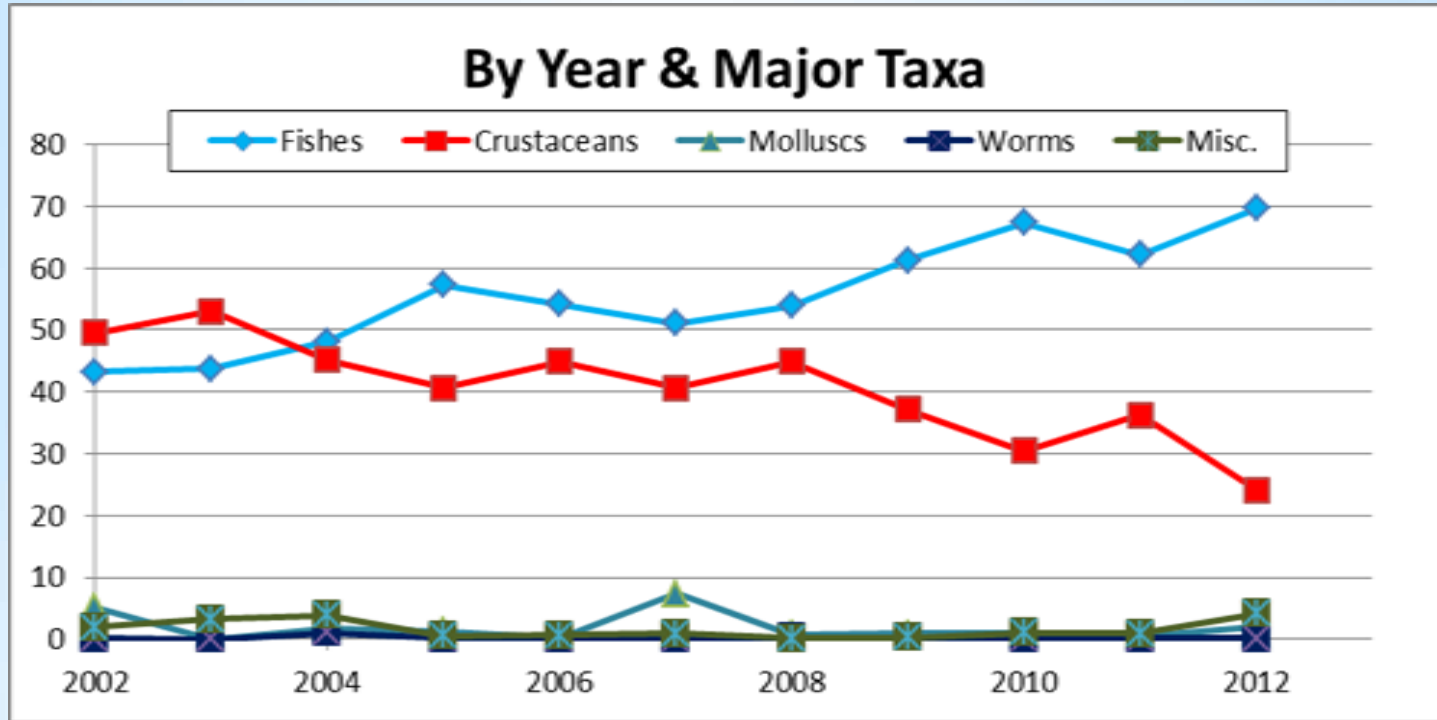


Summer Flounder

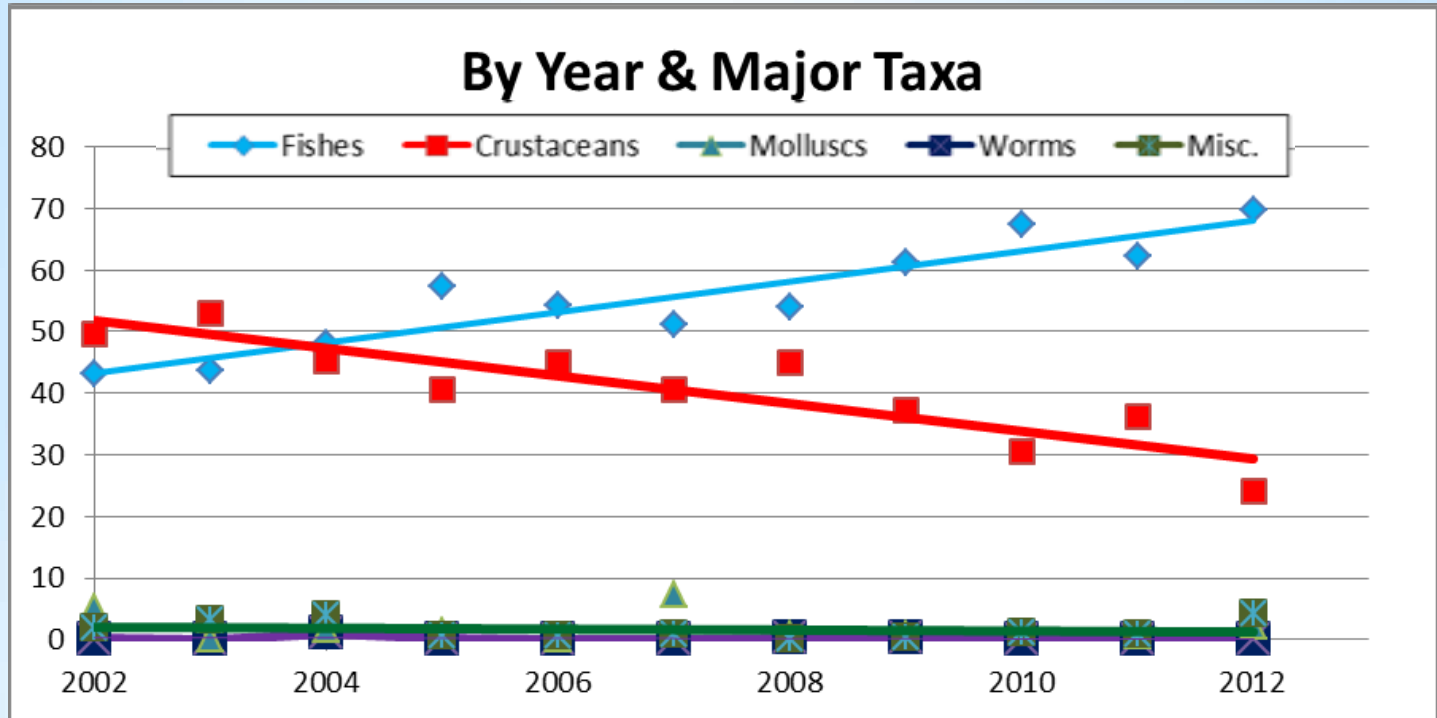
All Years/Months/Regions/Sizes



Summer Flounder Annual Variability

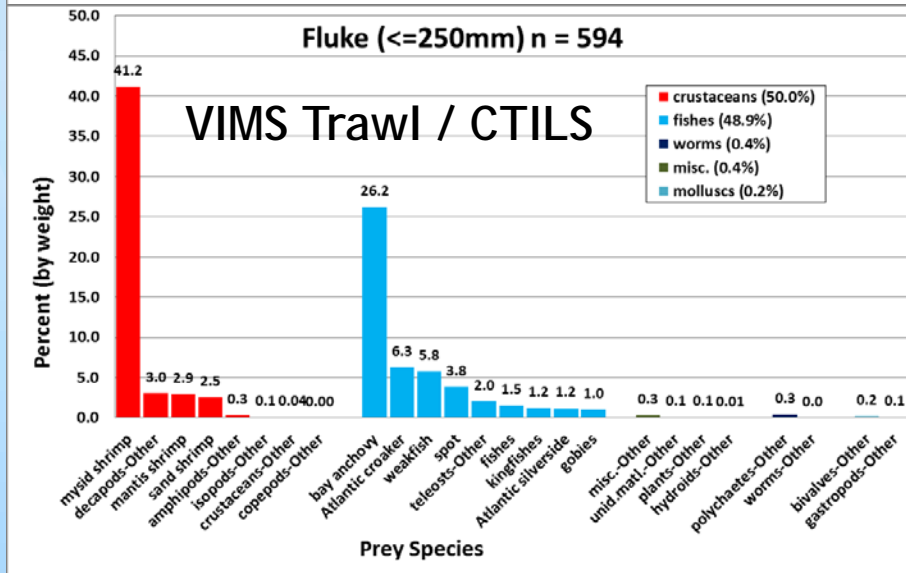
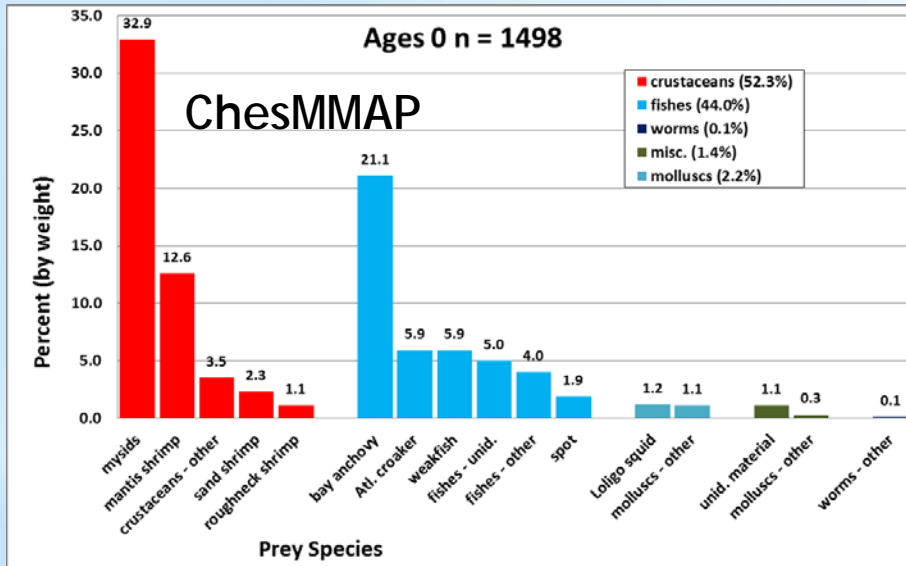


Summer Flounder Annual Variability



Summer Flounder - Size/Age Variability

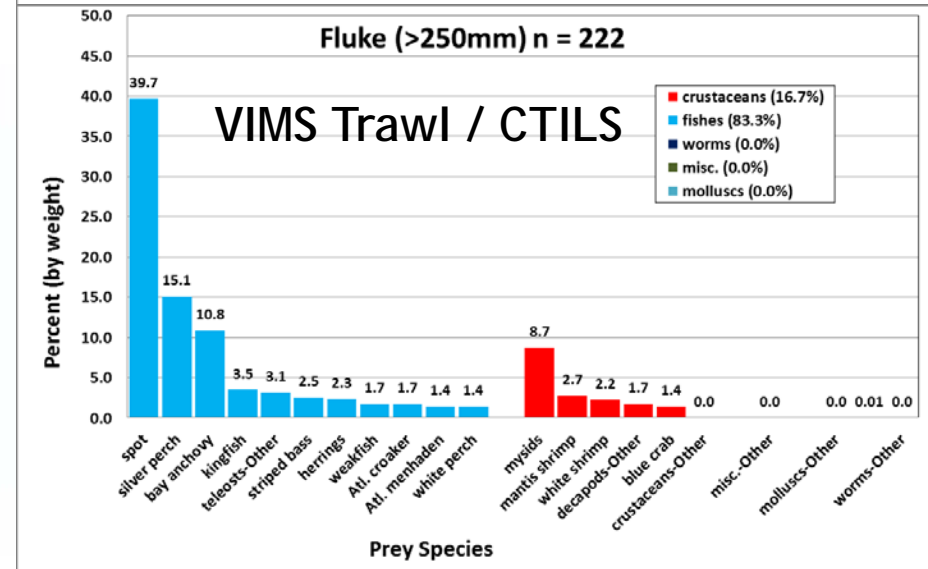
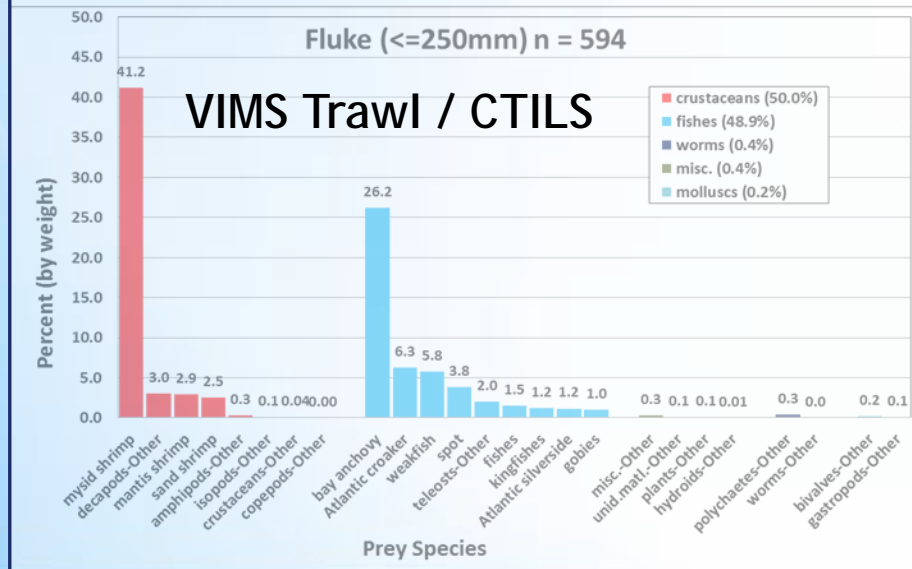
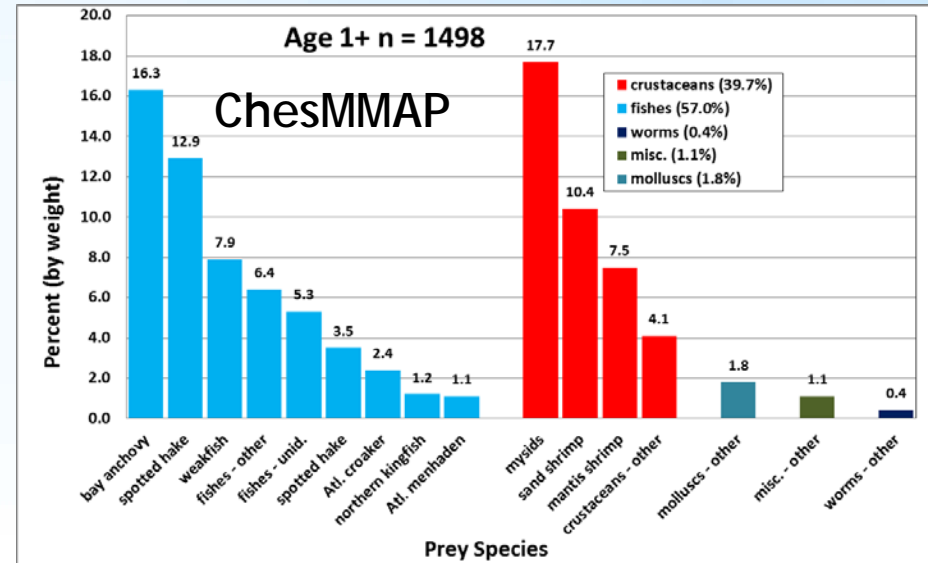
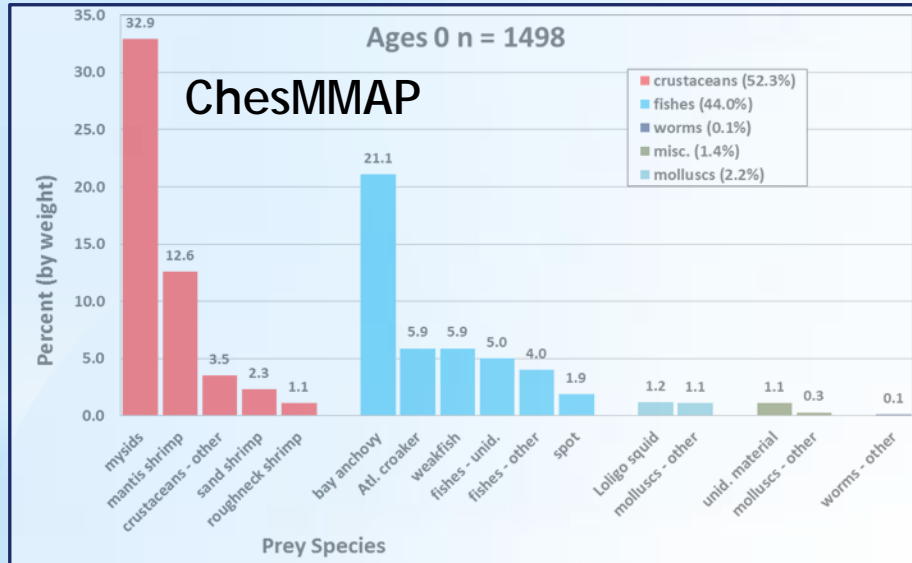
Small (~Age-0)



Summer Flounder - Size/Age Variability

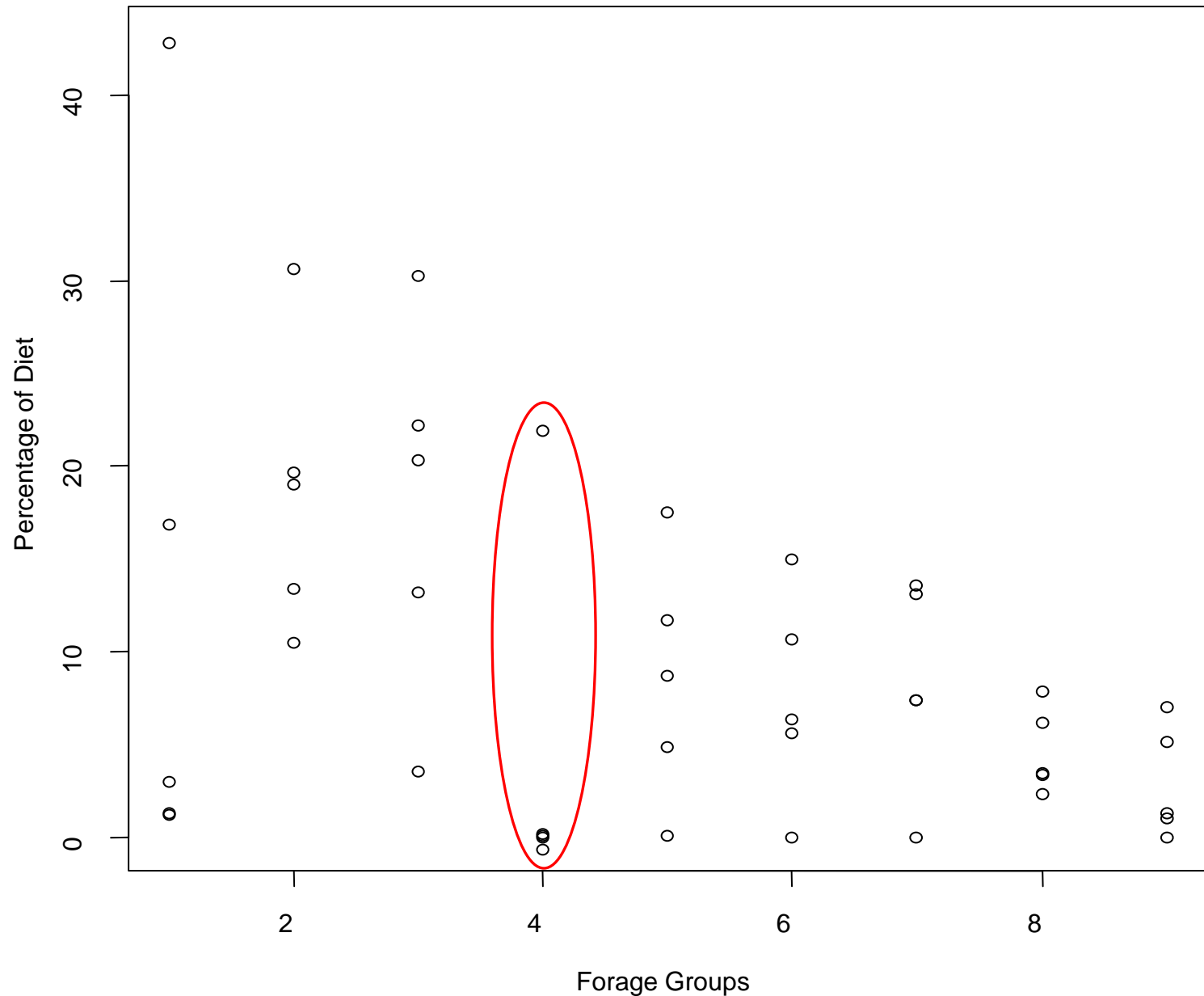
Small (~Age-0)

Large (~Age-1 and older)

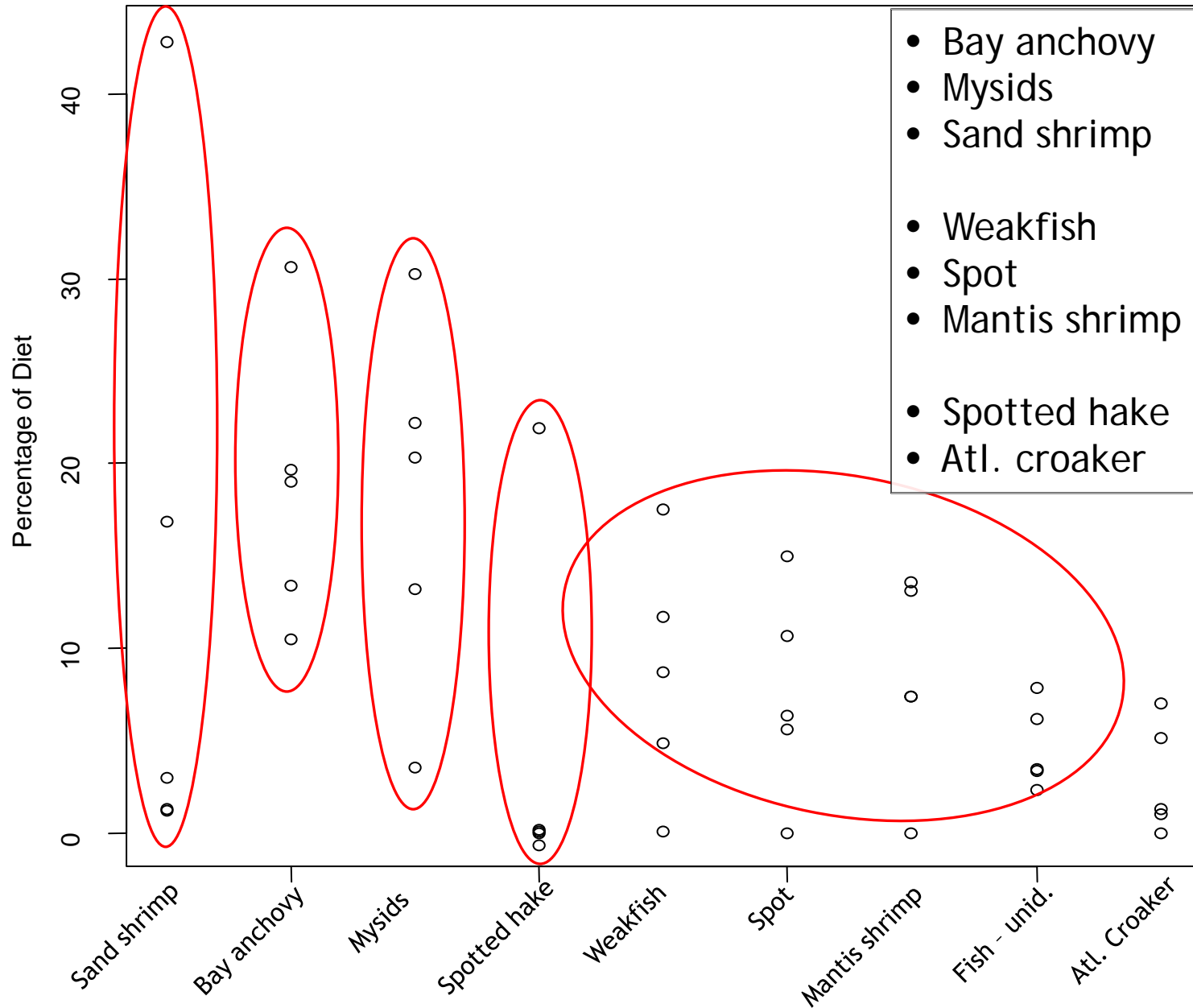




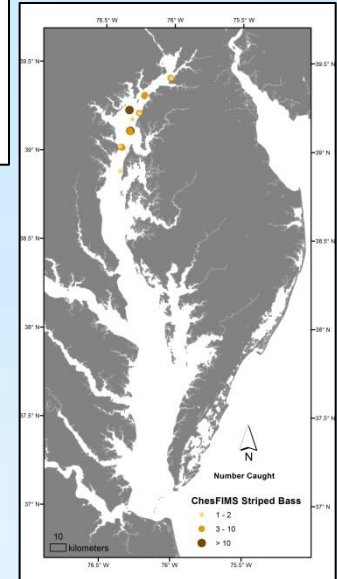
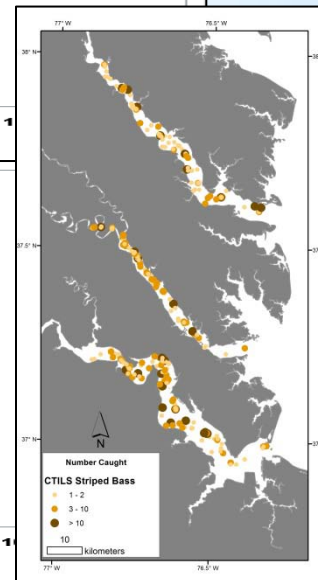
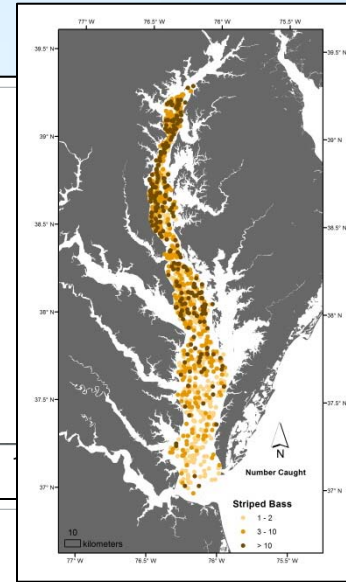
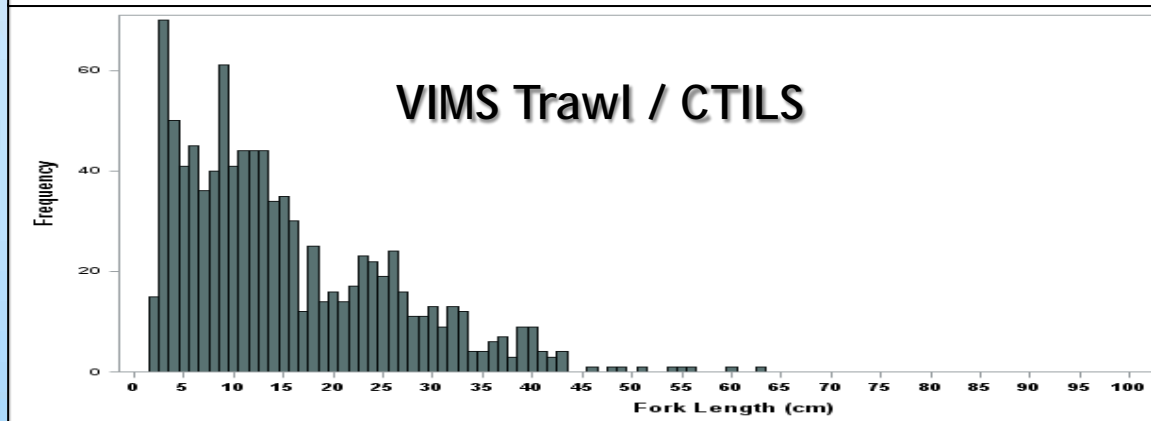
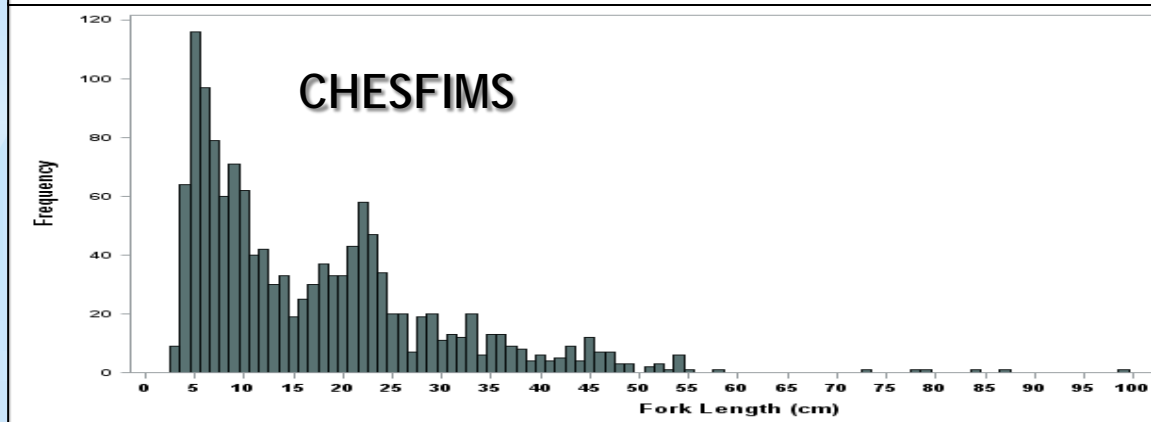
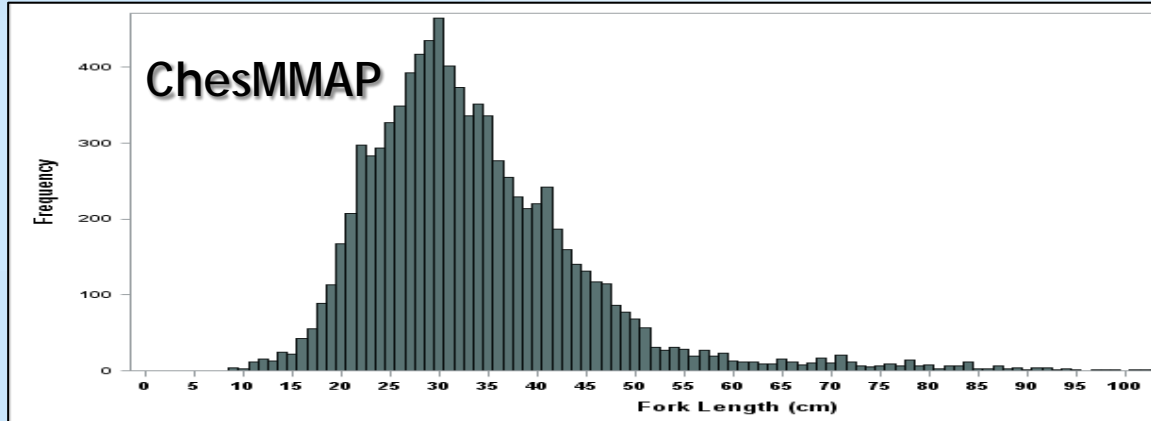
Forage Groups that Compose > 5% of Summer Flounder Diet in any Sample (ChesMMAP only)



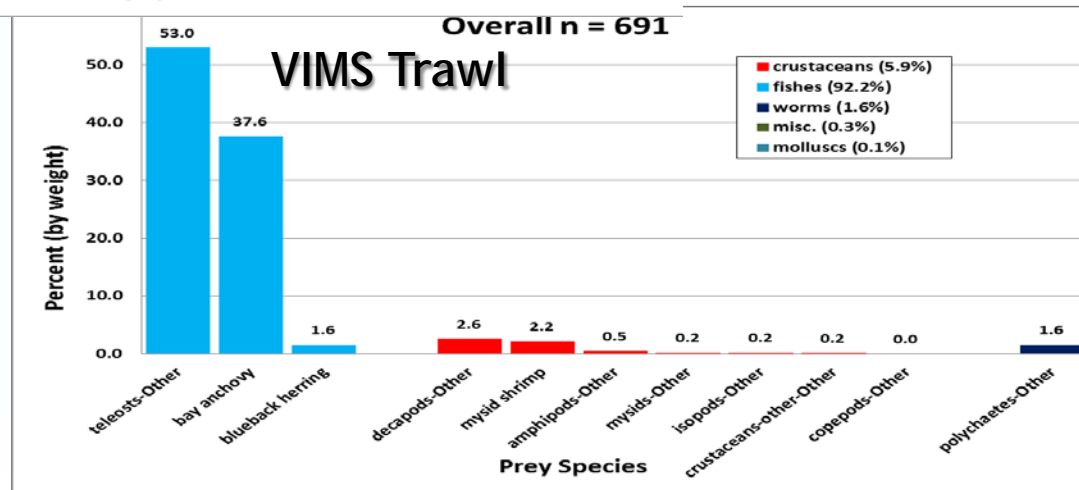
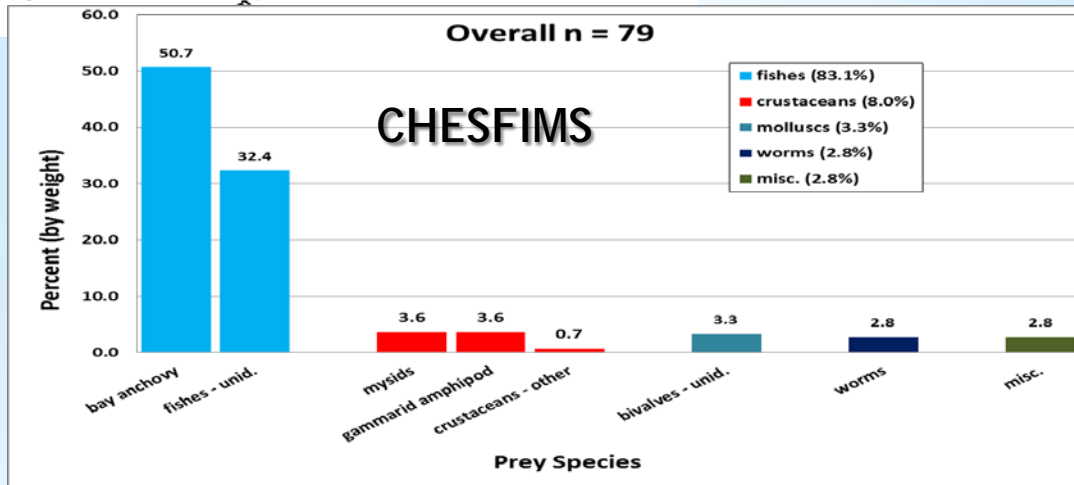
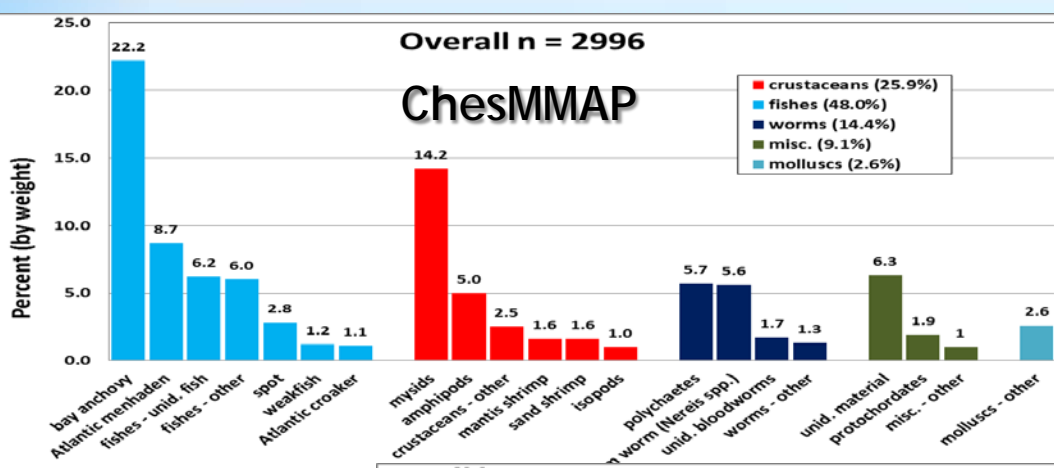
Forage Groups that Compose > 5% of Summer Flounder Diet in any Sample (ChesMMAP only)



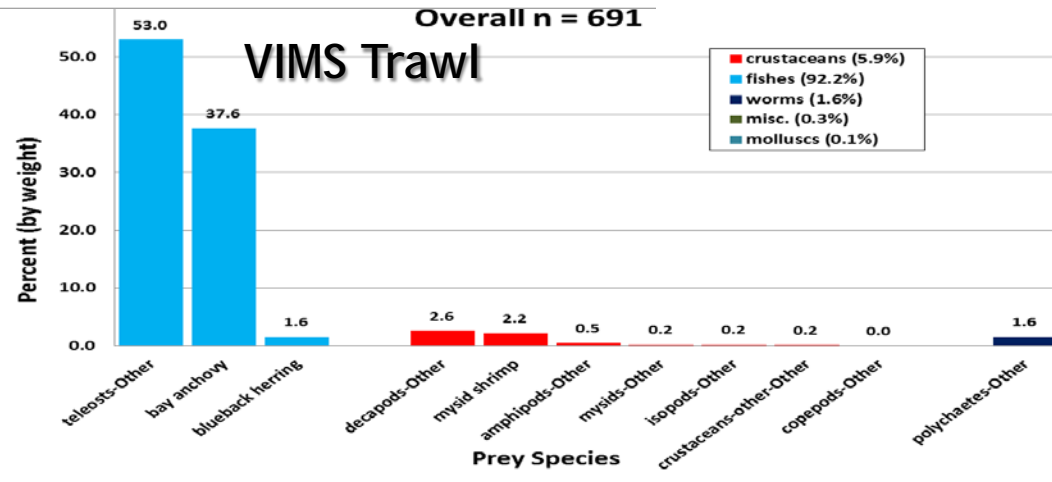
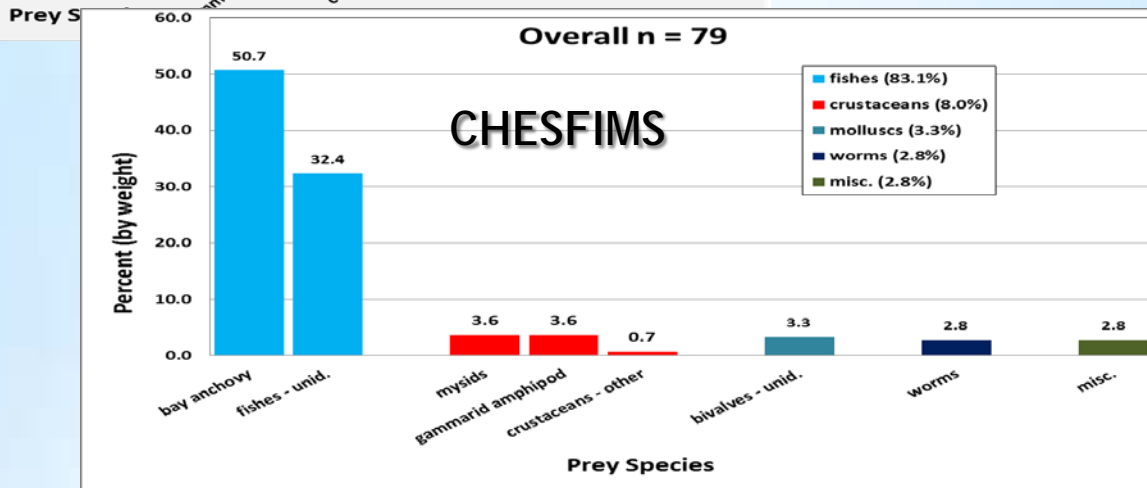
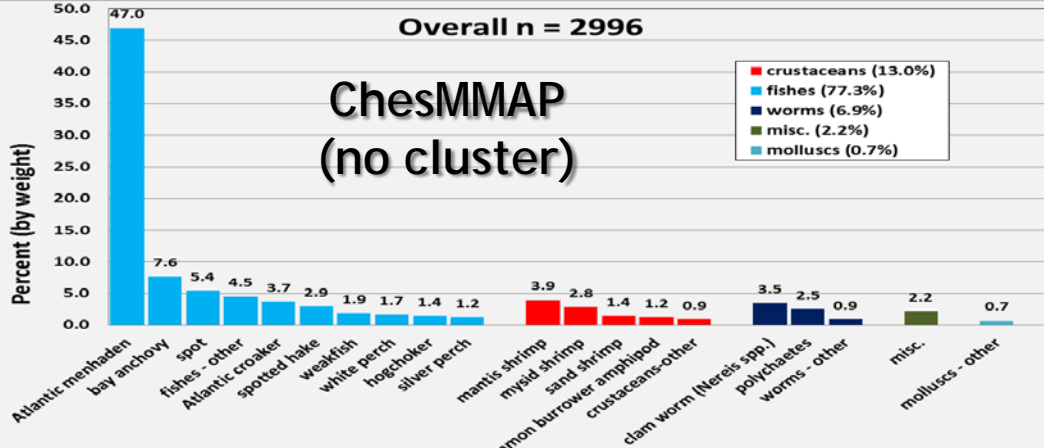
Striped Bass



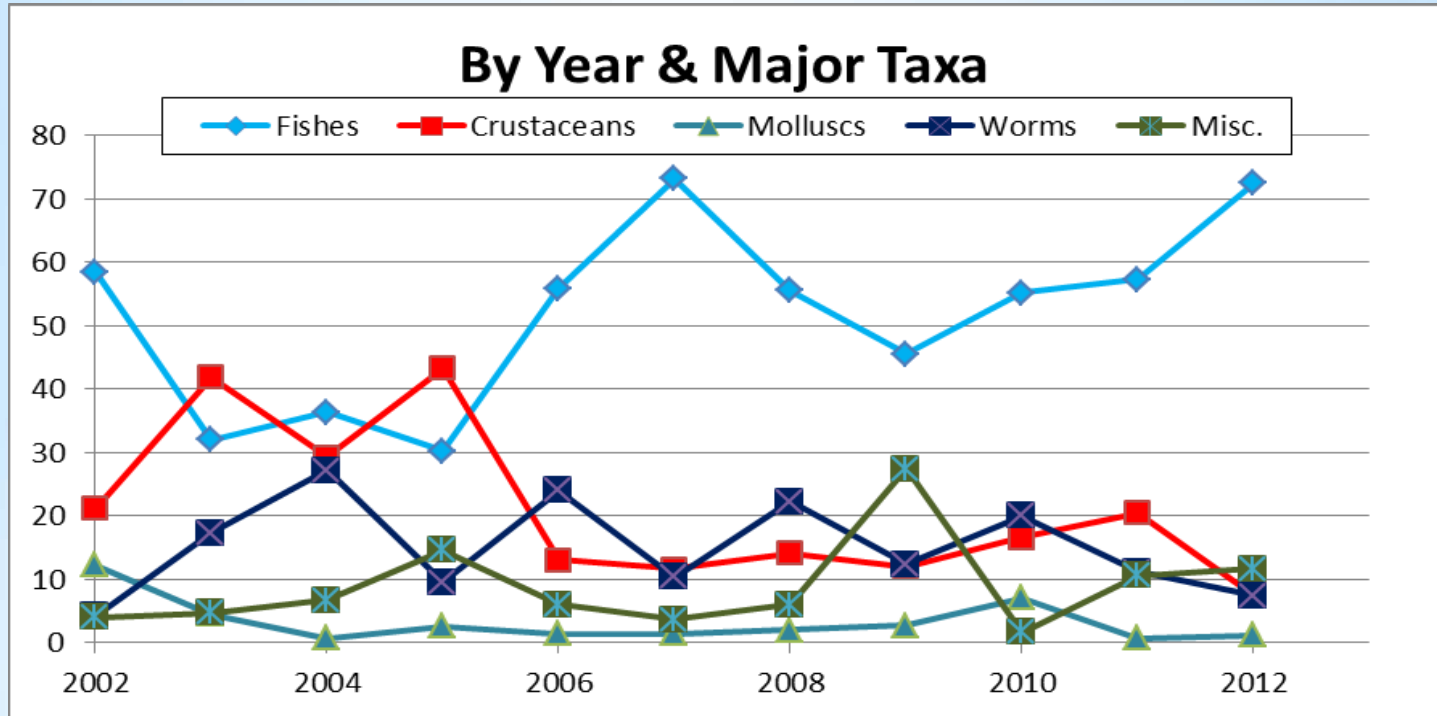
Striped Bass All Years/Months/ Regions/Sizes



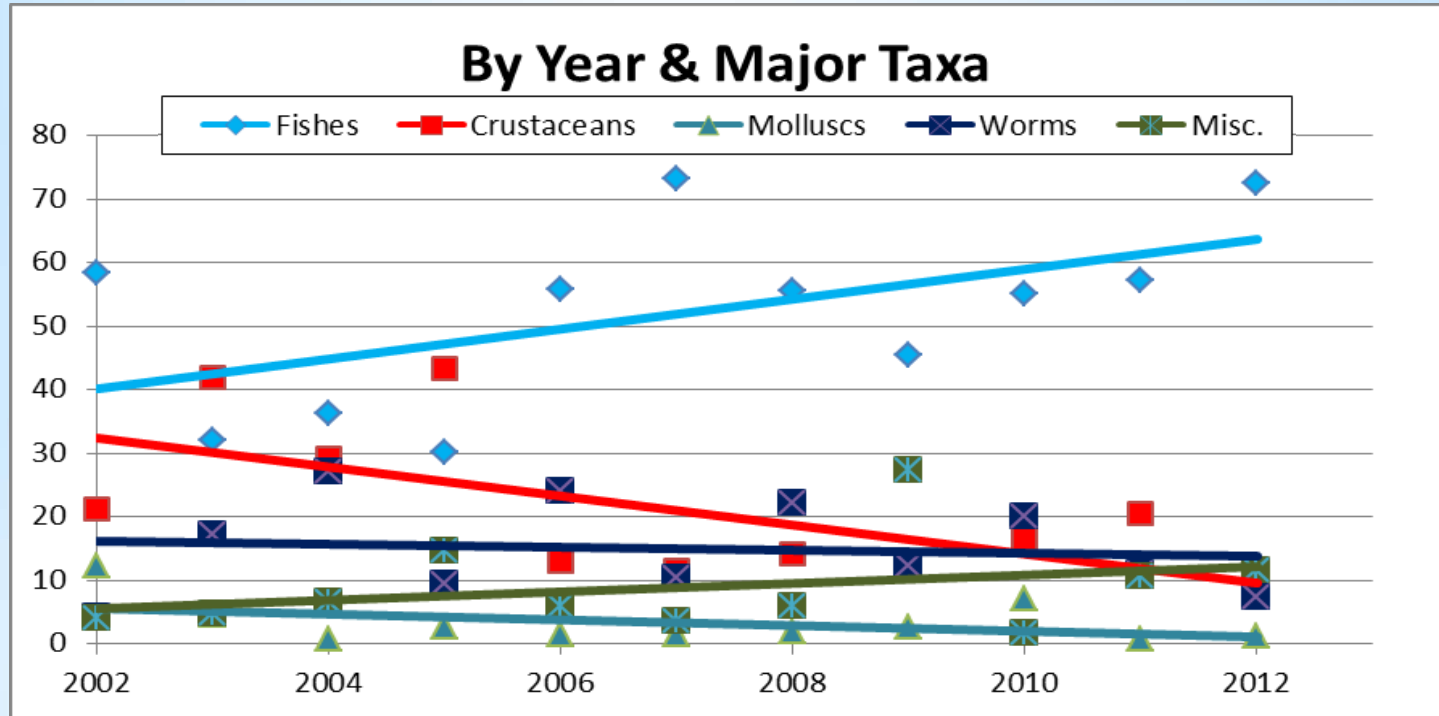
Striped Bass All Years/Months/ Regions/Sizes



Striped Bass Annual Variability (ChesMMAP Only)



Striped Bass Annual Variability (ChesMMAP Only)

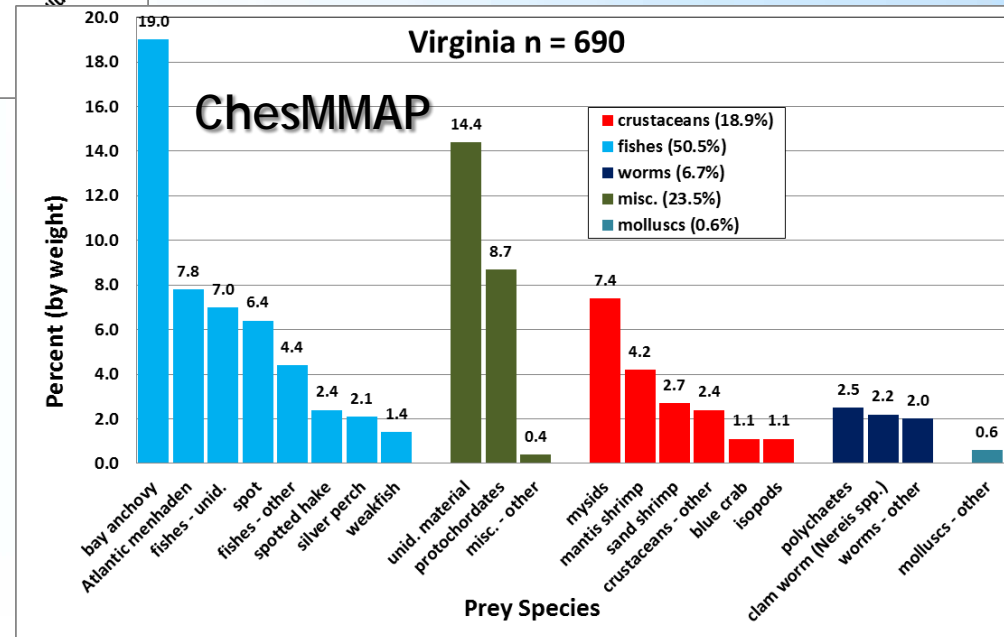
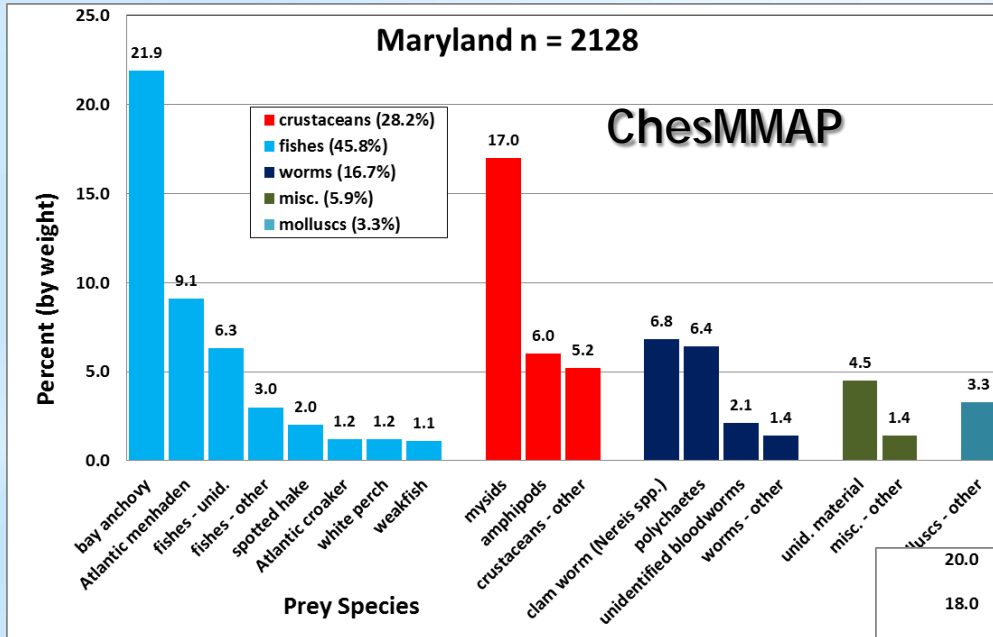


Striped Bass - By Size/Age

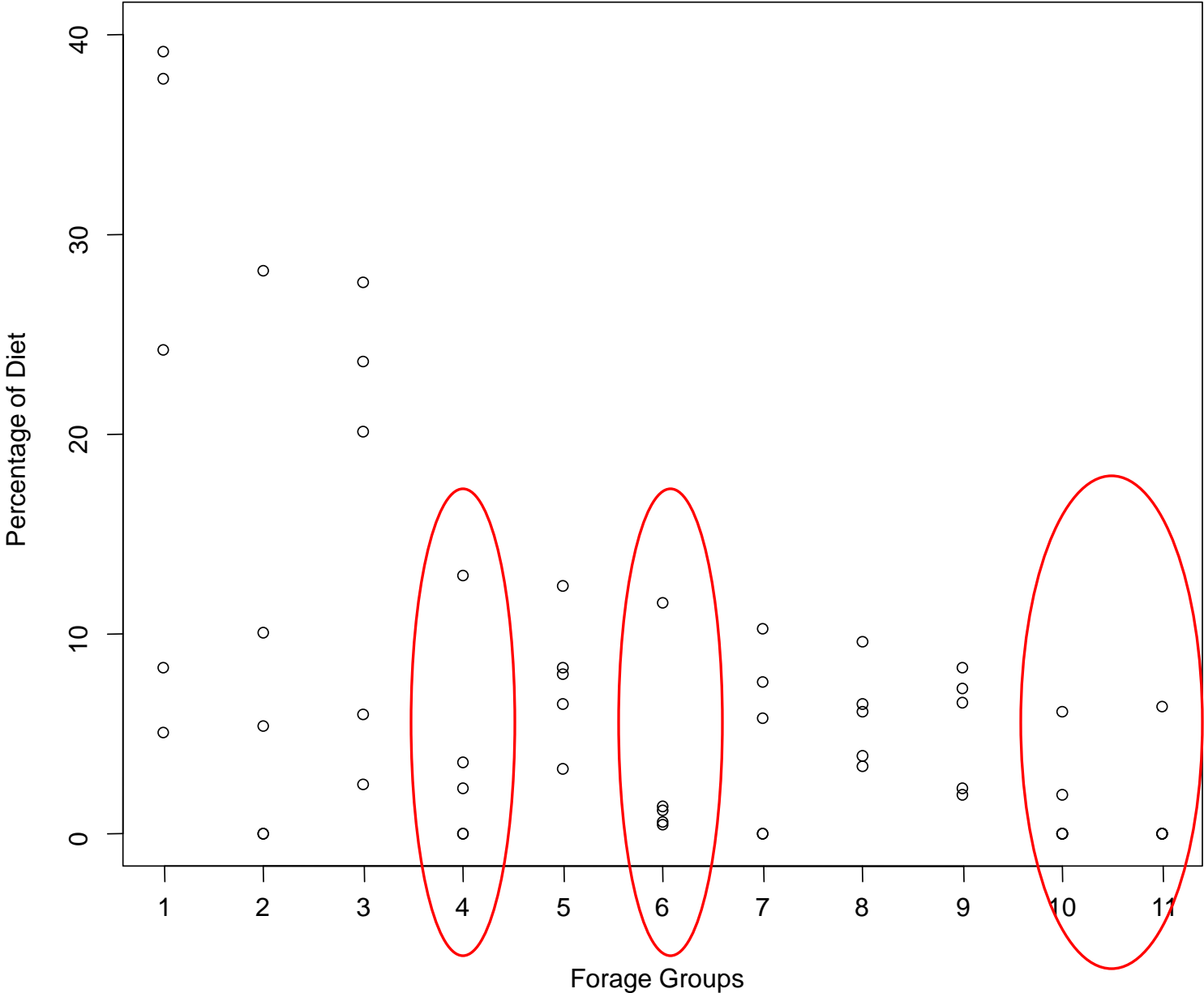
**These Surveys Do Not Lend Themselves
to This Analysis for This Species**

Striped Bass

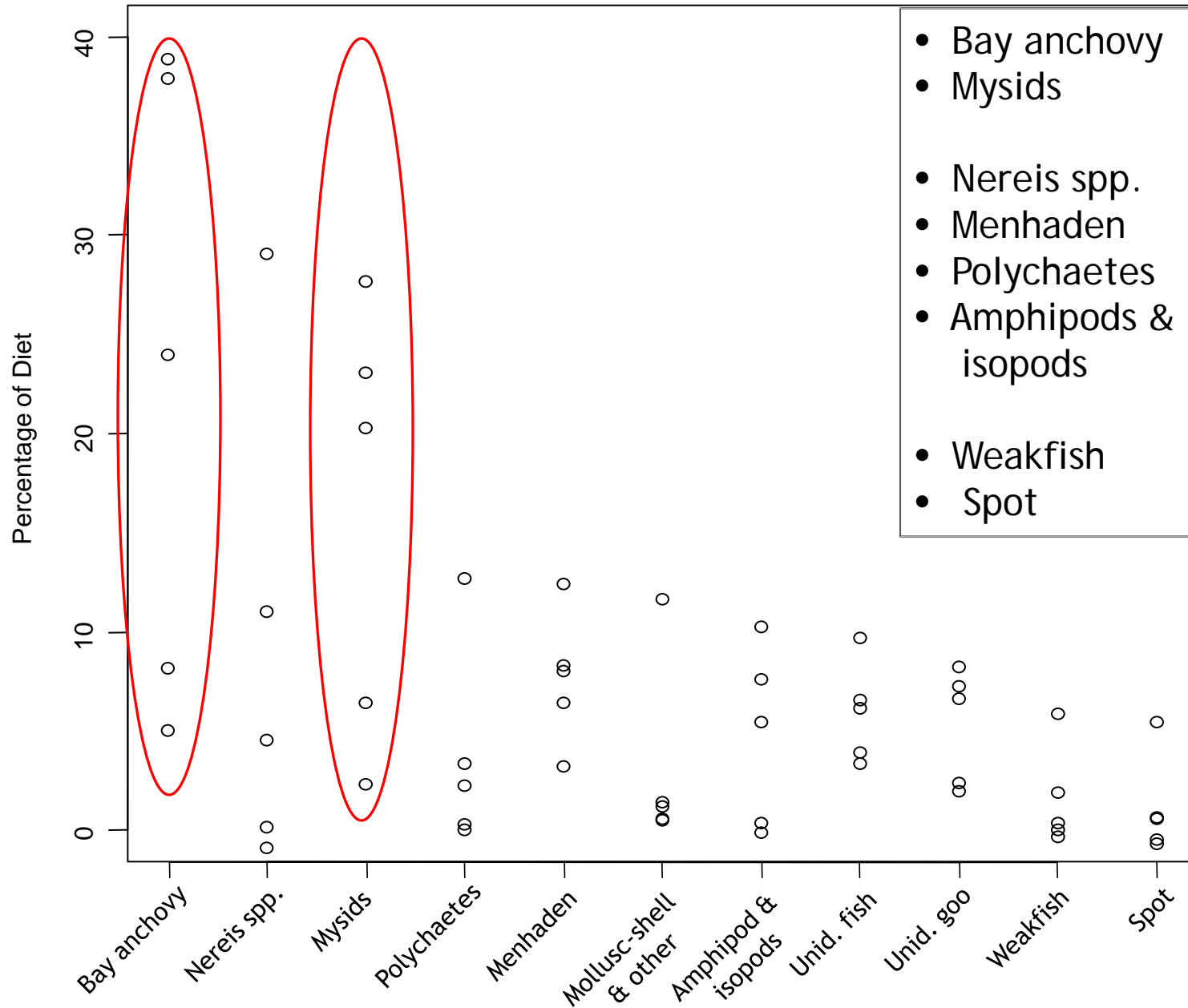
Upper Bay v. Lower Bay (Proxy for Salinity)



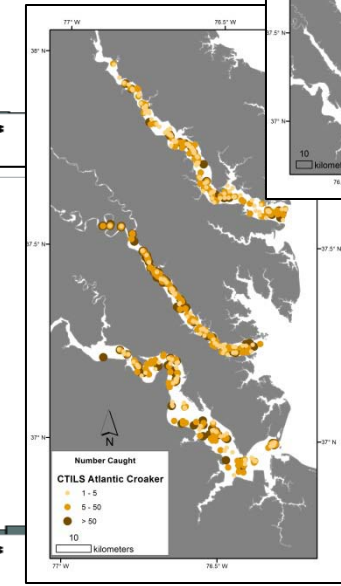
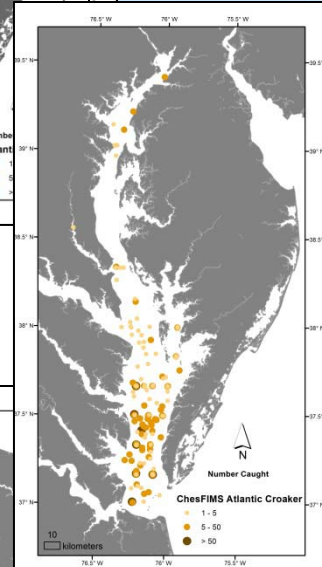
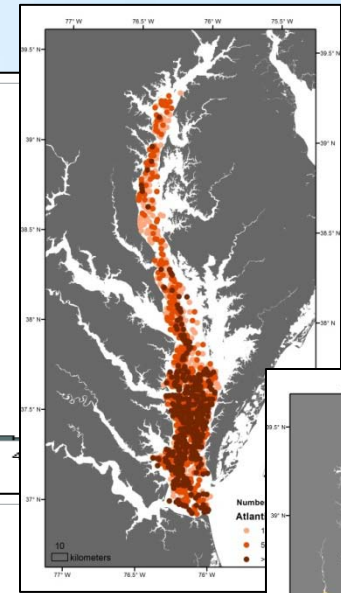
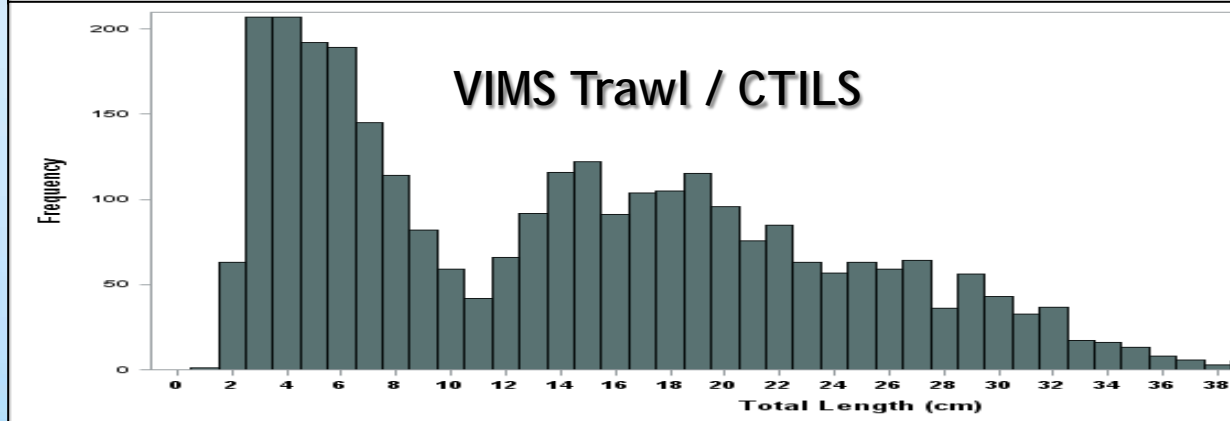
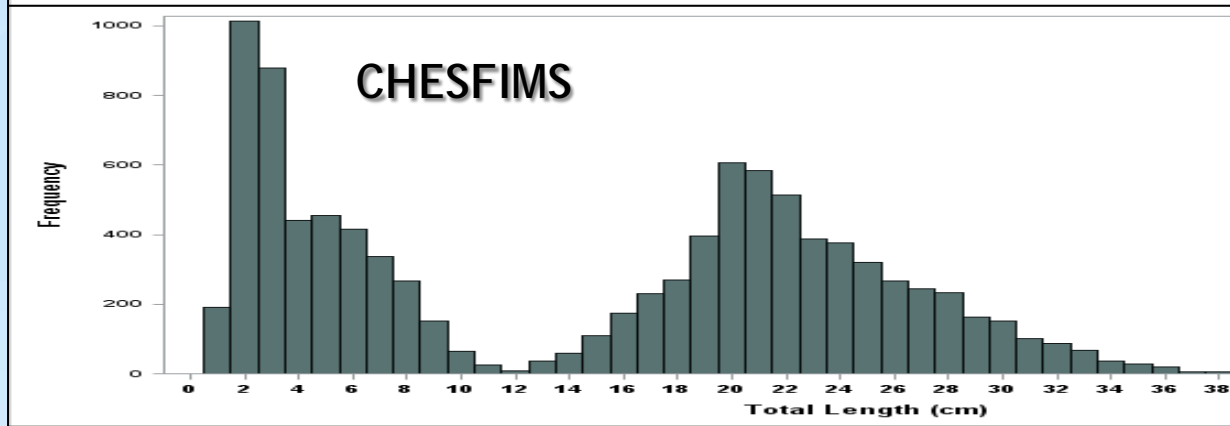
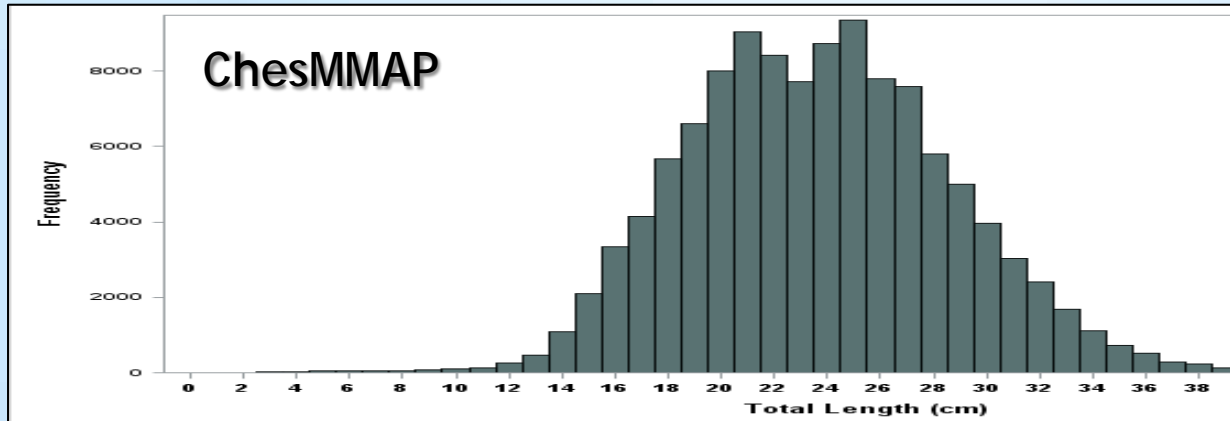
Forage Groups that Compose > 5% of Striped Bass Diet in any Sample (ChesMMAP only)



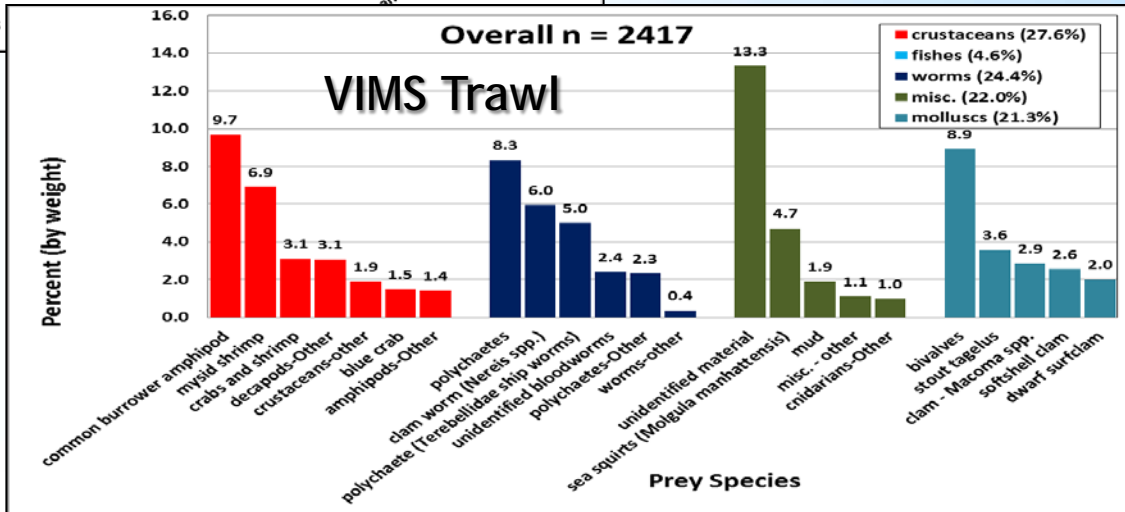
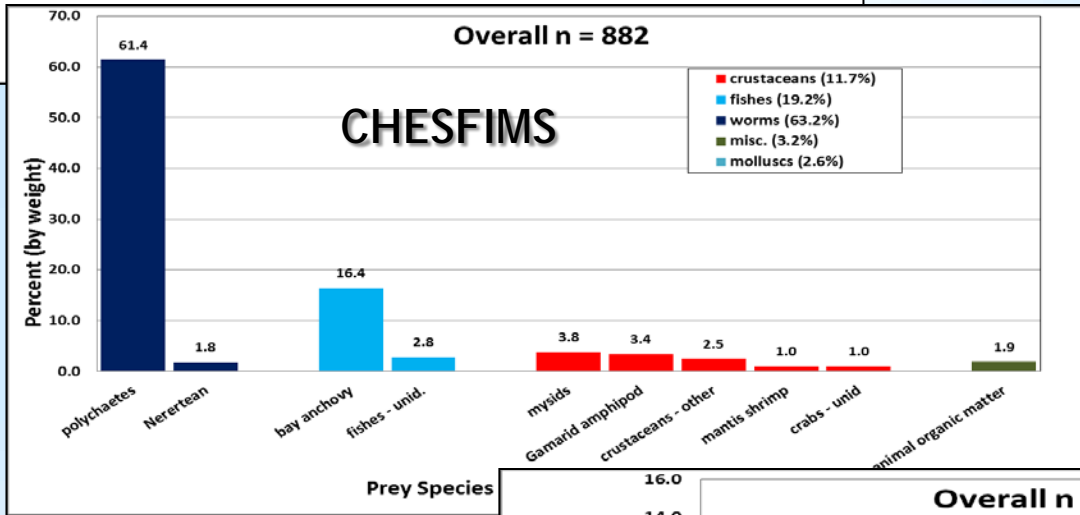
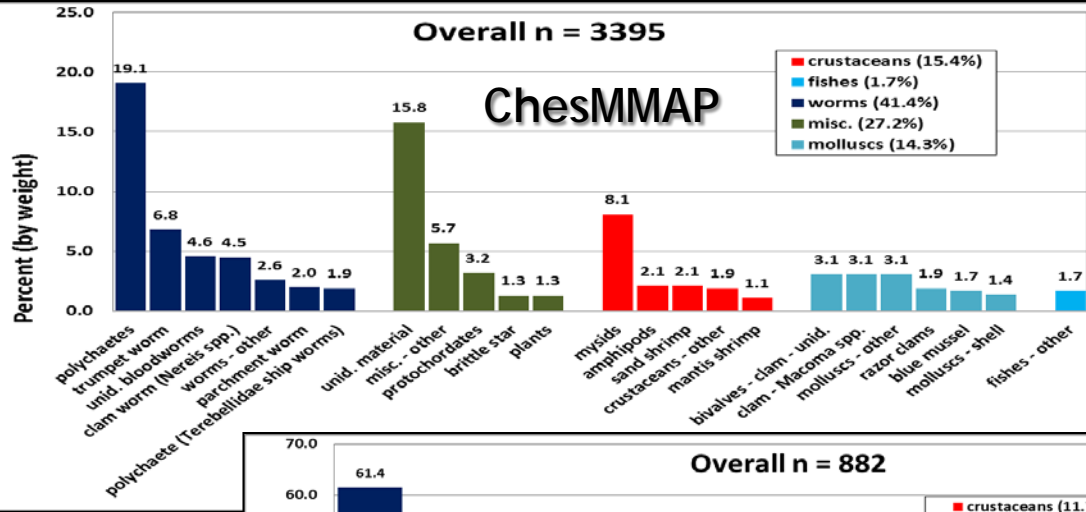
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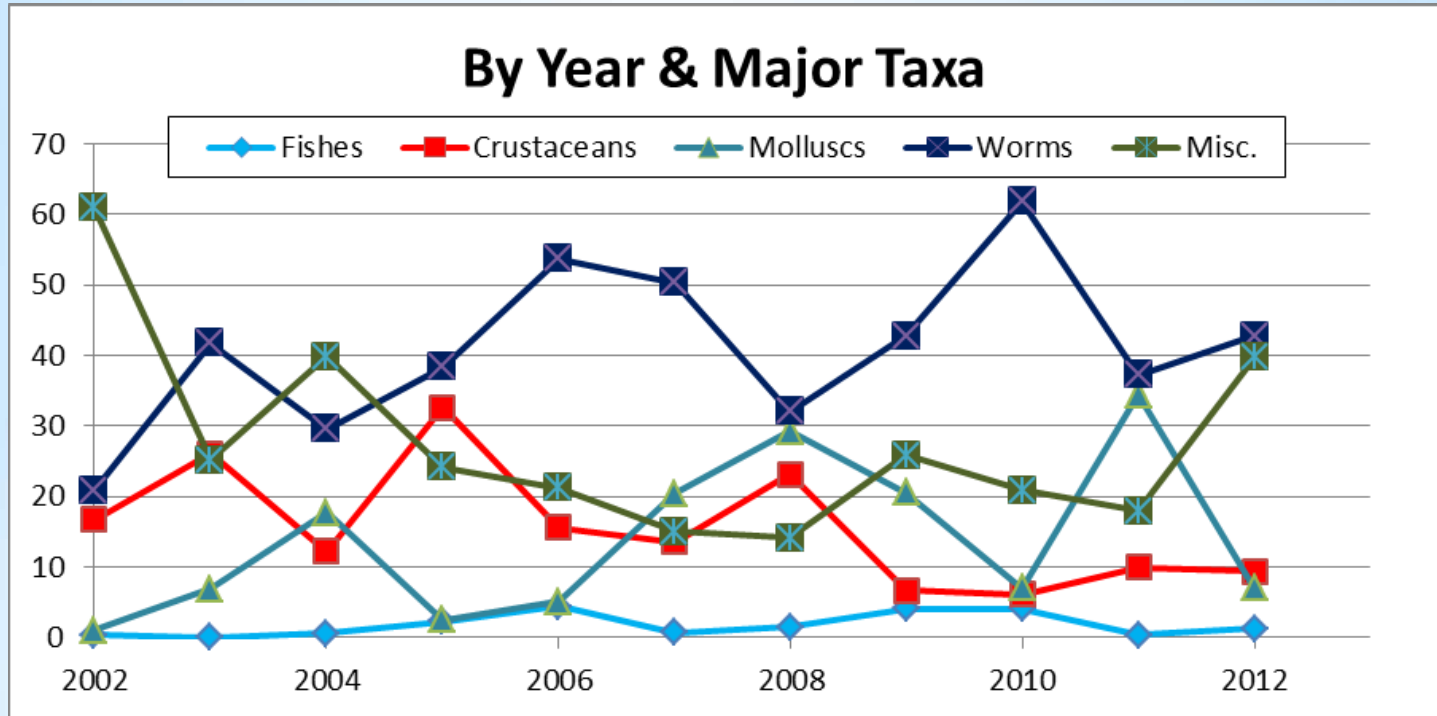
Atlantic Croaker



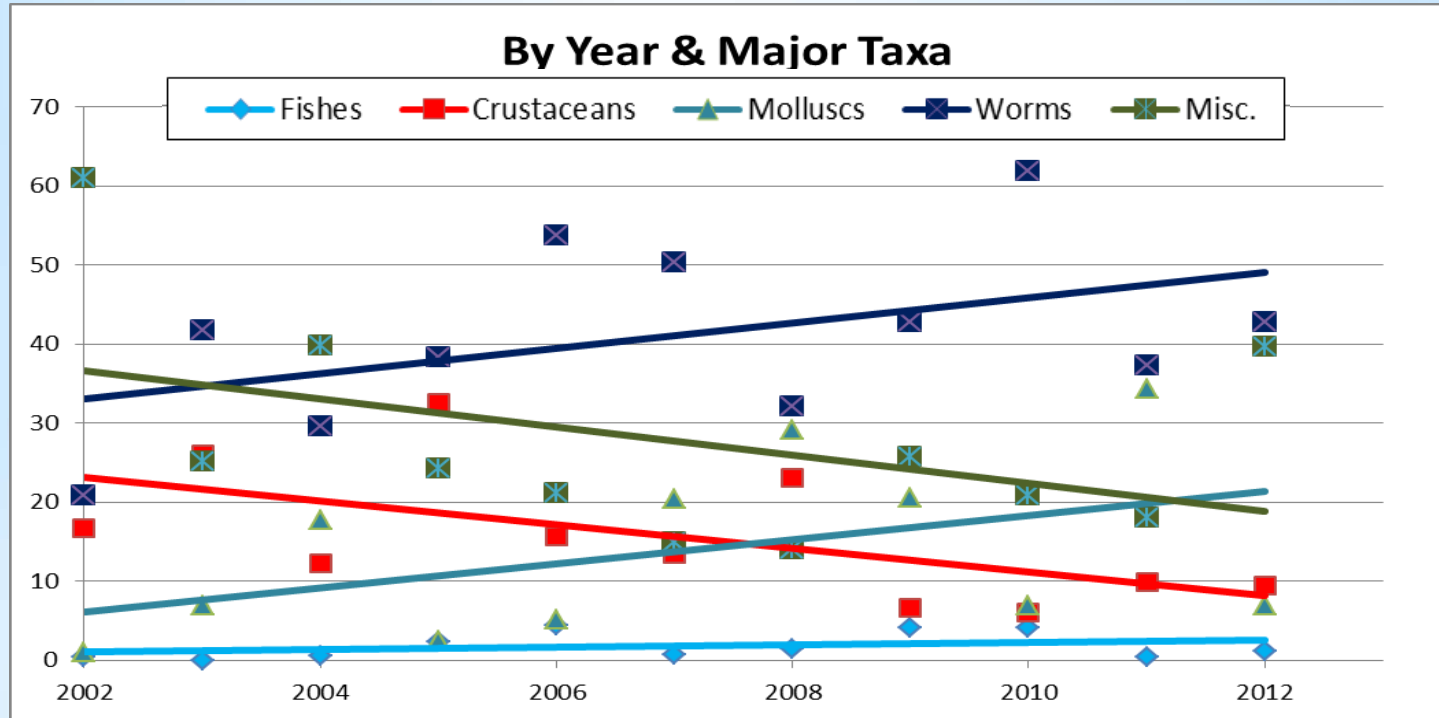
Atlantic Croaker All Years/Months/ Regions/Sizes



Atlantic Croaker Annual Variability (ChesMMAP Only)

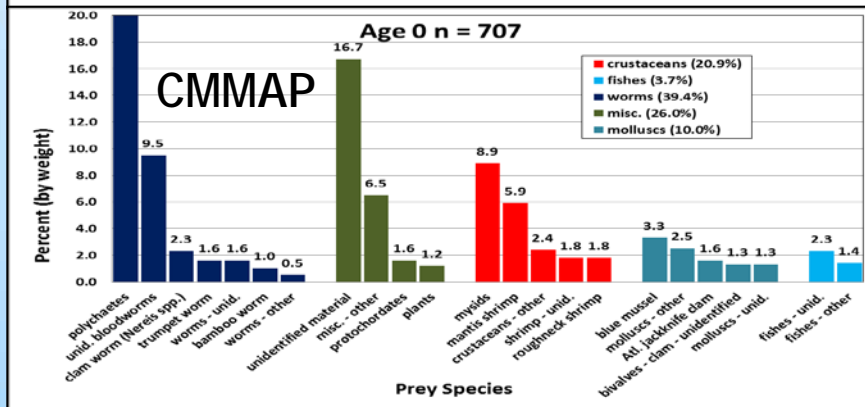
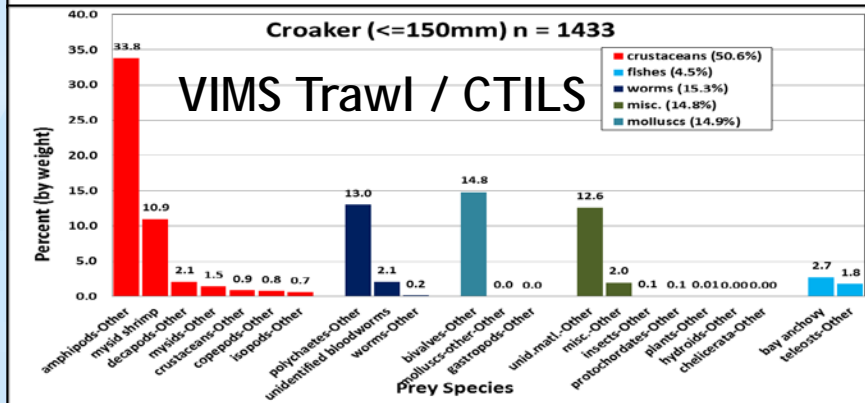
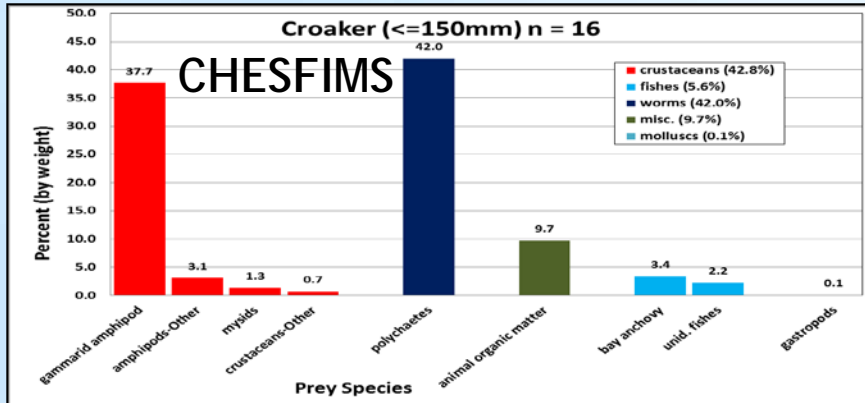


Atlantic Croaker Annual Variability (ChesMMAP Only)



Atlantic Croaker - By Size/Age

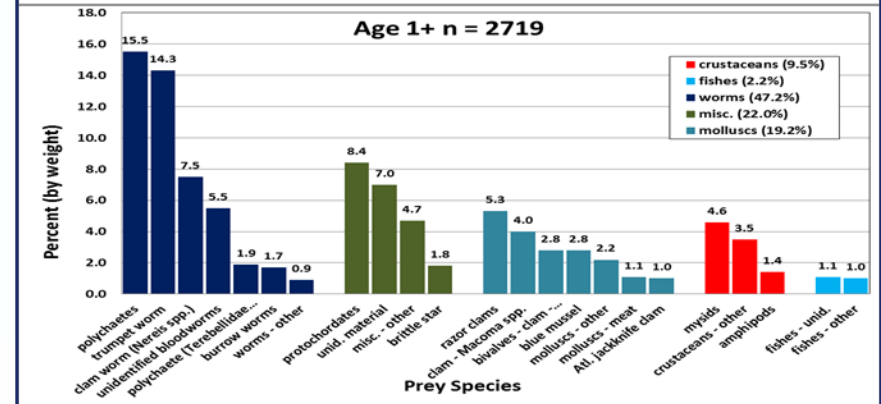
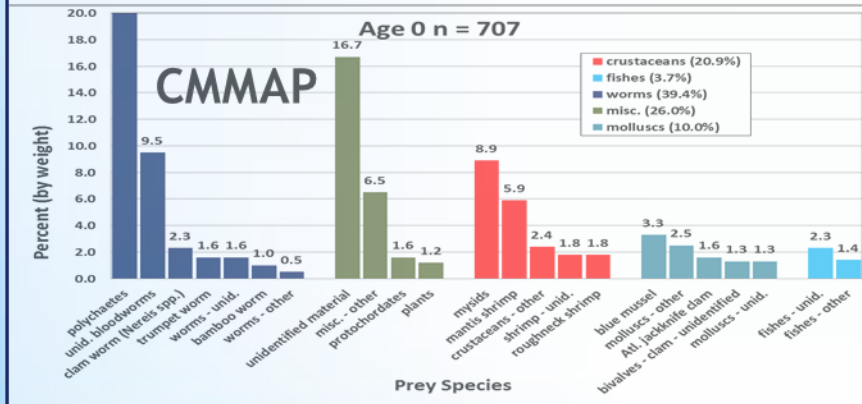
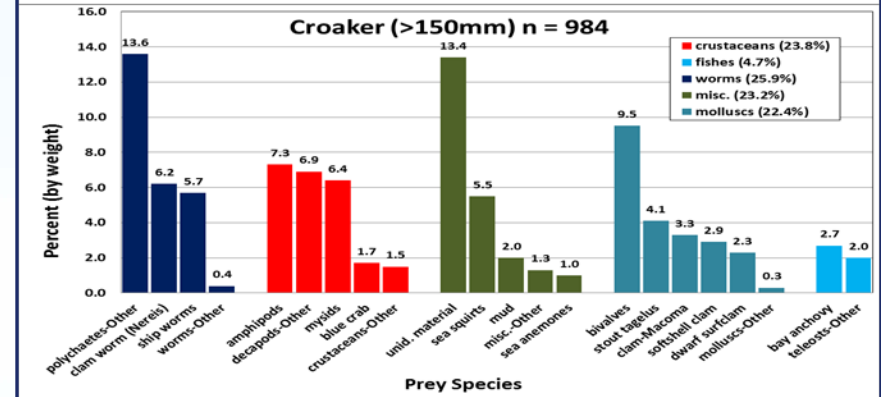
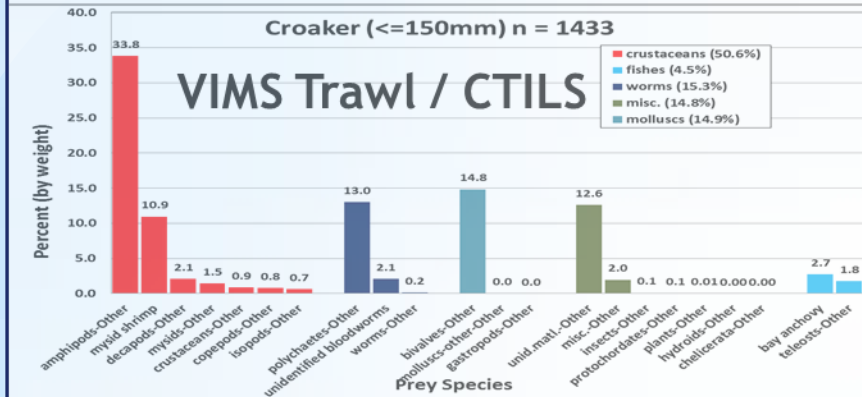
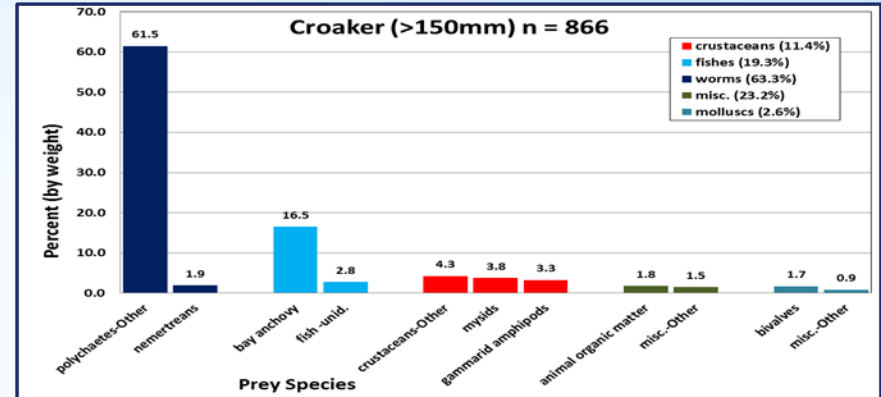
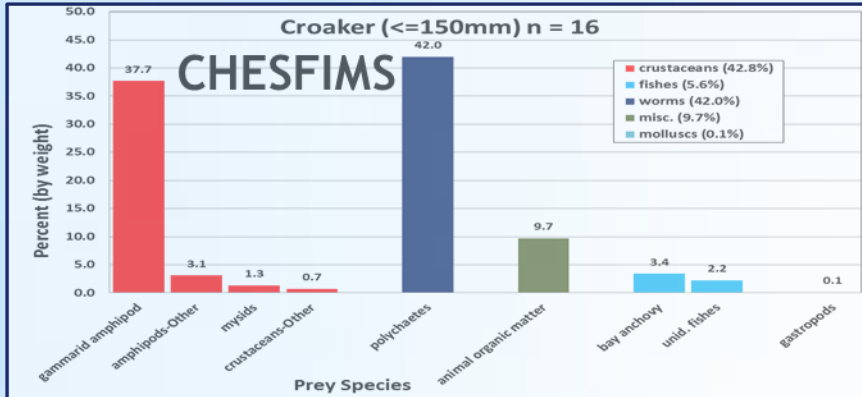
Small (~Age-0)



Atlantic Croaker - By Size/Age

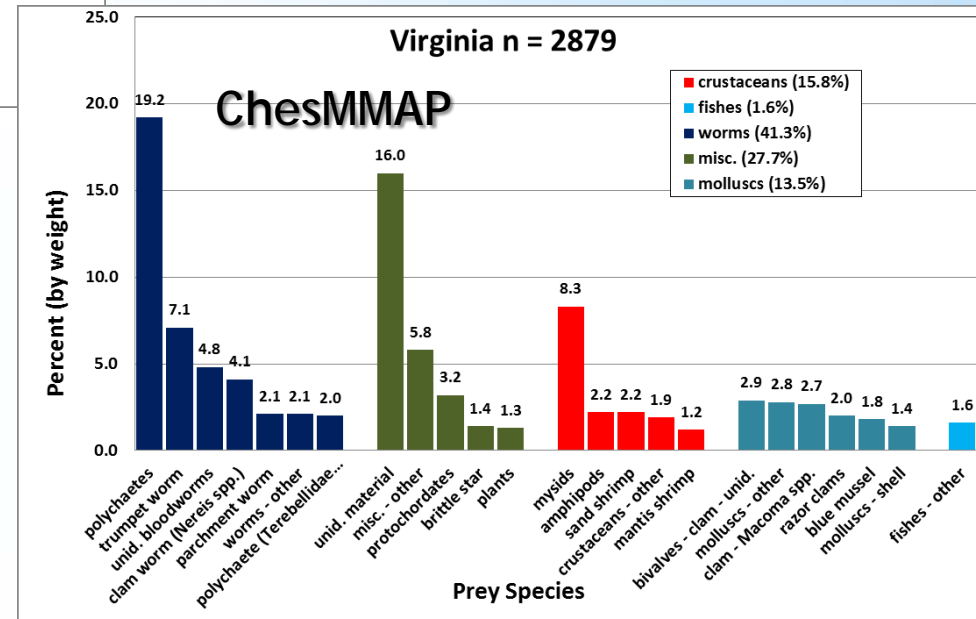
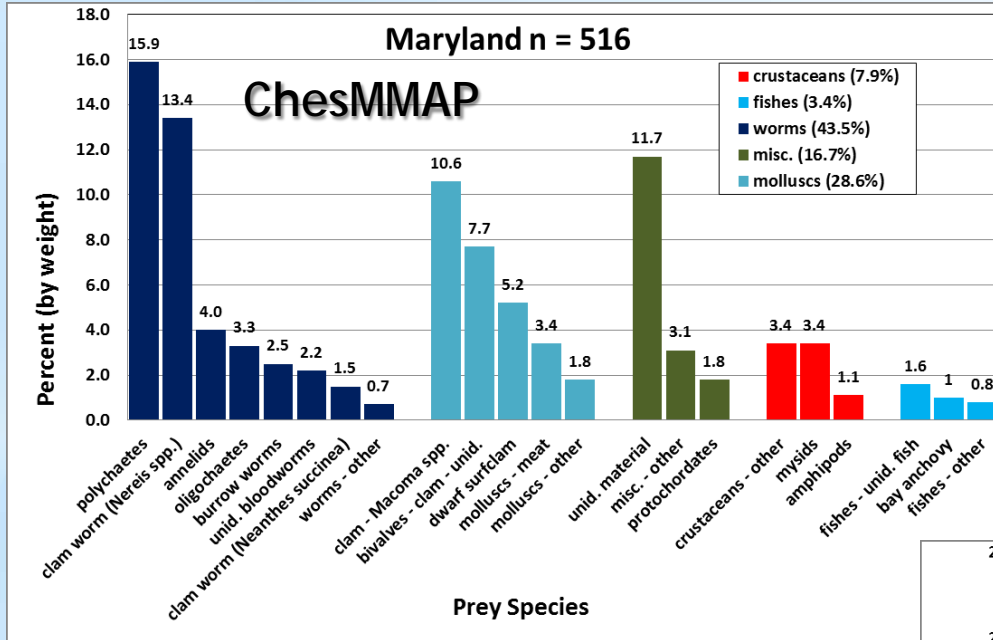
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Large (~Age-1 and older)

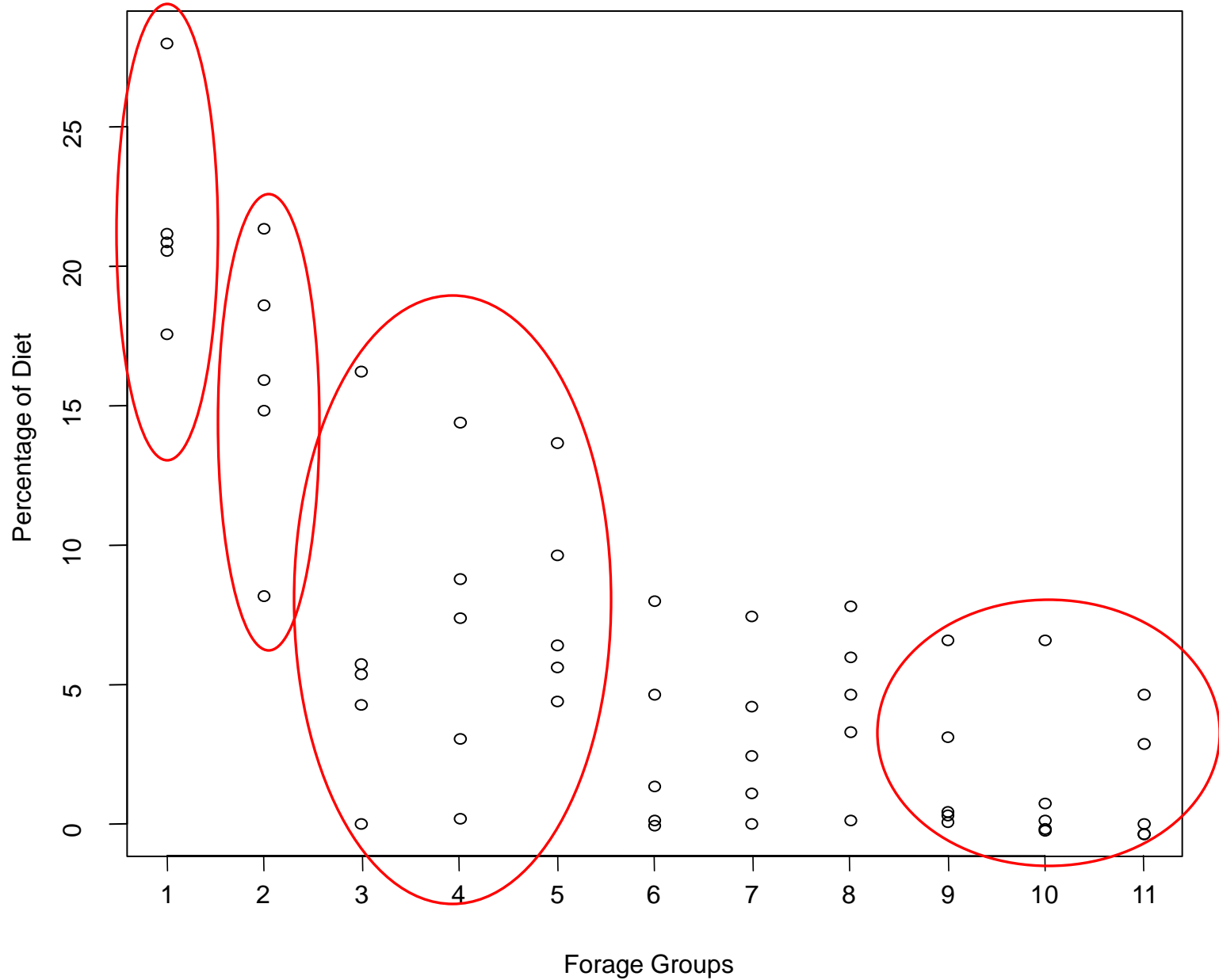


Atlantic Croaker

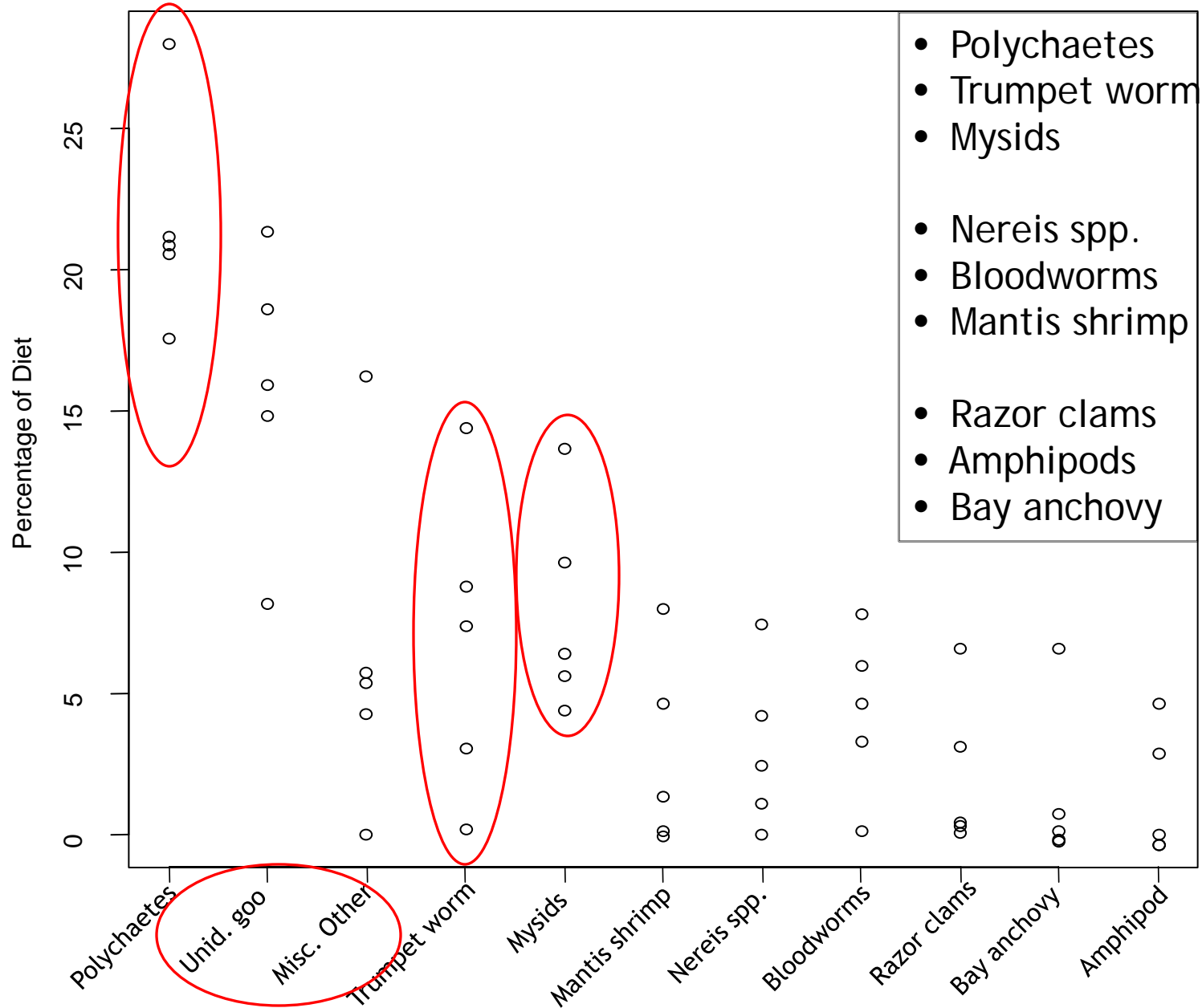
Upper Bay v. Lower Bay (Proxy for Salinity)



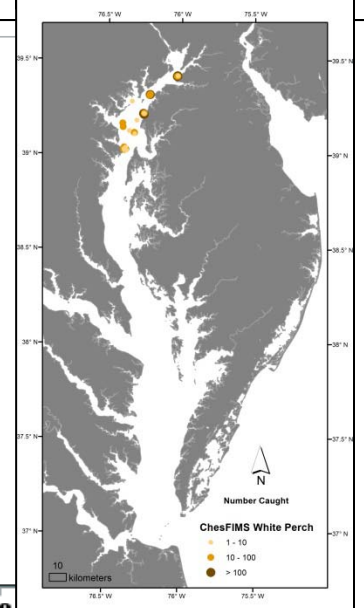
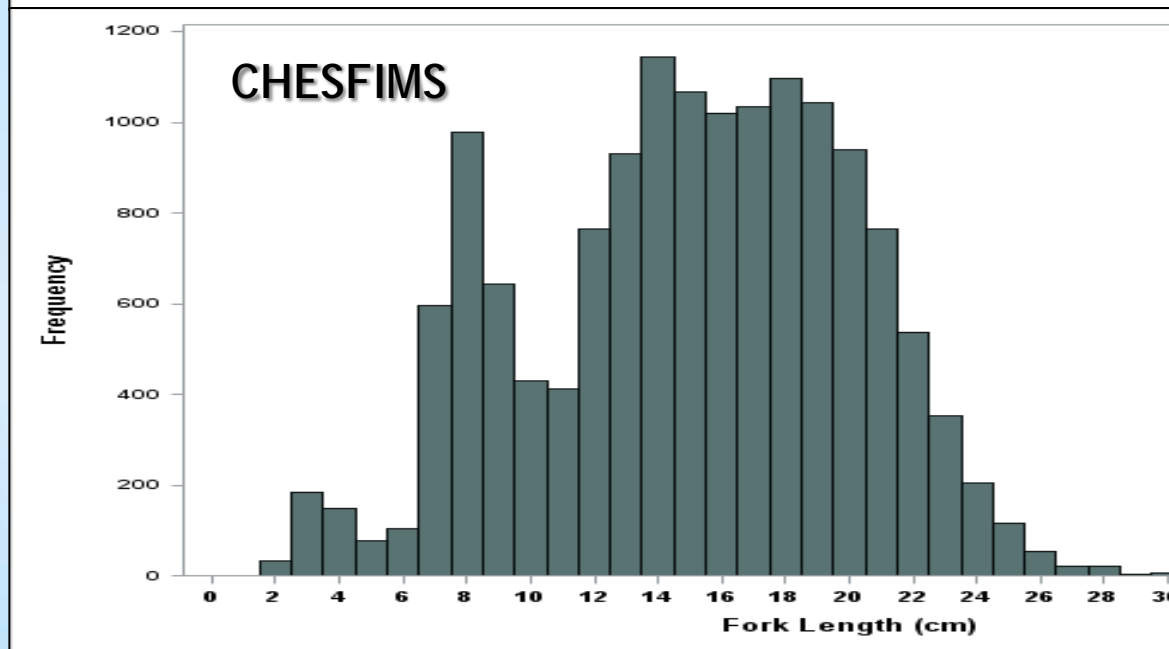
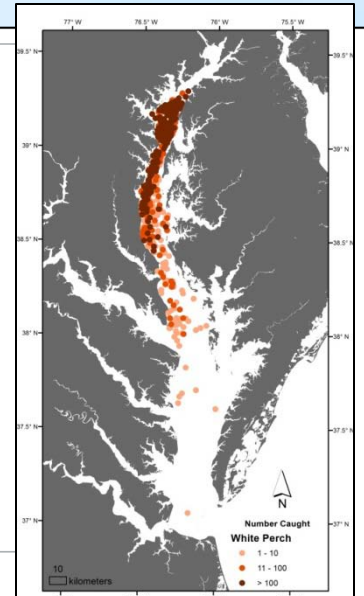
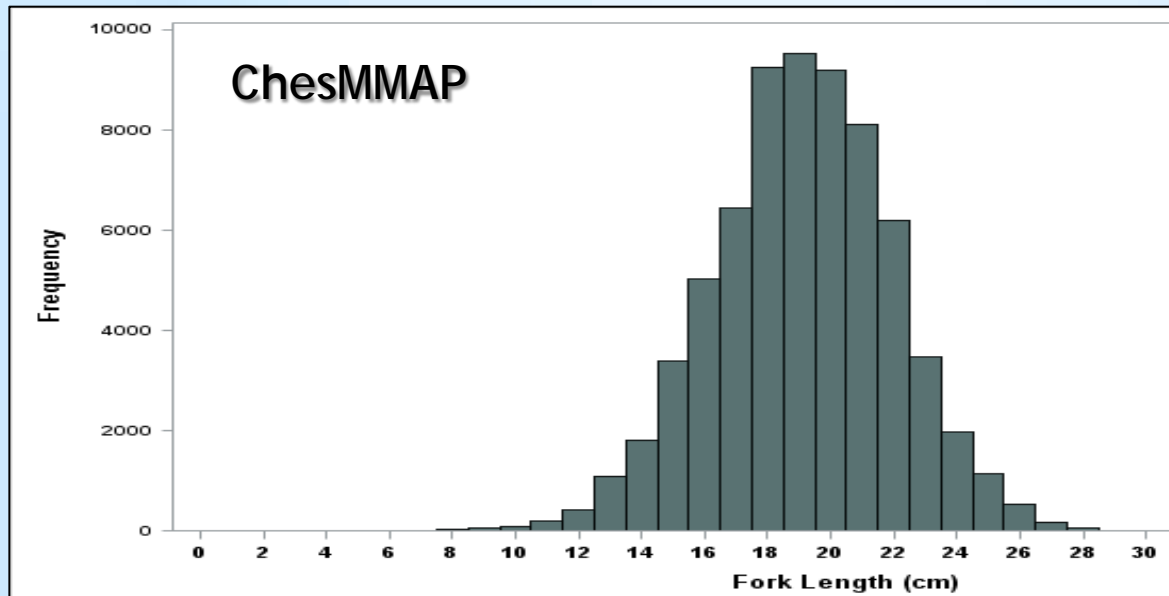
Forage Groups that Compose > 5% of Atlantic Croaker Diet in any Sample (ChesMMAP only)



Forage Groups that Compose > 5% of Atlantic Croaker Diet in any Sample (ChesMMAAP only)

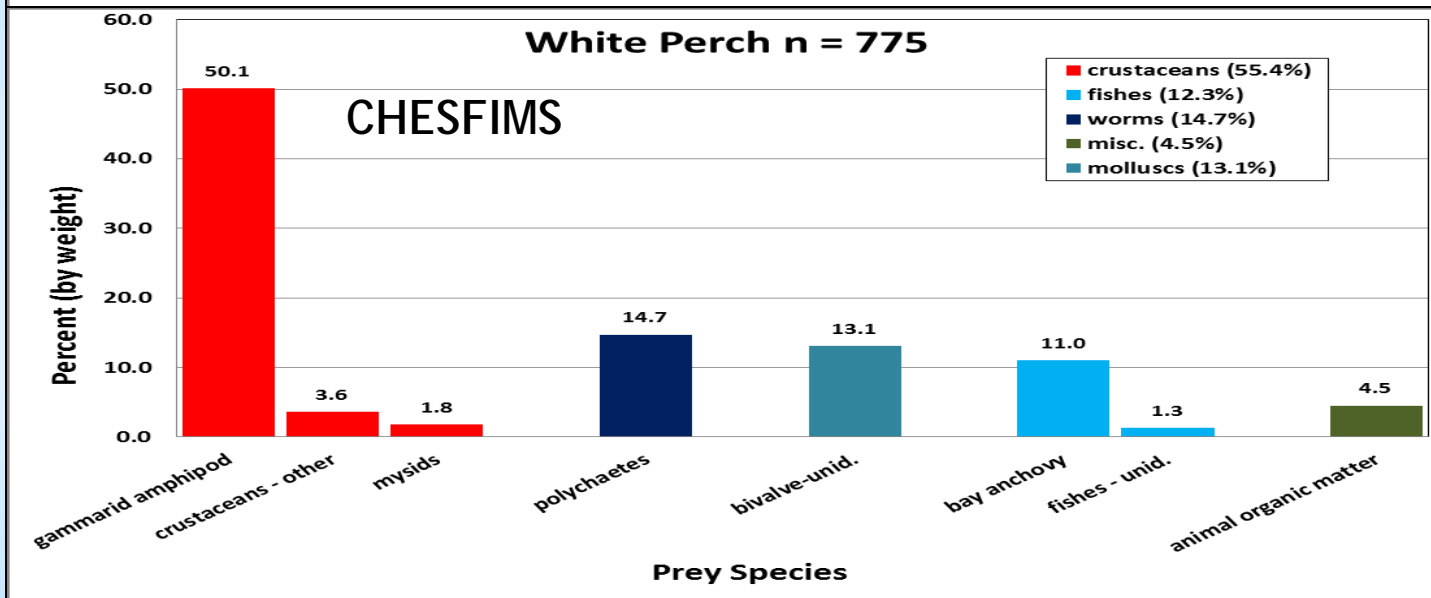
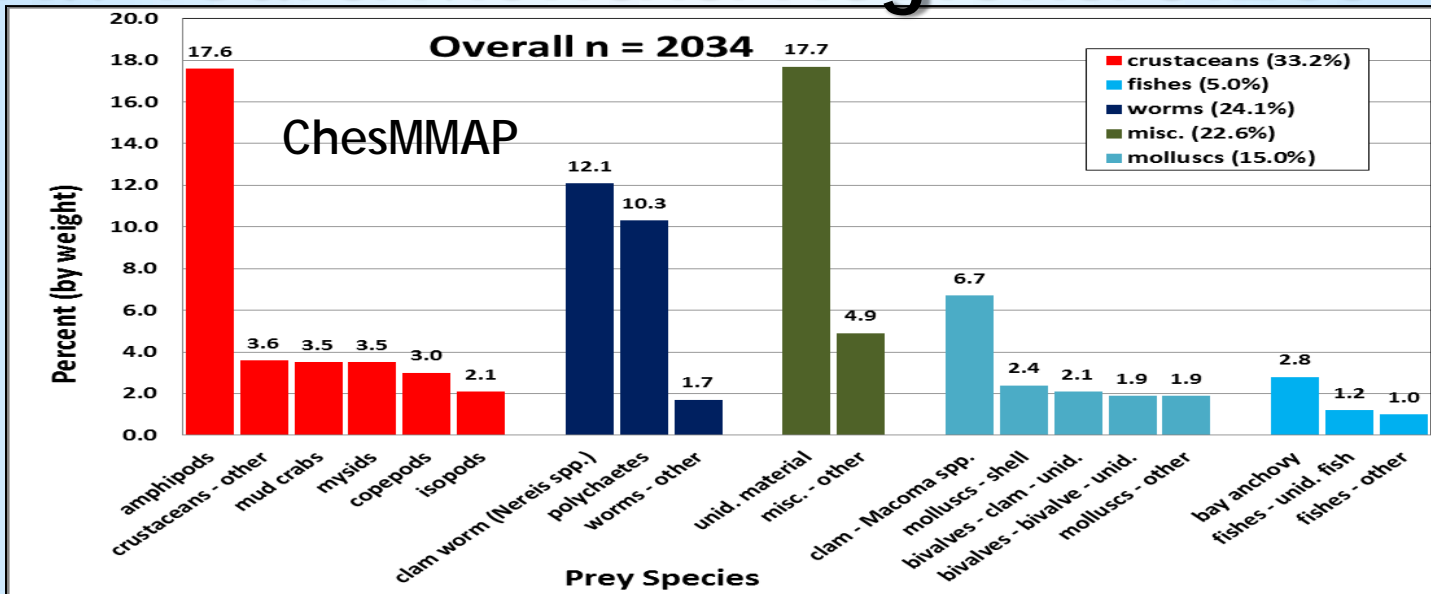


White Perch

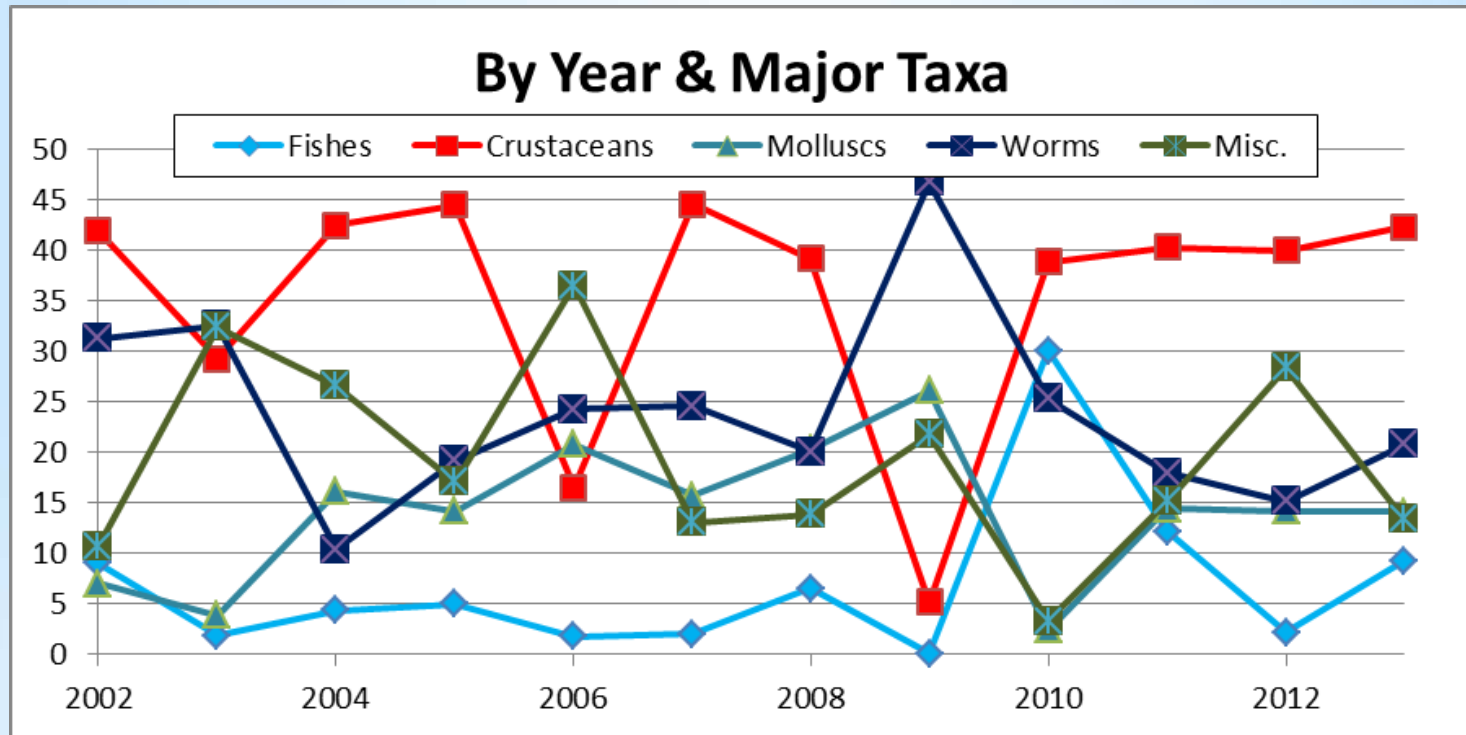


White Perch

All Years/Months/Regions/Sizes

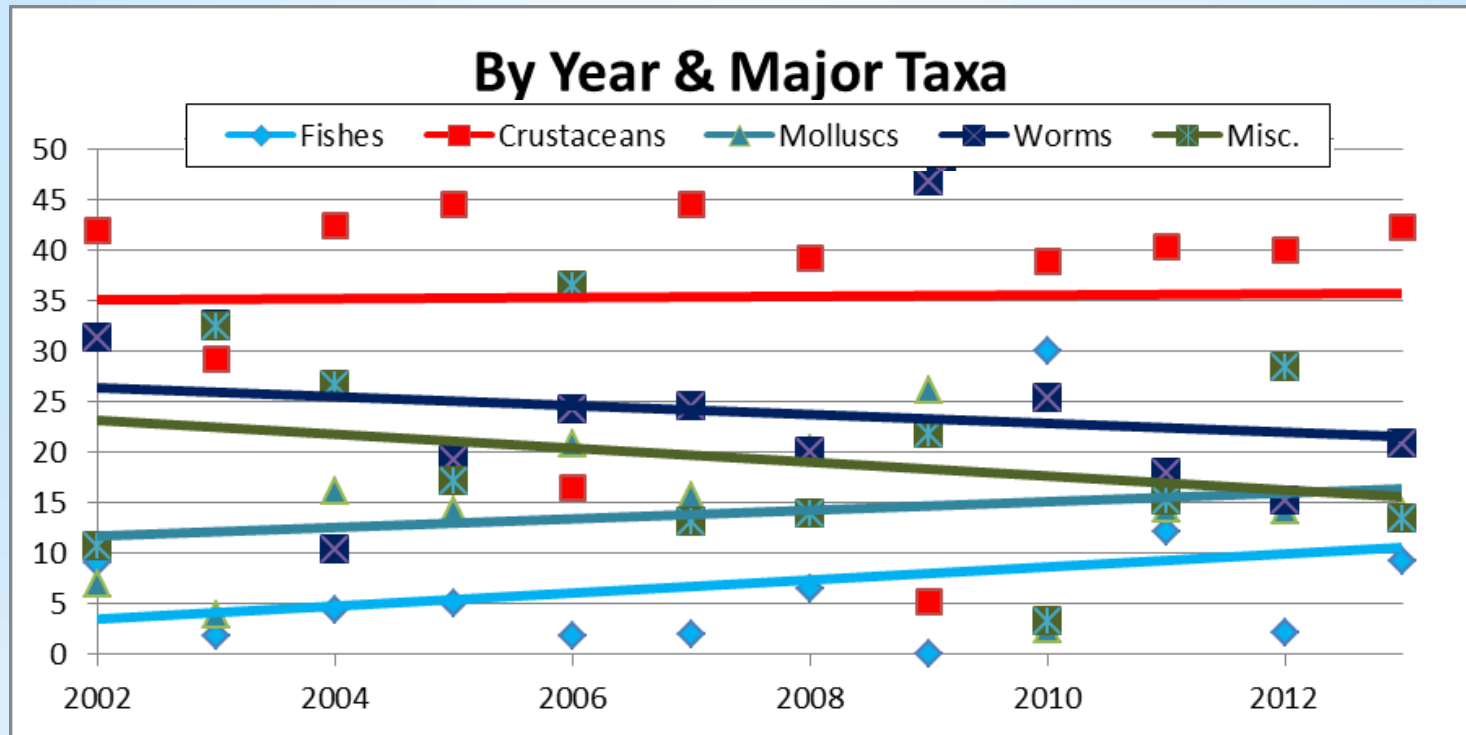


White Perch ChesMMAP - Annual Variability

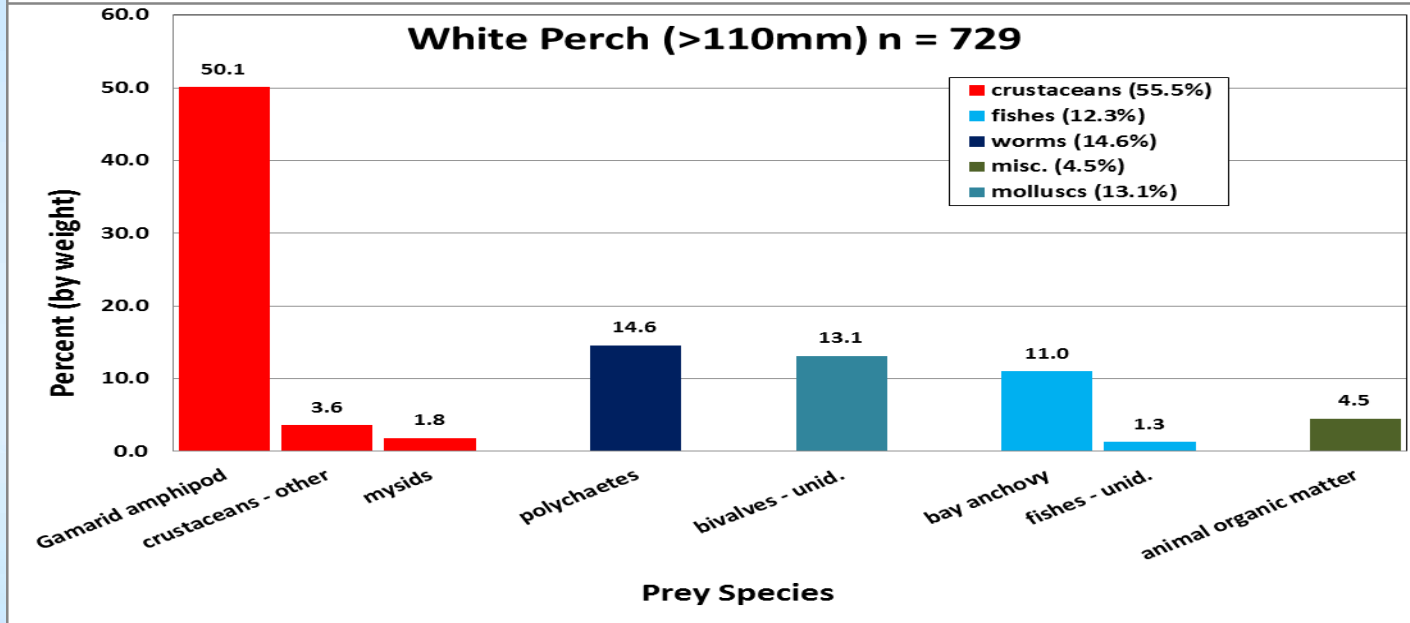
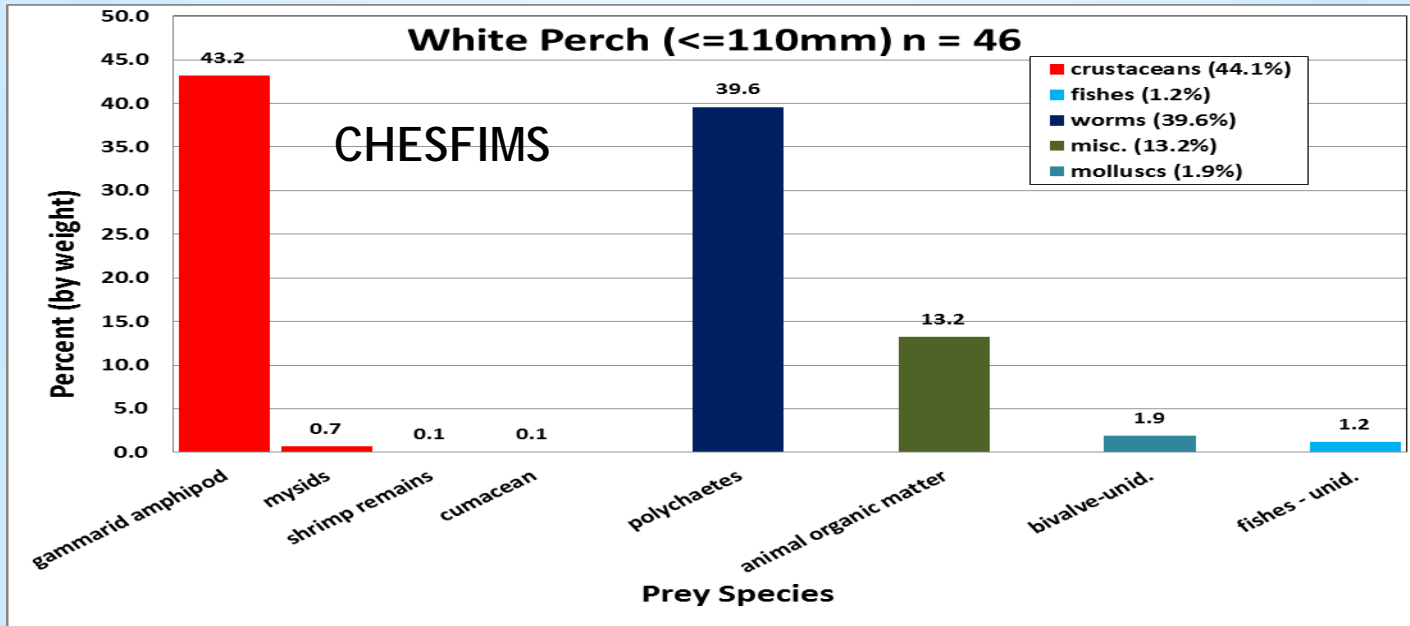


White Perch

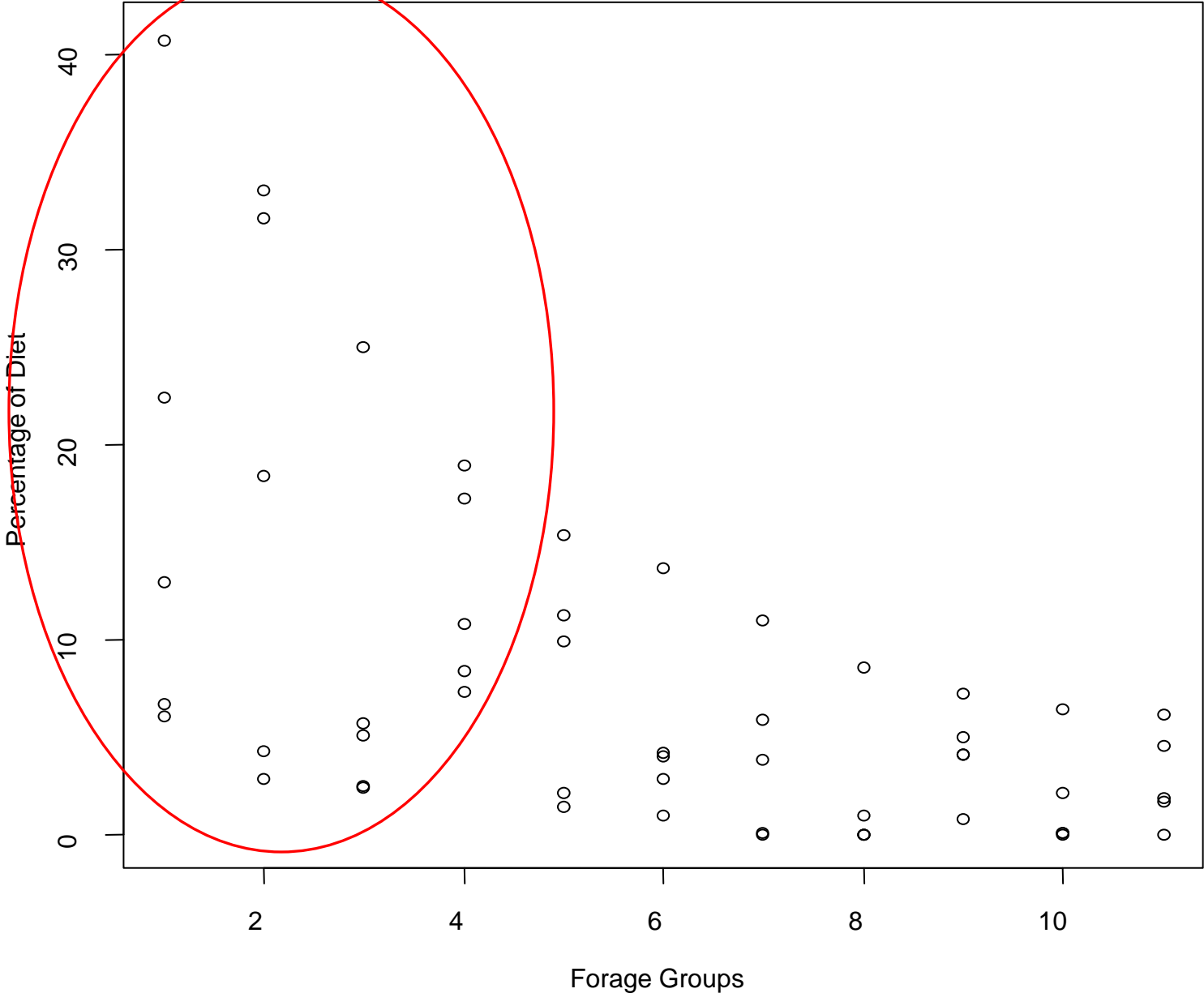
ChesMMAP - Annual Variability



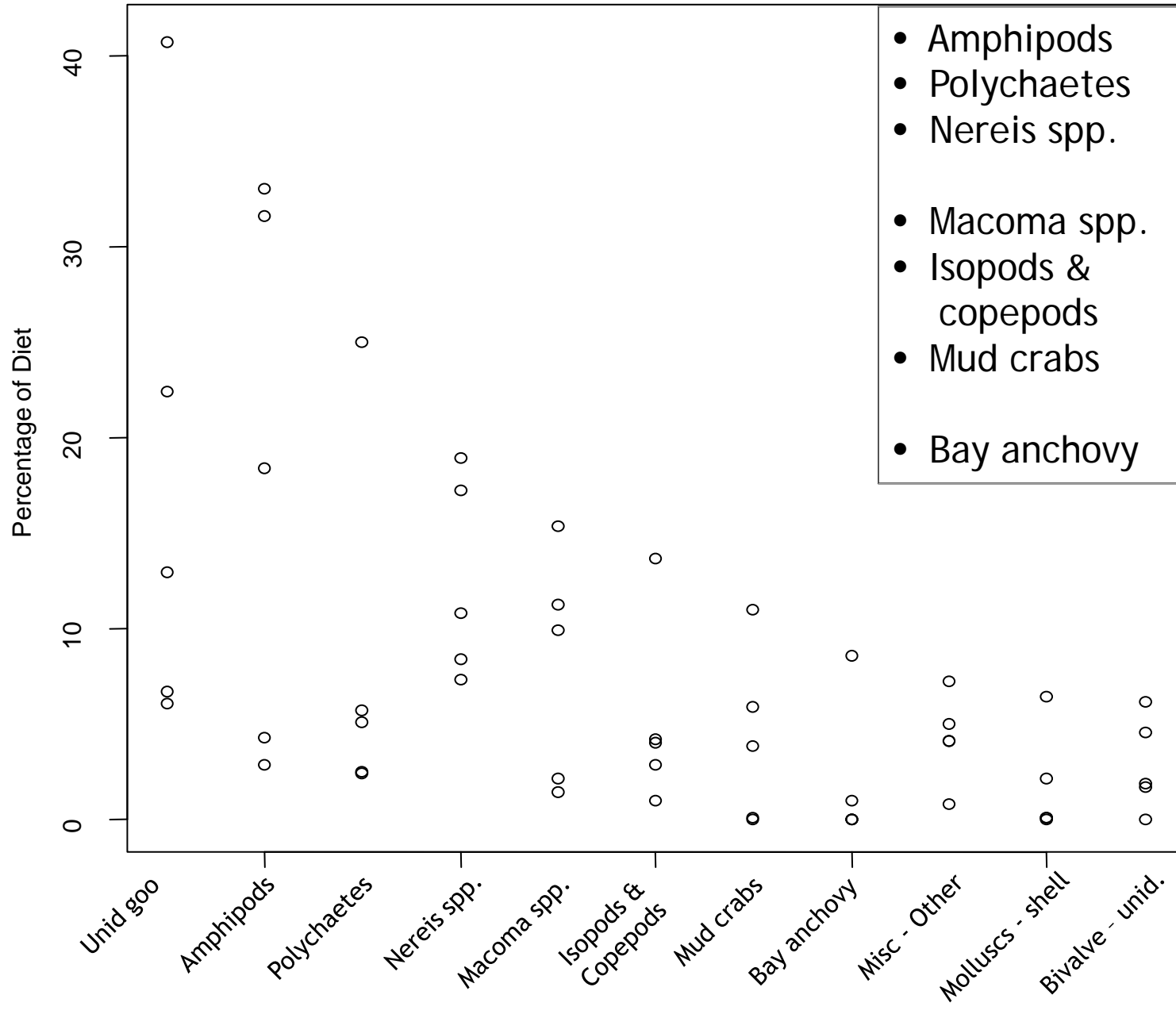
White Perch - By Size/Age



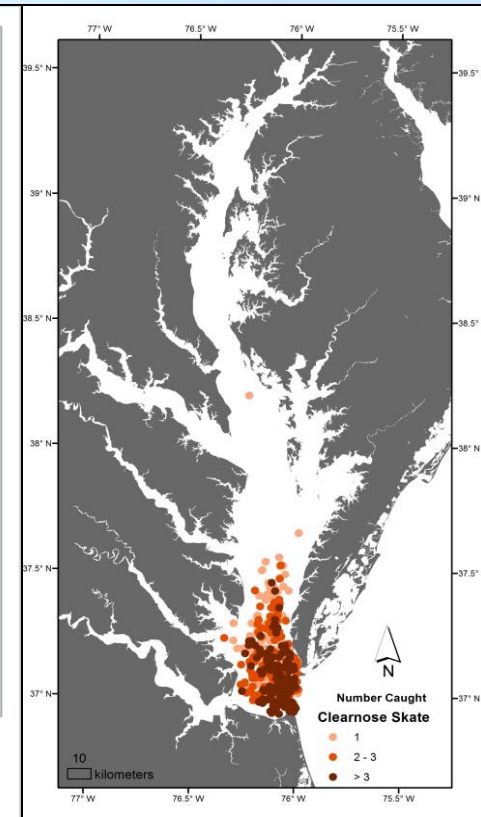
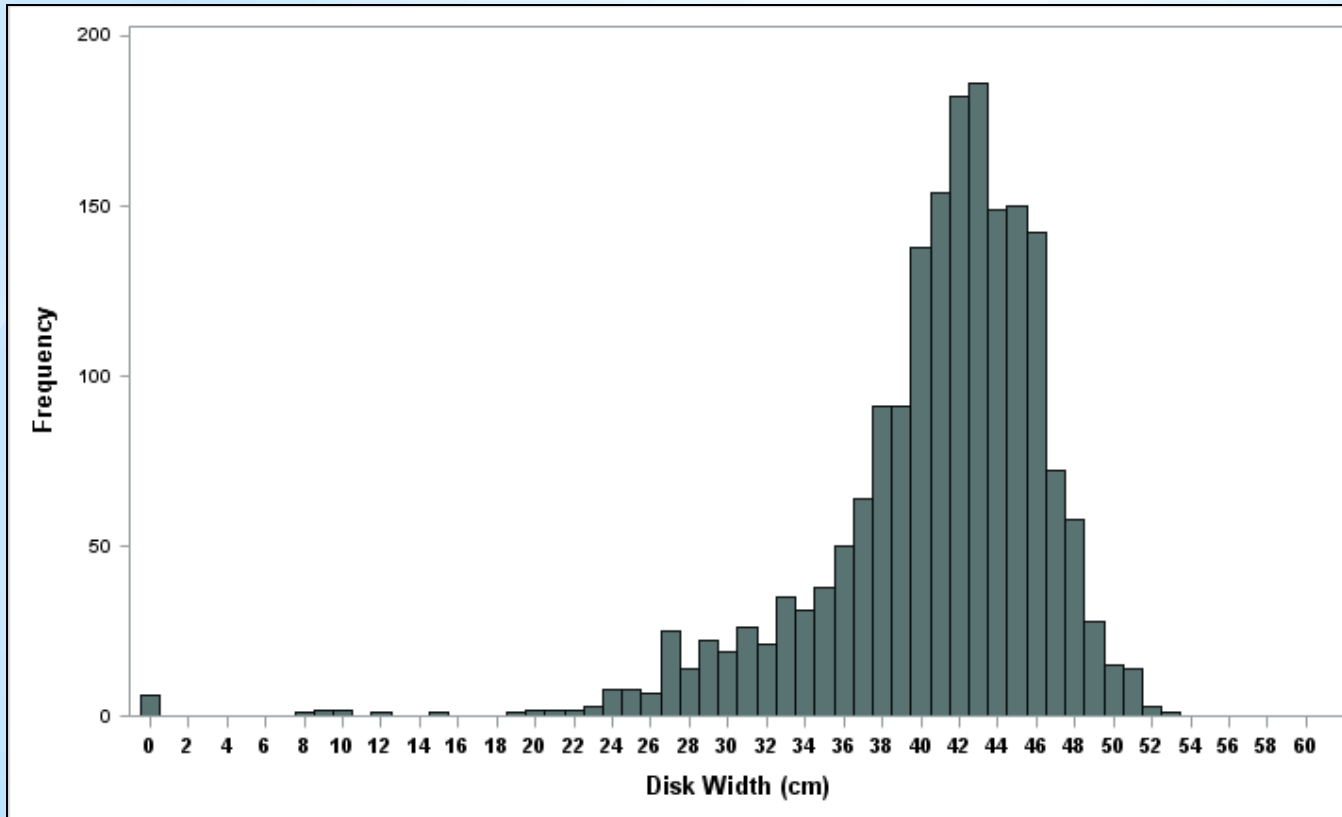
Forage Groups that Compose > 5% of White Perch Diet in any Sample (ChesMMAP only)



Forage Groups that Compose > 5% of White Perch Diet in any Sample (ChesMMAP only)

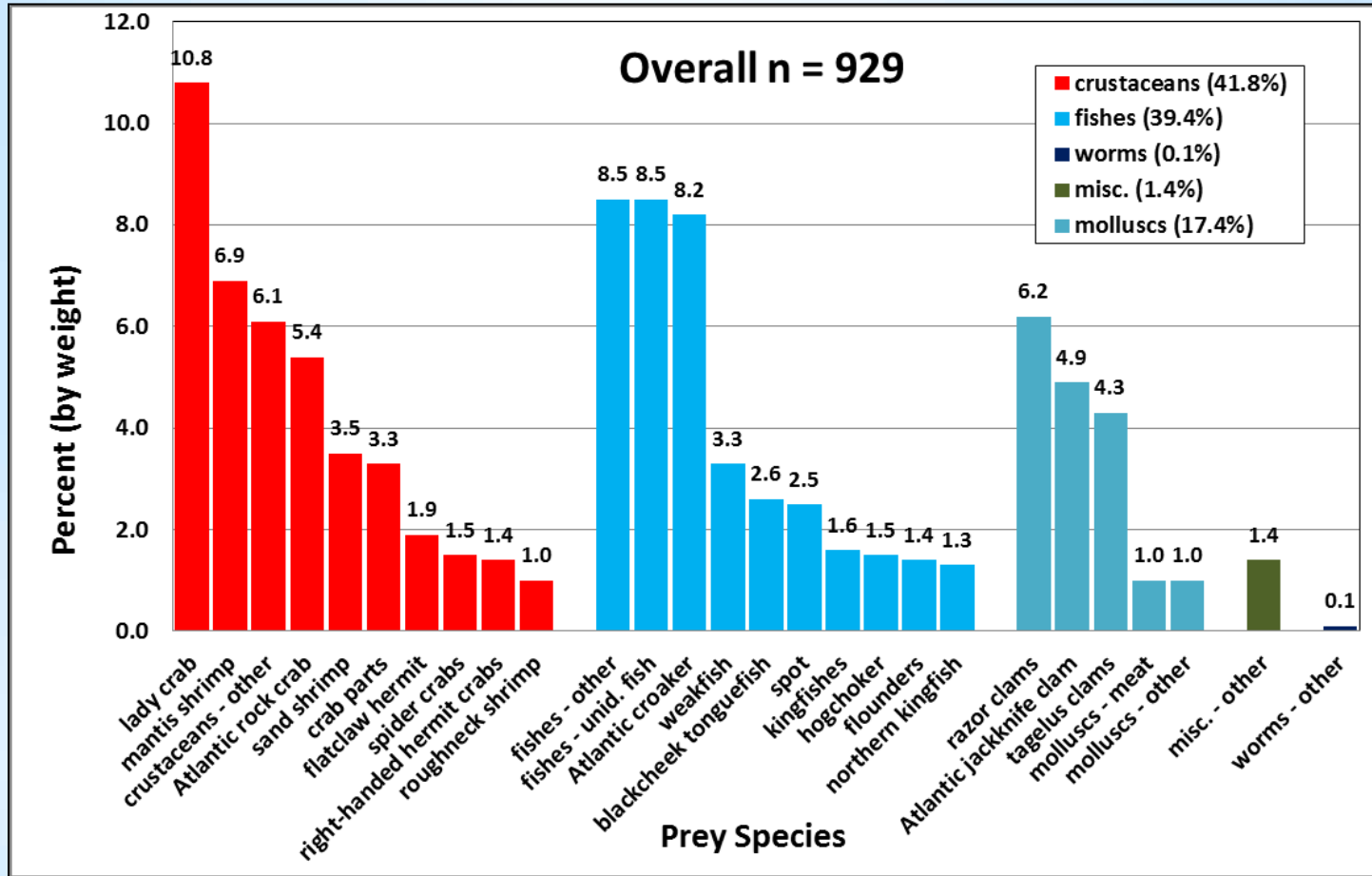


Clearnose Skate ChesMMAP Only



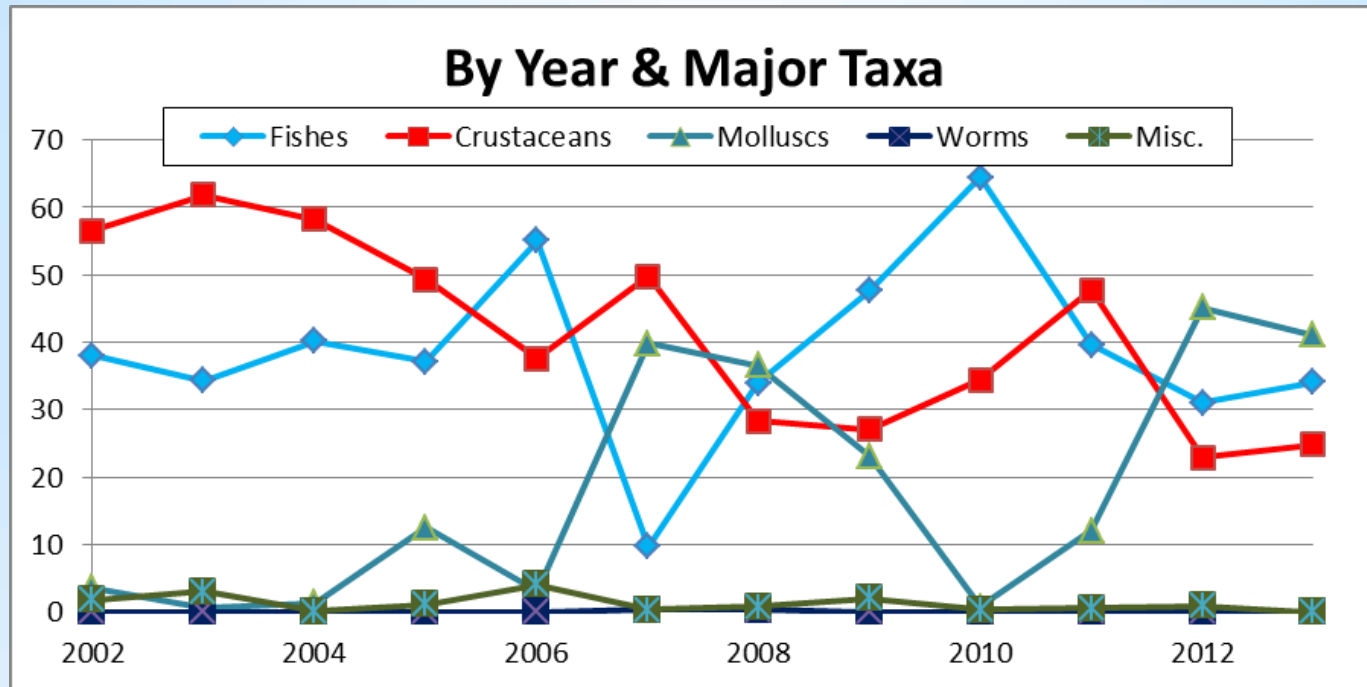
Clearnose Skate

ChesMMAP - All Years/Months/Regions/Sizes



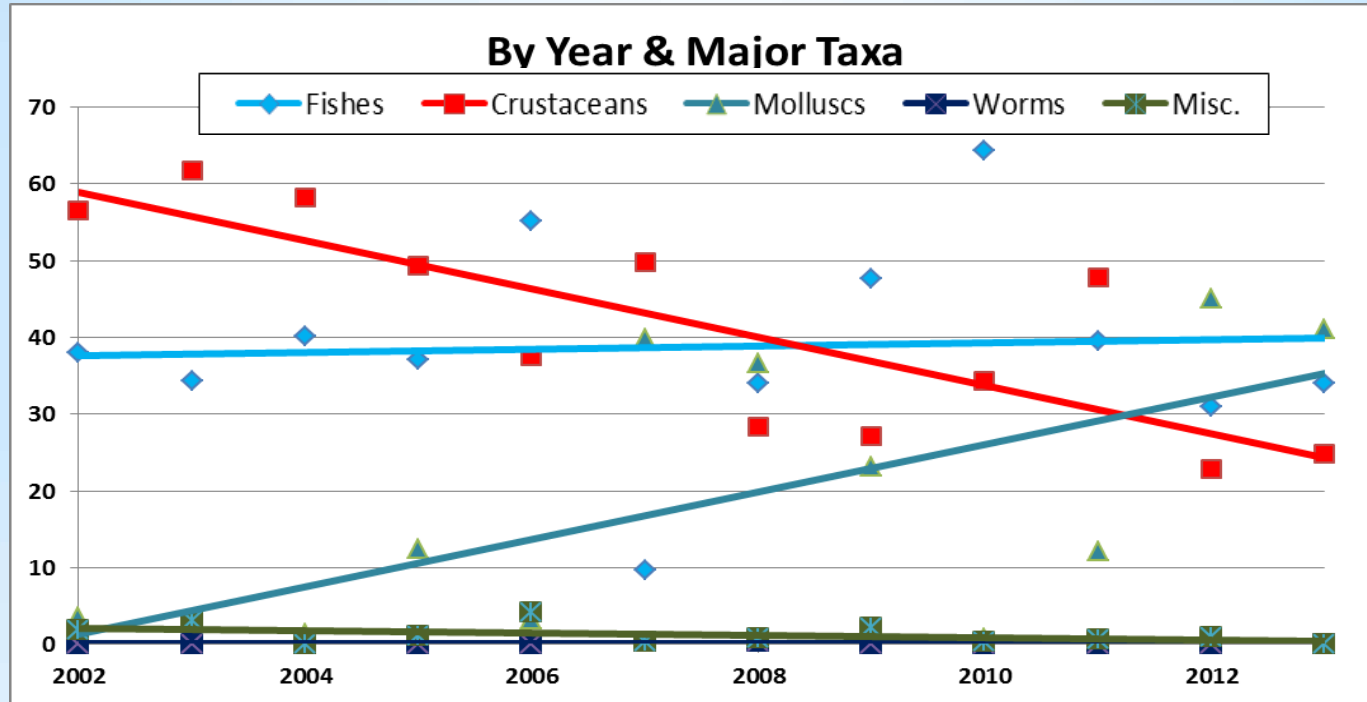
Clearnose Skate

ChesMMAP - Annual Variability

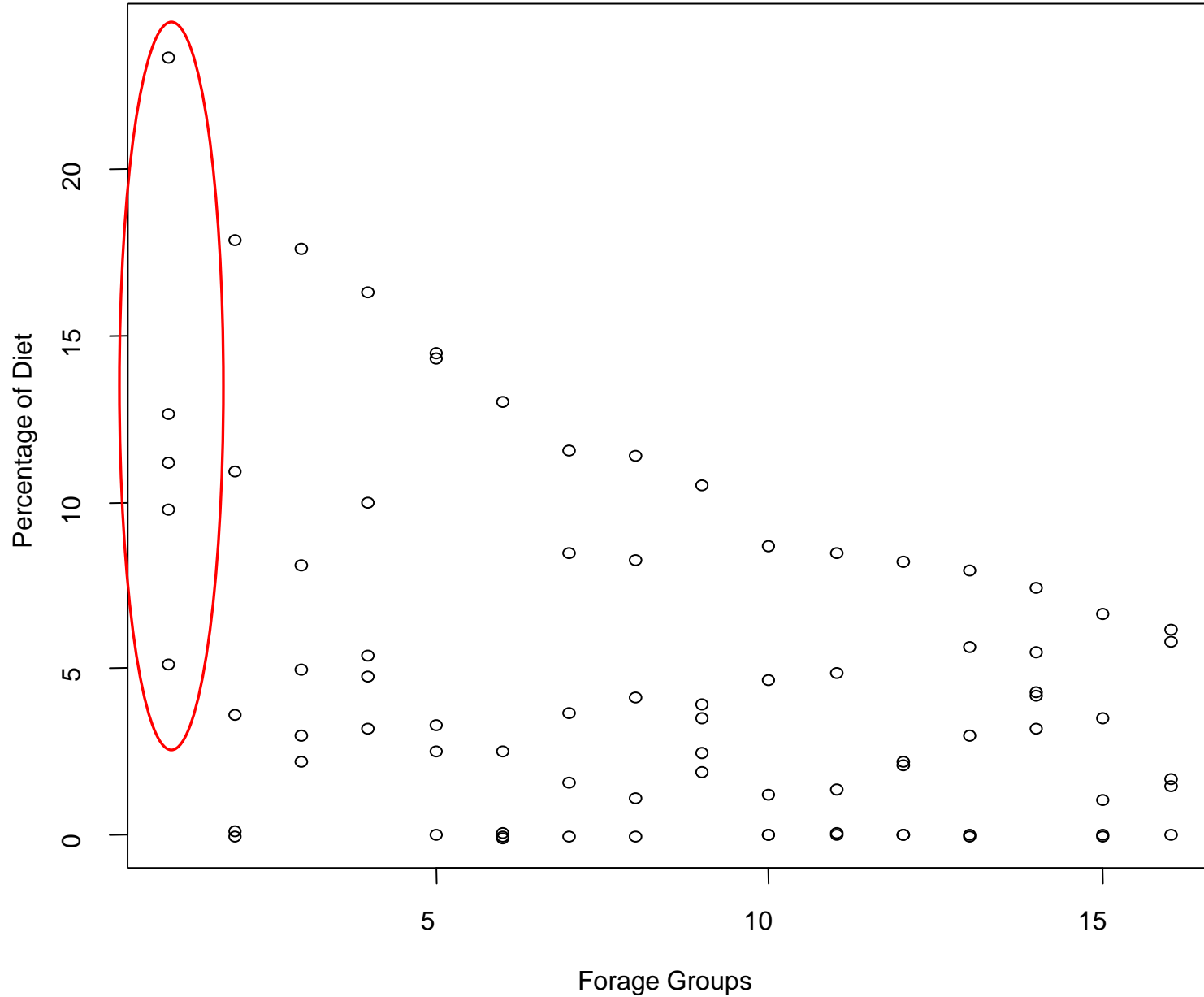


Clearnose Skate

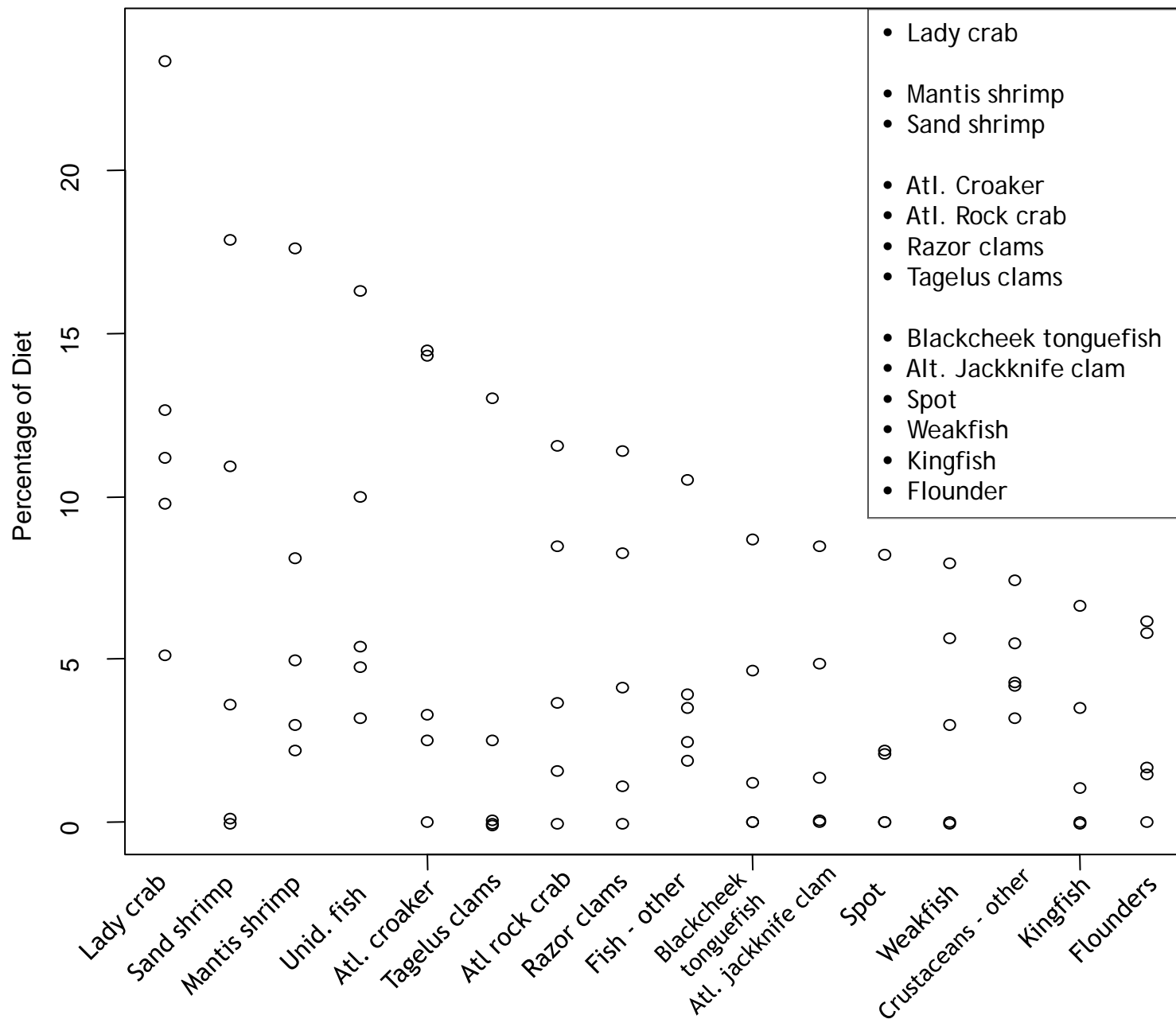
ChesMMAP - Annual Variability



Forage Groups that Compose > 5% of Clearnosed Skate Diet in any Sample (ChesMMAP only)



Forage Groups that Compose > 5% of Clearnosed Skate Diet in any Sample (ChesMMAF only)



Representative Species / Summaries (ChesMMap)

Species:

Baywide Piscivores:

- Summer Flounder
- Striped Bass

Baywide Benthic Feeder:

- Atlantic Croaker

Upper Bay Species:

- White Perch

Lower Bay Species:

- Clearnose Skate

Summer Flounder:

- * Bay anchovy
- * Mysids
- * Sand shrimp
- * Weakfish
- * Spot
- * Mantis shrimp
- * Spotted hake
- * Atl. croaker

Striped Bass:

- * Bay anchovy
- * Mysids
- * Nereis spp.
- * Menhaden
- * Polychaetes
- * Amphipods & isopods
- * Weakfish
- * Spot

Atlantic Croaker:

- * Polychaetes
- * Trumpet worm
- * Mysids
- * Nereis spp.
- * Bloodworms
- * Mantis shrimp
- * Razor clams
- * Amphipods
- * Bay anchovy

White Perch:

- * Amphipods
- * Polychaetes
- * Nereis spp.
- * Macoma spp.
- * Isopods & copepods
- * Mud crabs
- * Bay anchovy

Clearnose Skate:

- * Lady crab
- * Mantis shrimp
- * Sand shrimp
- * Atl. Croaker
- * Atl. Rock crab
- * Razor clams
- * Tagelus clams
- * Blackcheek tonguefish
- * Alt. Jackknife clam
- * Spot
- * Weakfish
- * Kingfish
- * Flounder

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