



**A REPORT ON**  
**TASK 6: GRAPHICAL DATA ANALYSIS**  
**FOR THE 2007 IMPLEMENTATION OF THE**  
**SARASOTA TIDAL CREEK CONDITION INDEX**

**Specific Authorization No. 2 to Contract 2004-134**  
**Sarasota County Water Resources**  
**Contract No. 2007-274**  
**Purchase Order No. P737068**

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**Mote Marine Laboratory Technical Report No. 1191**



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## **LETTER REPORT**

### **SARASOTA COUNTY TIDAL CREEK CONDITION INDEX**

#### **PHASE 4 (2007): TASK 6**

#### **BACKGROUND**

The importance of tidal creeks, including their headwater areas and the narrow reaches of coastal rivers, cannot be overstated. They are valuable environmental resources in that they are unique ecosystems that function as a link between uplands and estuaries. While comparative ecological health assessment indices have been developed for marine, estuarine, and freshwater ecosystems, none has been developed for tidal creeks using rapid survey techniques. Sarasota County and Mote Marine Laboratory have collaborated to develop biological indicators for tidal creeks. The preliminary effort to develop a Tidal Creek Condition Index for County tidal creeks by Mote Marine Laboratory was divided into three phases.

During the first phase of the project in 2004, County staff conducted research to collect existing data for the sub-basins of the 20 tidal creeks. The data were compared to establish the ecological condition of those streams, characterize the condition of their sub-basins, and select 2 streams that could be deemed as opposites (best and worst) by the condition of their respective sub-basins. Phase I resulted in a preliminary rough grading of 16 coastal watersheds and streams in order of best condition to worst condition, and concluded that there were enough streams with very different major basin features to be able to move forward with the next phase of the project.

During the second phase in 2005, Mote Marine Laboratory conducted field studies to characterize extremes among County coastal systems to determine the range of ecological conditions available for index development. The assessment resulted in two reports: "The Gottfried Creek Reconnaissance Report", July 12, 2005 and "The Whitaker Bayou Reconnaissance Report", August 17, 2005 and concluded that there were a sufficient number of county systems to develop a biologically based stream condition index.

During the third phase in 2006, Mote Marine Laboratory developed and tested a prototypic creek index based on ecological attributes that could be measured using rapid survey techniques. The test was made in 15 County coastal creek systems. A report, "Biological Condition Index for Tidal Streams in Coastal Sarasota County, Florida," providing methods and results of the test and a recapitulation of previous planning efforts, was submitted on September 30, 2006. Details of Phase III conclusions and recommendations appear in the July 23, 2007 "Report on Preparatory Tasks 1-4 for the 2007 Implementation of the Sarasota Tidal Creek Condition Index."

## **Index Application and Creek Assessment**

To accomplish the project, Mote Marine Laboratory has applied the prototype index to the following 16 tidal creeks in Sarasota County: Whitaker Bayou (aka Walker Creek), Hudson Bayou, Phillippi Creek, Matheny Creek, Clower Creek, Catfish Creek, North Creek, South Creek, Shakett Creek, Curry Creek, Hatchett Creek, Alligator Creek, Woodmere Creek, Forked Creek, Gottfried Creek, and Ainger Creek. This report addresses Task 6 of the 2007 effort:

### **Task 6. Data Entry and Graphic Analysis**

Task 6 provides for data entry and QA for all site characteristics and metrics, plus graphical analysis of intertidal (only), subtidal (only), and intertidal plus subtidal values of characteristics and metrics. Deliverables include an Excel spreadsheet of all data and metadata, plus Word files of all graphs.

## **METHODS**

The July 23, 2007 “Report on Preparatory Tasks 1-4 for the 2007 Implementation of the Sarasota Tidal Creek Condition Index” provided an Appendix 1 (standard operating procedures), Appendix 2 (final site selections), and Appendix 3 (Version 7.0 field sheets) that were employed in all sixteen coastal creeks of Sarasota County. From north to south these were Whitaker Bayou/Walker Creek, Hudson Bayou, Phillippi, Matheny, Clower, Catfish, North, South, Cow Pen/Shakett, Curry, Hatchett, Alligator, Woodmere, Forked, Gottfried, and Ainger Creeks.

Sampling began on May 20 and ended on June 8, 2007. The same two surveyors worked in every creek and they were assisted by a third person in all cases. Two adjacent creeks were surveyed on a given day. Time on-station ranged from 75 to 210 minutes and averaged 127 minutes.

Standard procedures and methods defined previously were adhered to in all creeks except as follows. In Catfish and North Creeks, where boat access is strictly limited by tidal conditions, sediment samples for Tagelus, other mollusks, and benthic infauna were collected but not processed until the crew could return to navigable waters. In Whitaker Bayou, Matheny Creek, and Clower Creek, methods requiring total immersion of a surveyor were substituted by alternative methods (dip net samples were taken from the vessel using handle extensions; petite ponar grabs were used instead of diver-operated box cores, etc.). An effort to use underwater photography failed because of the high turbidity associated with thick sediments comprised of fine particulate organic matter on some creek bottoms. Other safety measures described in Appendix 1 of the July 23, 2007 report were employed as needed.

## RESULTS

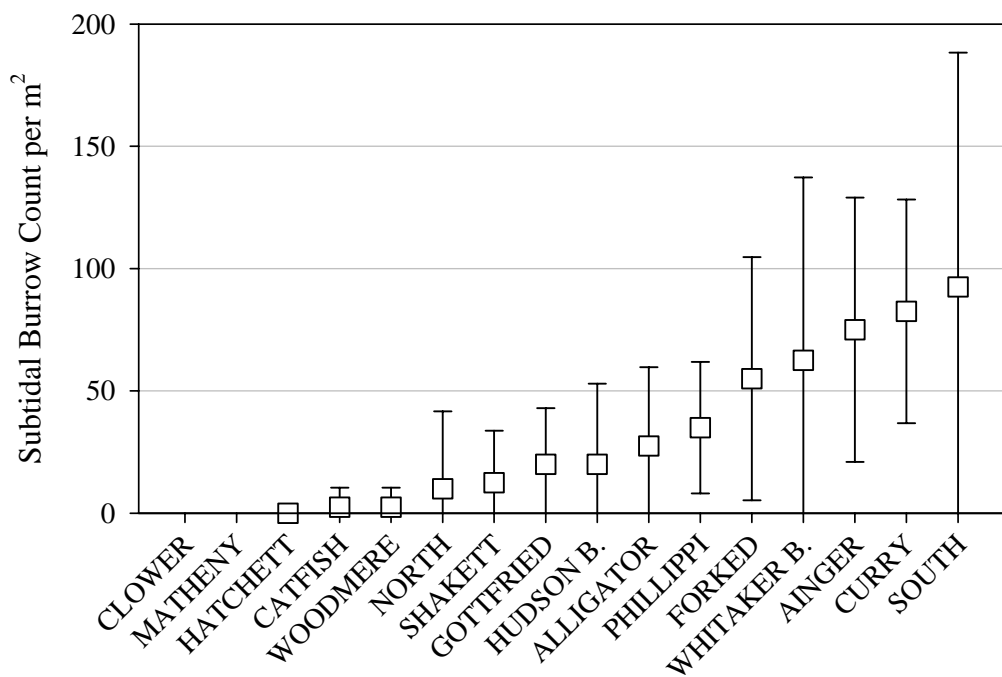
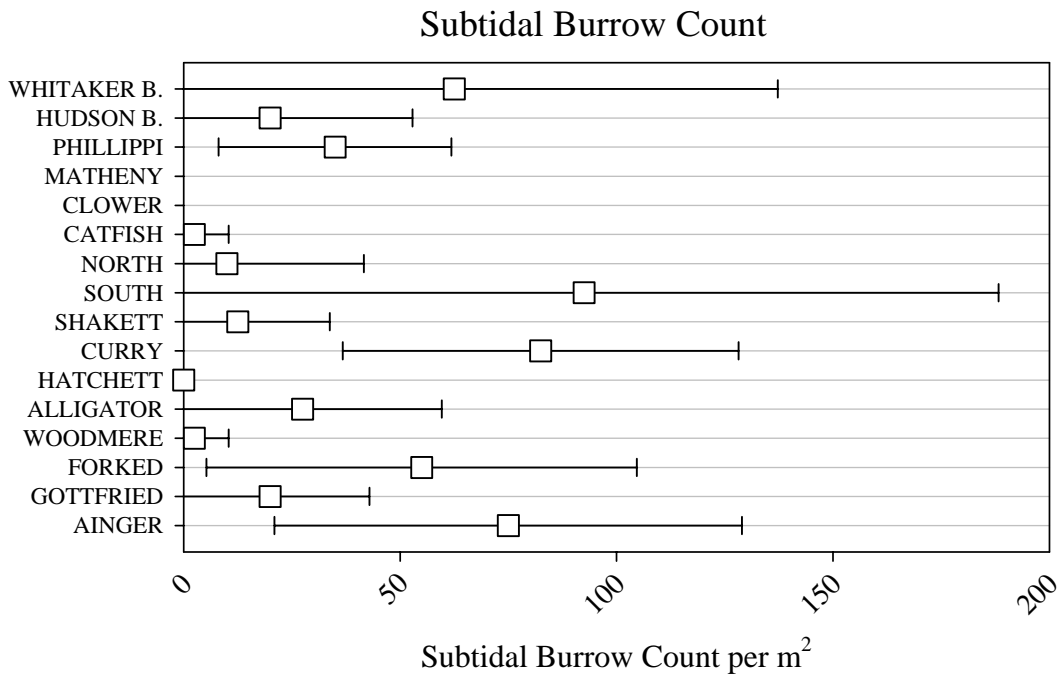
A total of 5992 biological data were collected from county creeks. Subtidal data were more numerous (3733) than intertidal data (2259) and subtidal data represented 62% of all biological data, as shown in Table 1.

**Table 1. Number of data points per creek for intertidal (INT) and subtidal (SUB) strata and both strata combined. Creeks are sorted by combined data.**

<u>Creek</u>	<u>INT</u>	<u>SUB</u>	<u>Both</u>
SOUTH	289	357	646
WOODMERE	207	396	603
GOTTFRIED	369	206	575
ALLIGATOR	279	276	555
AINGER	74	317	391
PHILLIPPI	47	327	374
CURRY	79	286	365
CATFISH	165	161	326
HATCHETT	171	151	322
WHITAKER	151	162	313
FORKED	70	237	307
MATHENY	196	80	276
SHAKETT	36	227	263
NORTH	3	232	235
CLOWER	120	112	232
HUDSON B.	3	206	209

The distribution of data by parameter for all creeks combined is provided in Appendix 1 (for intertidal data only), Appendix 2 (for subtidal data only) and Appendix 3 (for intertidal and subtidal data combined). Each appendix presents parameters sorted by each parameter's contribution to the total data set.

In order to visualize data distributions by creek and parameter a series of graphs were produced. These appear in Appendix 4 and are presented by parameter in descending order from Appendix 3. Parameters are presented first for intertidal data and next by subtidal data. Each data set is depicted in two formats, as illustrated in Figure 1 for Subtidal Burrow Count. Figure 1 upper panel presents data by creek from north (Whitaker Bayou) to south (Ainger Creek). Figure 1 lower panel presents the same data where creeks have been sorted from lowest to highest mean values. In the lower panel, one measured mean of zero is depicted. Clower and Matheny Creeks have no values shown, meaning that no subtidal burrow counts could be made in these creeks because total immersion of the surveyors for visual counts was unsafe and the water was too cloudy for successful bottom photography. This convention is followed throughout.



**Figure 1. Subtidal burrow counts for Sarasota County creeks. Upper panel presents data by creek from north to south; lower panel presents data sorted by mean values from lowest to highest values. Data for all creeks and parameters appear in Appendix 4.**

## DISCUSSION

Sites selected for the 2007 field effort were largely the same as those employed in 2006. Some sites were occupied for the first time in 2007. Hudson Bayou, Matheny Creek, and Clower Creek were sampled exclusively within the creek compared to 2006 when some data were collected near their mouths. This resulted in fewer data being collected because of limited resource availability and the need to employ safe practices. Hatchett Creek was sampled for the first time and its primary site appeared satisfactory. Woodmere Creek was also sampled but close by its mouth owing to the geography of the area and resource availability. Some influence of Lemon Bay may exist as a result. A different site was also used in Ainger Creek to avoid bridge, channel, and boat vessel effects and experience in the field was satisfactory.

An average time on-station of two hours was reasonable for rapid-survey purposes, especially when trying to visit two nearby creeks per day because transit times can be considerable especially in slow-speed zones. Weather had a strong effect on station times. Although transparency in a majority of creeks was favorable for sampling and measurement, overcast and windy conditions reduced visibility considerably and required full immersion for visual surveys. On balance, more parameters and strata were sampled in 2007 than are likely needed once data-analysis is conducted, and to such extent as the effort is reduced a corresponding efficiency may be expected.

Standard procedures and the Version 7 field sheets were satisfactory in all creeks where surveyors could work in the water. In practice, some efficiencies were achieved by collecting data in a slightly different order, for example by nesting samples for *Tagelus*, other mollusks, and benthic infauna, and these improvements can be added to standard procedures.

Data completeness was affected by the absence or limited availability of a stratum (intertidal zone, for example) or resource (SAV bed) in creeks. Data completeness was also affected by the necessity of using alternative sampling methods, or forgoing an effort, in unsanitary streams. The possibility of combining intertidal and subtidal data for a creek is under consideration as the project moves into the next and final phase, but some improvements to data completeness can already be achieved for certain metrics.

Net catch data, for example, have intentionally been kept in discrete form with catches of fish, crabs, shrimp, and other biota from the same net tow being treated as individual data fields. It is possible to combine these catches with a modest improvement in data completeness, as illustrated by the final seven figures in Appendix 4. In the same manner, the effect of combining *Tagelus* data with Other Mollusk data is being evaluated.

Finally, three parameters related to oysters were extracted from Sarasota County Government's 2007 Oyster Monitoring Program. Oyster data were collected from ten creeks by county staff during the same period of time that Condition Index data were

collected. Extracted parameters include Percent Live Oysters, Maximum Oyster Height, and Oyster Spat Count. Appendix 4 presents graphs of these three data sets.

#### Acknowledgments

Kathy Meaux of Sarasota County participated in the sampling of every creek and her assistance is gratefully acknowledged. County oyster data were provided by Mike Jones. Other field assistants included Matthew Phillips, Gary Raulerson, and Jay Leverone. Data management and graphical analyses were managed by Jay Sprinkel with assistance from Jan Gannon. Rusty Holmes provided assistance with document production.

**APPENDIX 1.**

**Number of biological data and cumulative percent of intertidal data by parameter for the 2007 Tidal Creek Condition Index.**

**Intertidal Records**

Parameter	Count	Cumulative Percent
1 BURROW COUNT	110	6.33
2 PERI PERCENT COVER	110	12.65
3 TAG PERCENT COVER	110	18.98
4 DRIFT PERCENT COVER	99	24.67
5 DEAD TAG COHORT NO.	90	29.84
6 DEAD TAG COUNT	90	35.02
7 LIVE TAG COHORT NO.	90	40.20
8 LIVE TAG COUNT	90	45.37
9 OYSTER PERCENT COVER	90	50.55
10 SAV PERCENT COVER	90	55.72
11 OTHER LIVE MOLL COUNT	75	60.03
12 FILAM PERCENT COVER	70	64.06
13 BARE NET CRAB	50	66.94
14 BARE NET FISH	50	69.81
15 BARE NET OTHER	50	72.69
16 BARE NET SHRIMP	50	75.56
17 PERI NET CRAB	50	78.44
18 PERI NET FISH	50	81.31
19 PERI NET OTHER	50	84.19
20 PERI NET SHRIMP	50	87.06
21 DRIFT NET CRAB	30	88.79
22 DRIFT NET FISH	30	90.51
23 DRIFT NET OTHER	30	92.24
24 DRIFT NET SHRIMP	30	93.96
25 TAG EXTENT	20	95.11
26 OYSTER SPAT	11	95.74
27 OYSTERS %	11	96.38
28 PERI EXTENT	11	97.01
29 DRIFT EXTENT	10	97.58
30 OYSTER HT.	10	98.16
31 OYSTER EXTENT	9	98.68
32 SAV EXTENT	9	99.19
33 FILAM EXTENT	7	99.60
34 SAV SPECIES NUMBER	7	100.00
35 FILAM NET CRAB	0	100.00
36 FILAM NET FISH	0	100.00
37 FILAM NET OTHER	0	100.00

38	FILAM NET SHRIMP	0	100.00
39	FUNGUS EXTENT	0	100.00
40	FUNGUS PERCENT COVER	0	100.00
41	LIVE COHORT NO.	0	100.00
42	SAV EPI COVER	0	100.00
43	SAV EPI LUX	0	100.00
44	SAV NET CRAB	0	100.00
45	SAV NET FISH	0	100.00
46	SAV NET OTHER	0	100.00
47	SAV NET SHRIMP	0	100.00
48	TUNICATE EXTENT COVER	0	100.00
49	TUNICATE PERCENT COVER	0	100.00

## APPENDIX 2.

### Number of biological data and cumulative percent of subtidal data by parameter for the 2007 Tidal Creek Condition Index.

#### Subtidal Records

Parameter	Count	Cumulative Percent
1 DEAD TAG COHORT NO.	148	5.51
2 LIVE TAG COUNT	148	11.02
3 DEAD TAG COUNT	146	16.46
4 BURROW COUNT	140	21.67
5 LIVE COHORT NO.	138	26.81
6 OTHER LIVE MOLL COUNT	133	31.76
7 BARE NET CRAB	130	36.60
8 BARE NET FISH	130	41.44
9 BARE NET SHRIMP	130	46.28
10 BARE NET OTHER	129	51.08
11 PERI PERCENT COVER	110	55.17
12 TAG PERCENT COVER	110	59.27
13 DRIFT PERCENT COVER	100	62.99
14 FILAM PERCENT COVER	90	66.34
15 SAV PERCENT COVER	90	69.69
16 OYSTER PERCENT COVER	80	72.67
17 DRIFT NET CRAB	67	75.17
18 DRIFT NET FISH	67	77.66
19 DRIFT NET OTHER	67	80.16
20 DRIFT NET SHRIMP	67	82.65
21 SAV EPI COVER	60	84.88
22 SAV EPI LUX	60	87.12
23 SAV NET CRAB	35	88.42
24 SAV NET FISH	35	89.72
25 SAV NET OTHER	35	91.03
26 SAV NET SHRIMP	35	92.33
27 PERI NET CRAB	20	93.08
28 PERI NET FISH	20	93.82
29 PERI NET OTHER	20	94.56
30 PERI NET SHRIMP	20	95.31
31 PERI EXTENT	11	95.72
32 TAG EXTENT	11	96.13
33 FILAM NET CRAB	10	96.50
34 FILAM NET FISH	10	96.87
35 FILAM NET OTHER	10	97.24
36 FILAM NET SHRIMP	10	97.62
37 FUNGUS PERCENT COVER	10	97.99

38	TUNICATE PERCENT COVER	10	98.36
39	DRIFT EXTENT	9	98.70
40	FILAM EXTENT	9	99.03
41	SAV EXTENT	9	99.37
42	OYSTER EXTENT	8	99.66
43	SAV SPECIES NUMBER	7	99.93
44	FUNGUS EXTENT	1	99.96
45	TUNICATE EXTENT COVER	1	100.00
46	LIVE TAG COHORT NO.	0	100.00
47	OYSTER HT.	0	100.00
48	OYSTER SPAT	0	100.00
49	OYSTERS %	0	100.00

### APPENDIX 3.

**Number of biological data and cumulative percent of intertidal plus subtidal data by parameter for the 2007 Tidal Creek Condition Index.**

#### **Intertidal plus Subtidal Records**

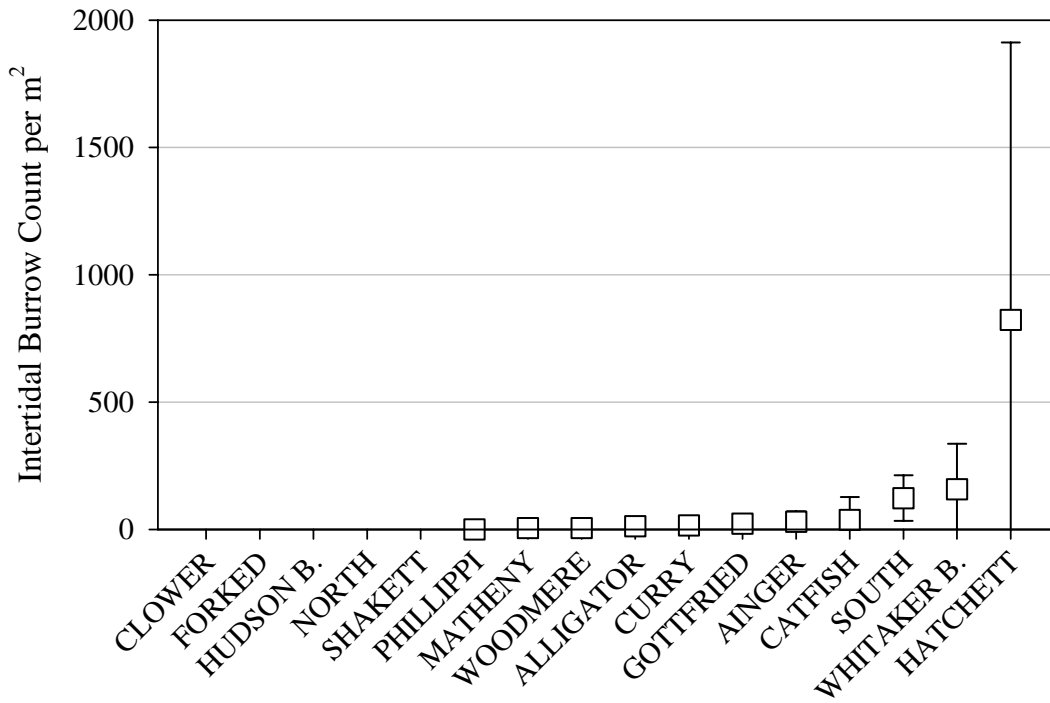
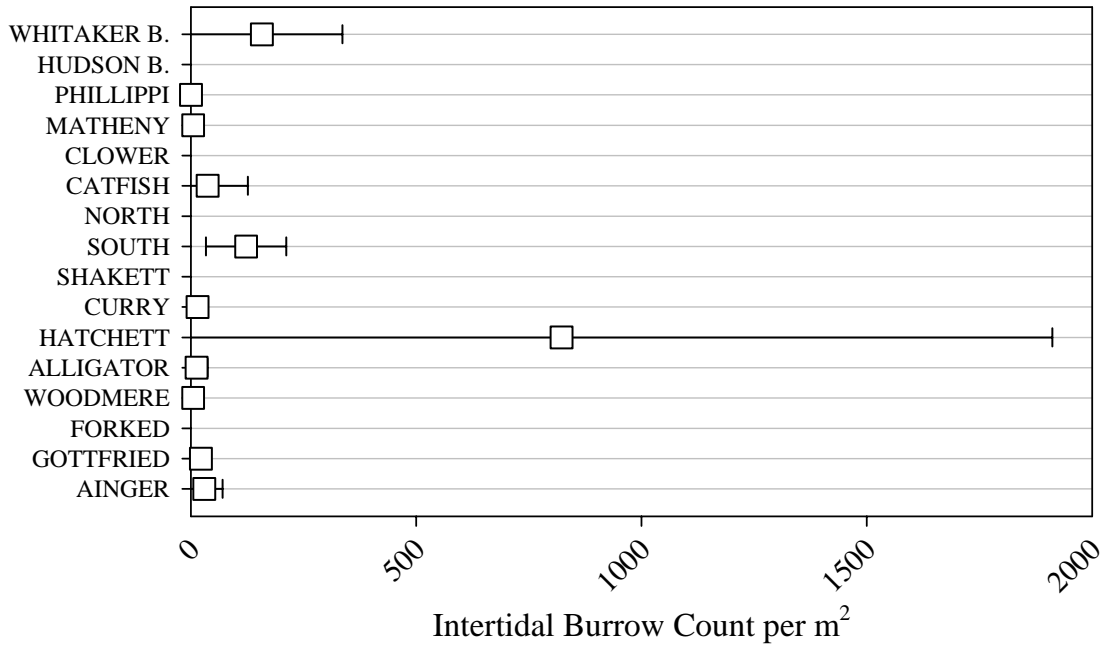
<u>Parameter</u>	<u>Count</u>	<u>Cumulative Percent</u>
1 BURROW COUNT	250	5.65
2 DEAD TAG COHORT NO	238	11.03
3 LIVE TAG COUNT	238	16.41
4 DEAD TAG COUNT	236	21.74
5 PERI PERCENT COVER	220	26.71
6 TAG PERCENT COVER	220	31.68
7 OTHER LIVE MOLL COUNT	208	36.38
8 DRIFT PERCENT COVER	199	40.88
9 BARE NET CRAB	180	44.95
10 BARE NET FISH	180	49.02
11 BARE NET SHRIMP	180	53.08
12 SAV PERCENT COVER	180	57.15
13 BARE NET OTHER	179	61.20
14 OYSTER PERCENT COVER	170	65.04
15 FILAM PERCENT COVER	160	68.66
16 LIVE COHORT NO.	138	71.77
17 DRIFT NET CRAB	97	73.97
18 DRIFT NET FISH	97	76.16
19 DRIFT NET OTHER	97	78.35
20 DRIFT NET SHRIMP	97	80.54
21 LIVE TAG COHORT NO.	90	82.58
22 PERI NET CRAB	70	84.16
23 PERI NET FISH	70	85.74
24 PERI NET OTHER	70	87.32
25 PERI NET SHRIMP	70	88.90
26 SAV EPI COVER	60	90.26
27 SAV EPI LUX	60	91.62
28 SAV NET CRAB	35	92.41
29 SAV NET FISH	35	93.20
30 SAV NET OTHER	35	93.99
31 SAV NET SHRIMP	35	94.78
32 TAG EXTENT	31	95.48
33 PERI EXTENT	22	95.98
34 DRIFT EXTENT	19	96.41
35 SAV EXTENT	18	96.81

36 OYSTER EXTENT	17	97.20
37 FILAM EXTENT	16	97.56
38 SAV SPECIES NUMBER	14	97.88
39 OYSTER SPAT	11	98.12
40 OYSTERS %	11	98.37
41 FILAM NET CRAB	10	98.60
42 FILAM NET FISH	10	98.82
43 FILAM NET OTHER	10	99.05
44 FILAM NET SHRIMP	10	99.28
45 FUNGUS PERCENT COVER	10	99.50
46 OYSTER HT.	10	99.73
47 TUNICATE PERCENT COVER	10	99.95
48 FUNGUS EXTENT	1	99.98
49 TUNICATE EXTENT COVER	1	100.00

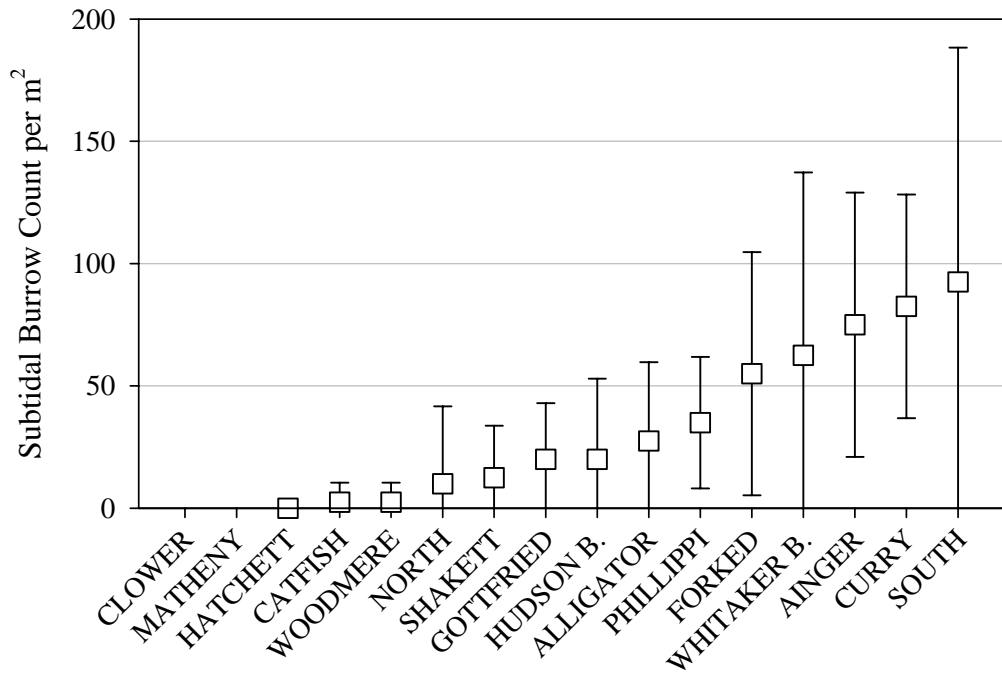
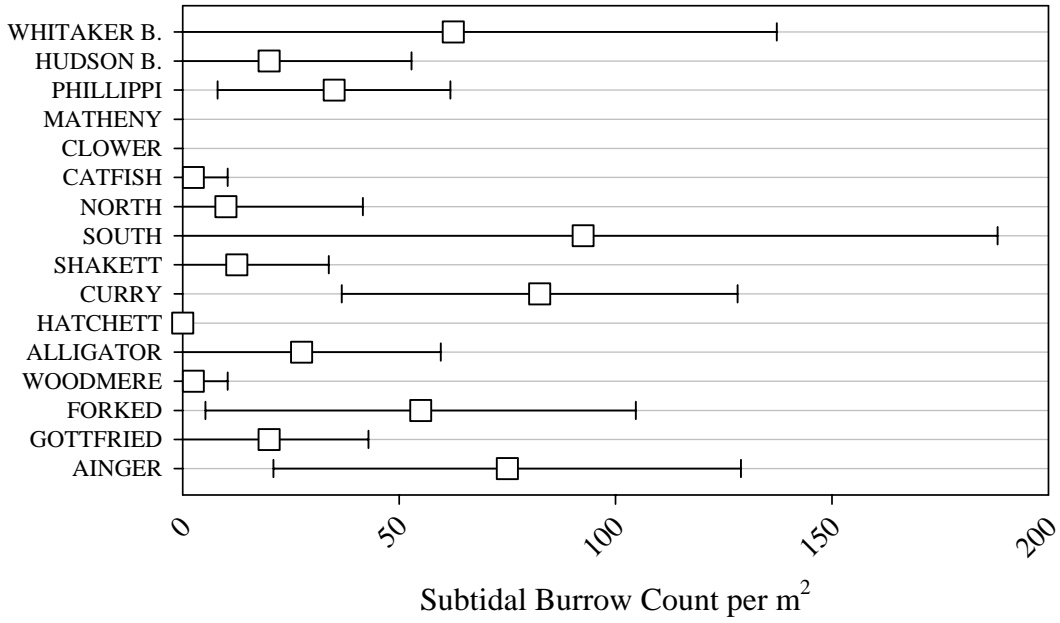
#### **APPENDIX 4.**

Graphical presentations of biological data collected in the 2007 Sarasota County Tidal Creek Condition Index effort. Data are presented by parameter in descending order from Appendix 3. Parameters are presented first for intertidal data and next by subtidal data. Each data set is depicted in two formats. An upper panel presents data by creek from north (Whitaker Bayou) to south (Ainger Creek). A lower panel presents the same data where creeks have been sorted from lowest to highest mean values.

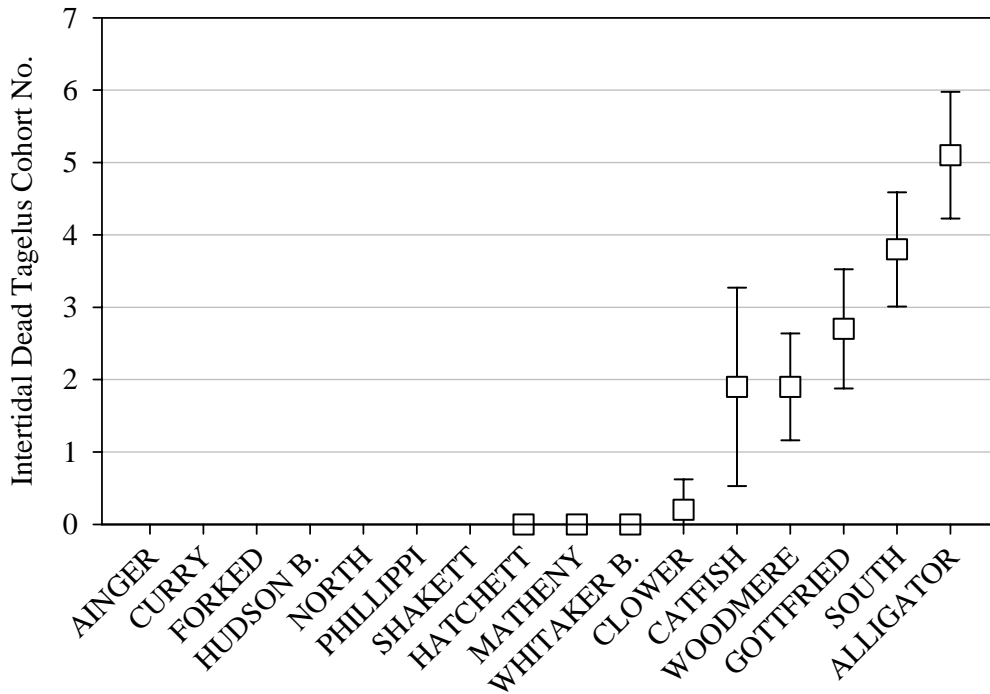
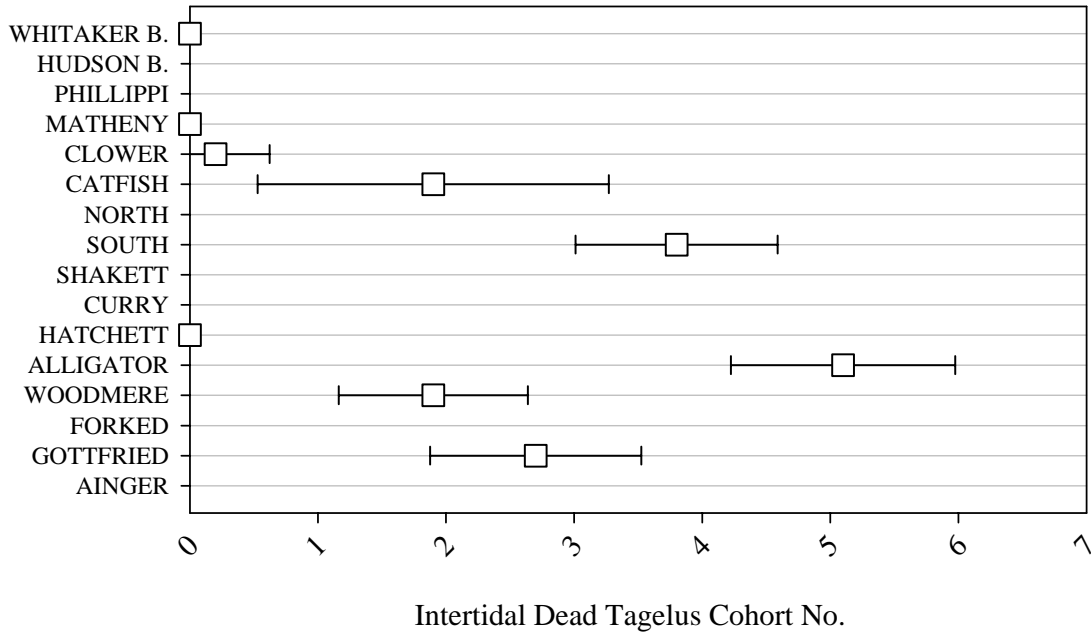
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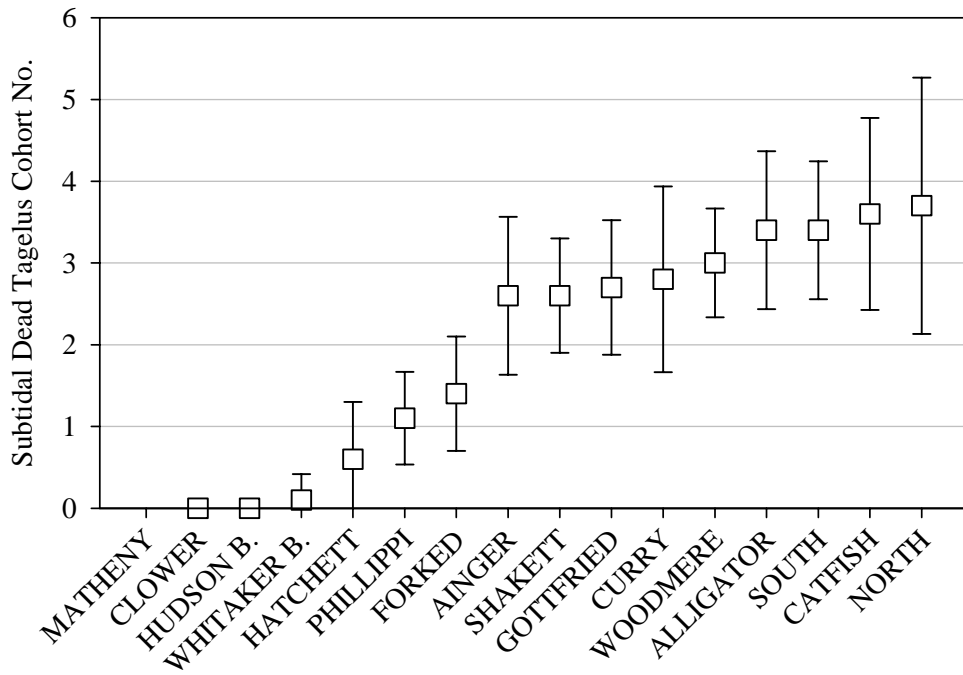
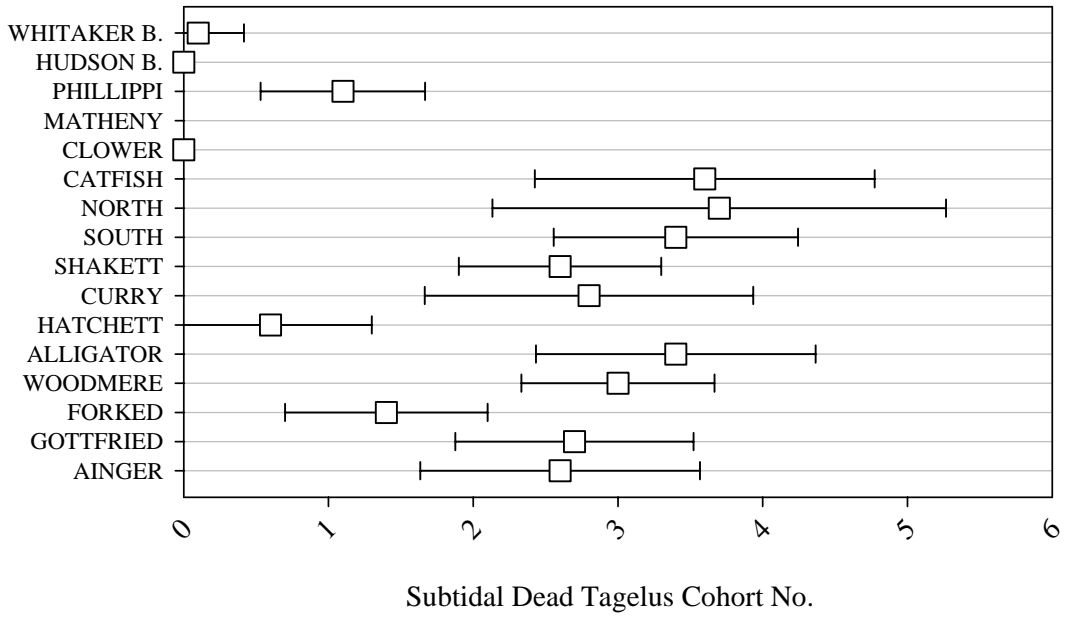
### Subtidal Burrow Count



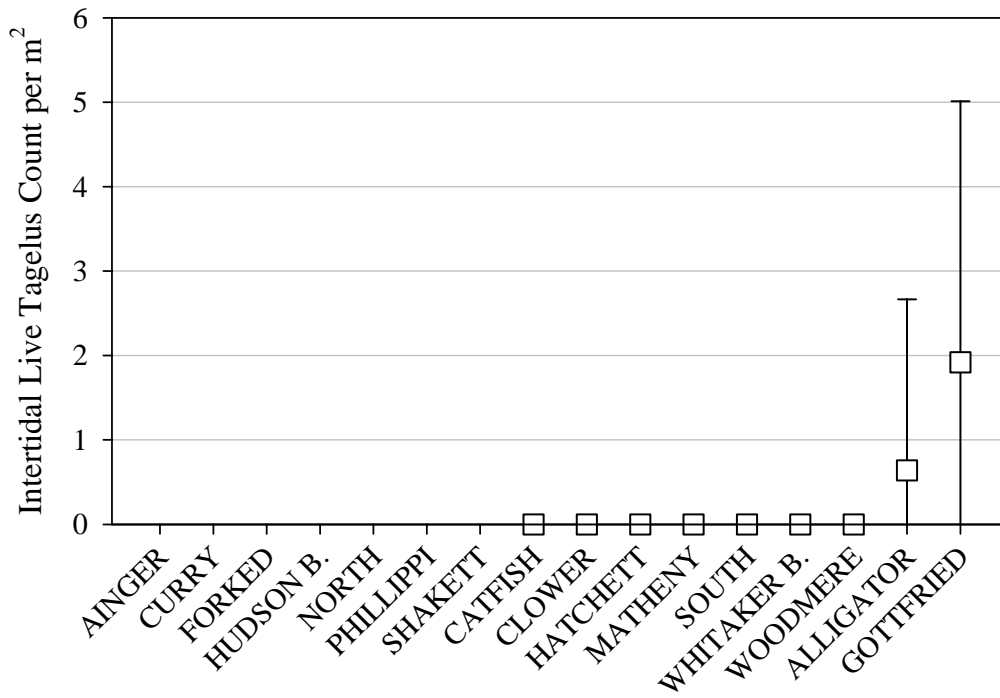
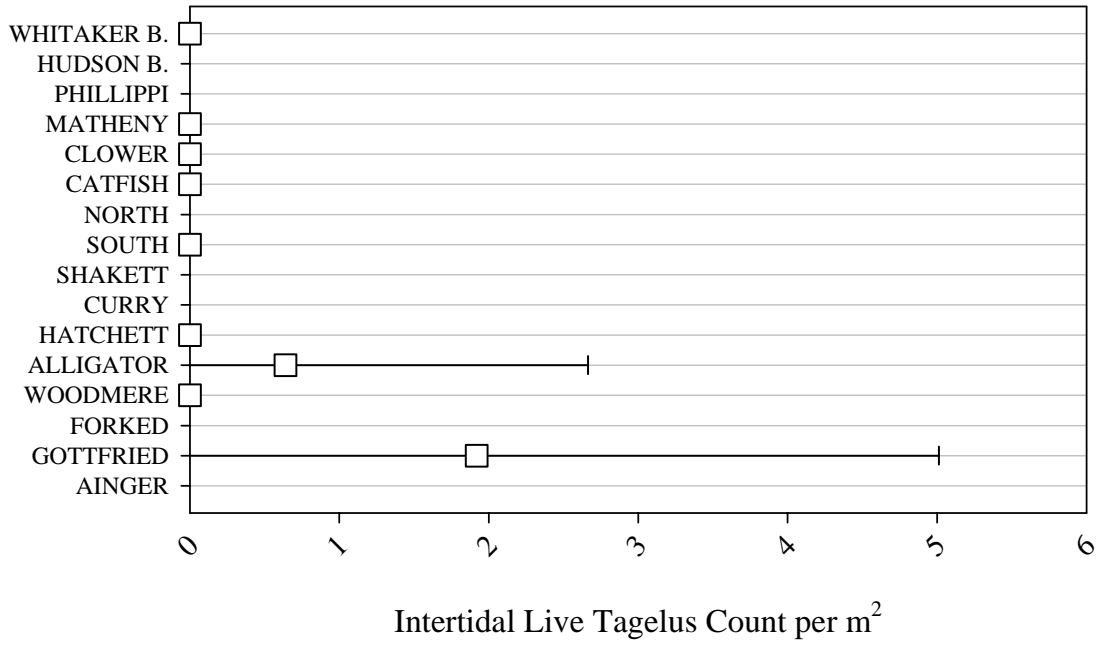
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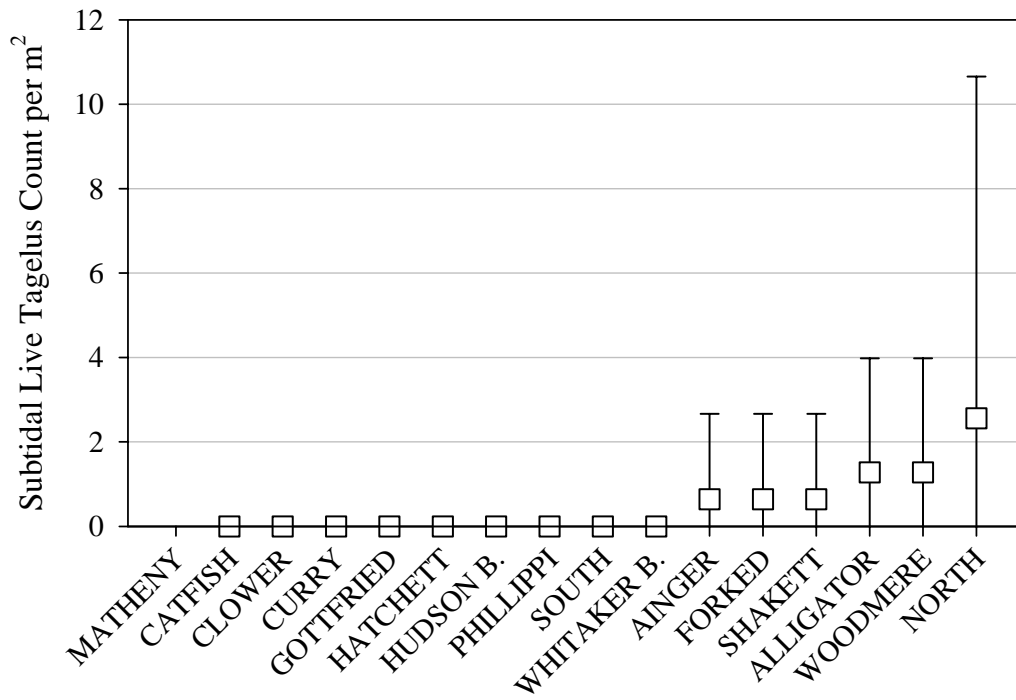
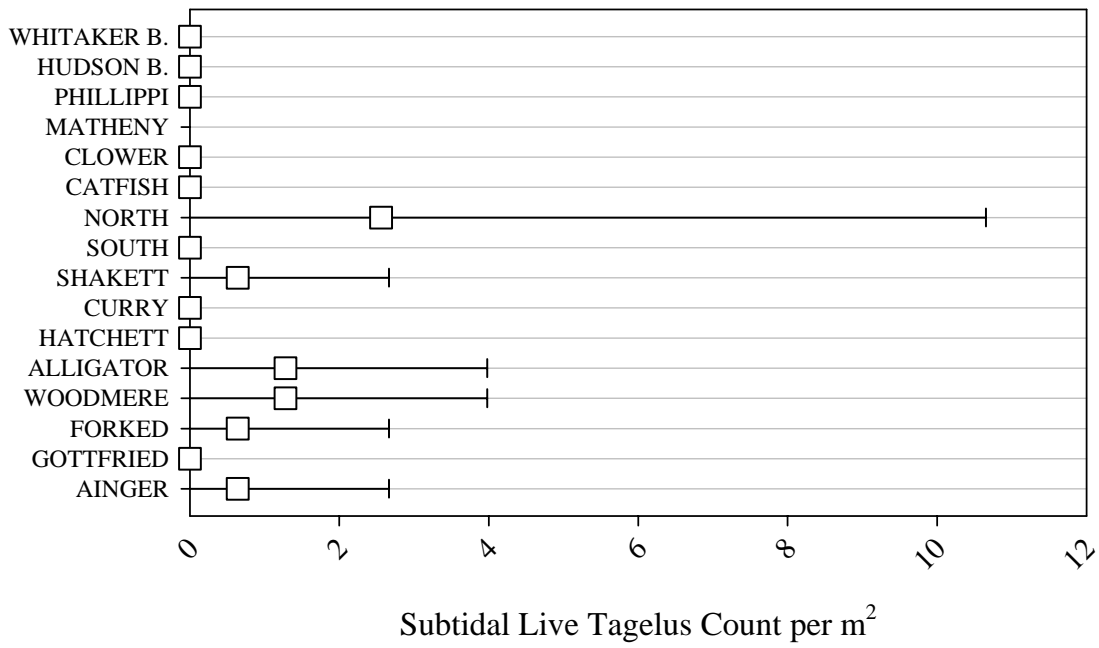
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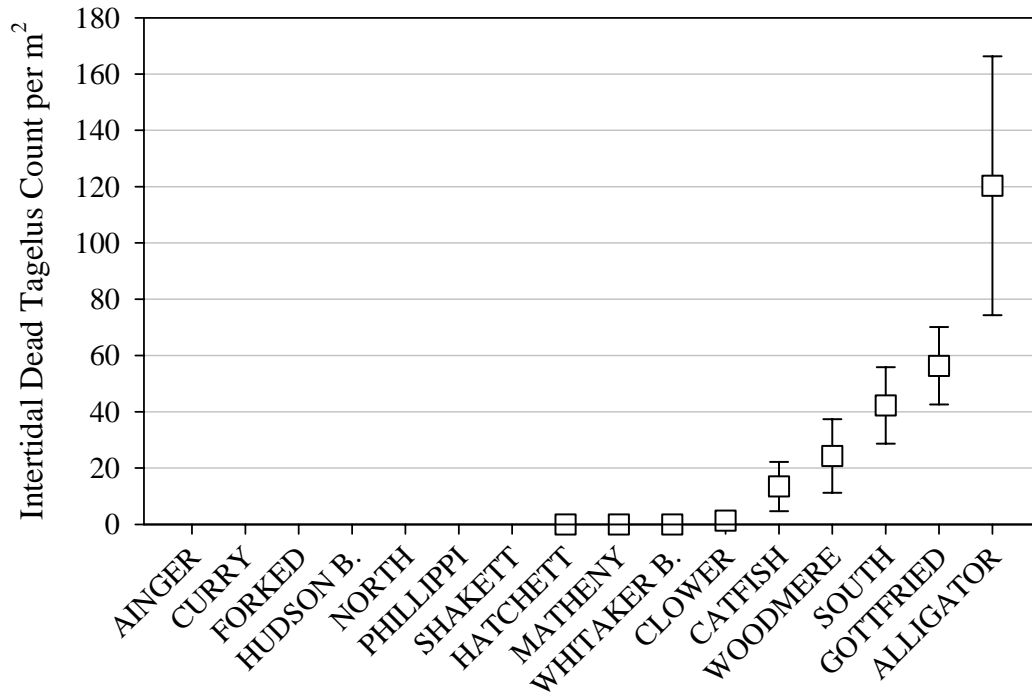
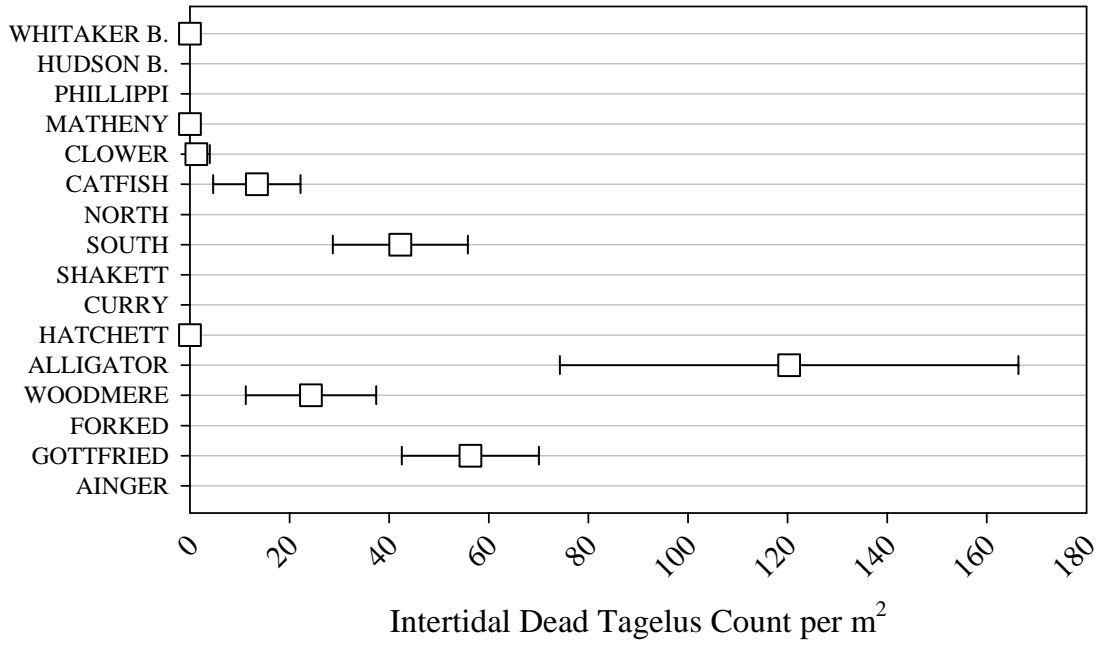
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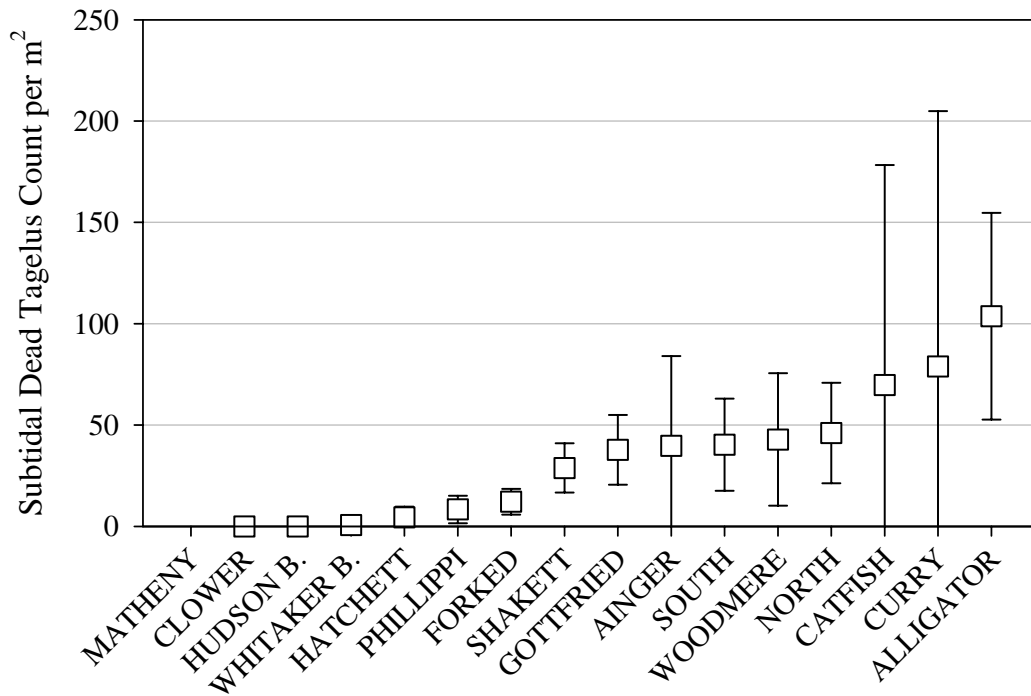
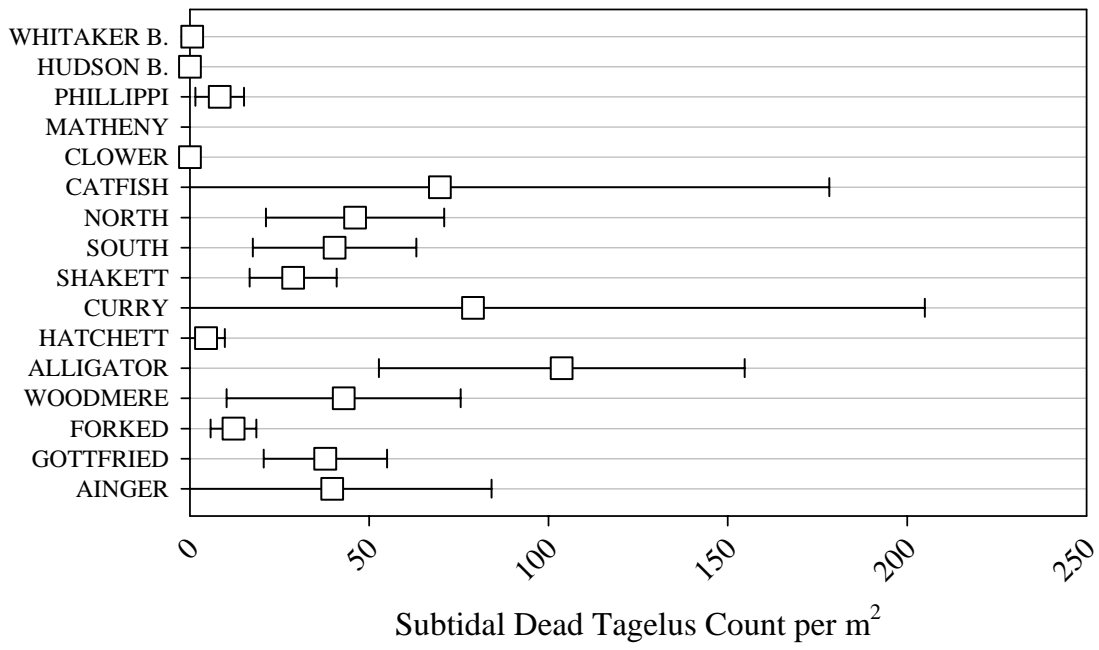
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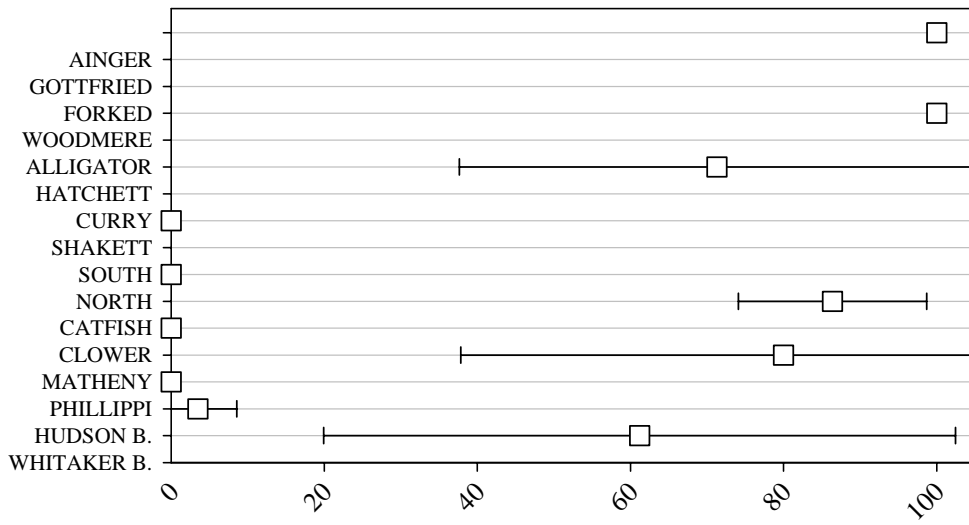
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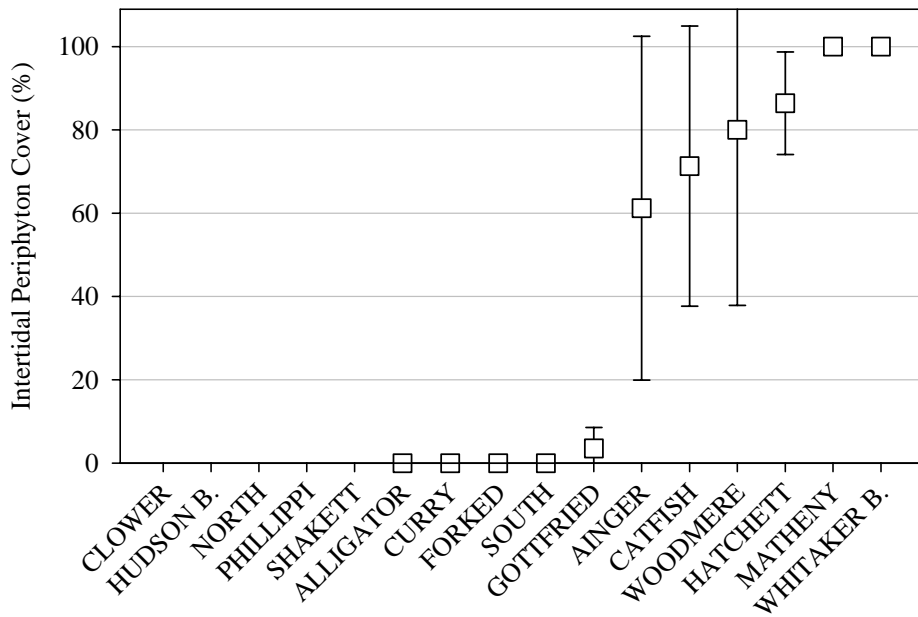
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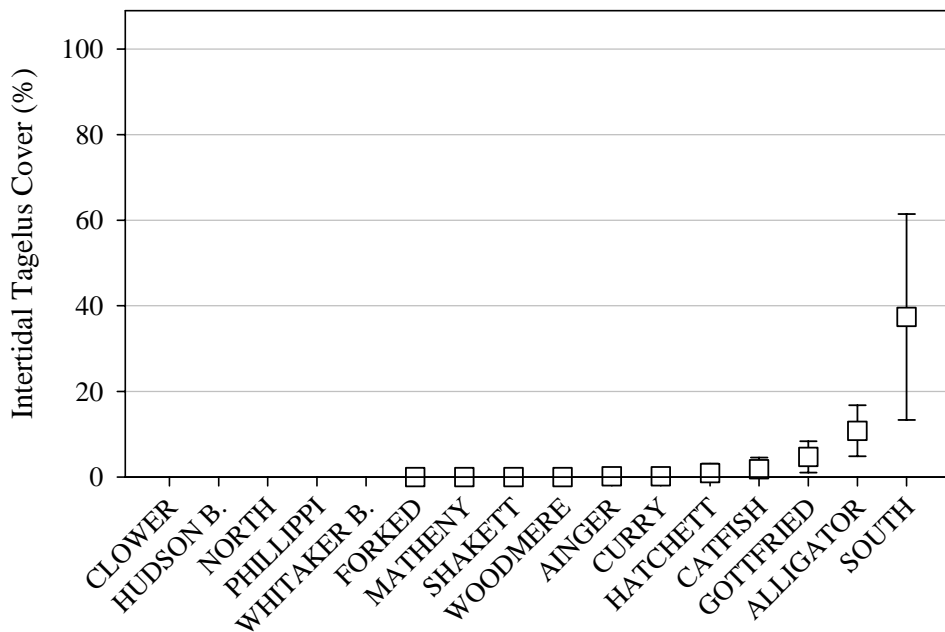
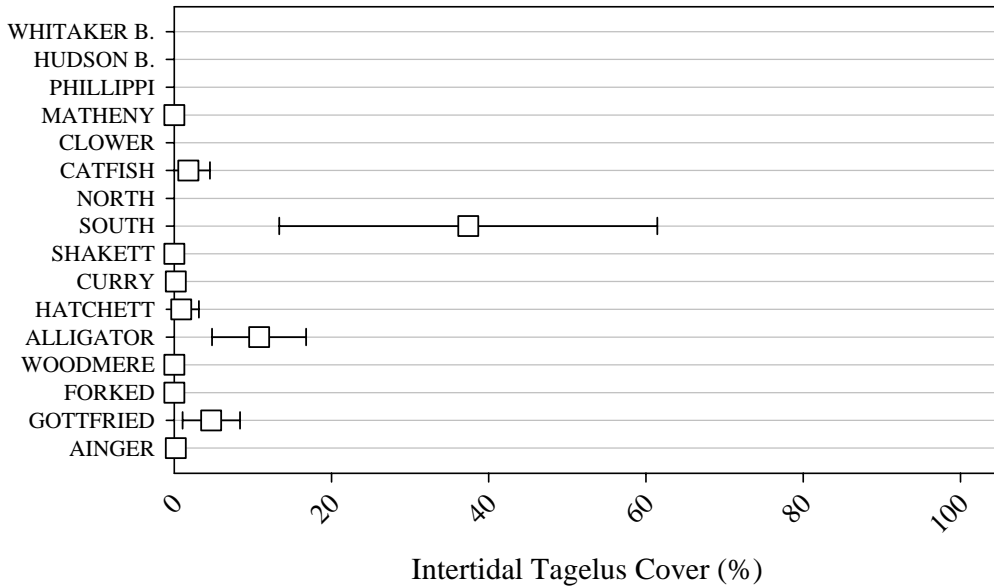
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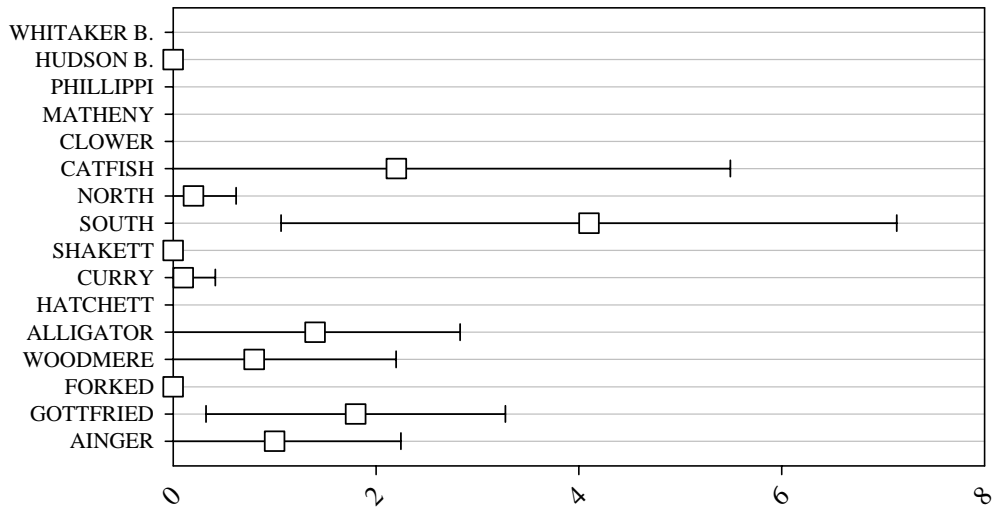
### Intertidal Periphyton Cover (%)



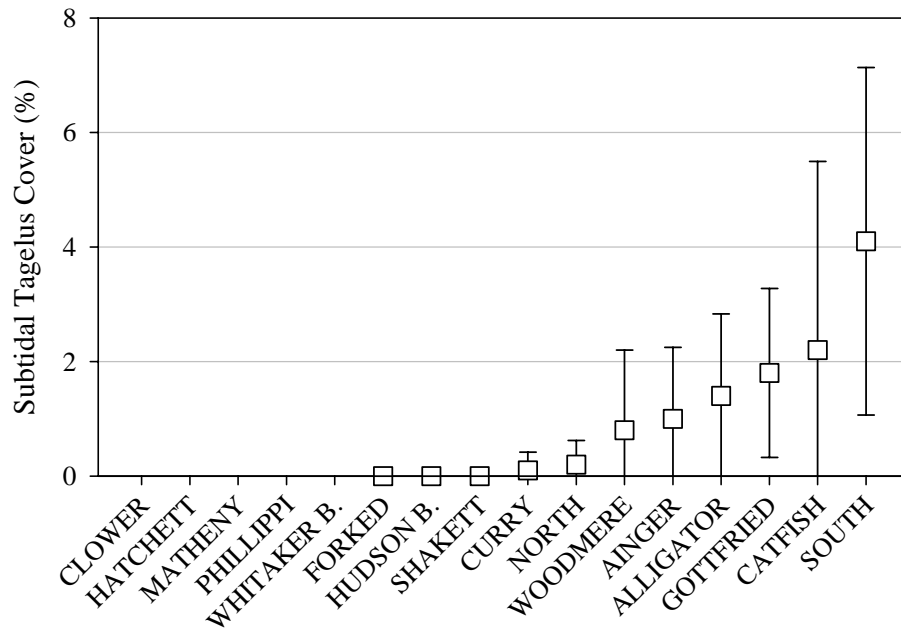
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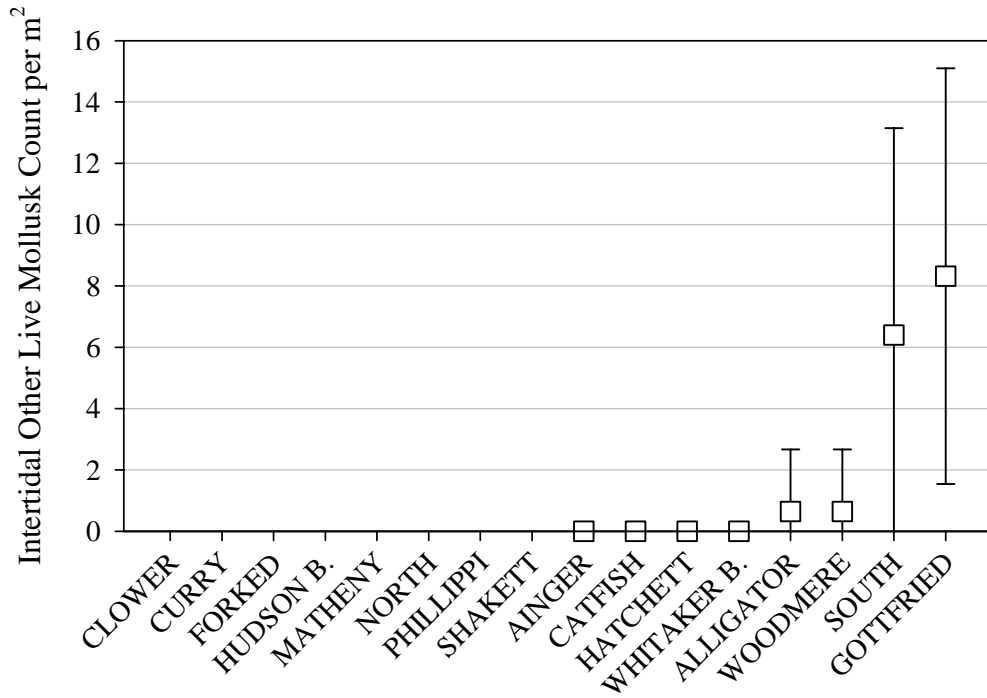
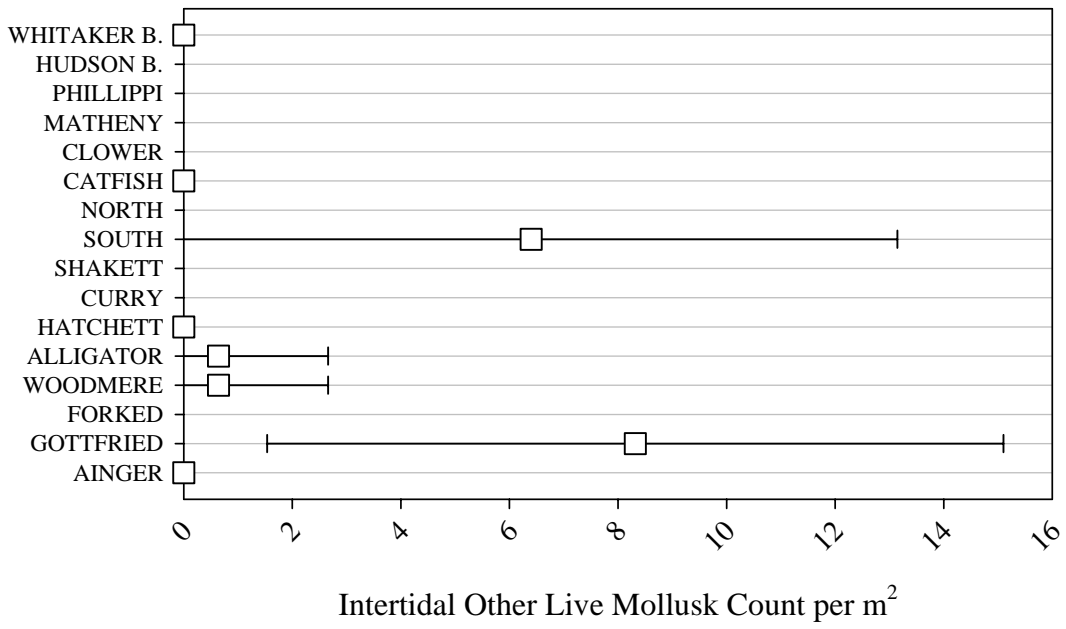
### Subtidal Tagelus Cover (%)



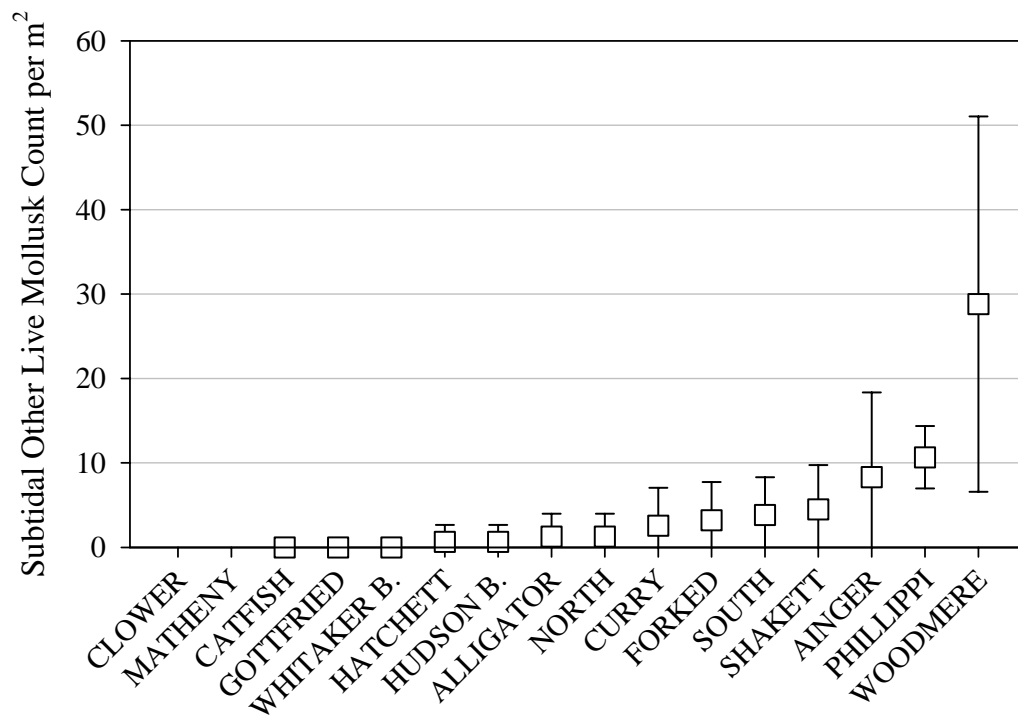
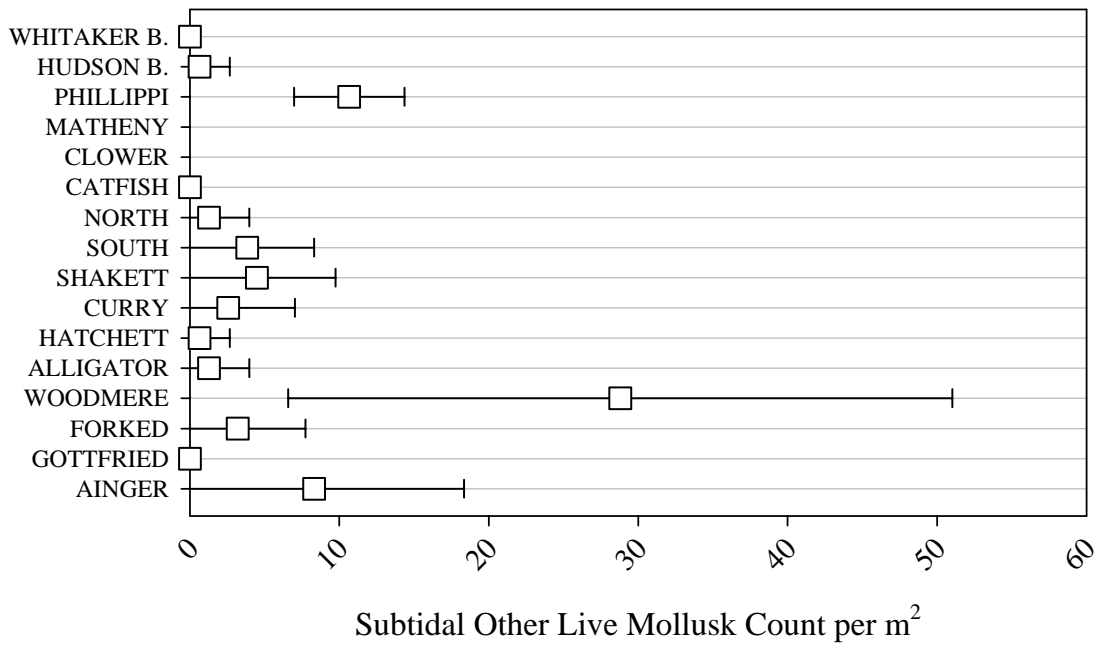
### Subtidal Tagelus Cover (%)



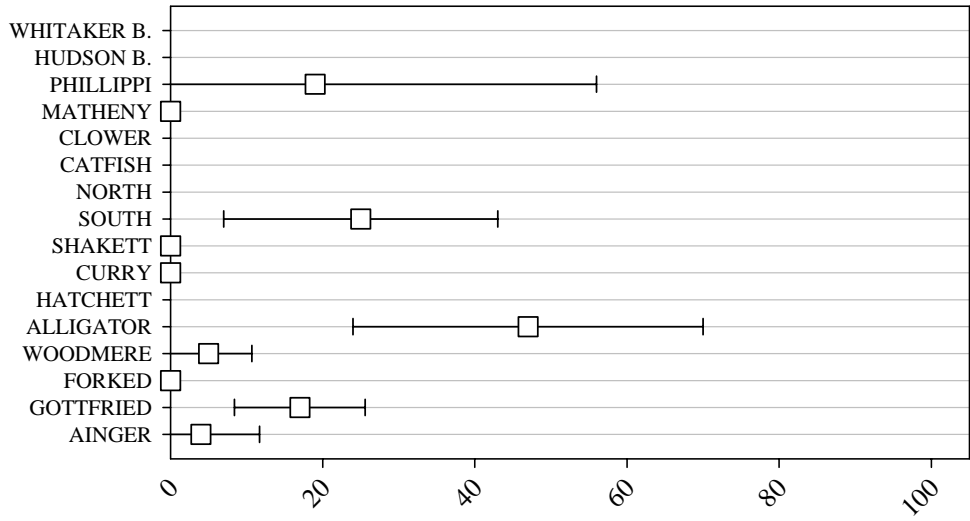
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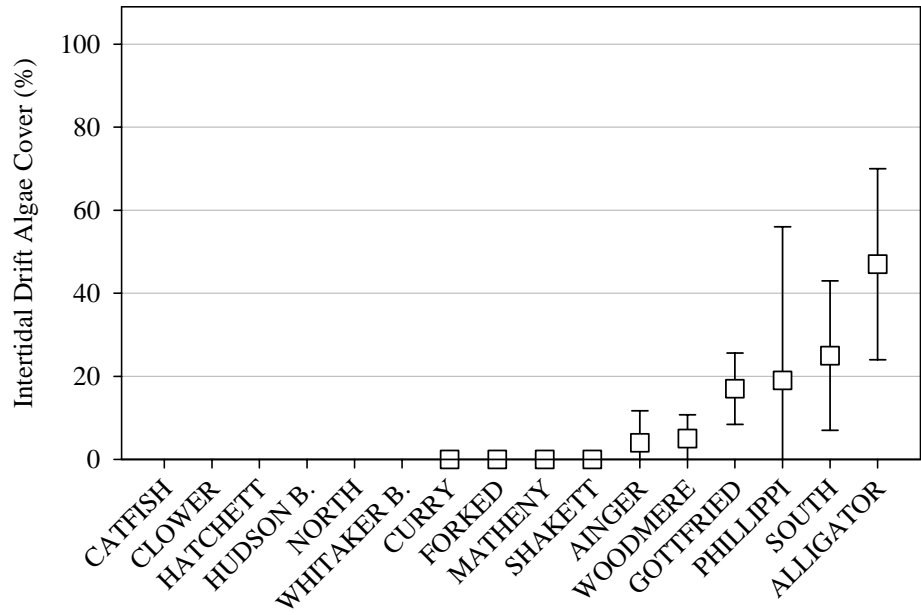
### Subtidal Other Live Mollusk Count



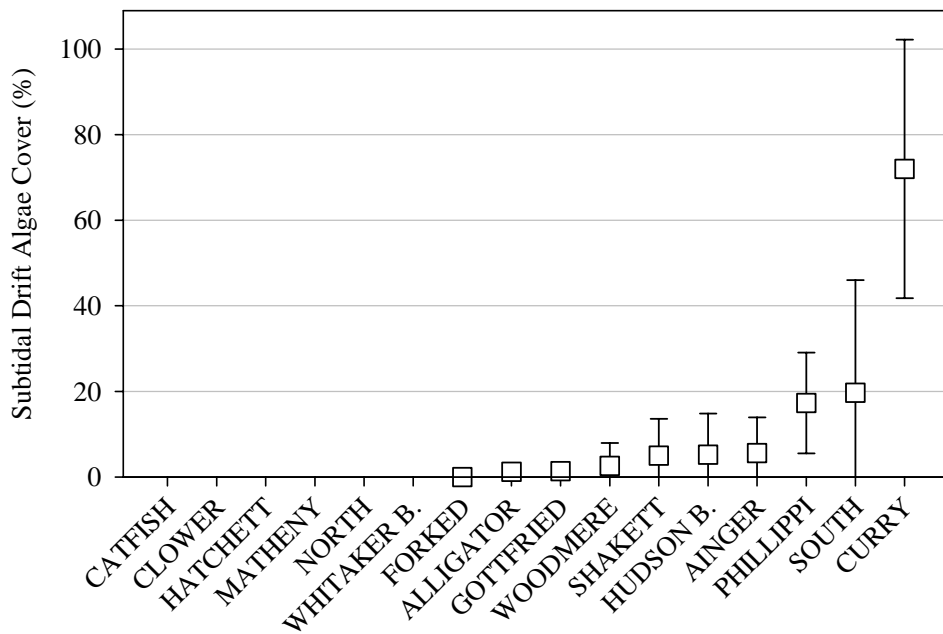
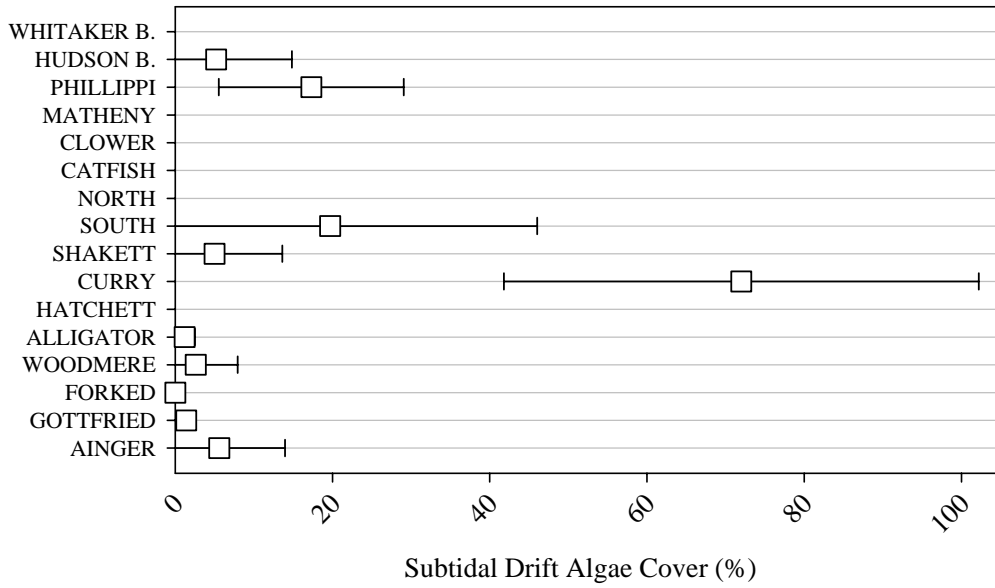
### Intertidal Drift Algae Cover (%)



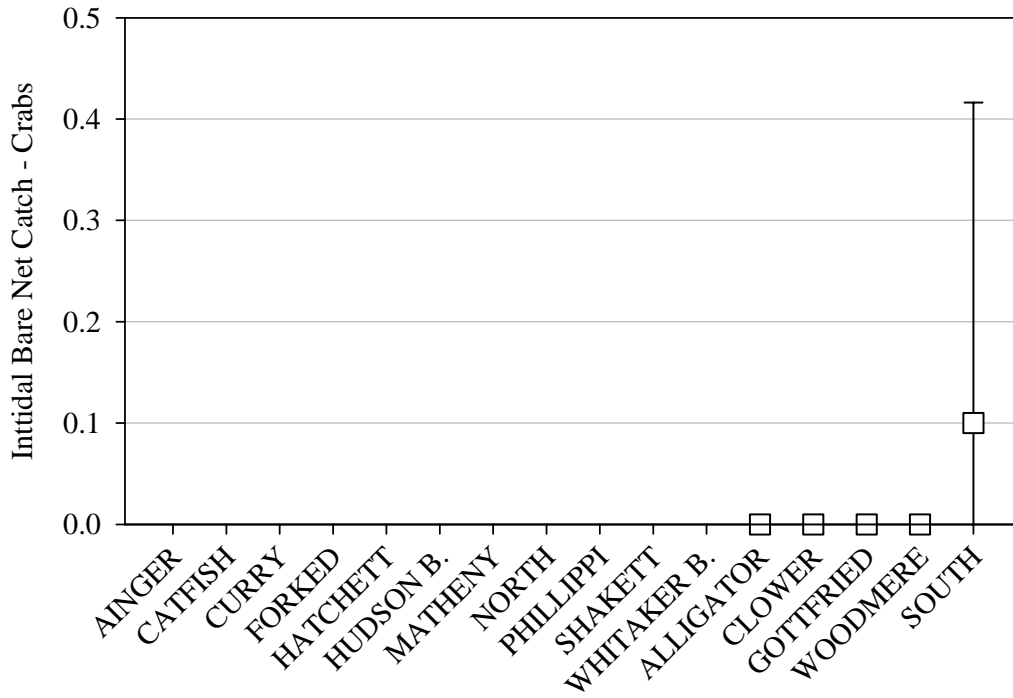
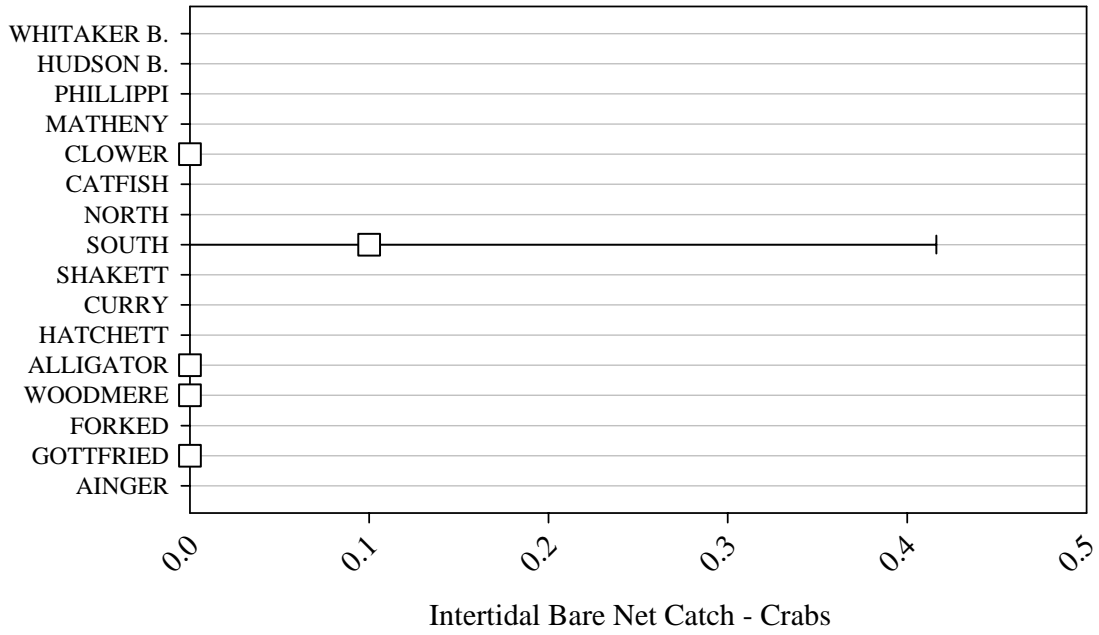
Intertidal Drift Algae Cover (%)



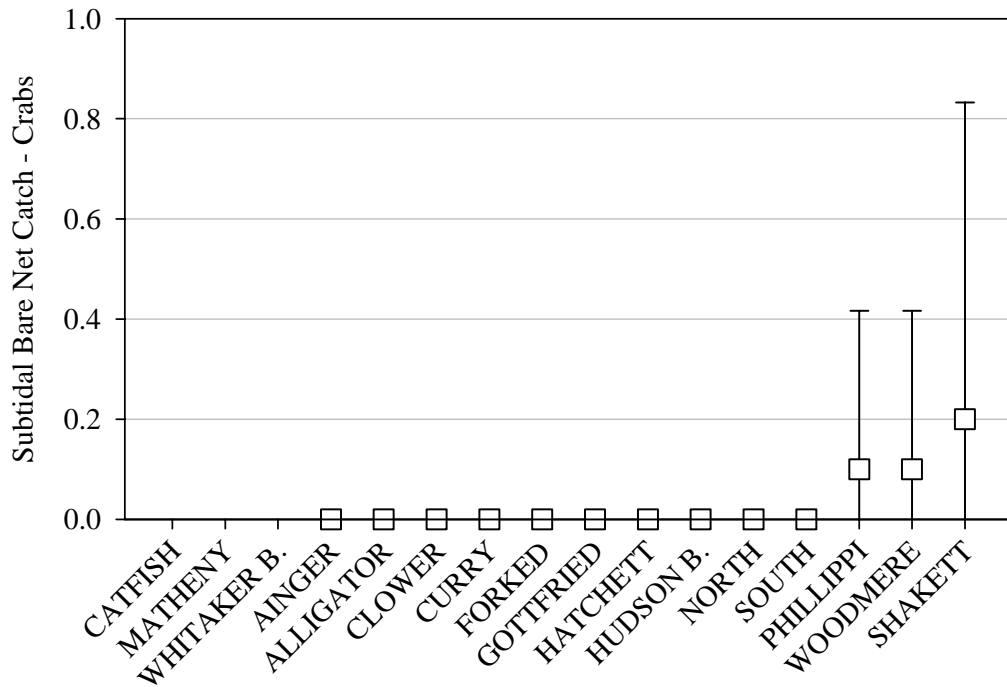
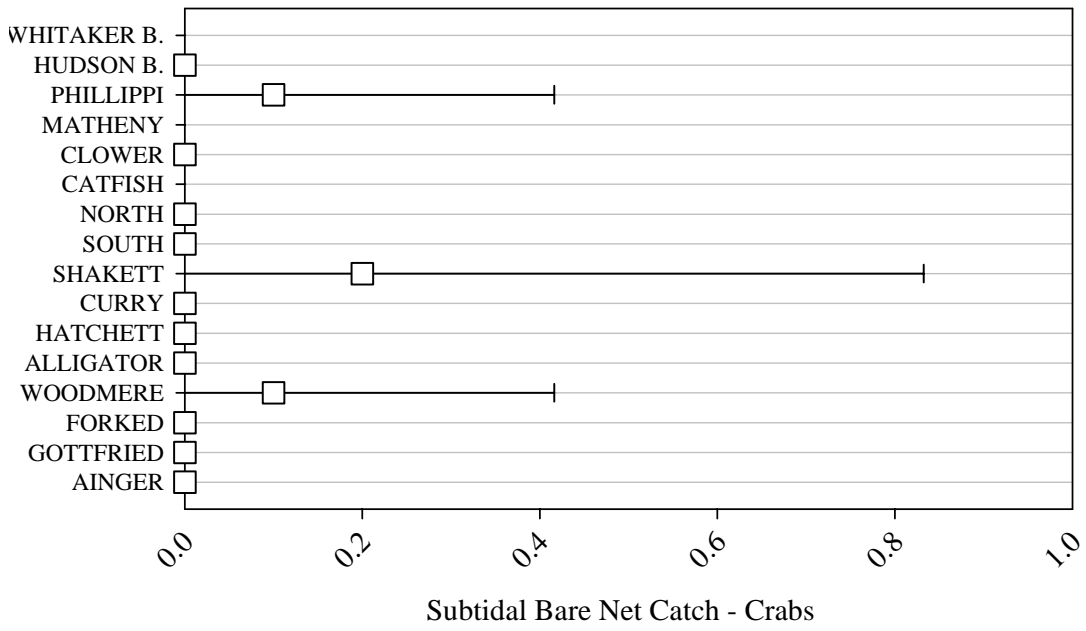
### Subtidal Drift Algae Cover (%)



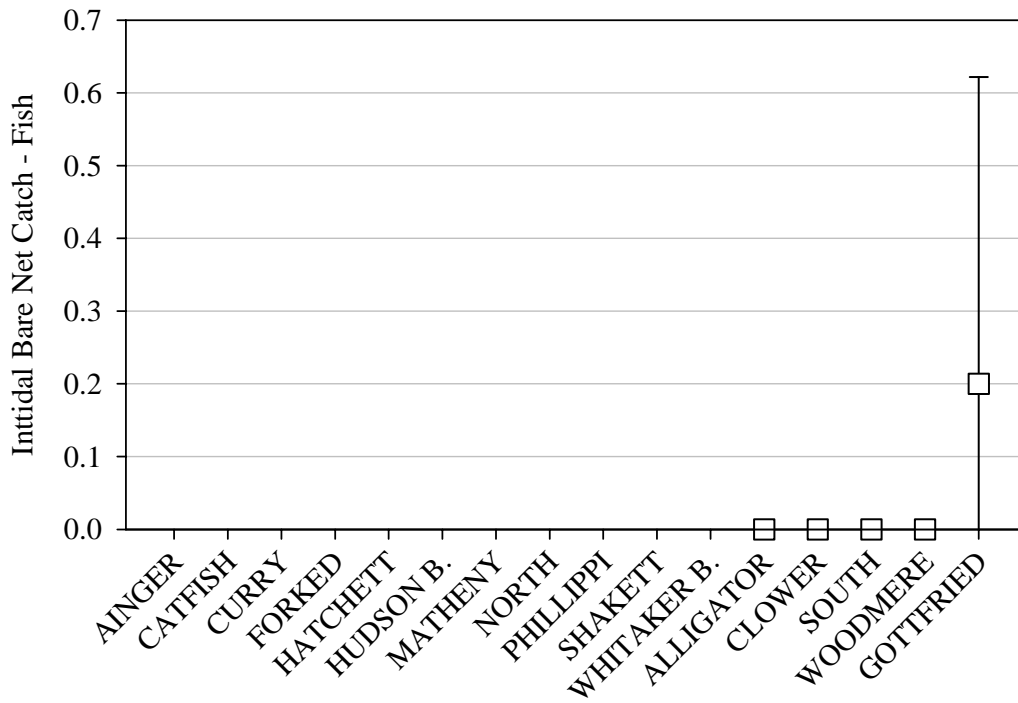
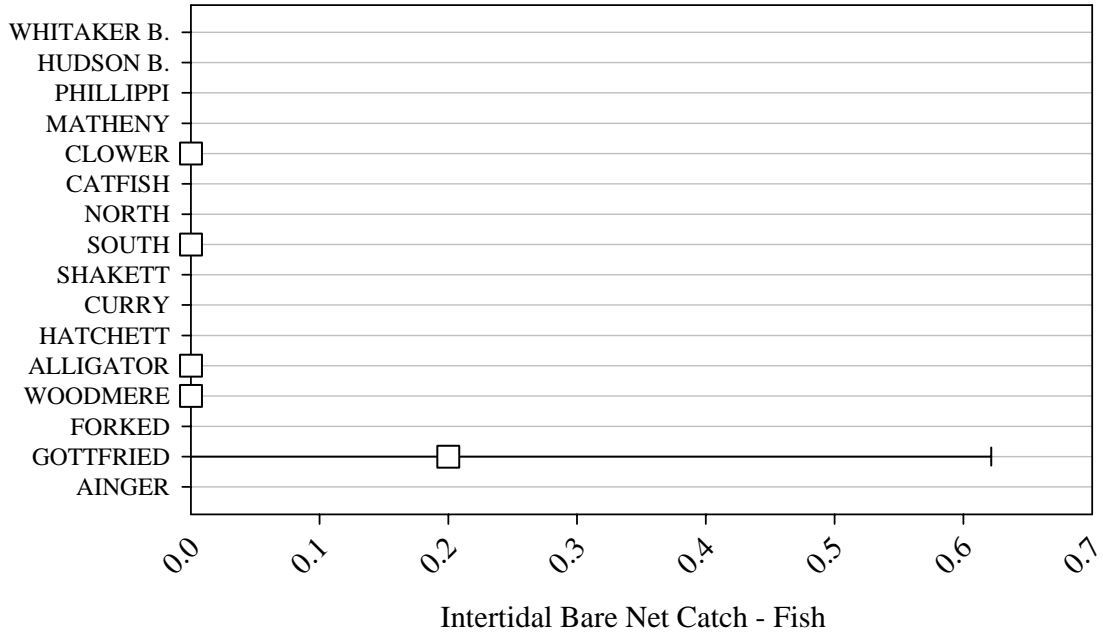
### Intertidal Bare Net Catch - CRABS



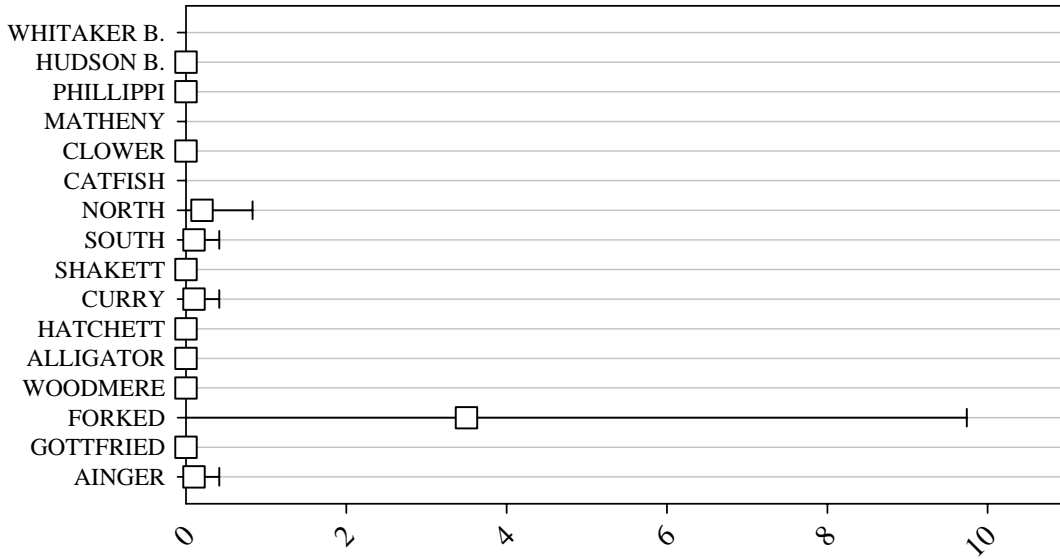
### Subtidal Bare Net Catch - CRABS



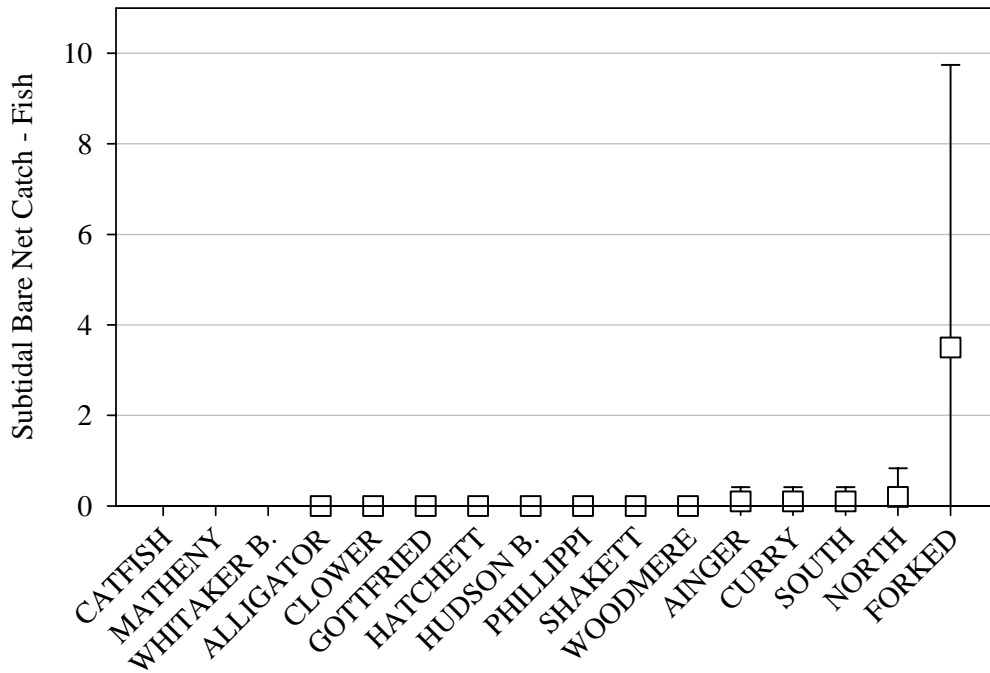
### Intertidal Bare Net Catch - FISH



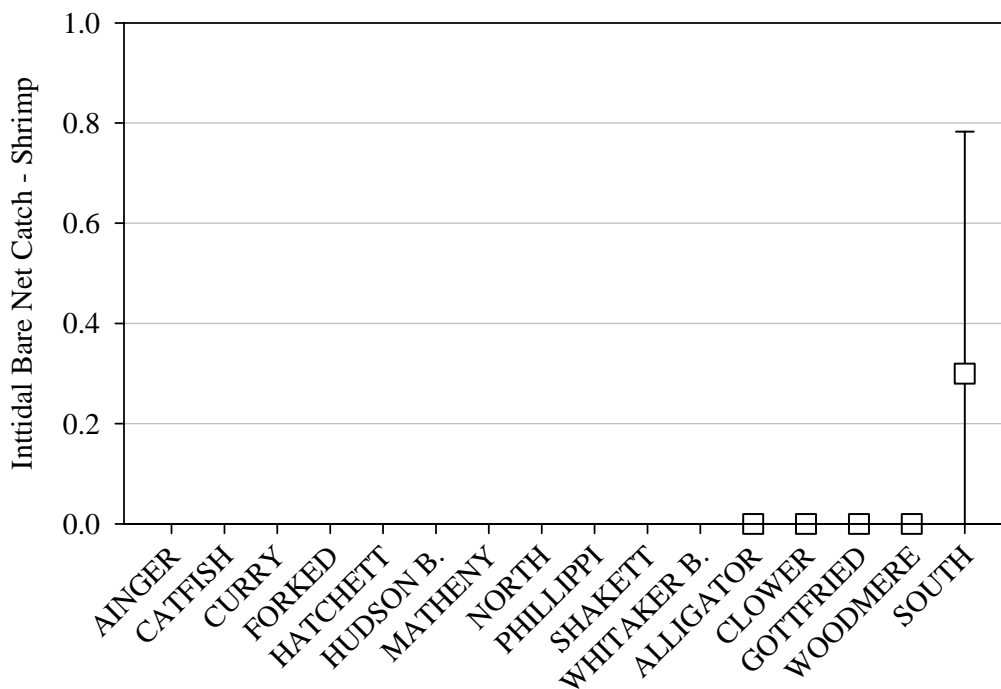
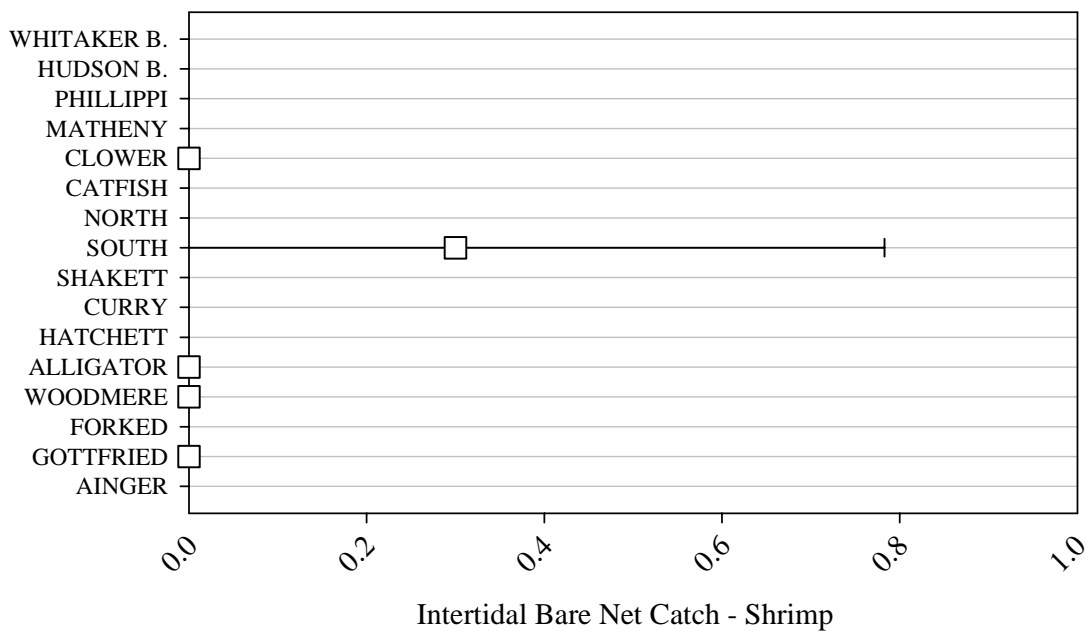
### Subtidal Bare Net Catch - FISH



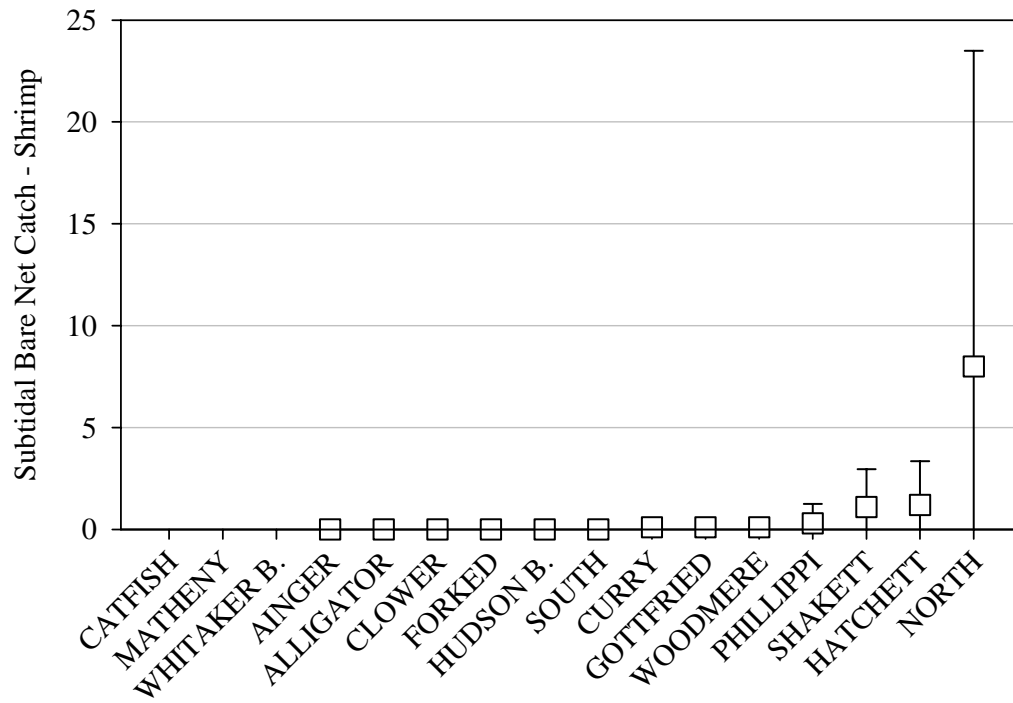
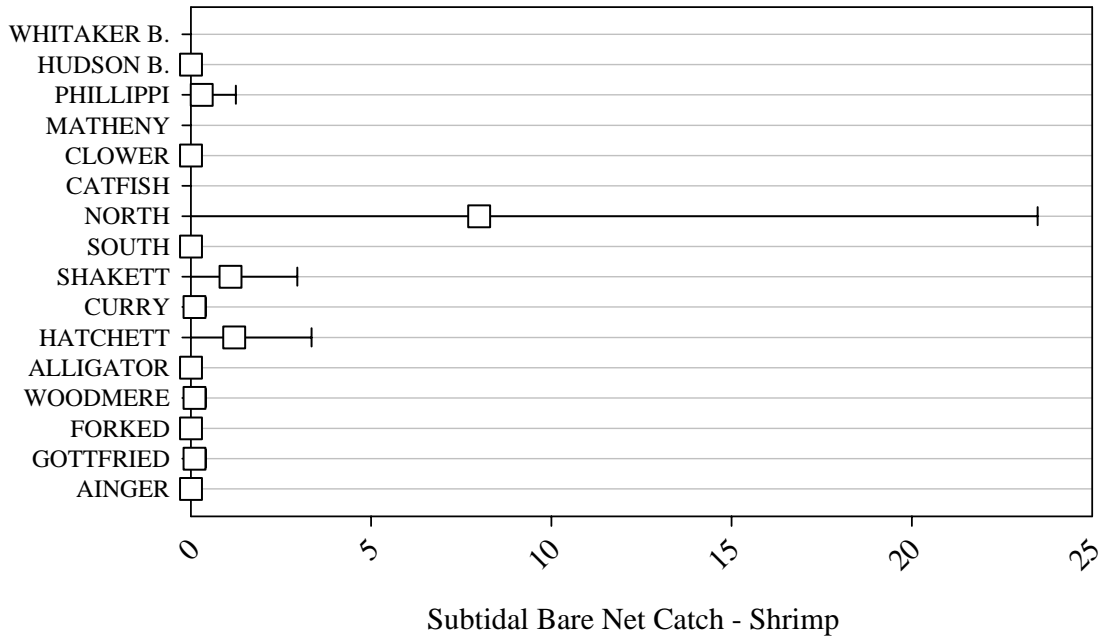
Subtidal Bare Net Catch - Fish



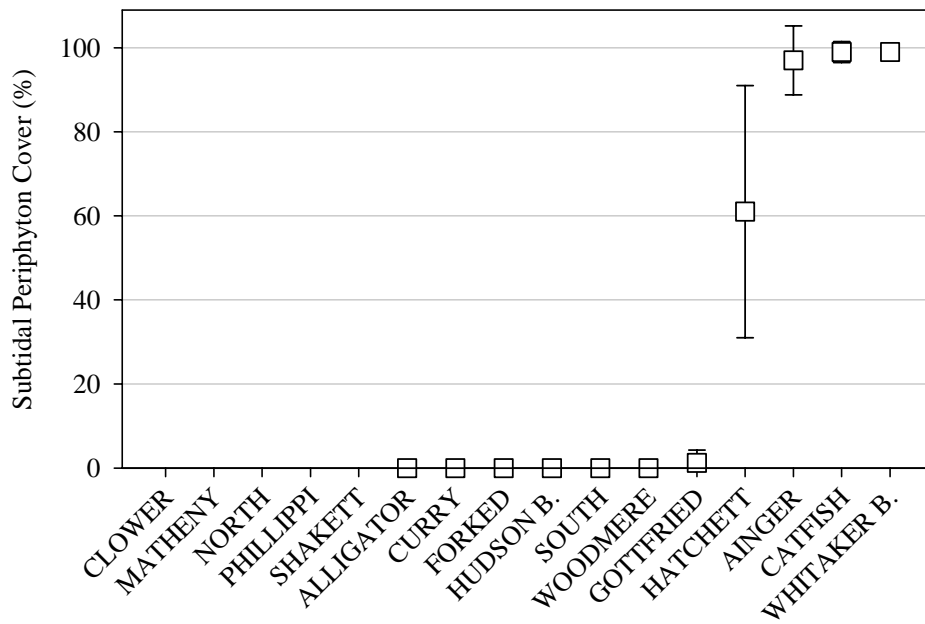
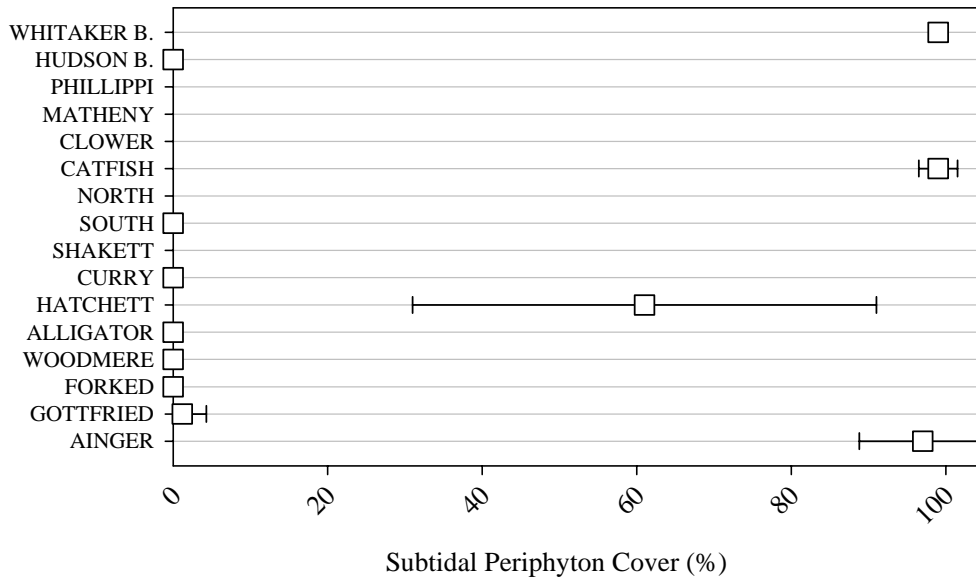
### Intertidal Bare Net Catch - SHRIMP



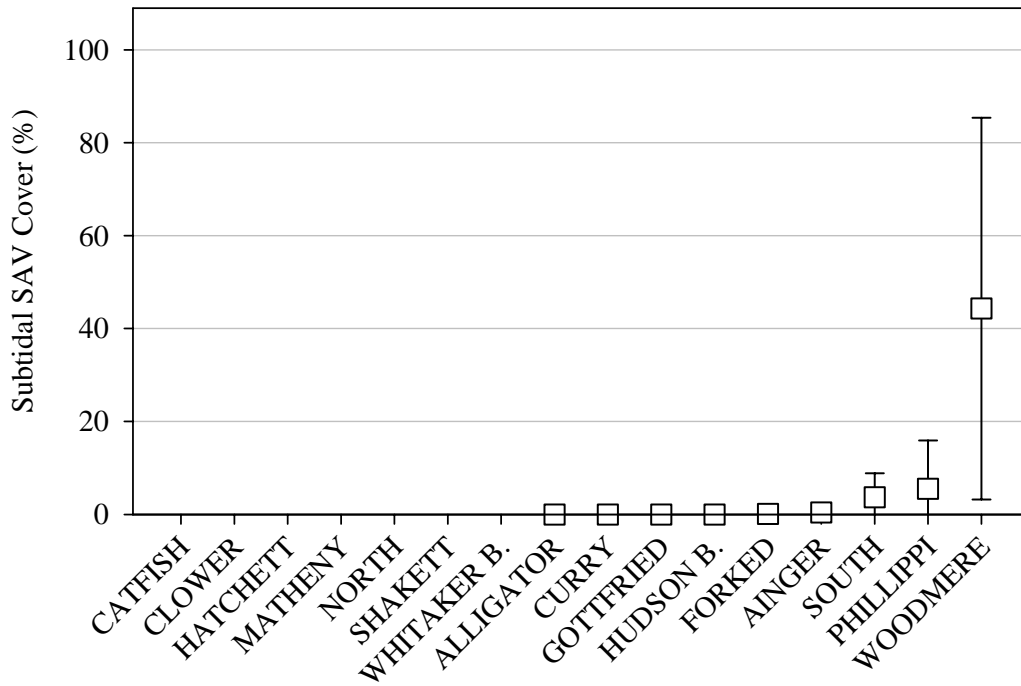
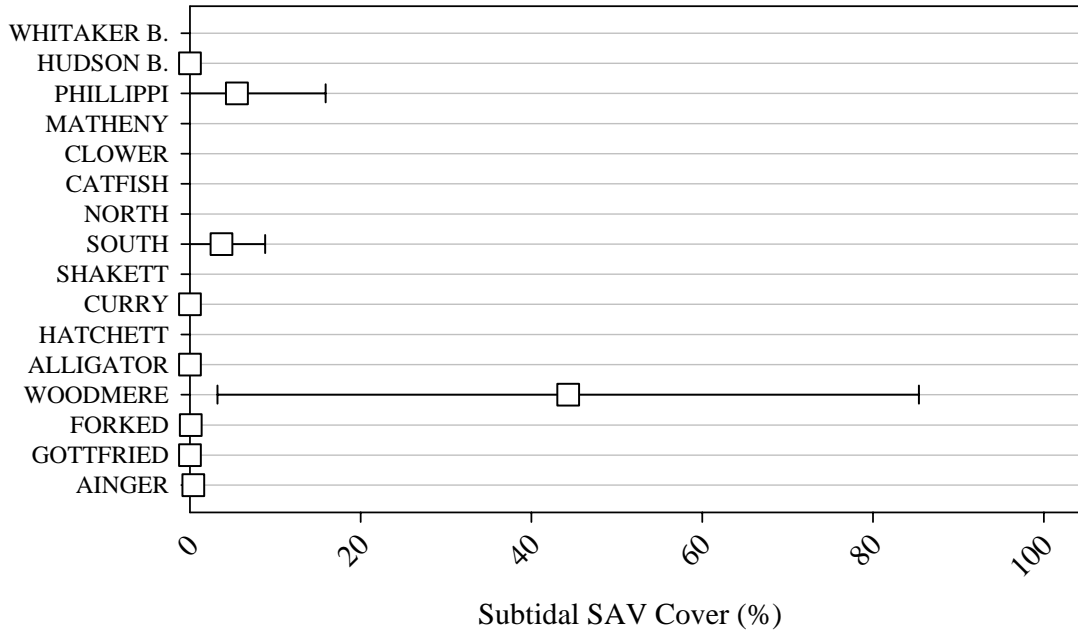
### Subtidal Bare Net Catch - SHRIMP



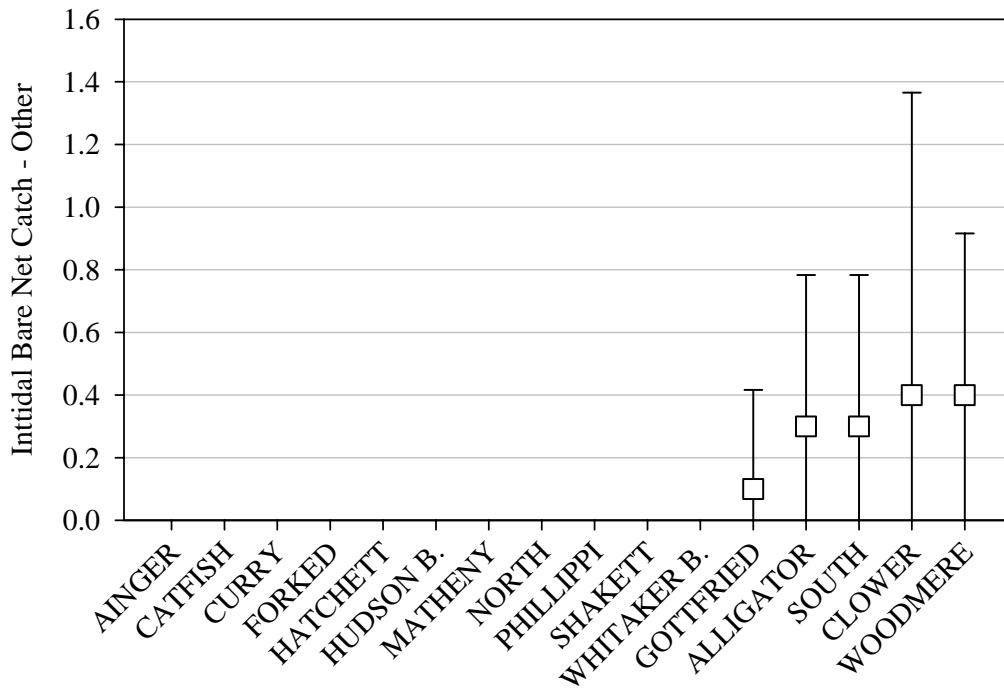
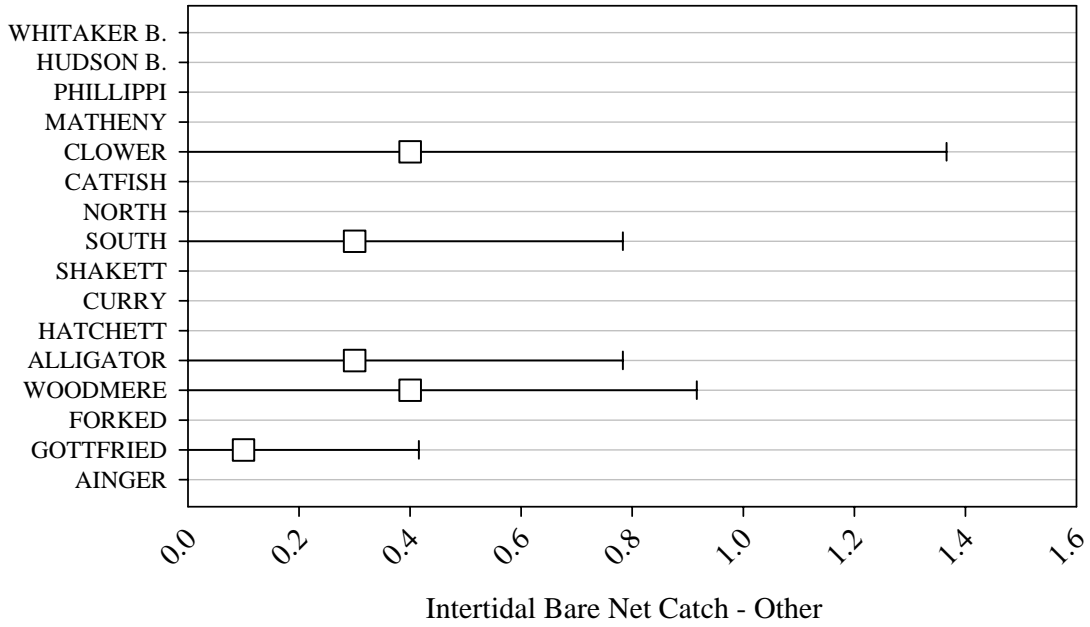
### Subtidal Periphyton Cover (%)



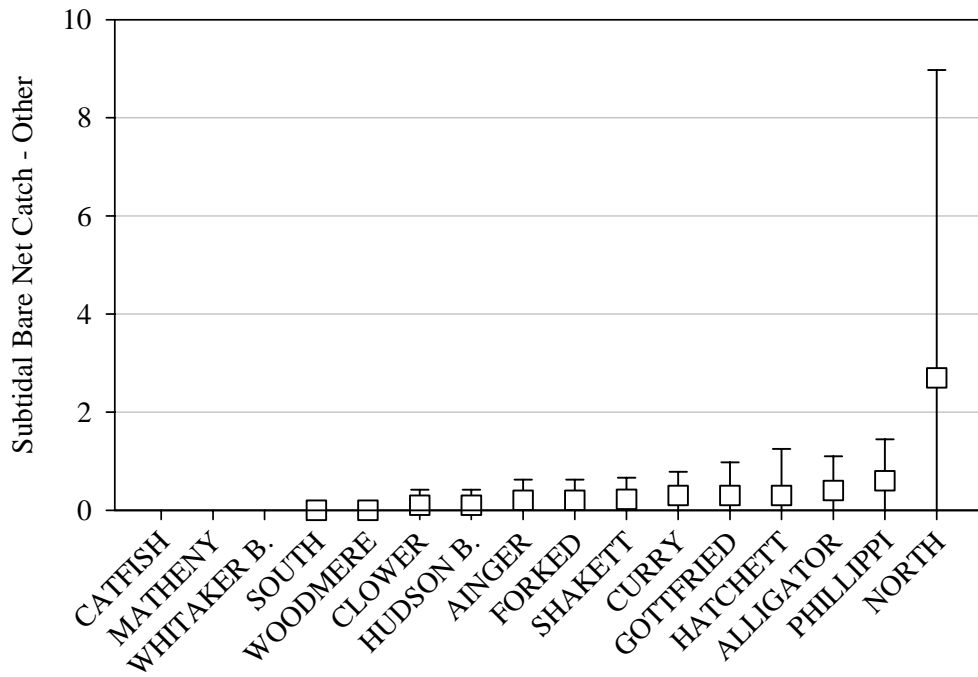
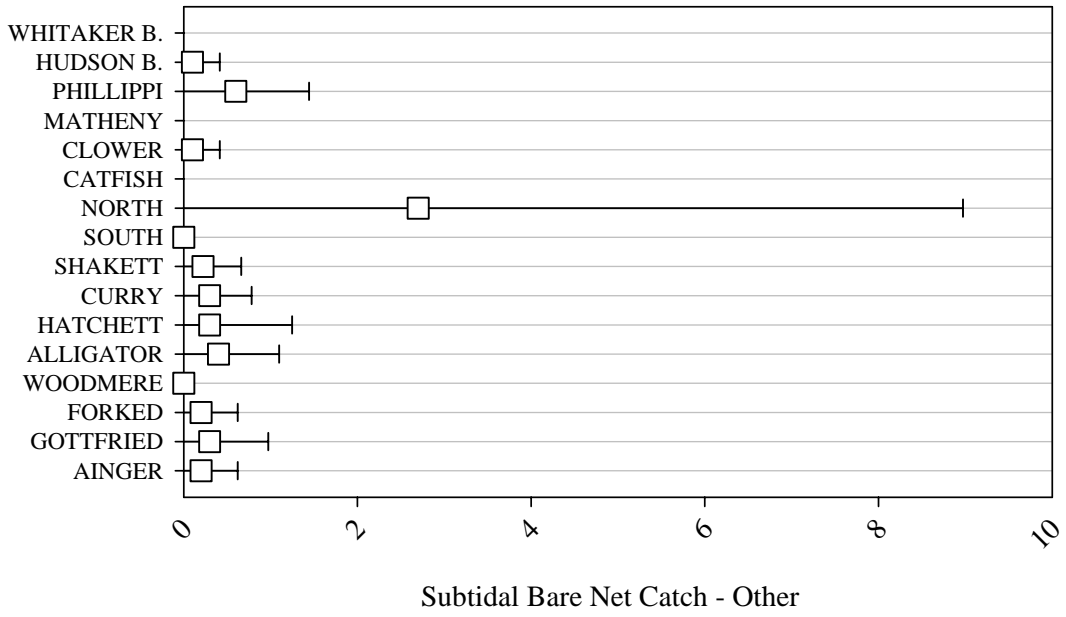
### Subtidal SAV Cover (%)



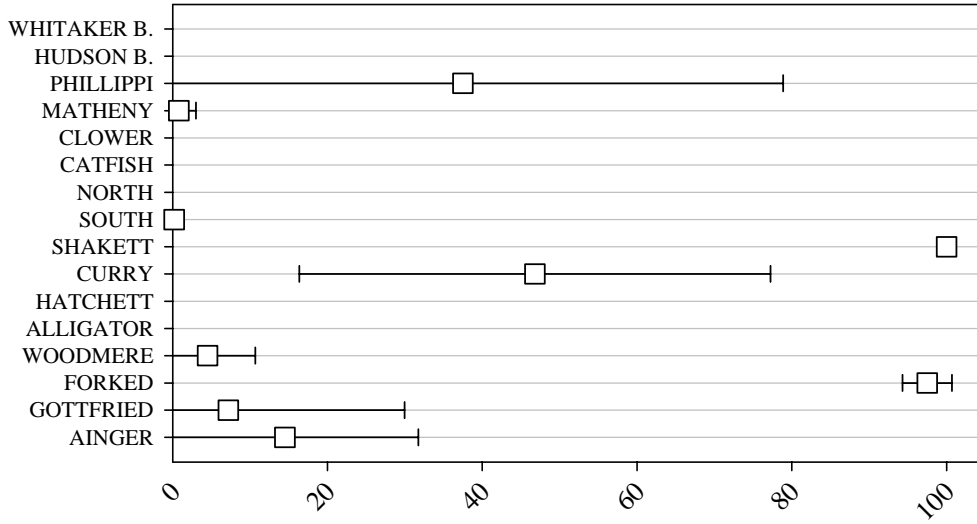
### Intertidal Bare Net Catch - OTHER



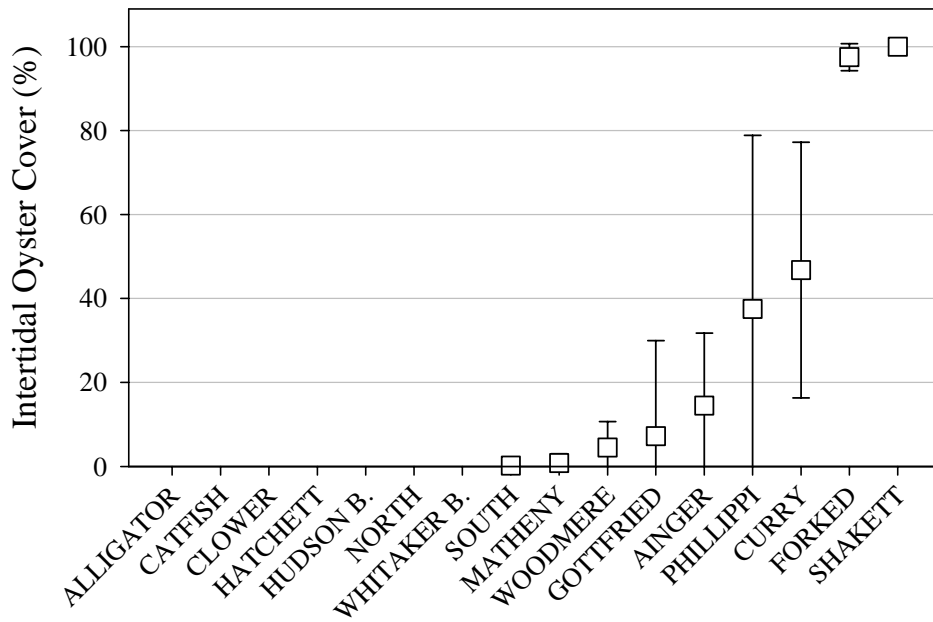
### Subtidal Bare Net Catch - OTHER



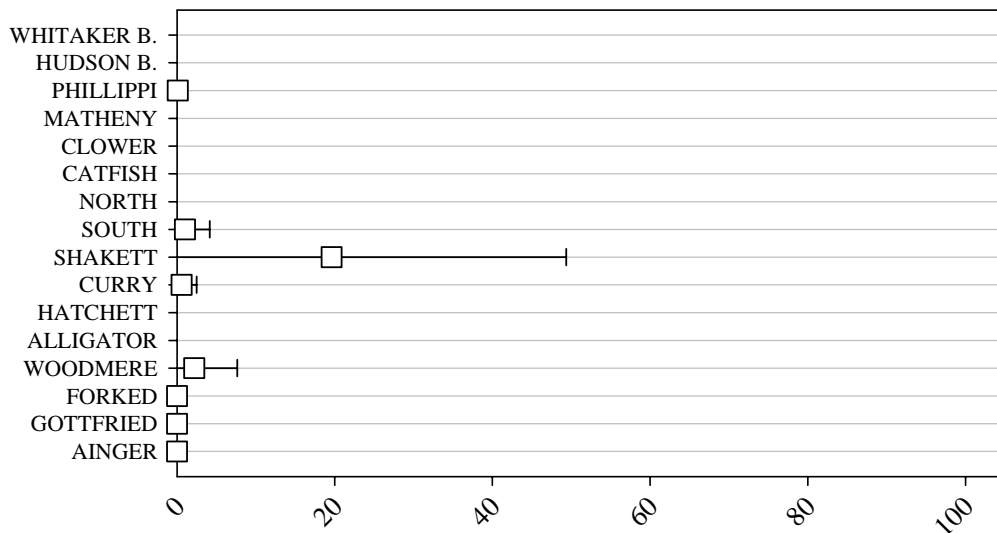
### Intertidal Oyster Cover (%)



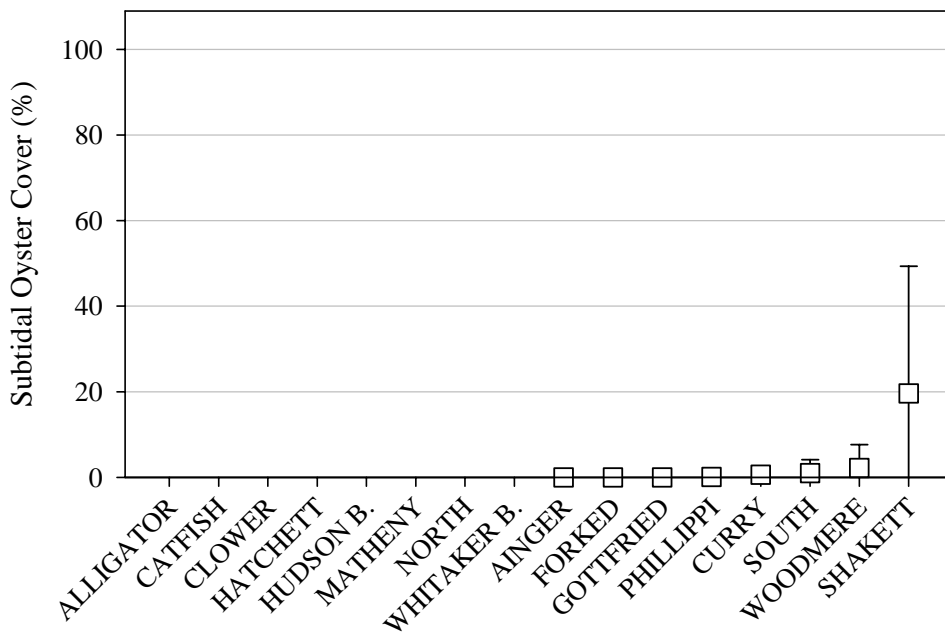
### Intertidal Oyster Cover (%)



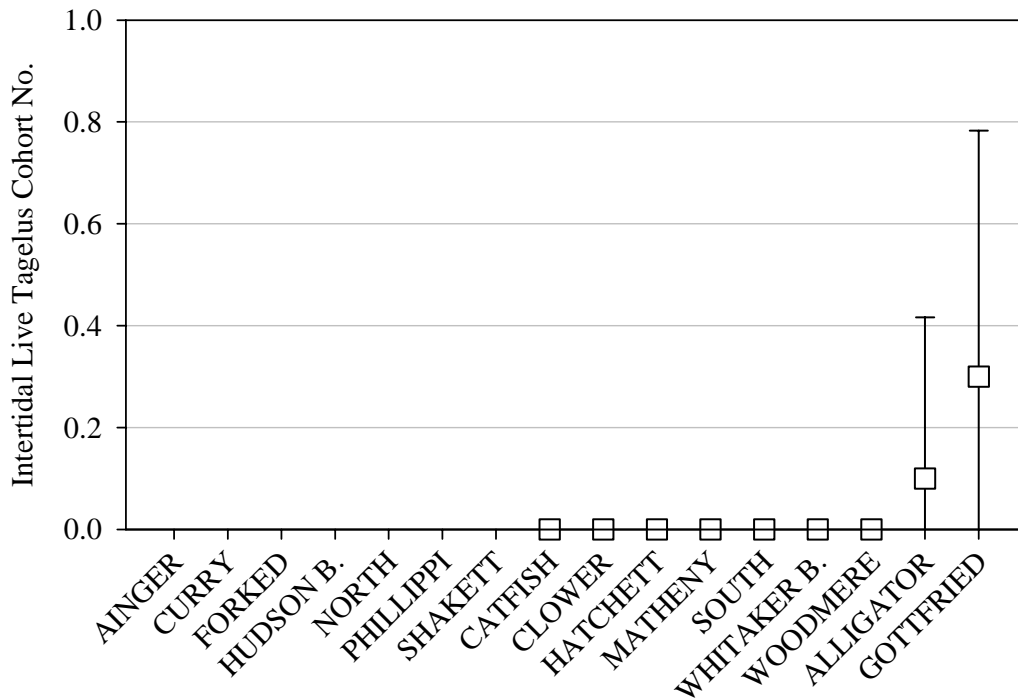
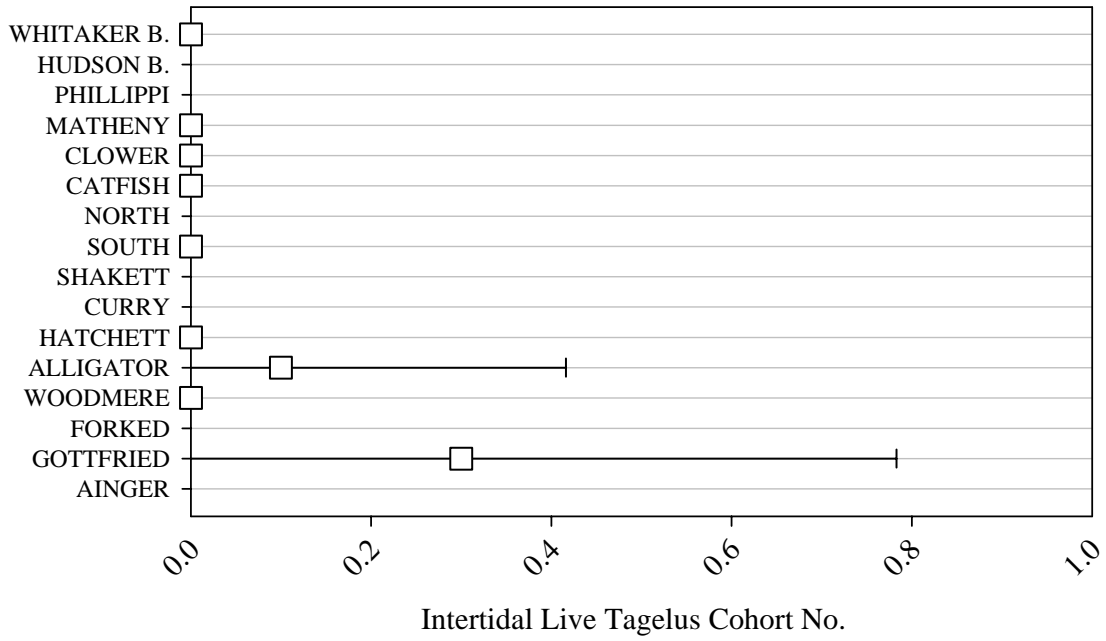
### Subtidal Oyster Cover (%)



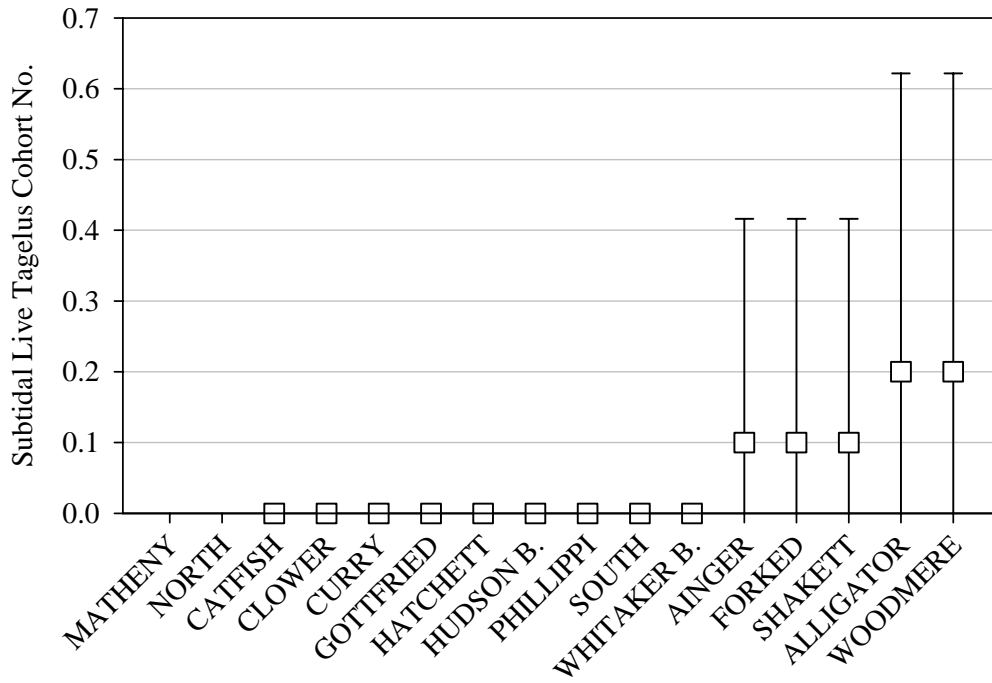
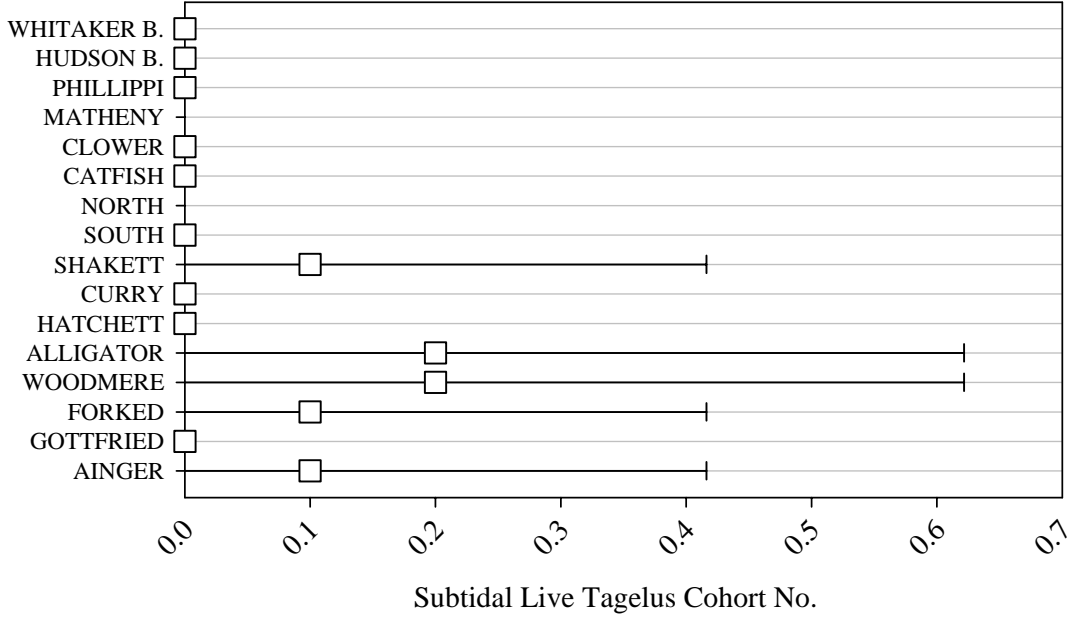
Subtidal Oyster Cover (%)



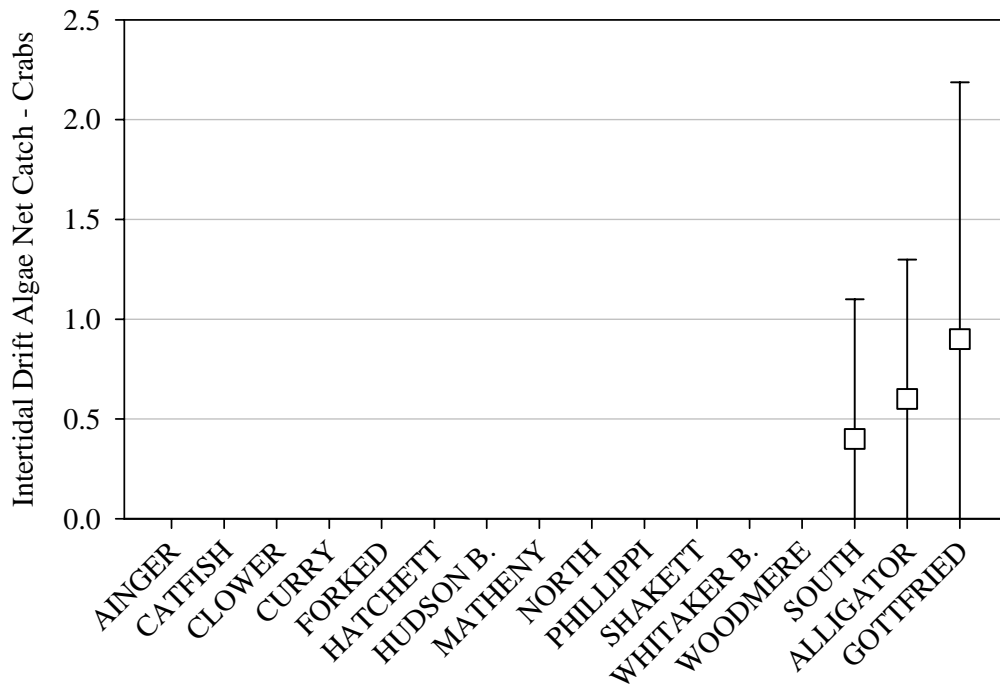
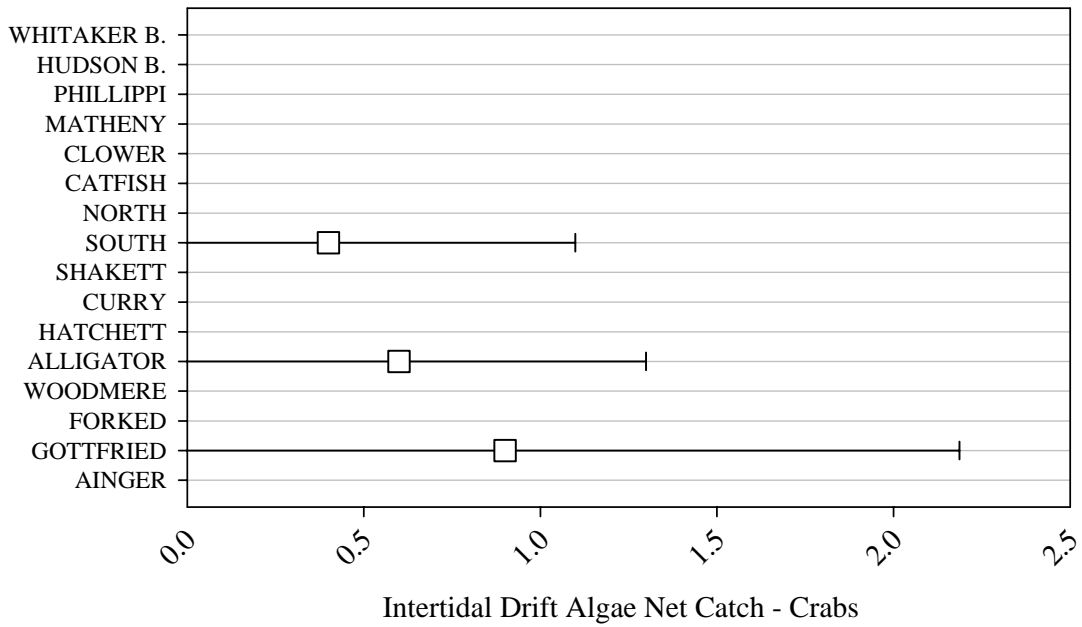
### Intertidal Live Tagelus Cohort No.



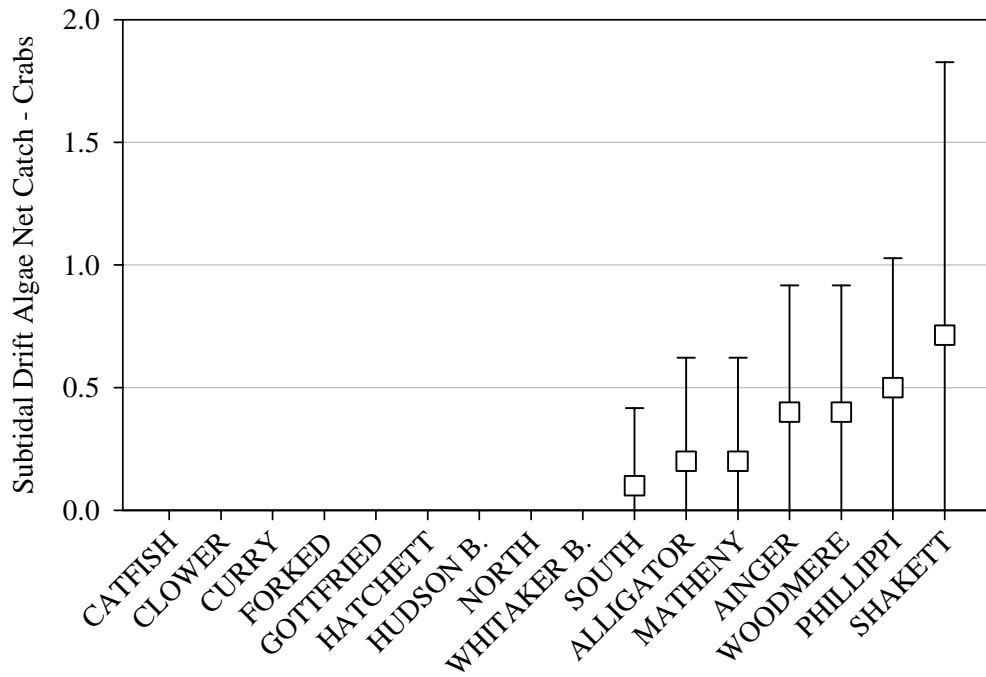
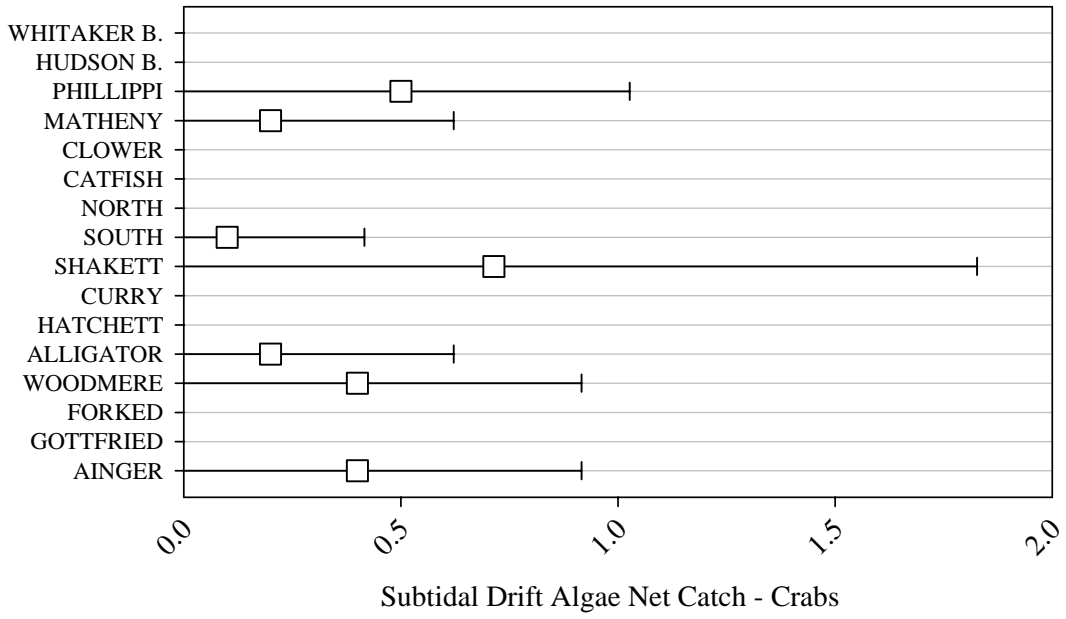
### Subtidal Live Tagelus Cohort No.



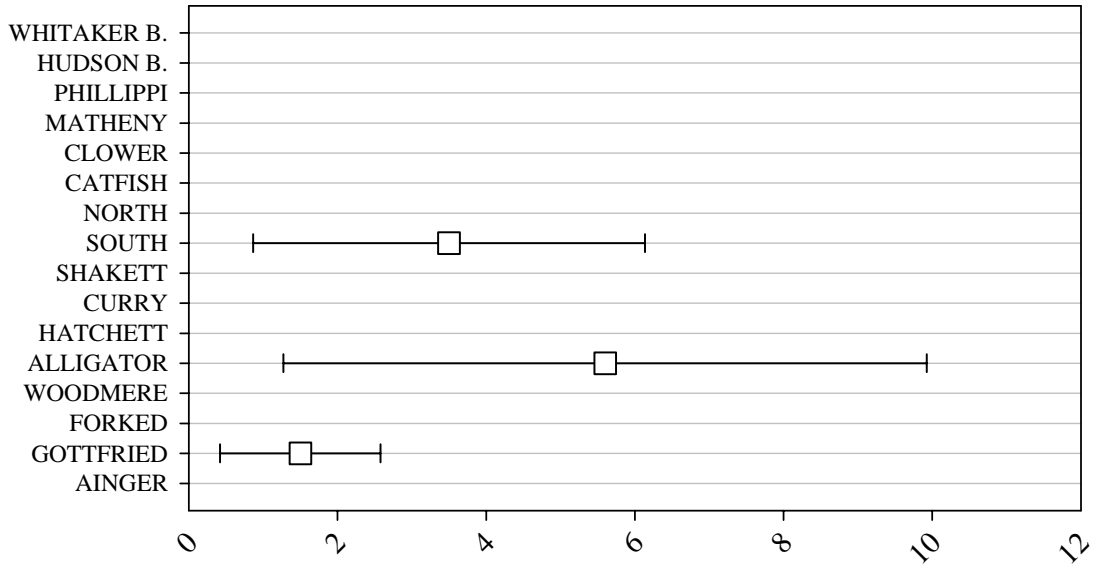
### Intertidal Drift Algae Net Catch - CRABS



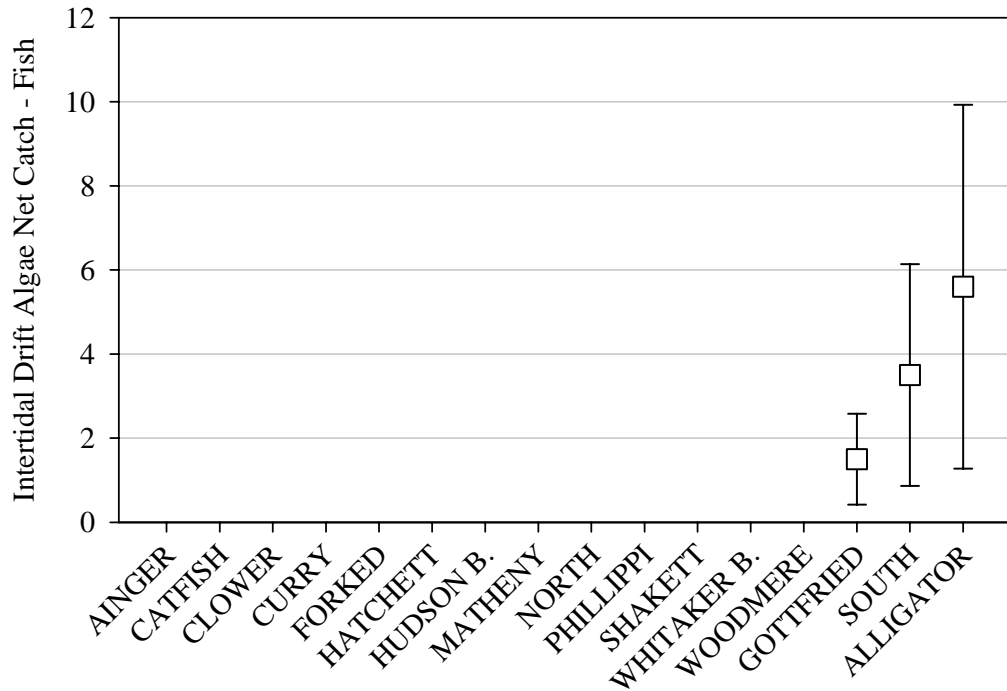
### Subtidal Drift Algae Net Catch - CRABS



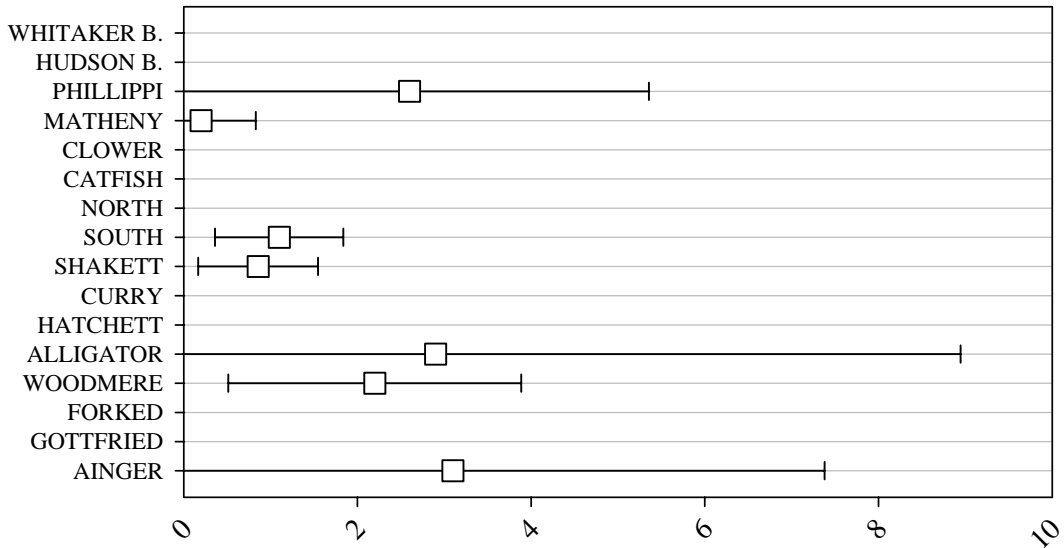
### Intertidal Drift Algae Net Catch - FISH



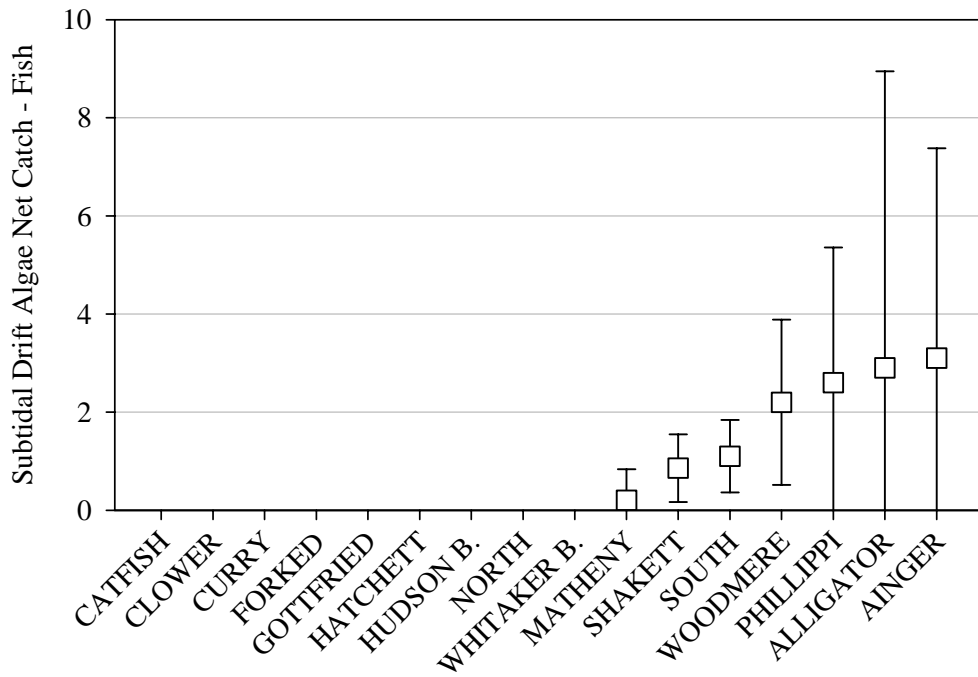
### Intertidal Drift Algae Net Catch - Fish



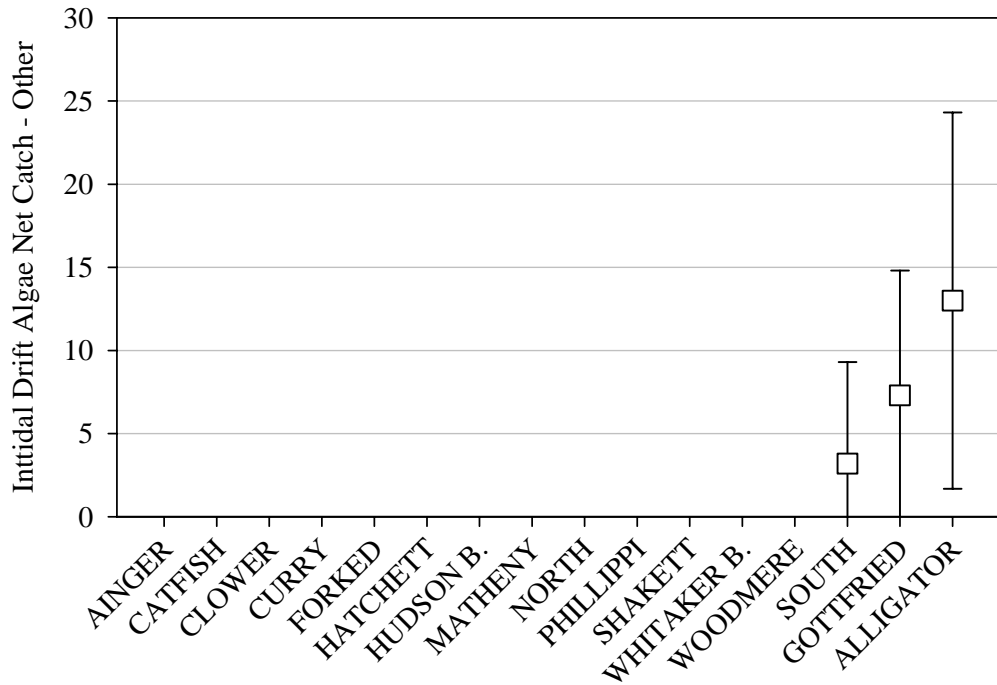
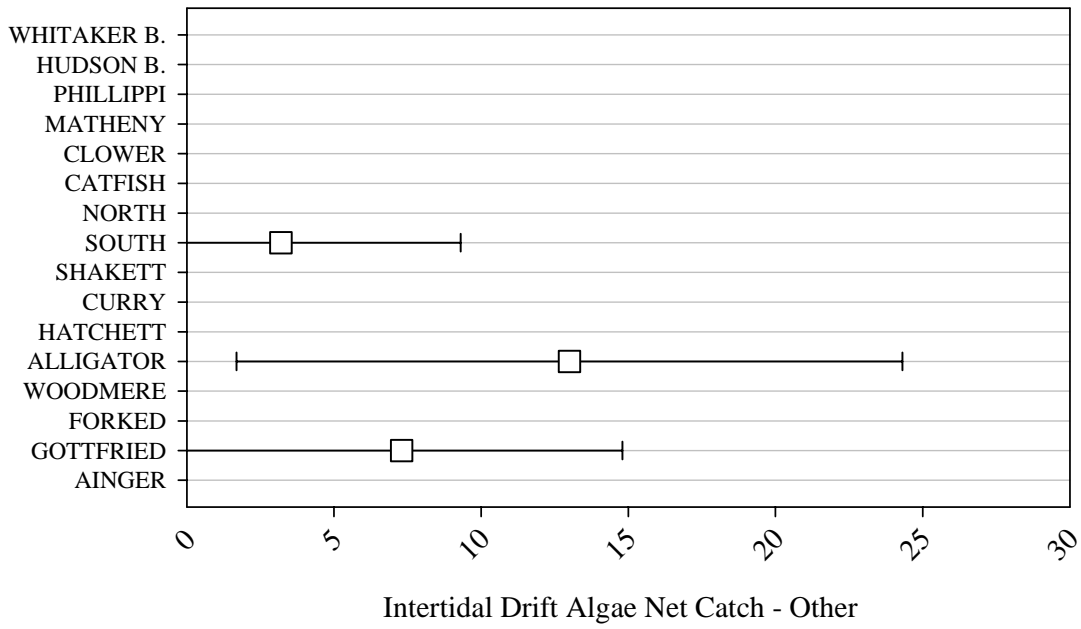
### Subtidal Drift Algae Net Catch - FISH



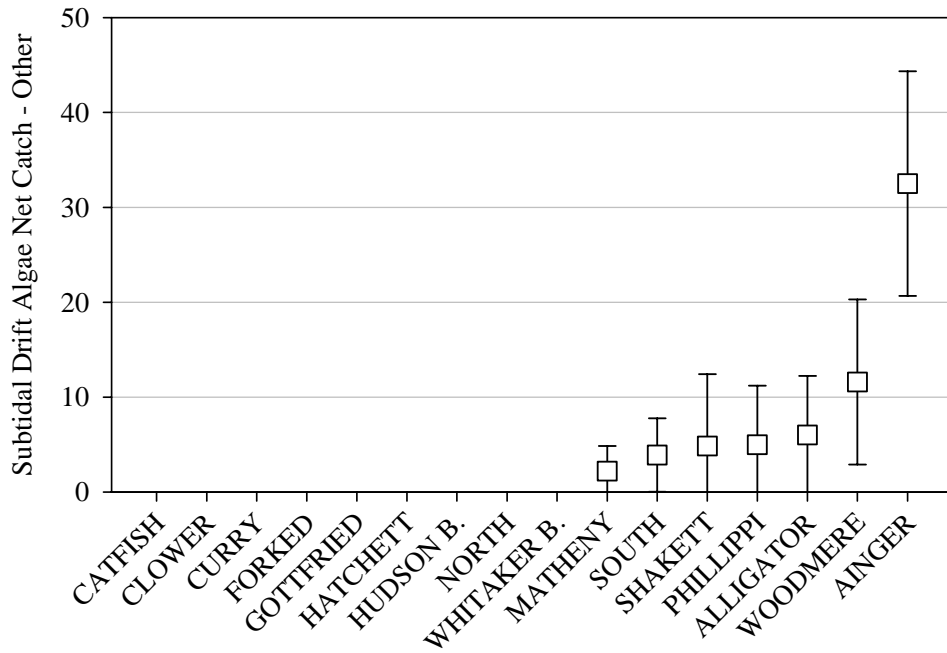
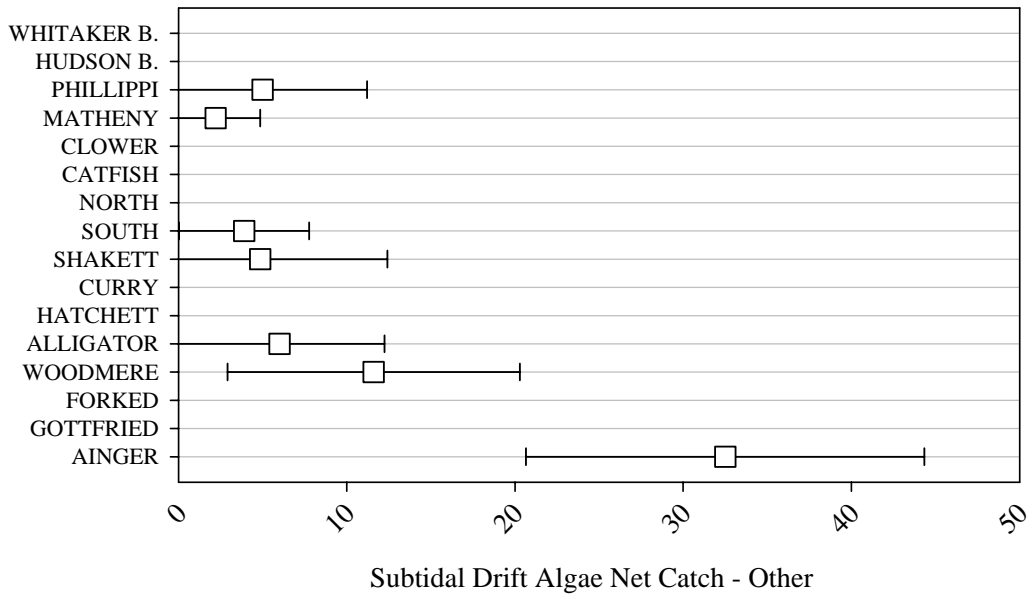
Subtidal Drift Algae Net Catch - Fish



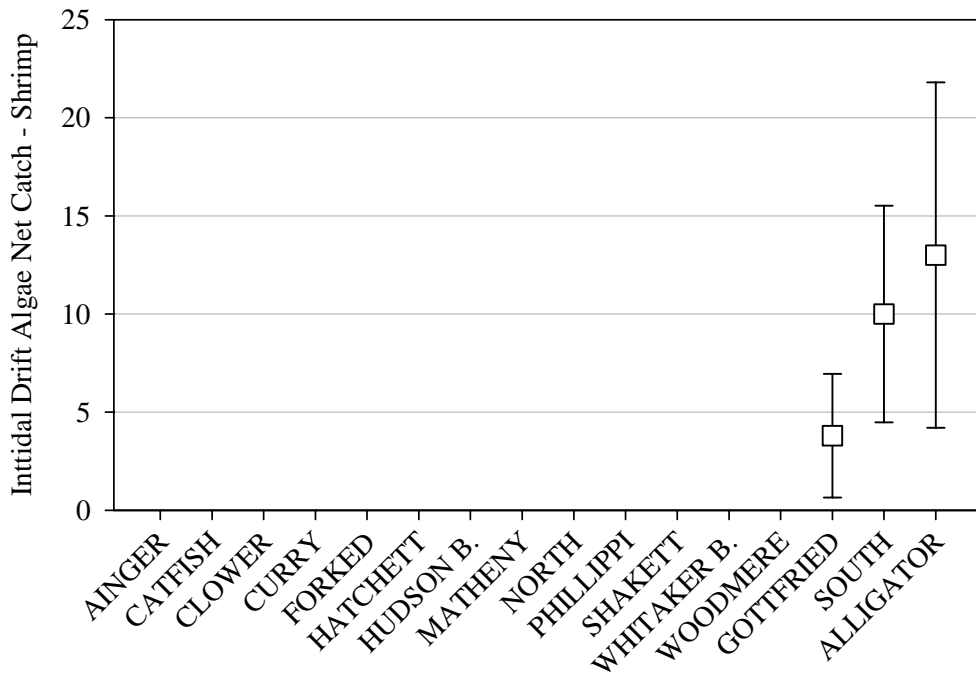
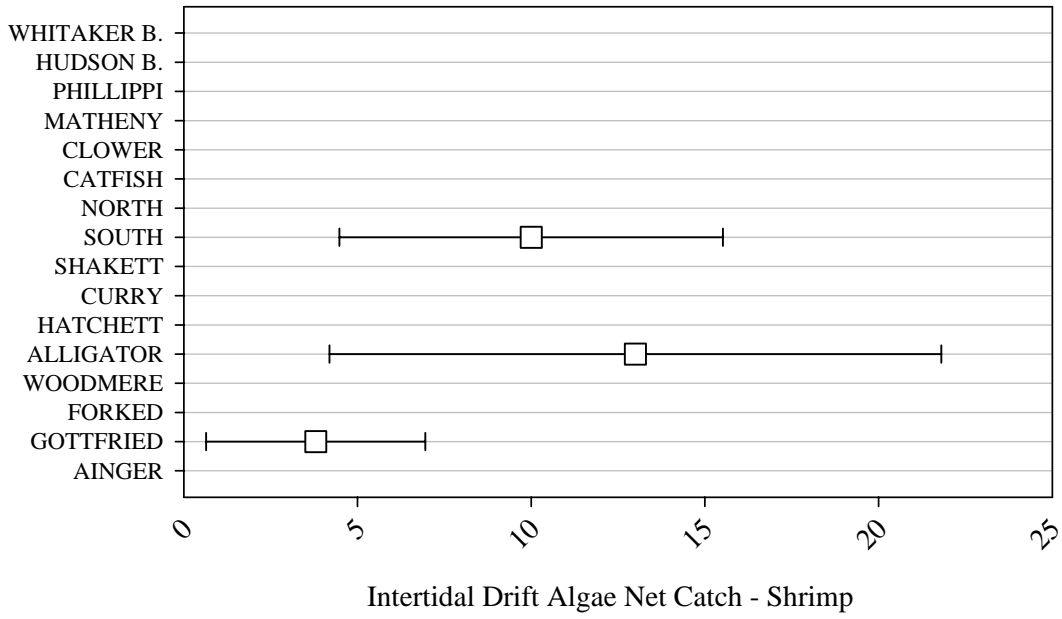
### Intertidal Drift Algae Net Catch - OTHER



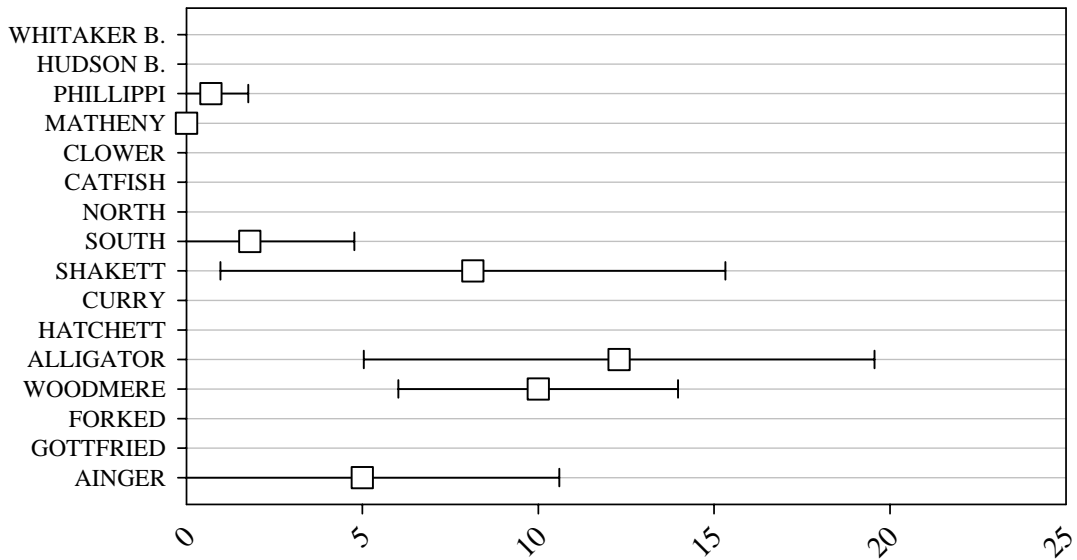
### Subtidal Drift Algae Net Catch - OTHER



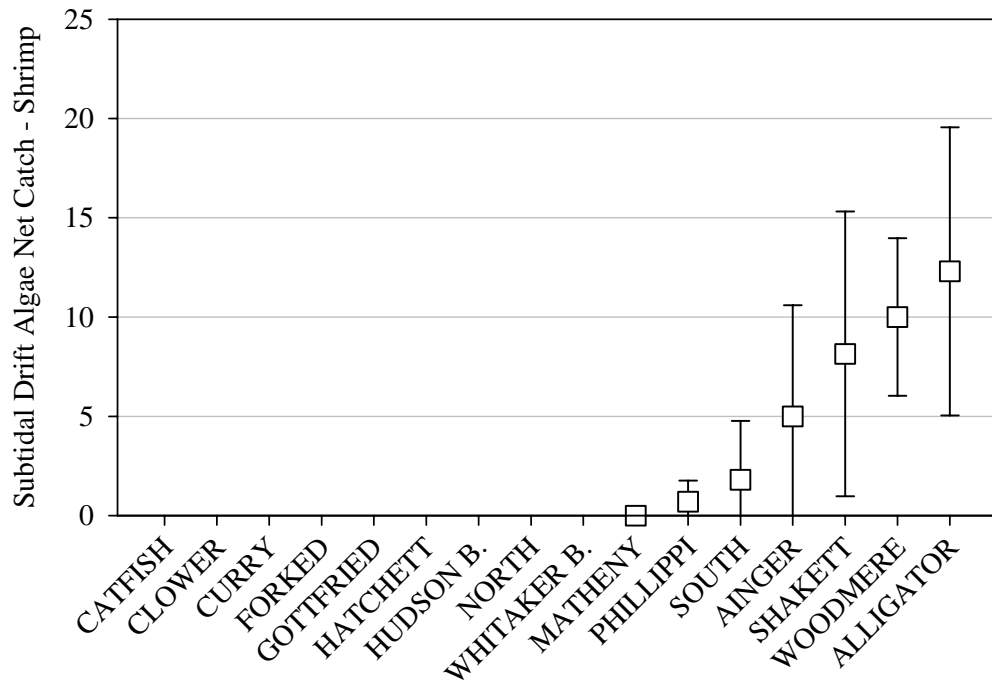
### Intertidal Drift Algae Net Catch - SHRIMP



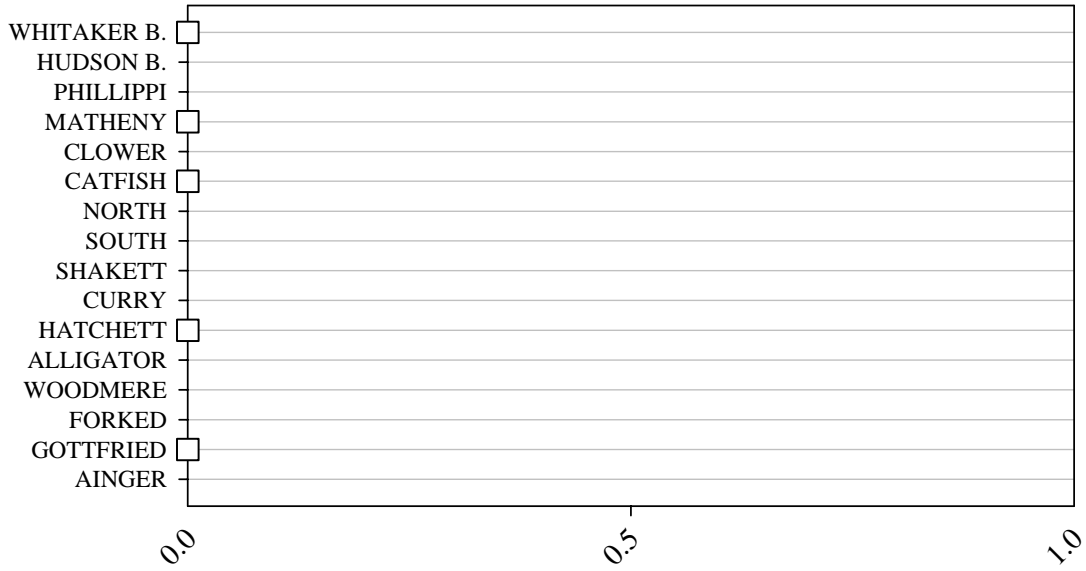
### Subtidal Drift Algae Net Catch - SHRIMP



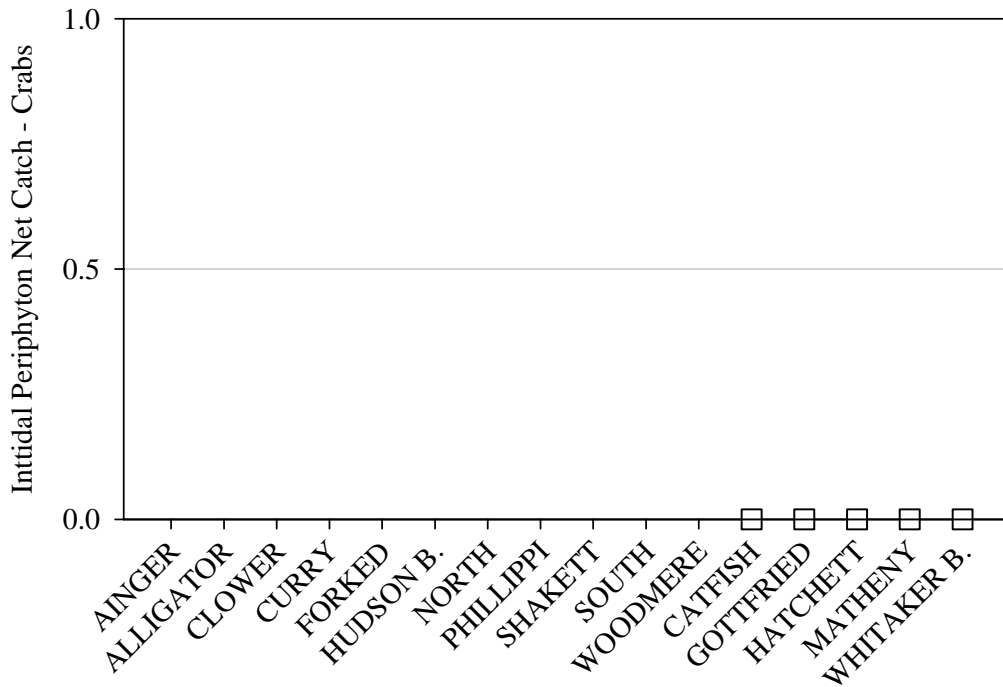
Subtidal Drift Algae Net Catch - Shrimp



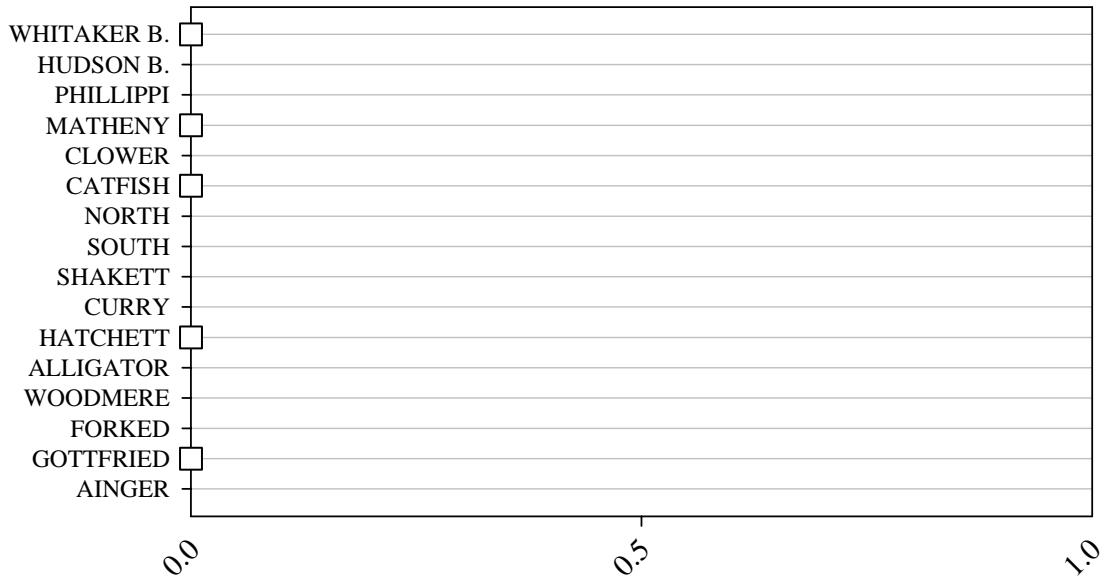
### Intertidal Periphyton Net Catch - CRABS



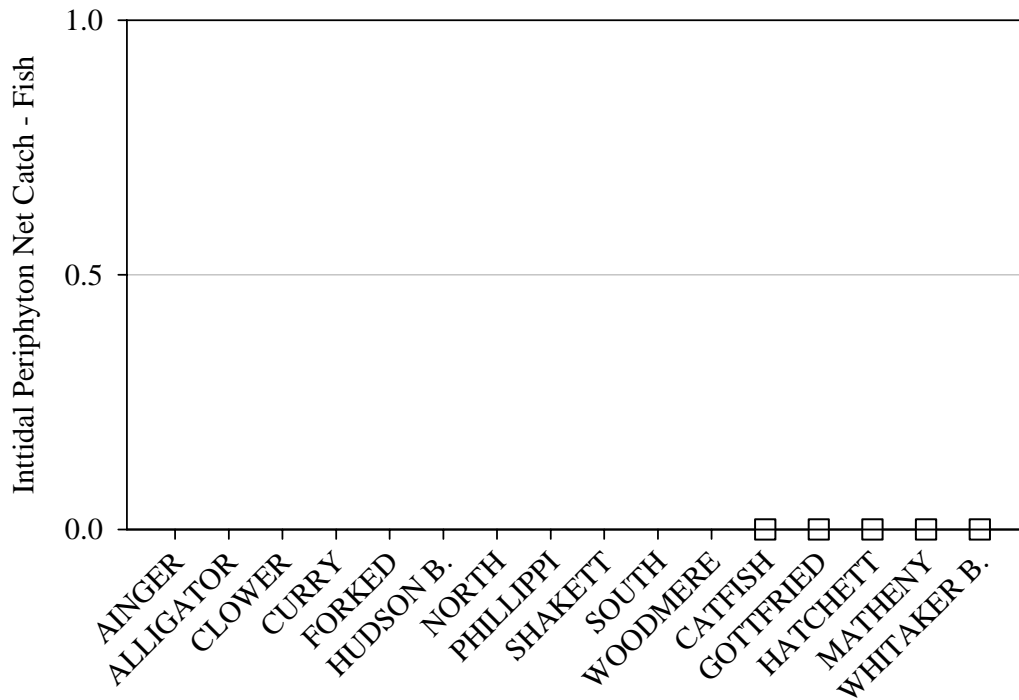
Intertidal Periphyton Net Catch - Crabs



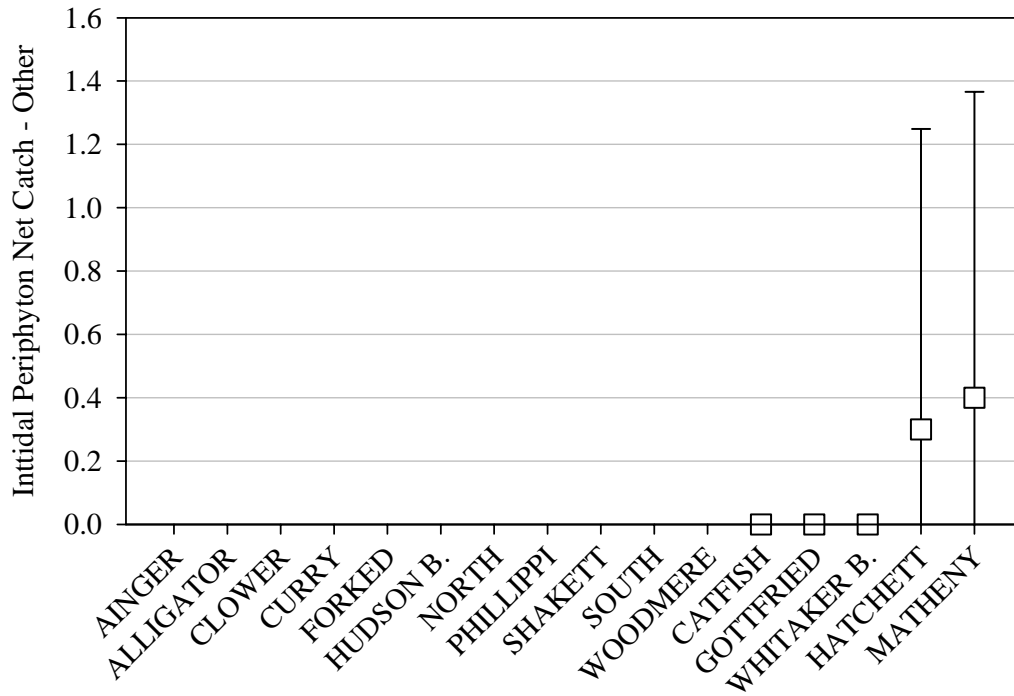
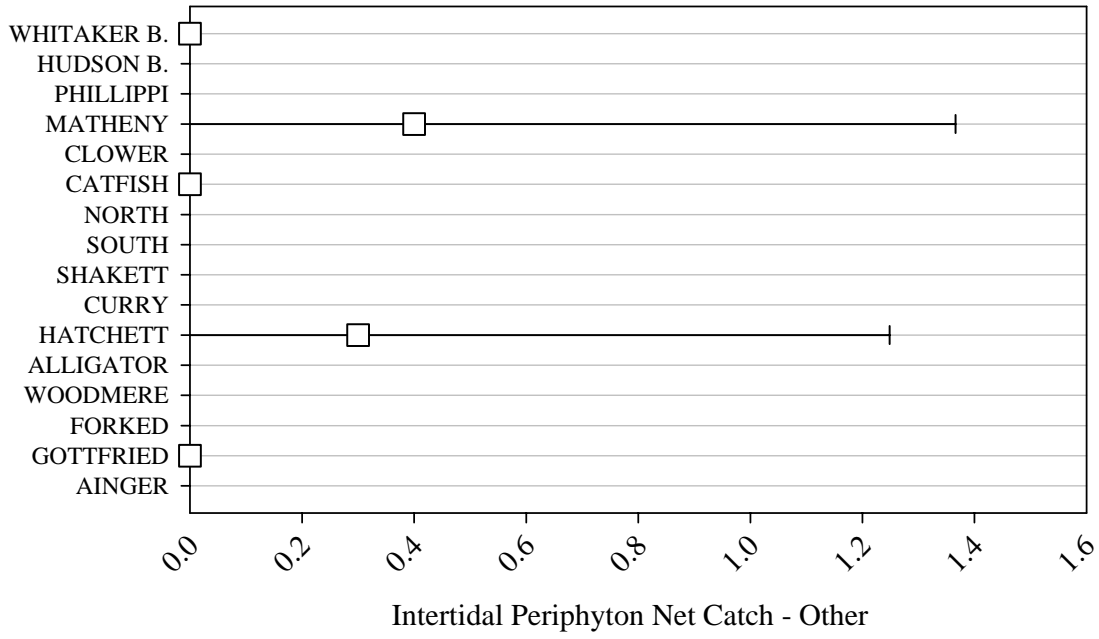
### Intertidal Periphyton Net Catch - FISH



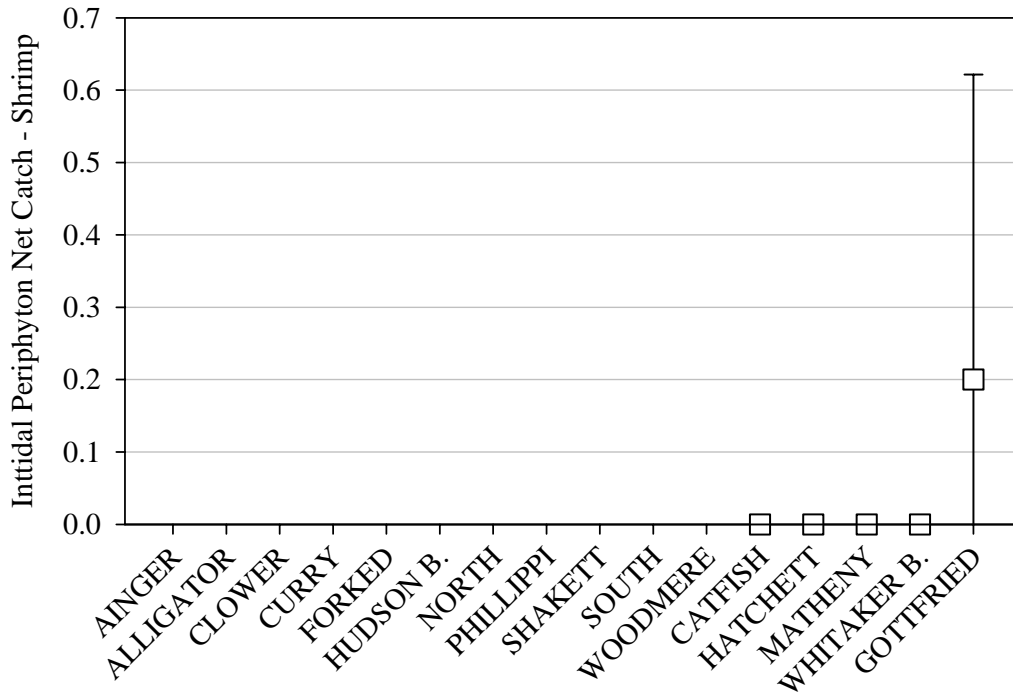
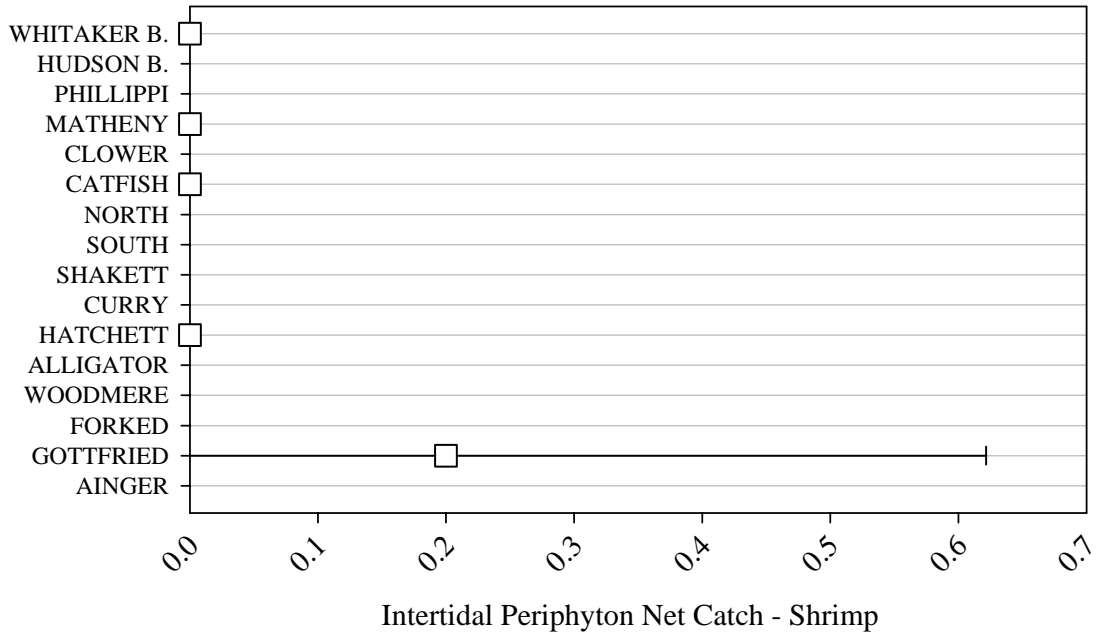
Intertidal Periphyton Net Catch - Fish



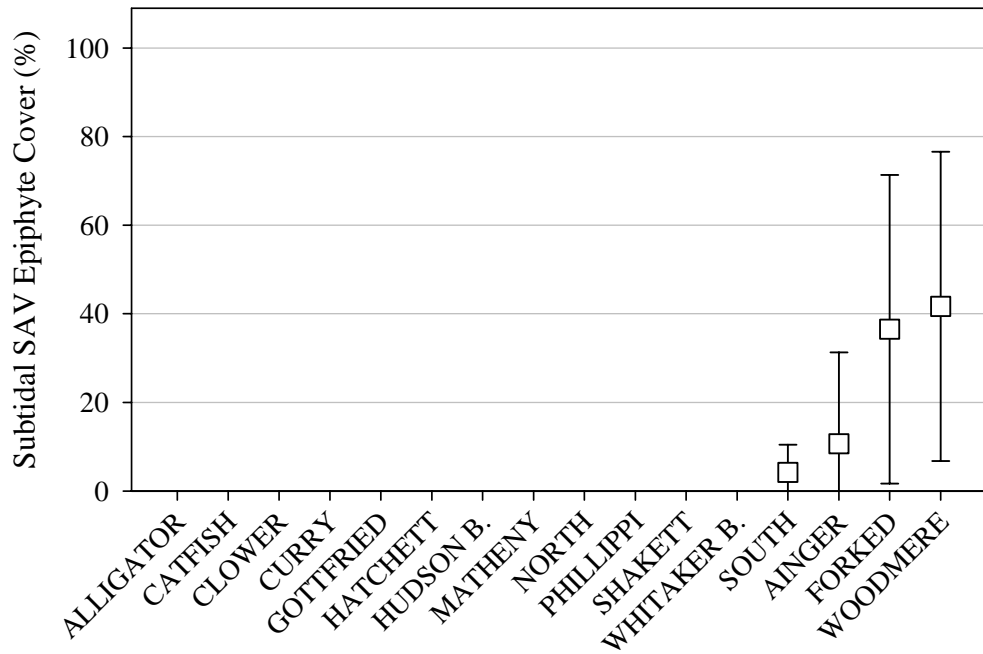
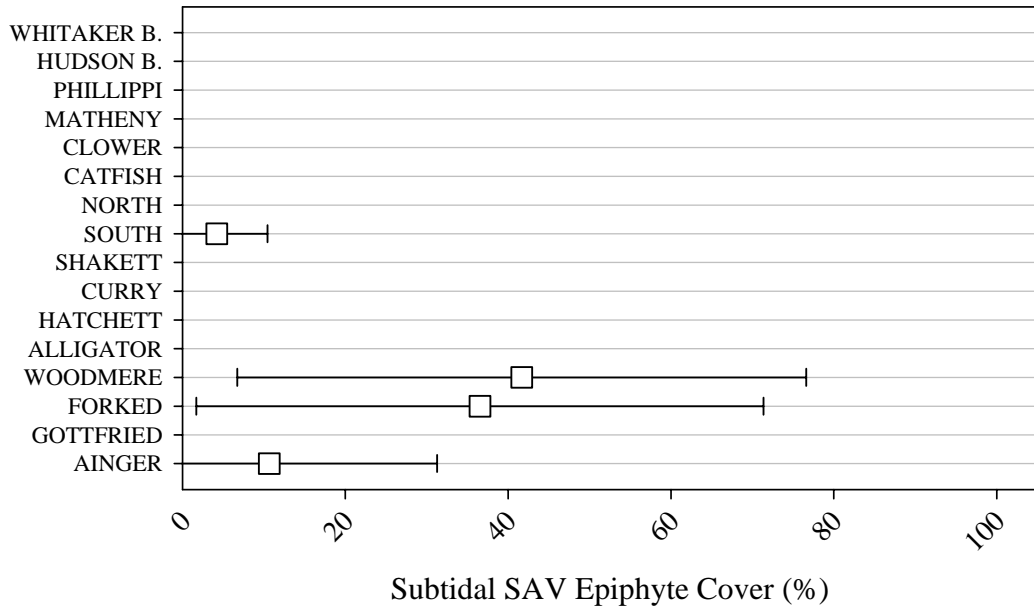
### Intertidal Periphyton Net Catch - OTHER



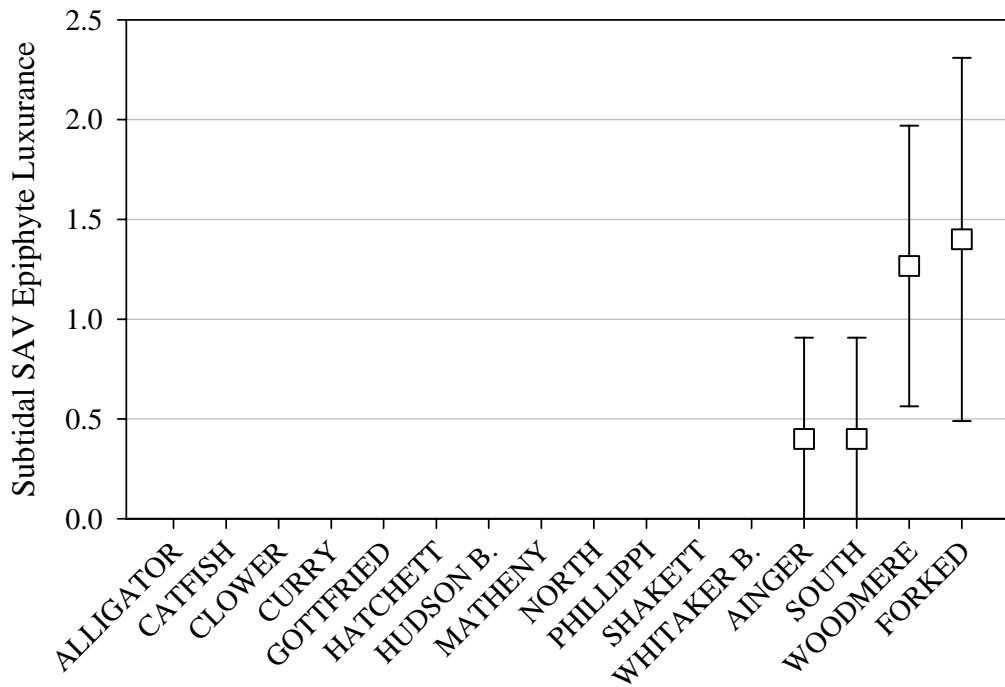
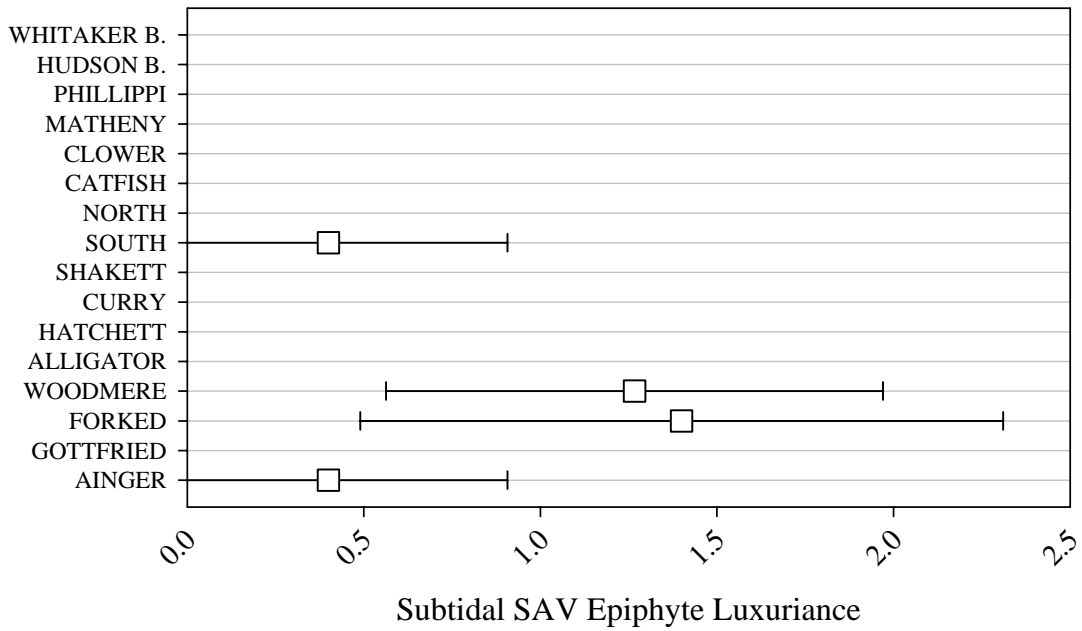
### Intertidal Periphyton Net Catch - SHRIMP



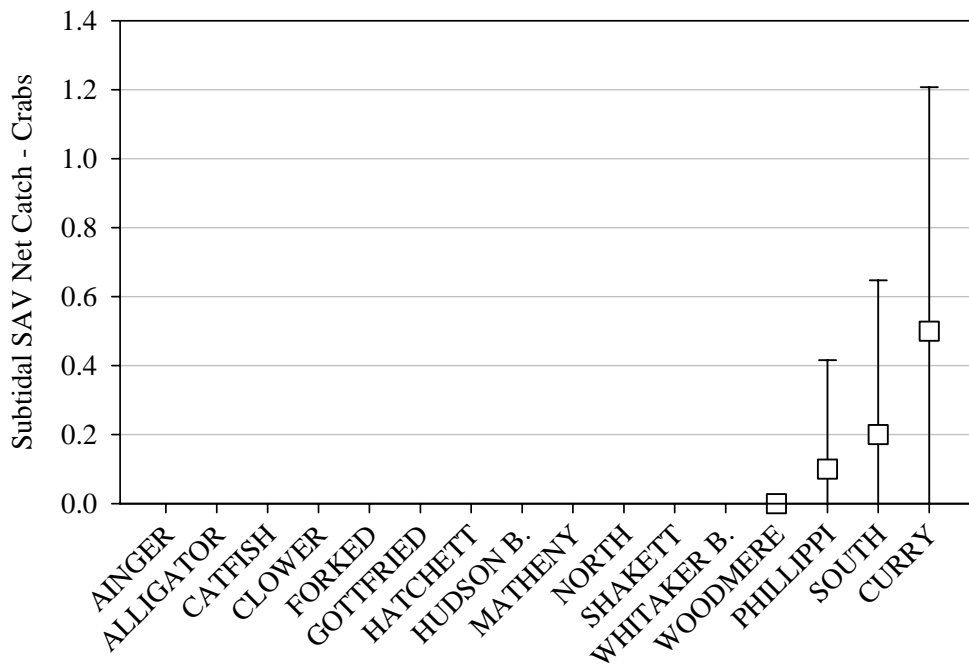
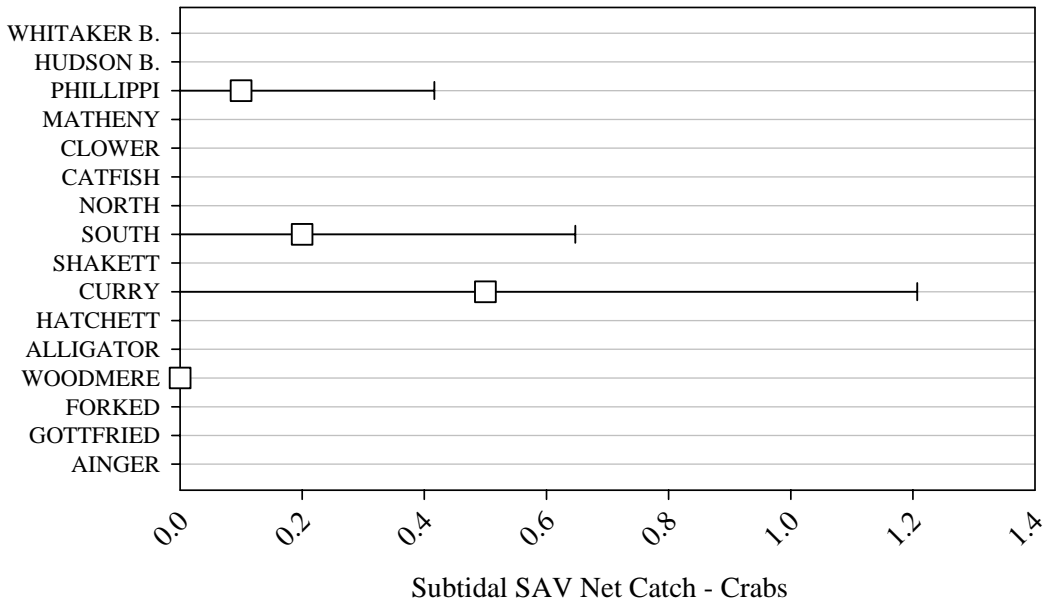
### Subtidal SAV Epiphyte Cover (%)



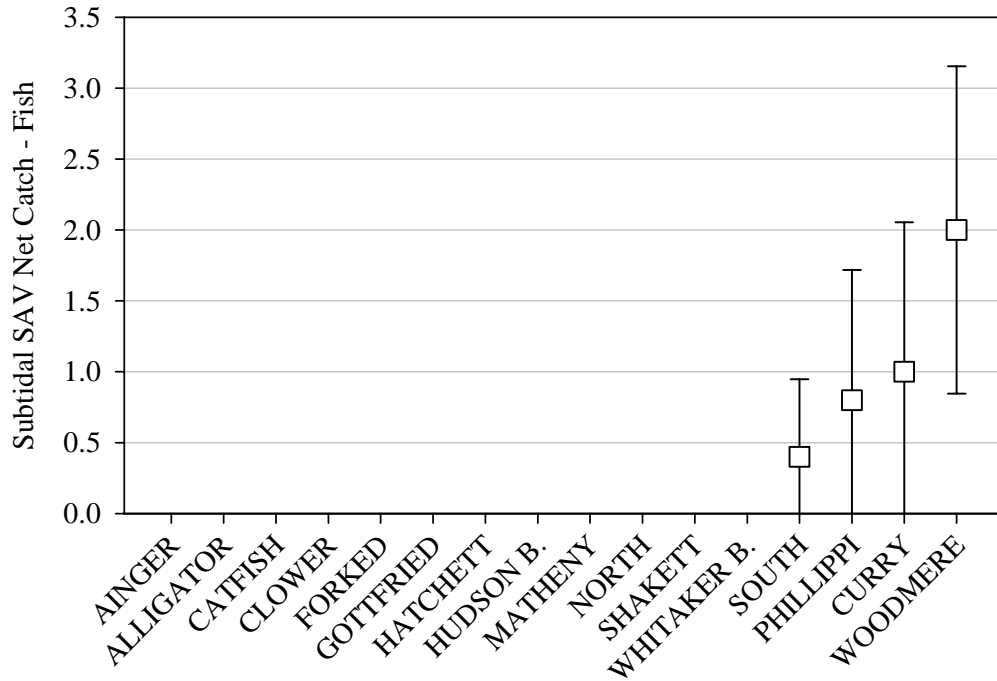
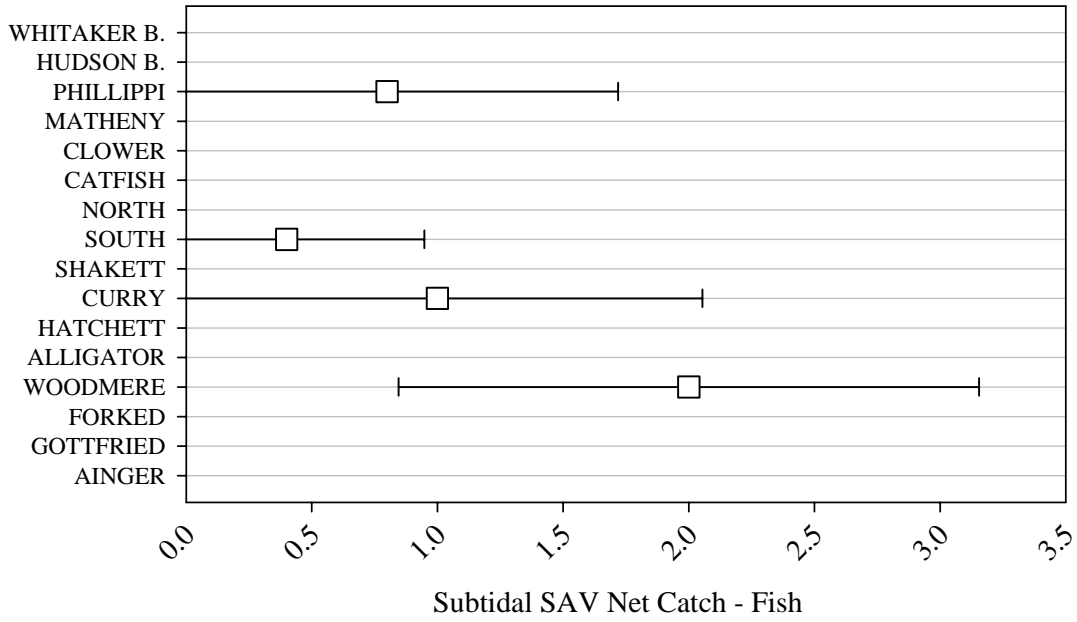
### Subtidal SAV Epiphyte Luxuriance



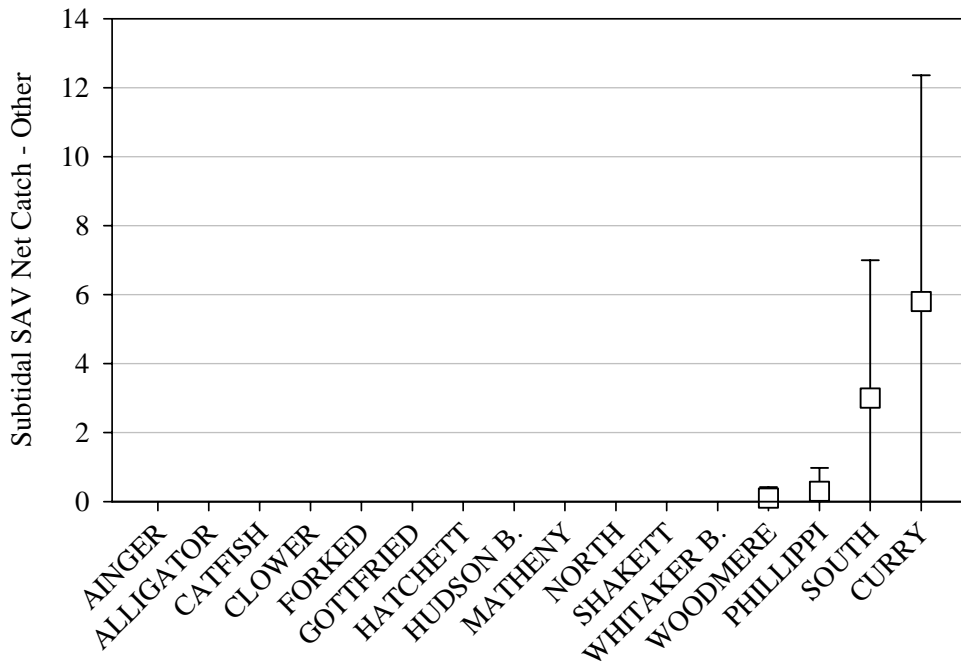
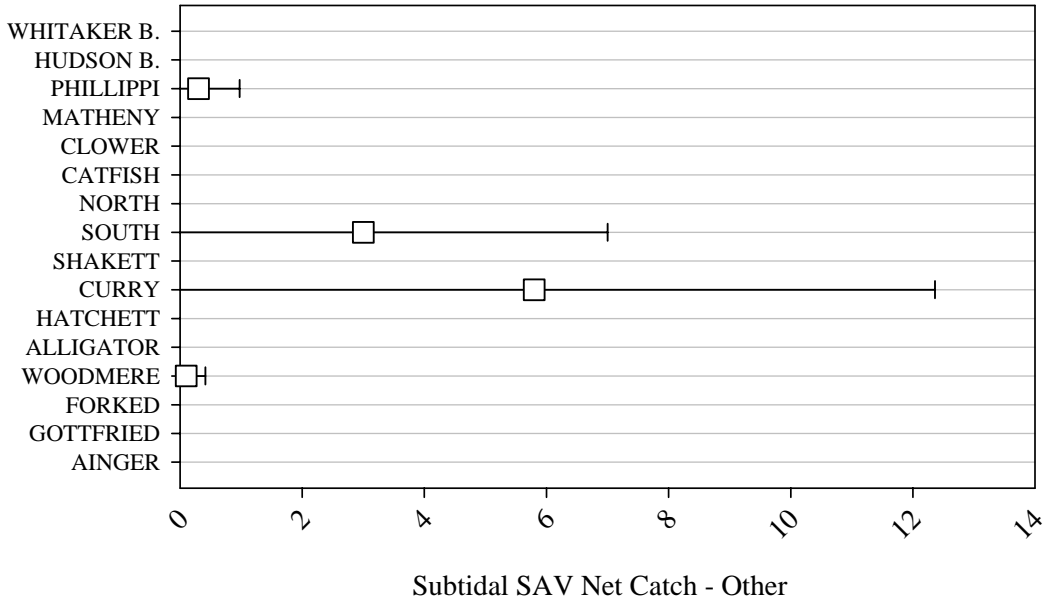
### Subtidal SAV Net Catch - CRABS



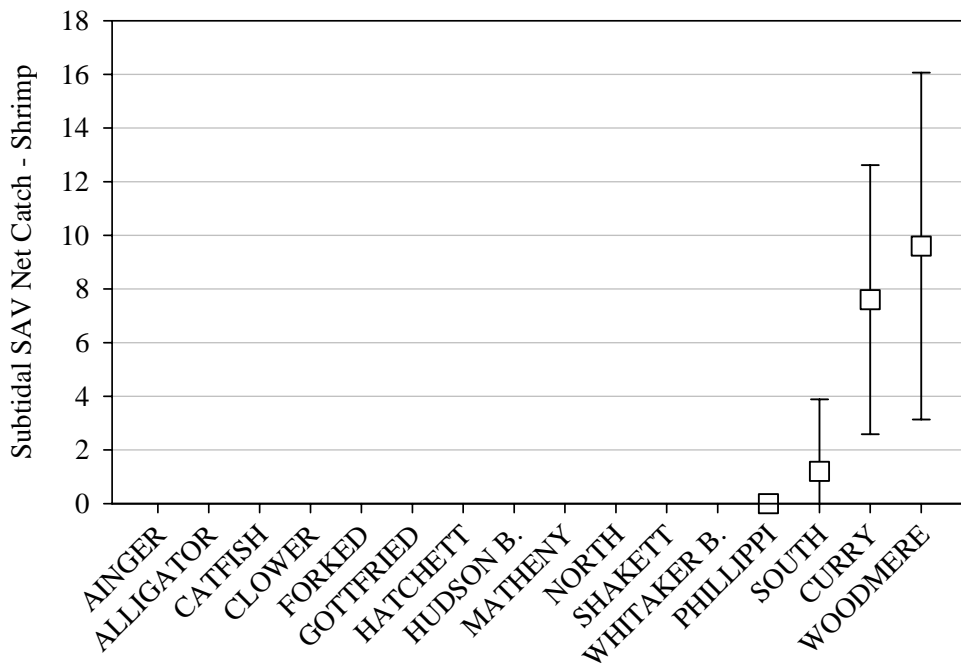
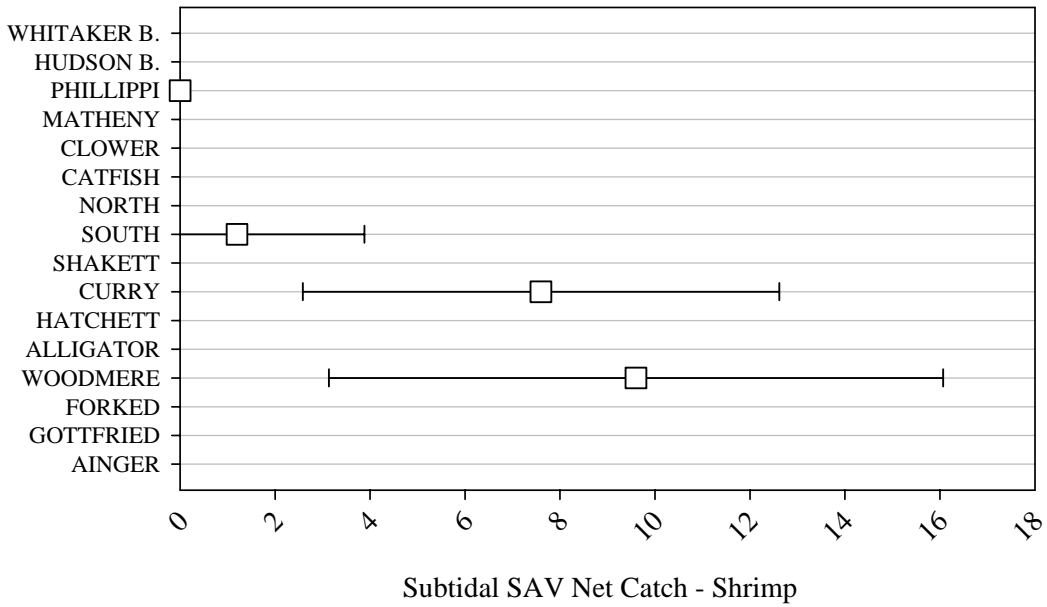
### Subtidal SAV Net Catch - FISH



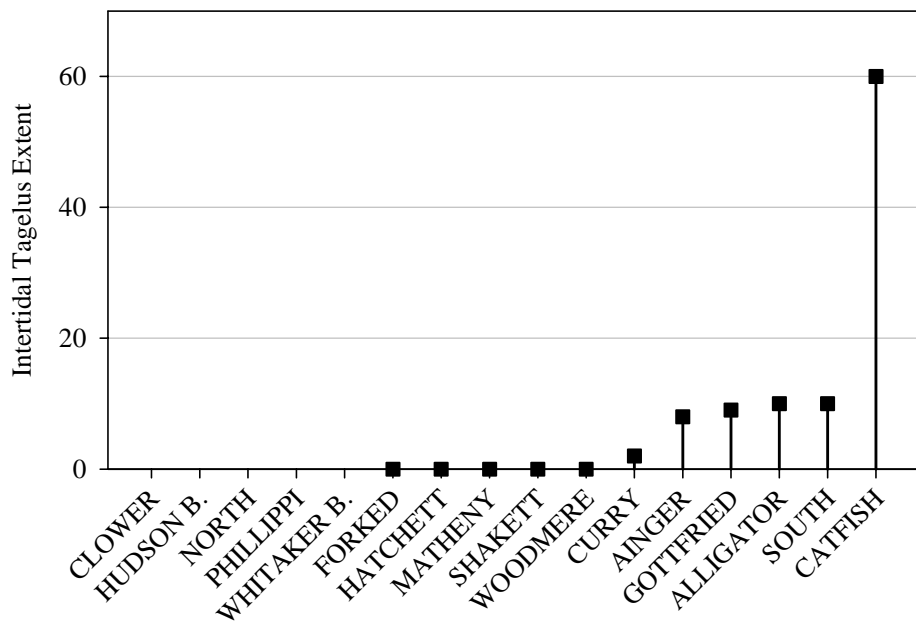
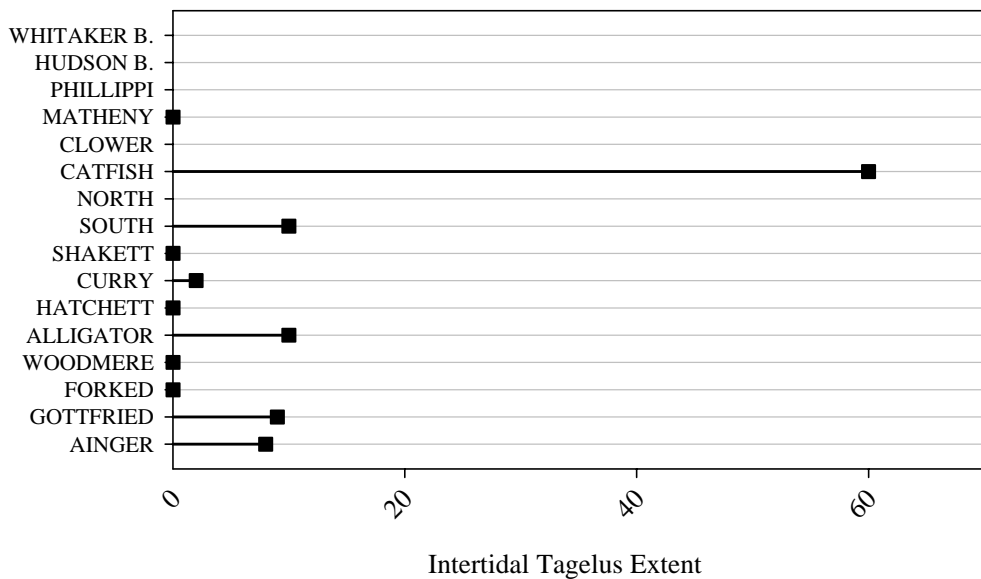
### Subtidal SAV Net Catch - OTHER



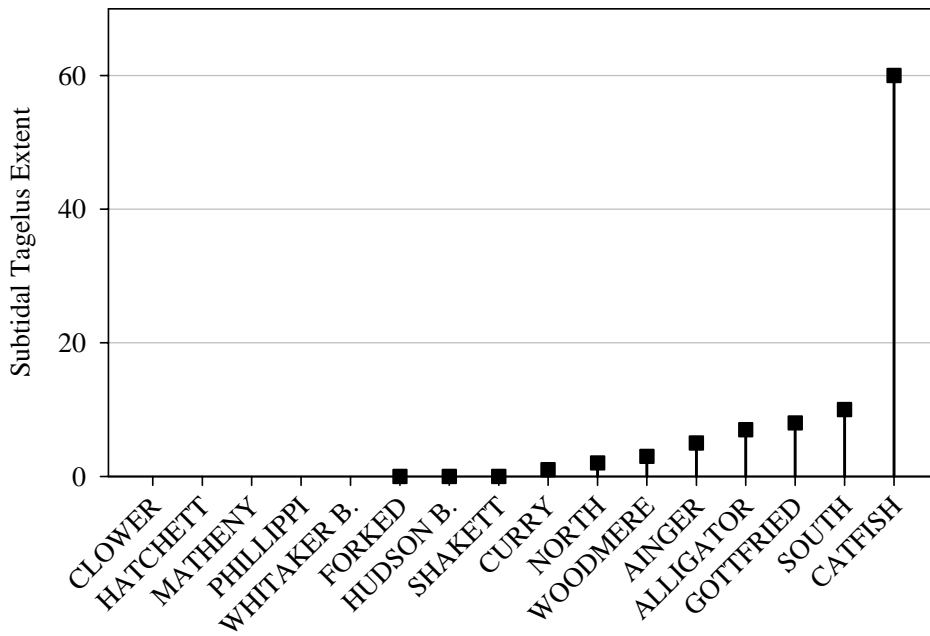
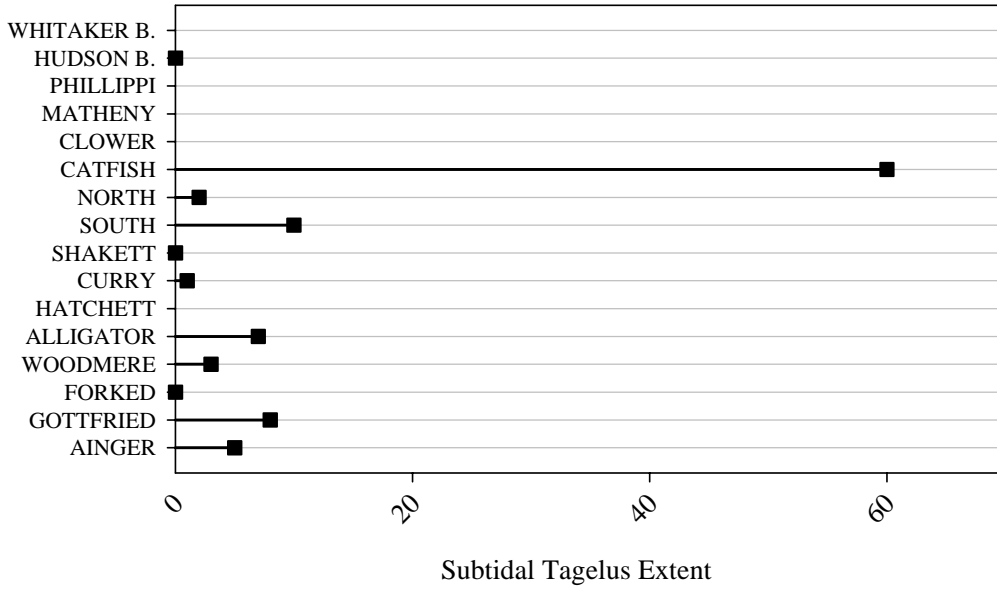
### Subtidal SAV Net Catch - SHRIMP



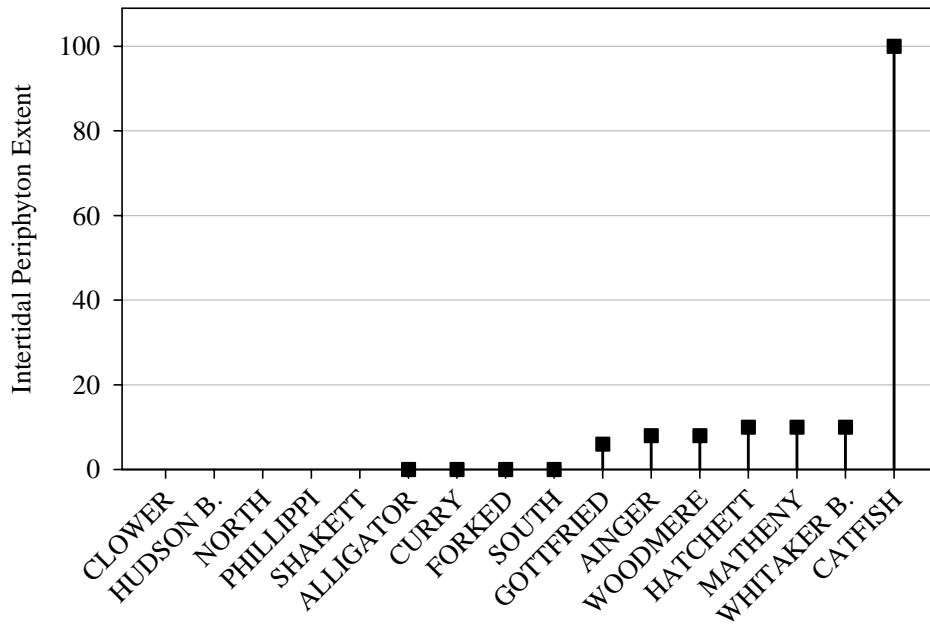
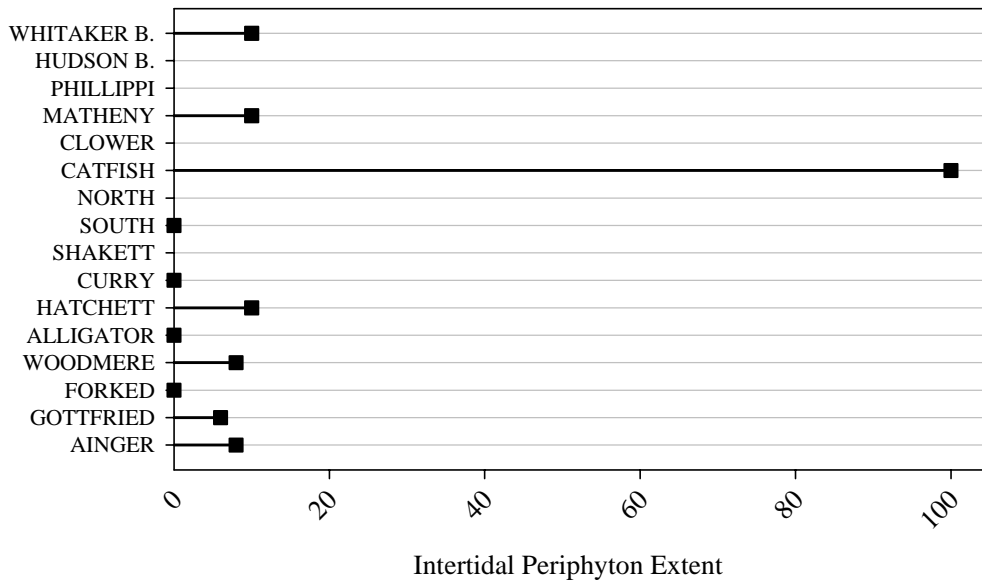
### Intertidal Tagelus Extent



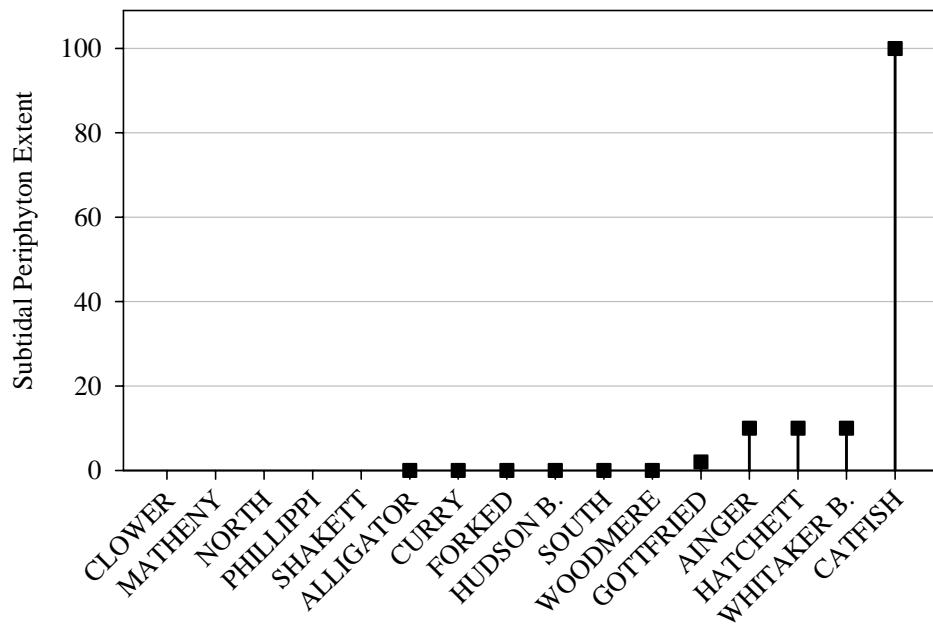
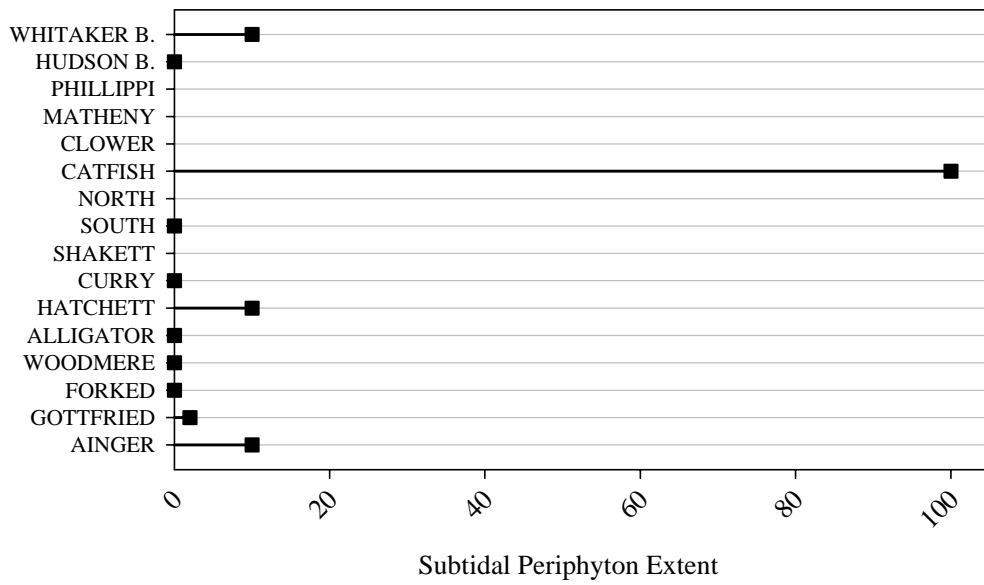
### Subtidal Tagelus Extent



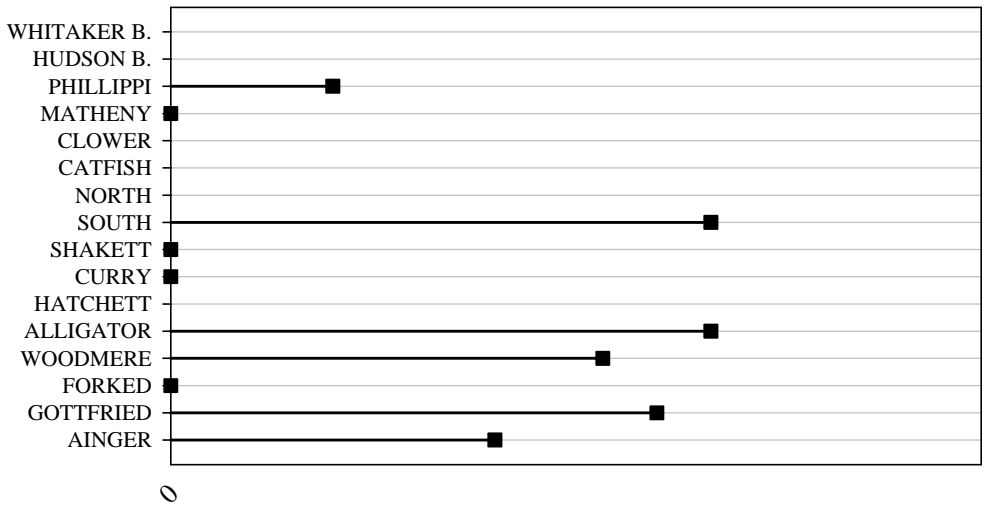
### Intertidal Periphyton Extent



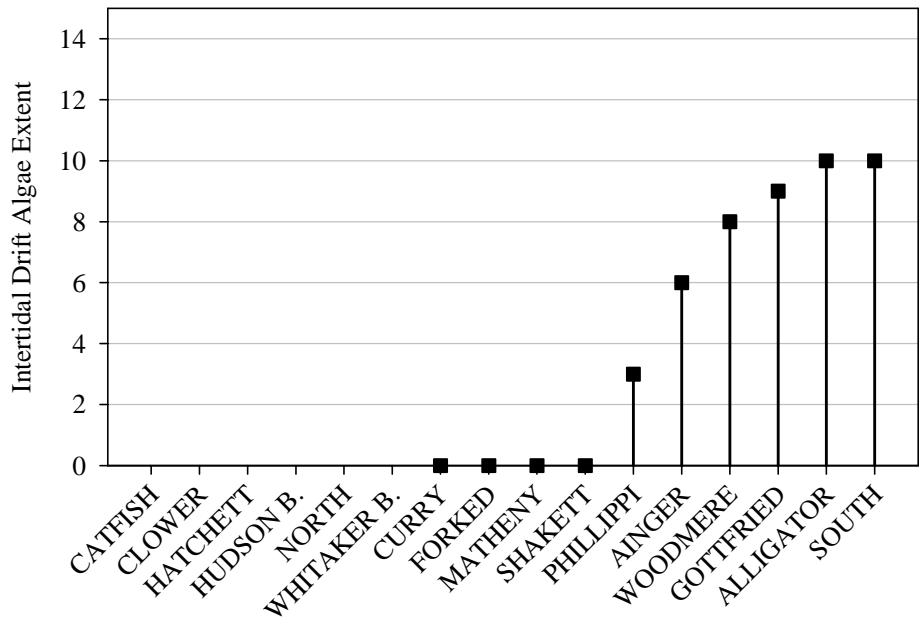
## Subtidal Periphyton Extent



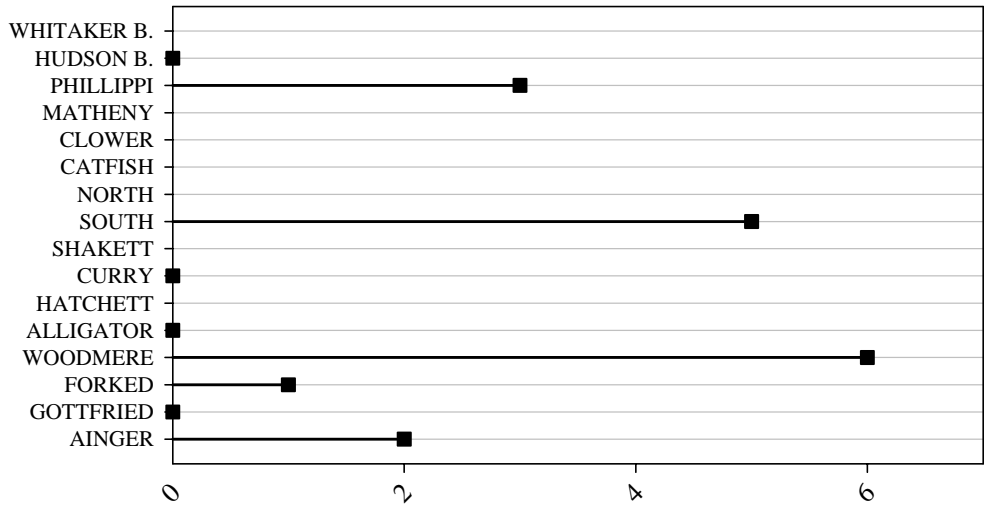
### Intertidal Drift Algae Extent



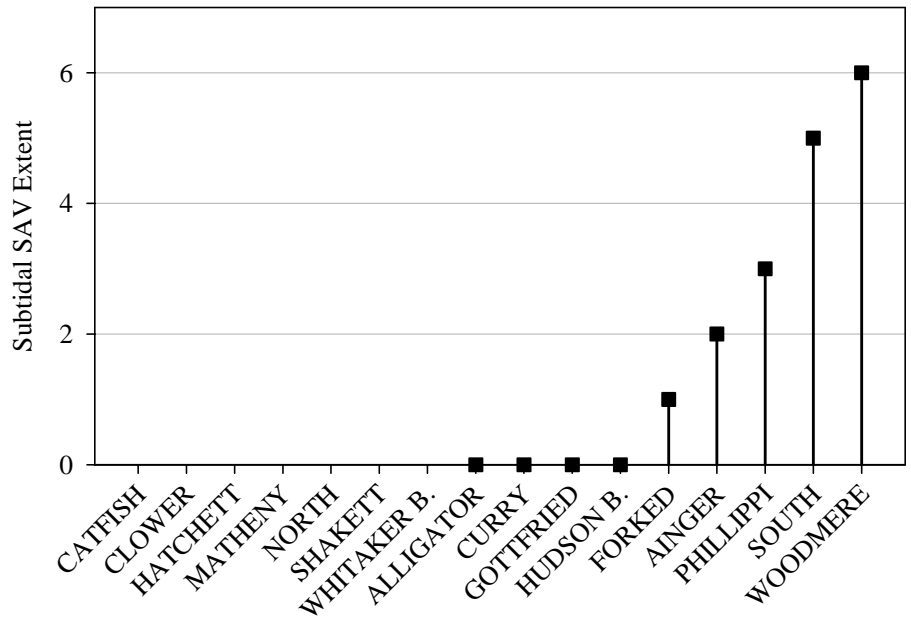
### Intertidal Drift Algae Extent



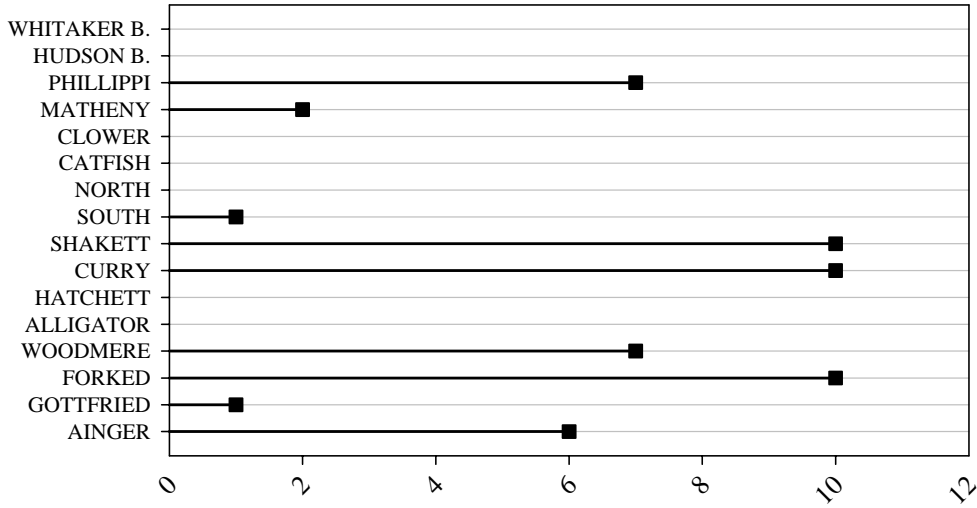
### Subtidal SAV Extent



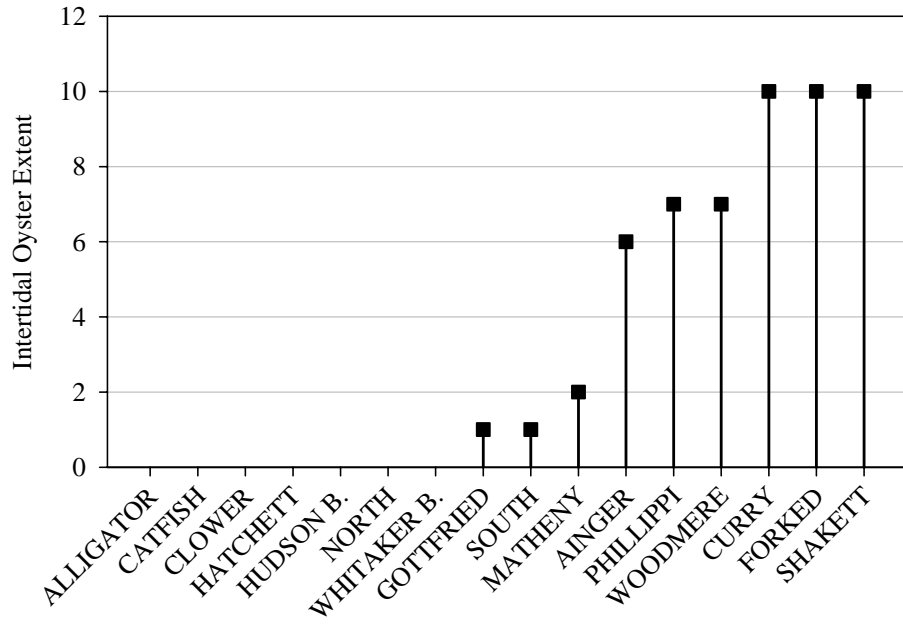
### Subtidal SAV Extent



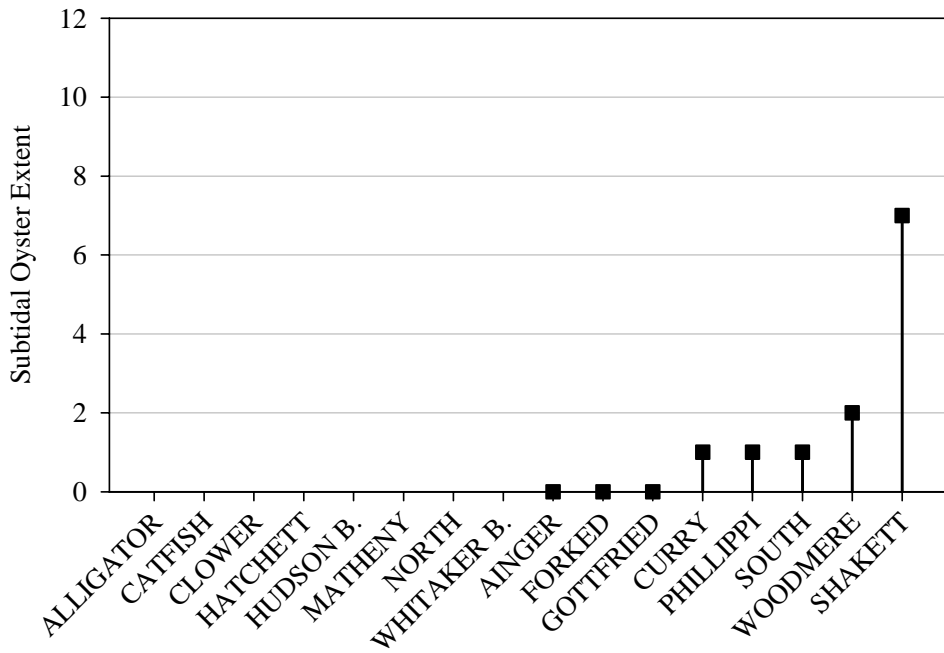
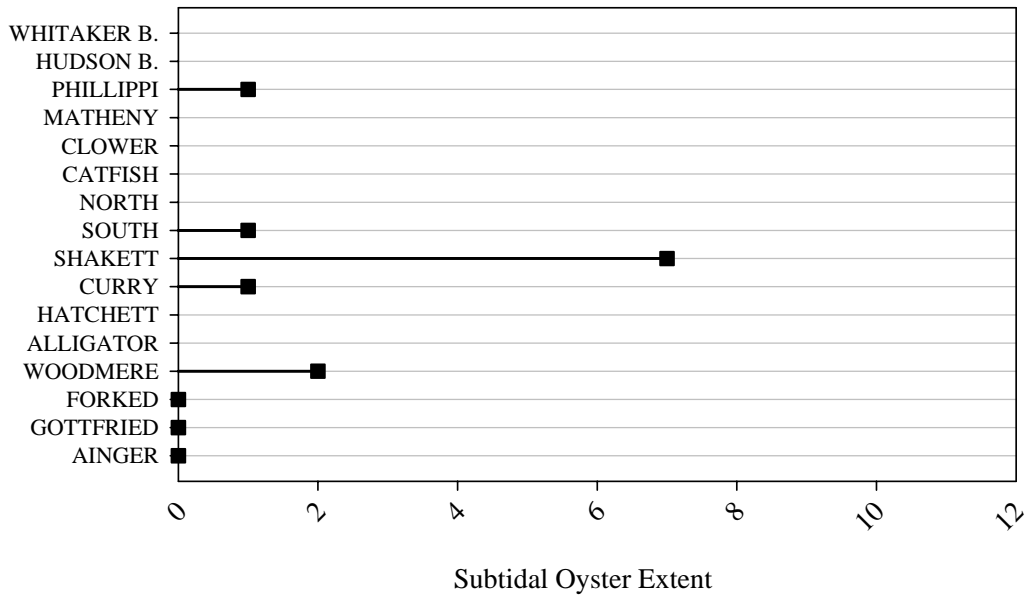
### Intertidal Oyster Extent



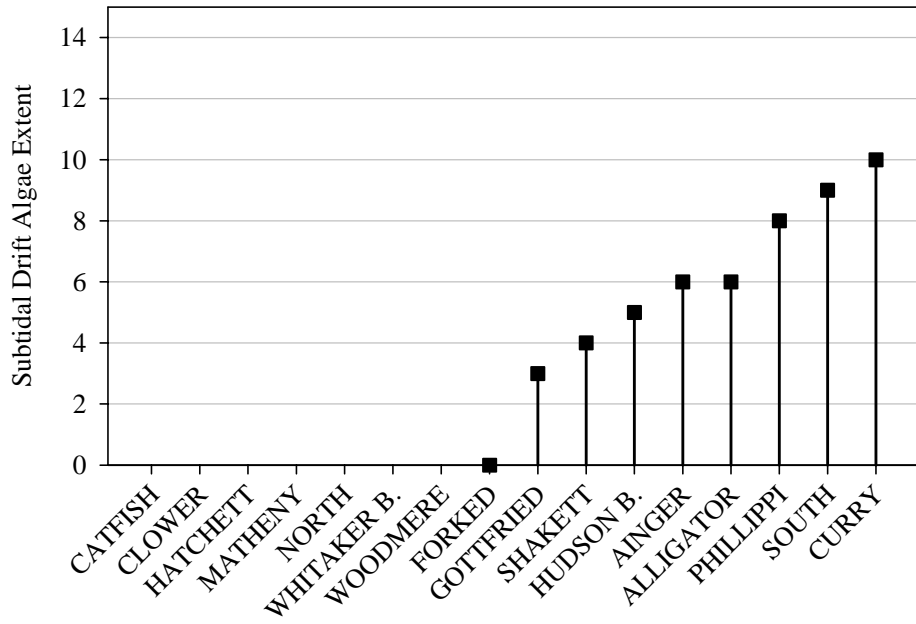
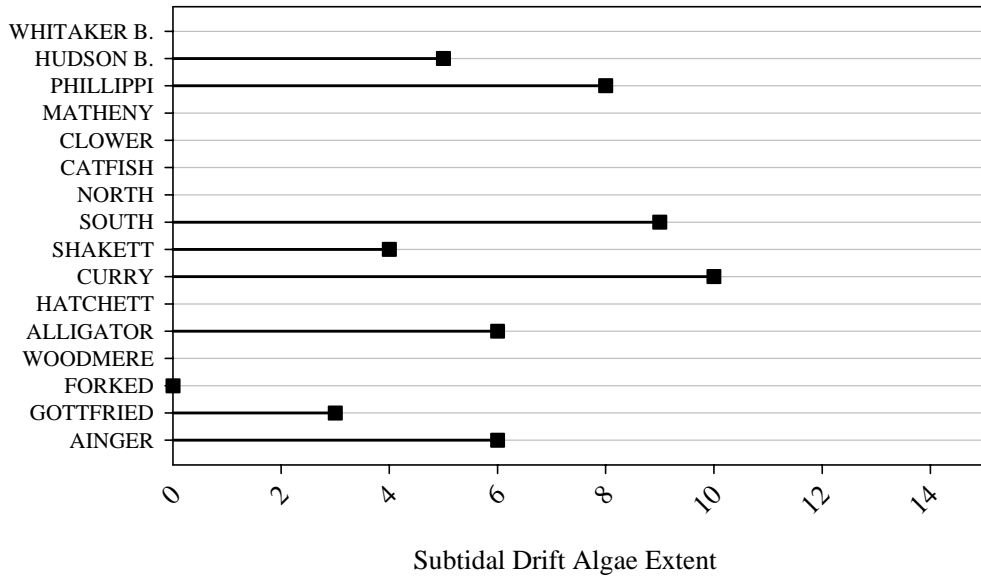
### Intertidal Oyster Extent



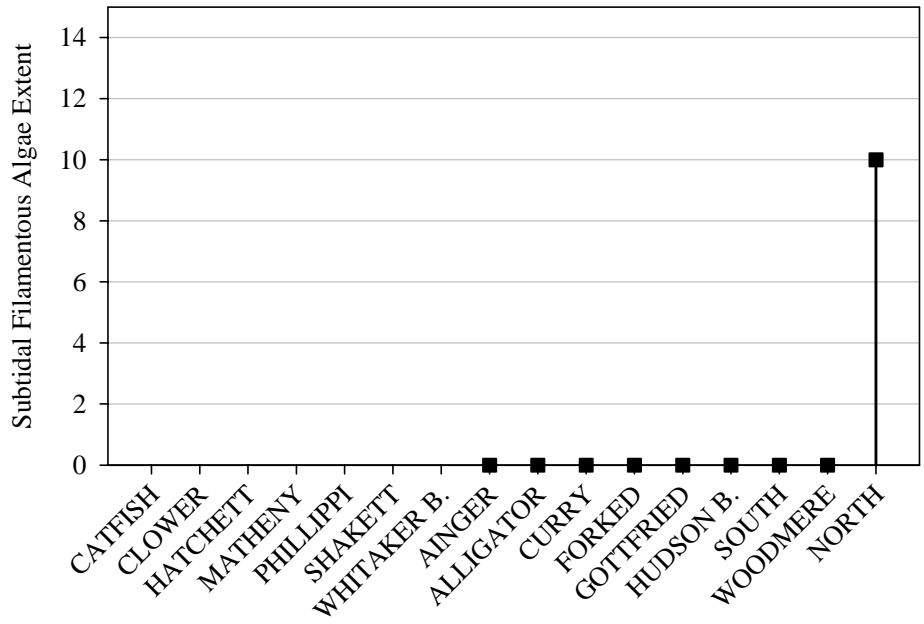
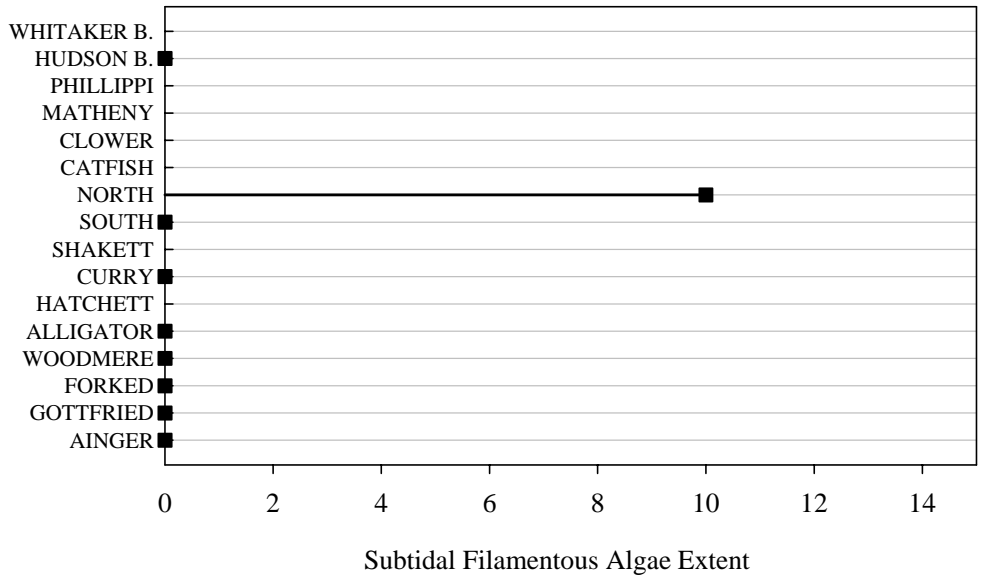
### Subtidal Oyster Extent



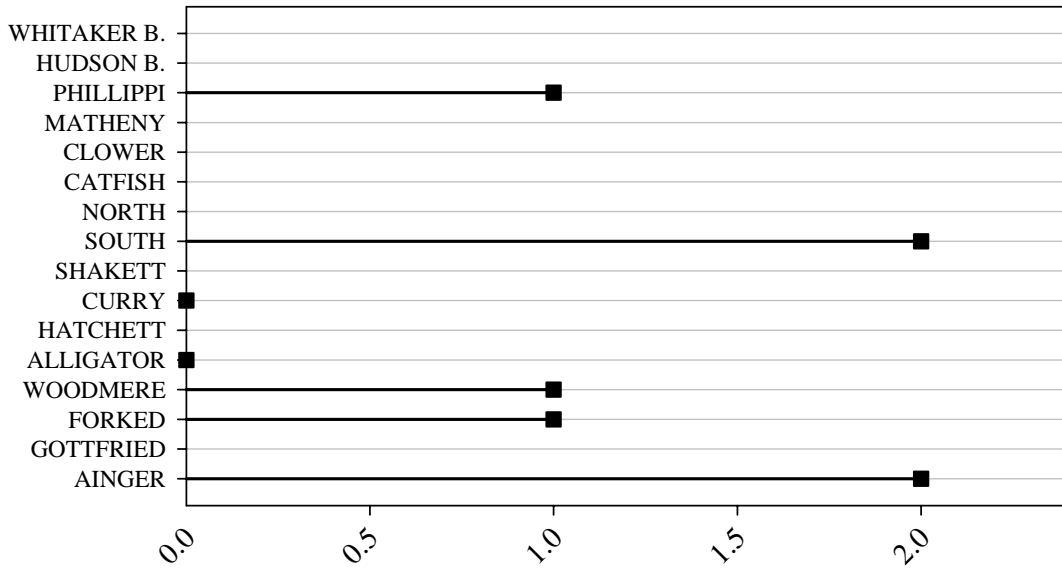
### Subtidal Drift Algae Extent



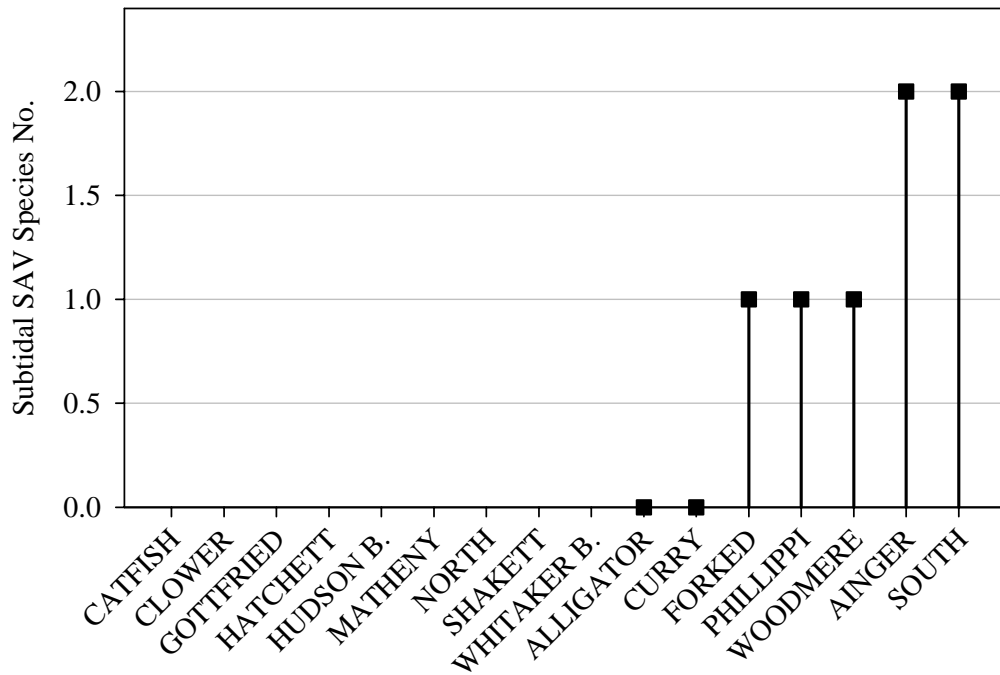
### Subtidal Filamentous Algae Extent



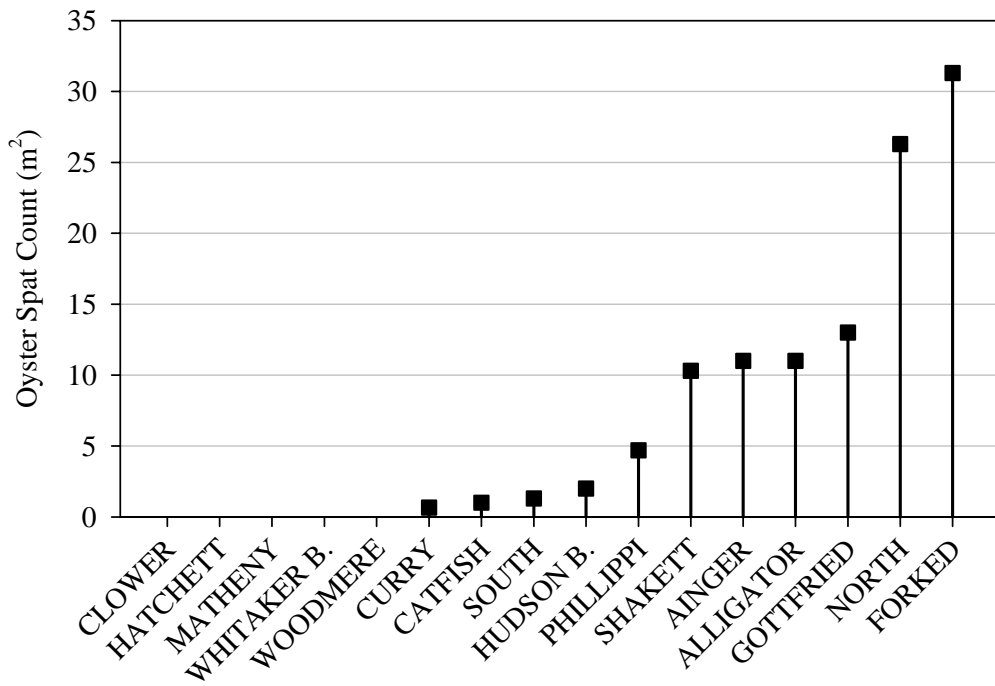
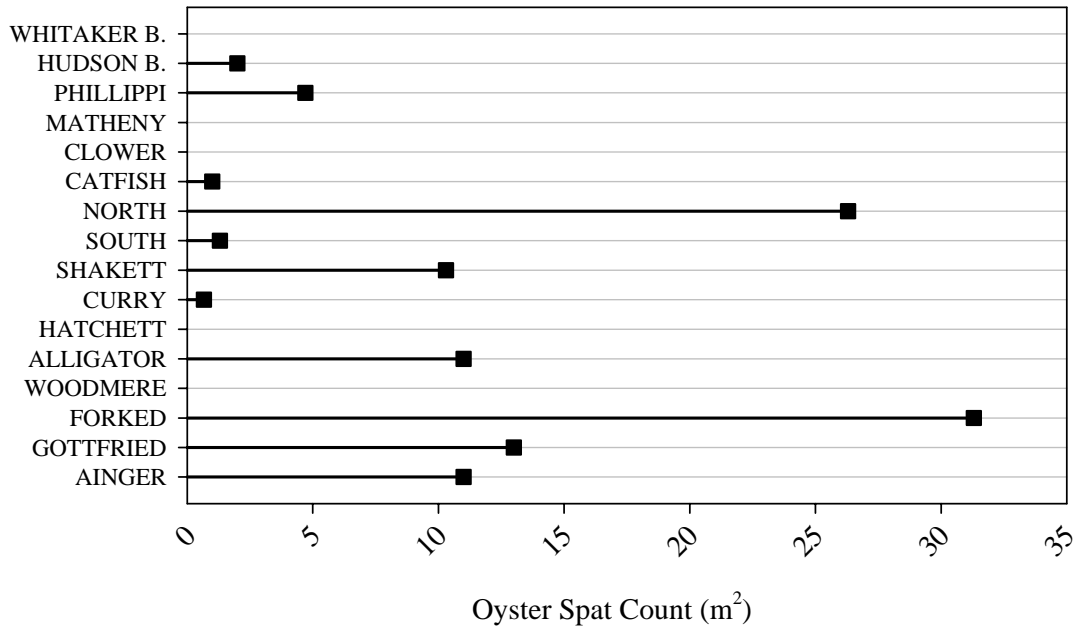
Subtidal SAV Species No.



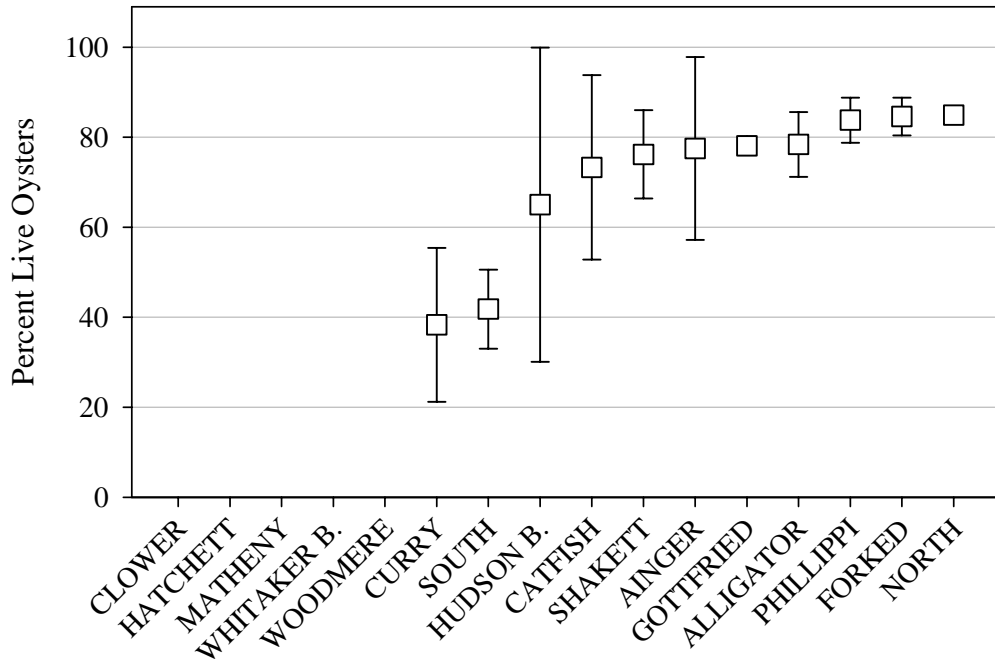
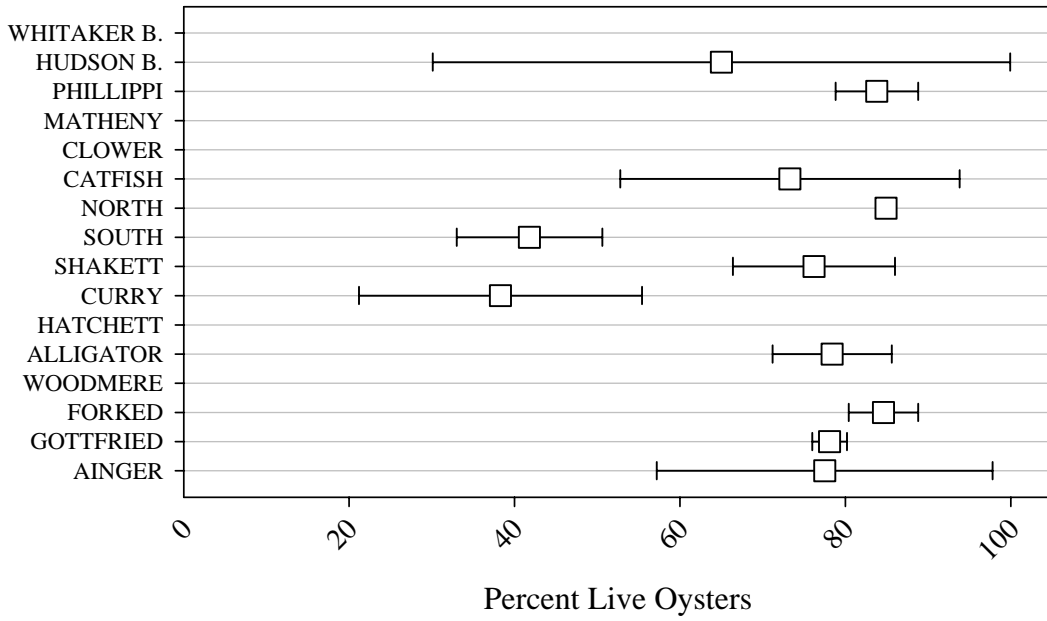
Subtidal SAV Species No.



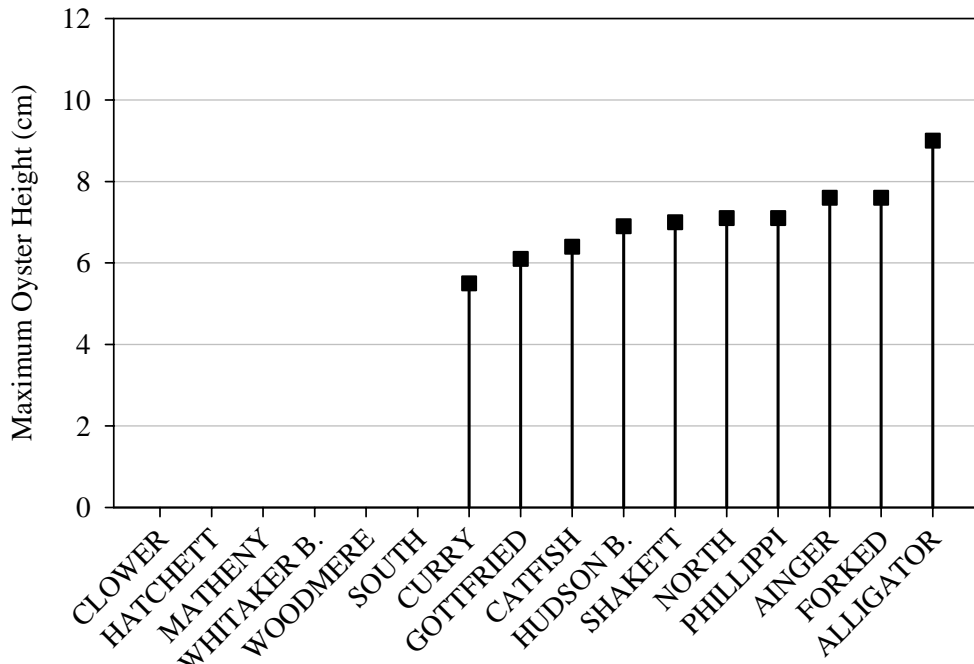
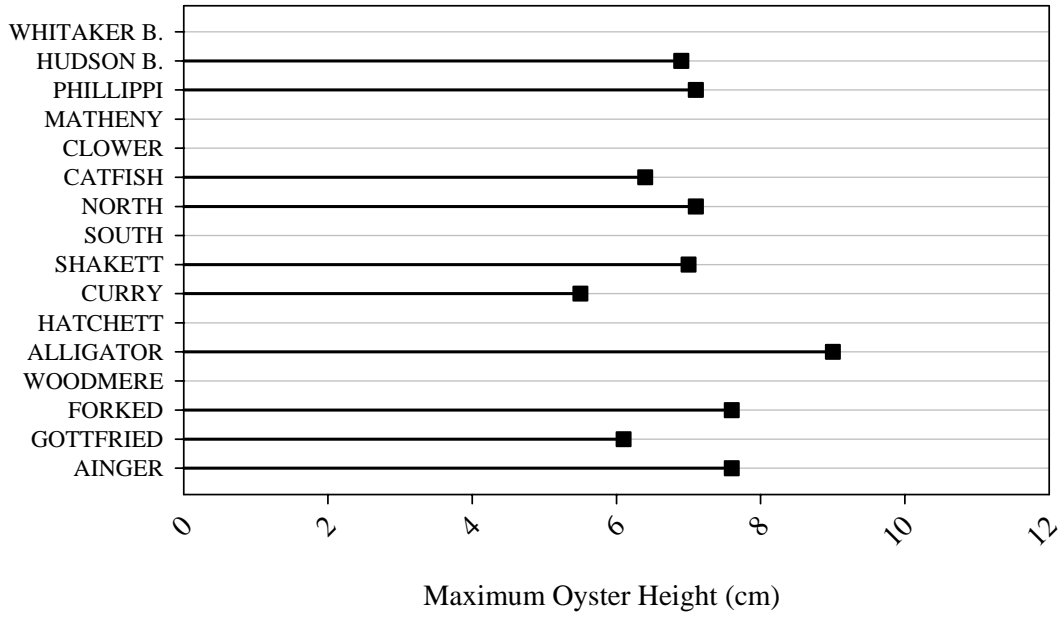
### Oyster Spat Count



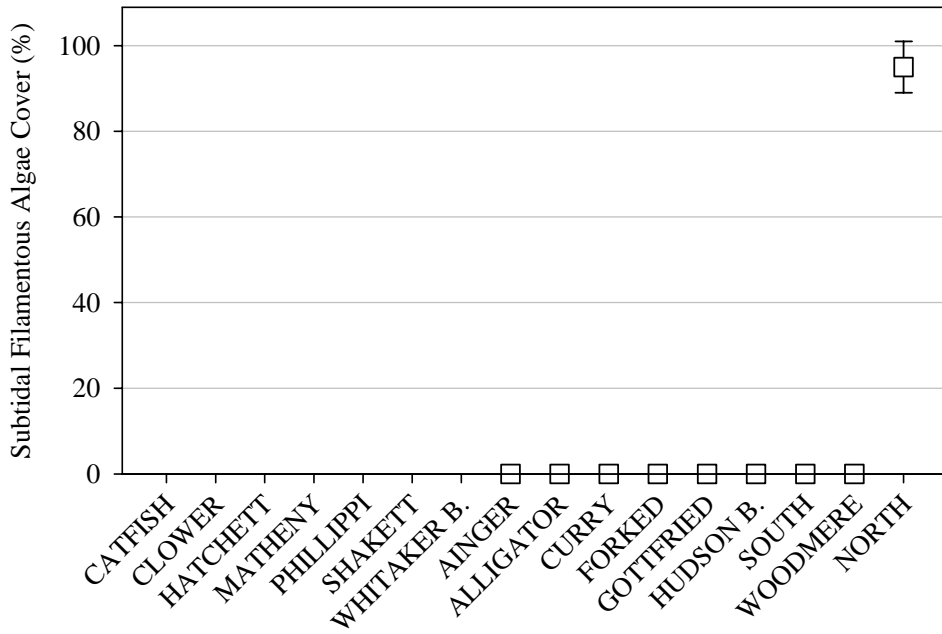
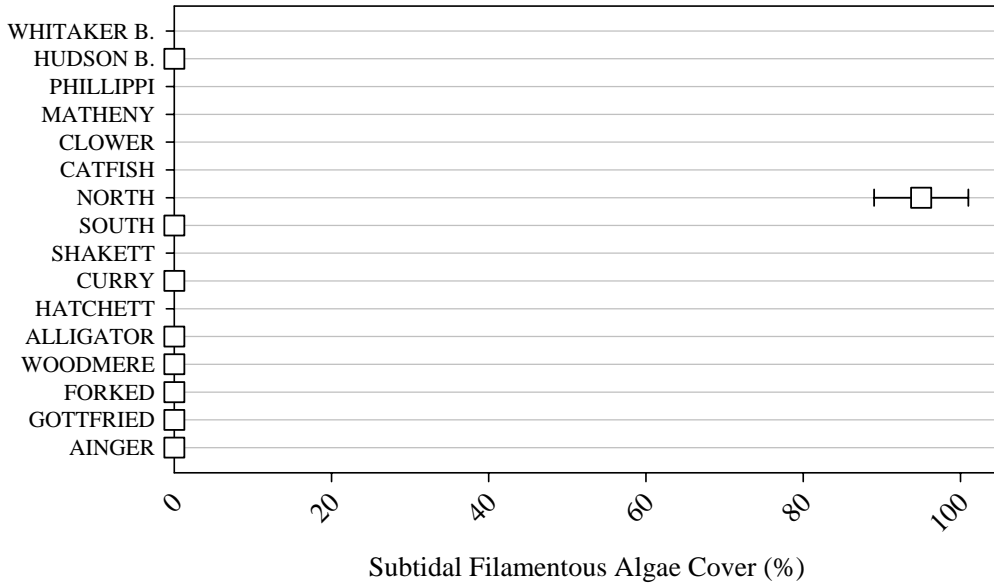
### Percent Live Oysters



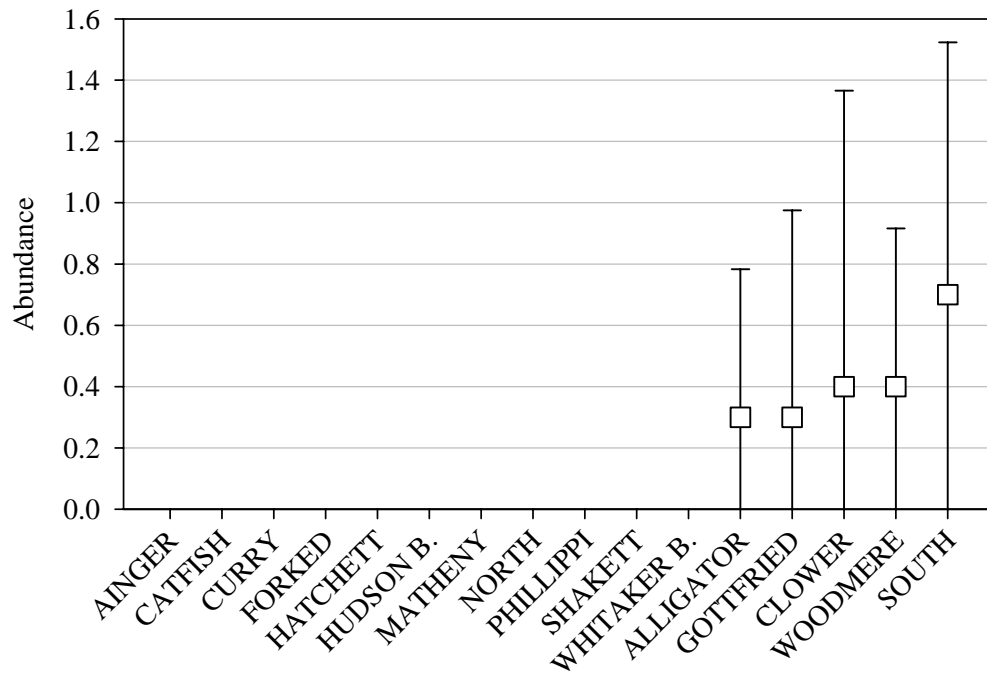
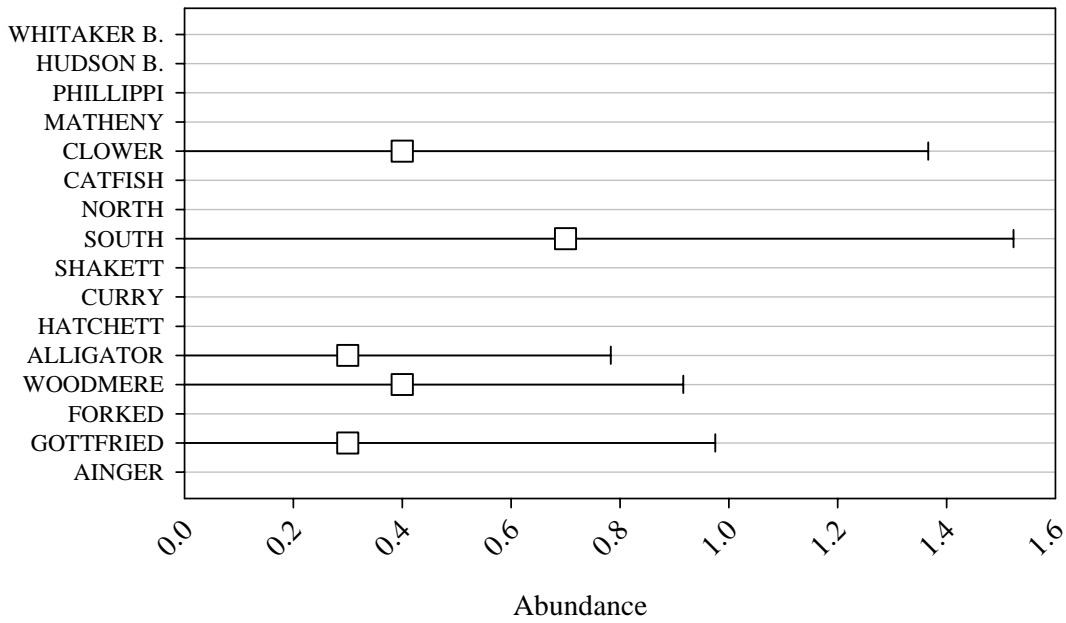
### Maximum Oyster Height (cm)



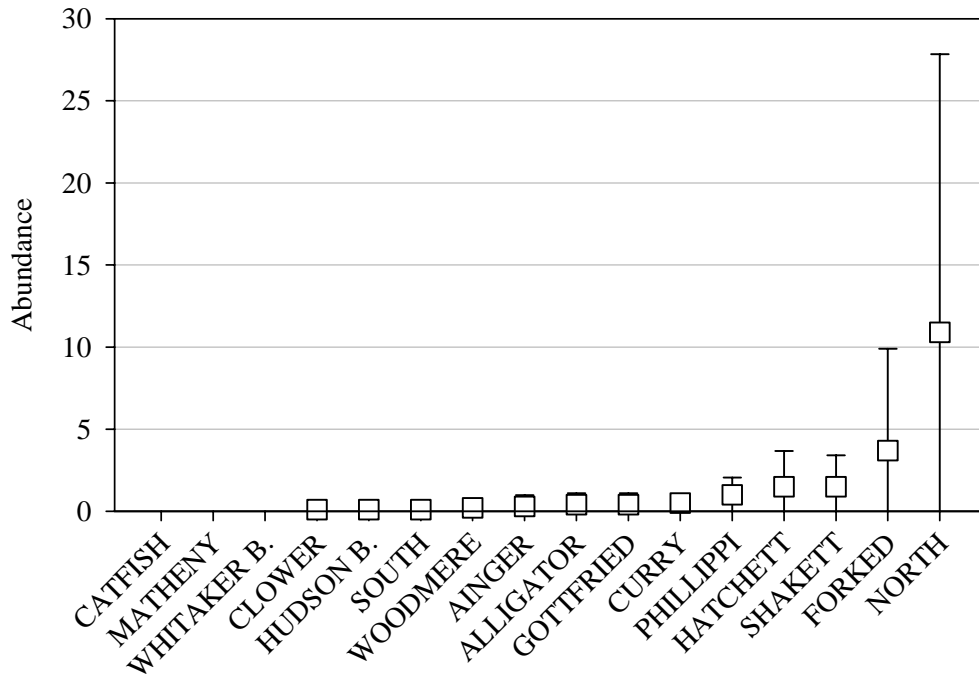
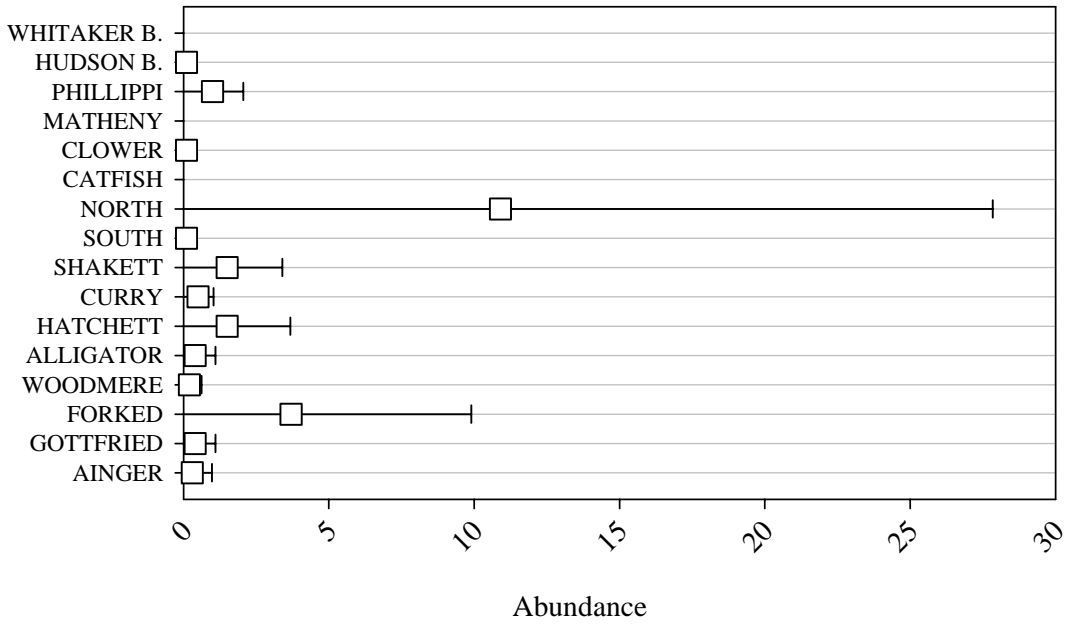
### Subtidal Filamentous Algae Cover (%)



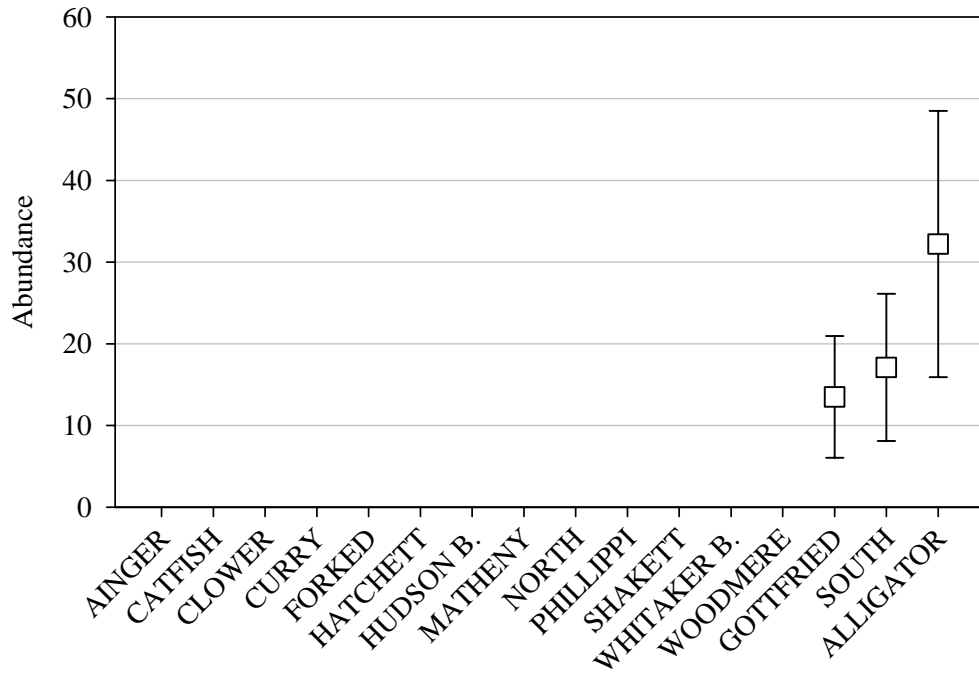
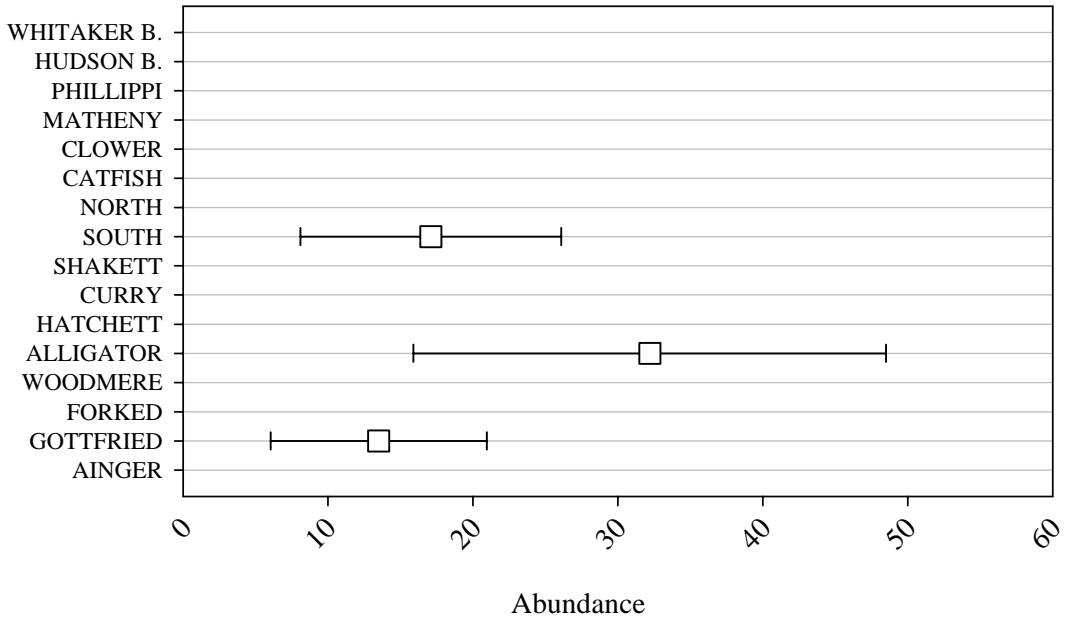
### Intertidal Bare - Net Catch Total



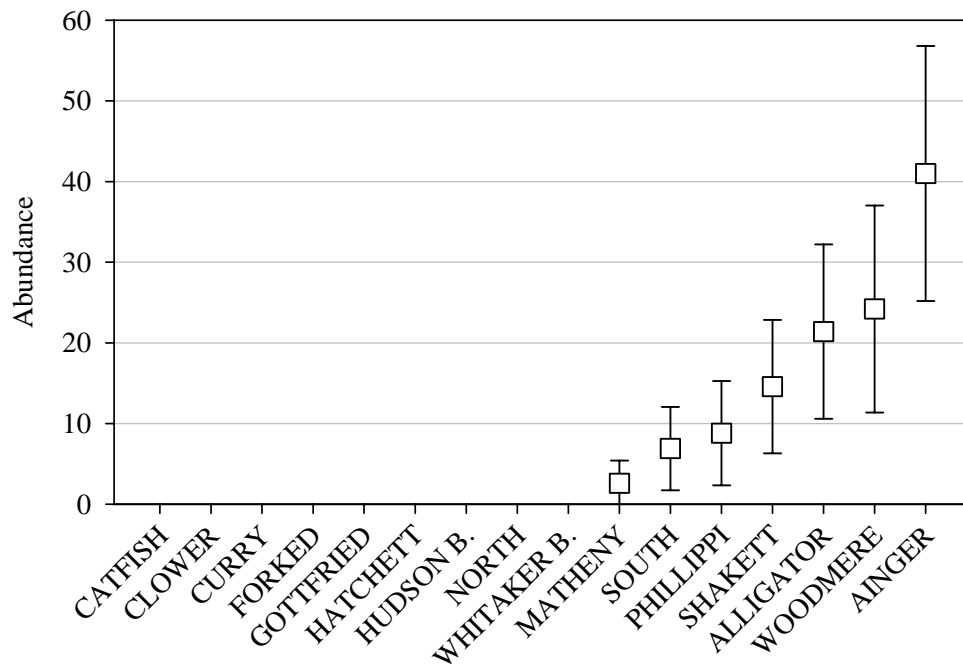
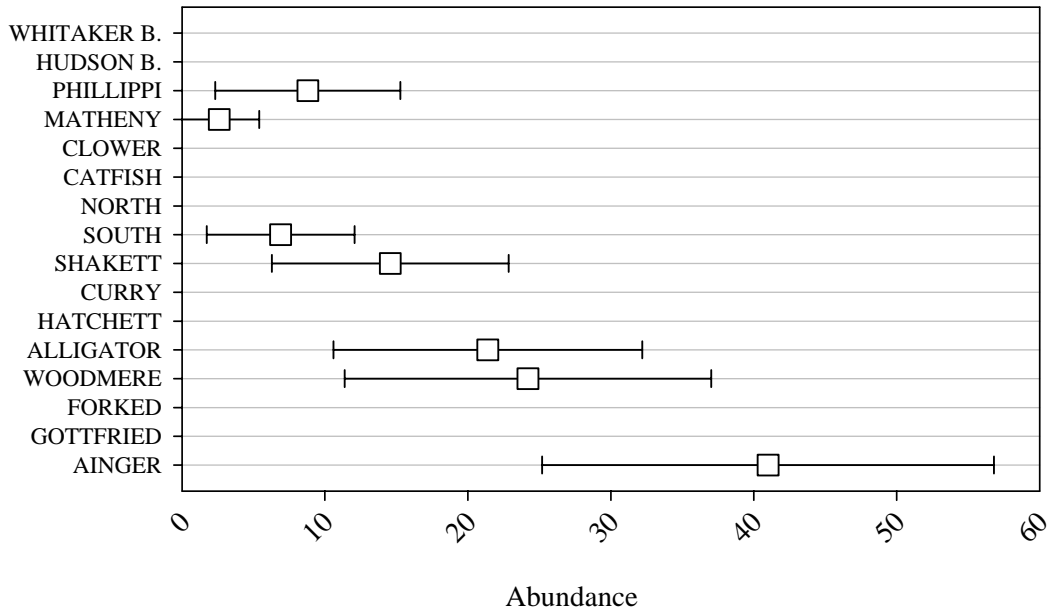
### Subtidal Bare - Net Catch Total



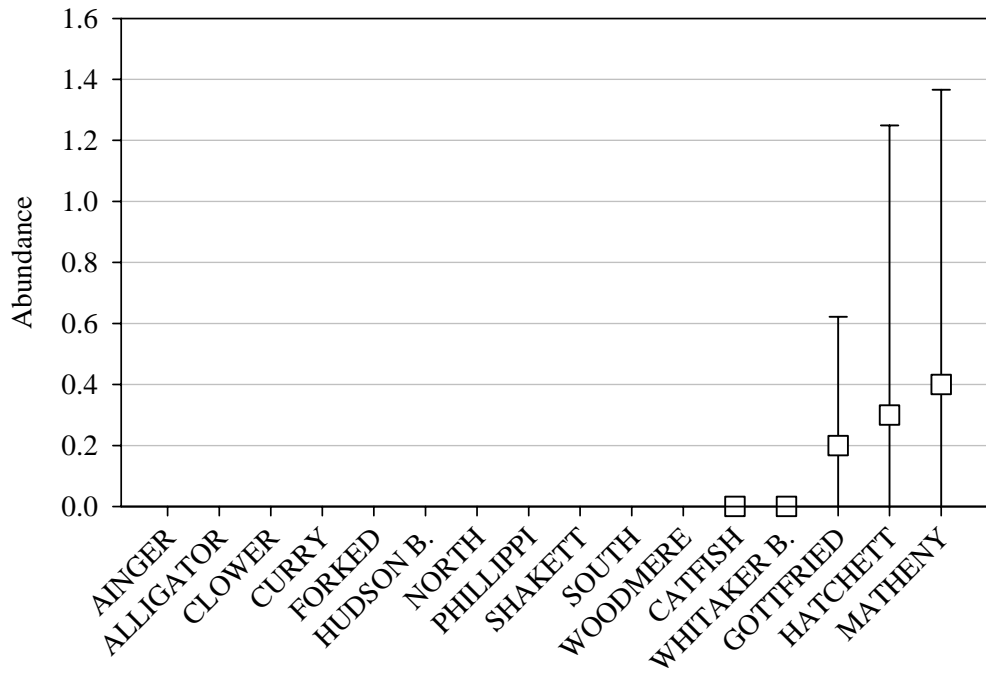
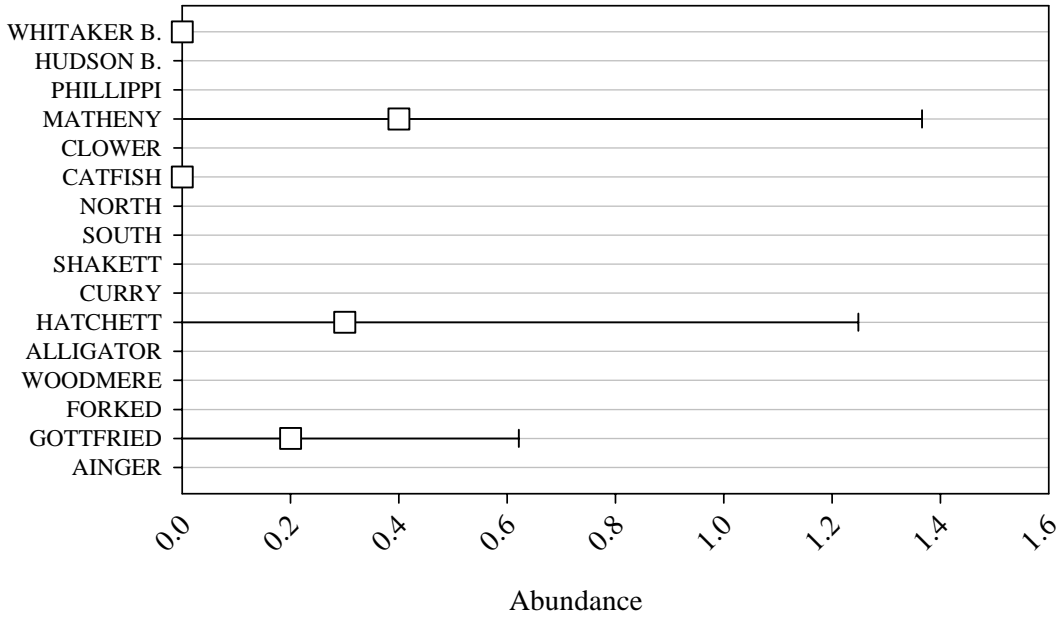
### Intertidal Drift Algae - Net Catch Total



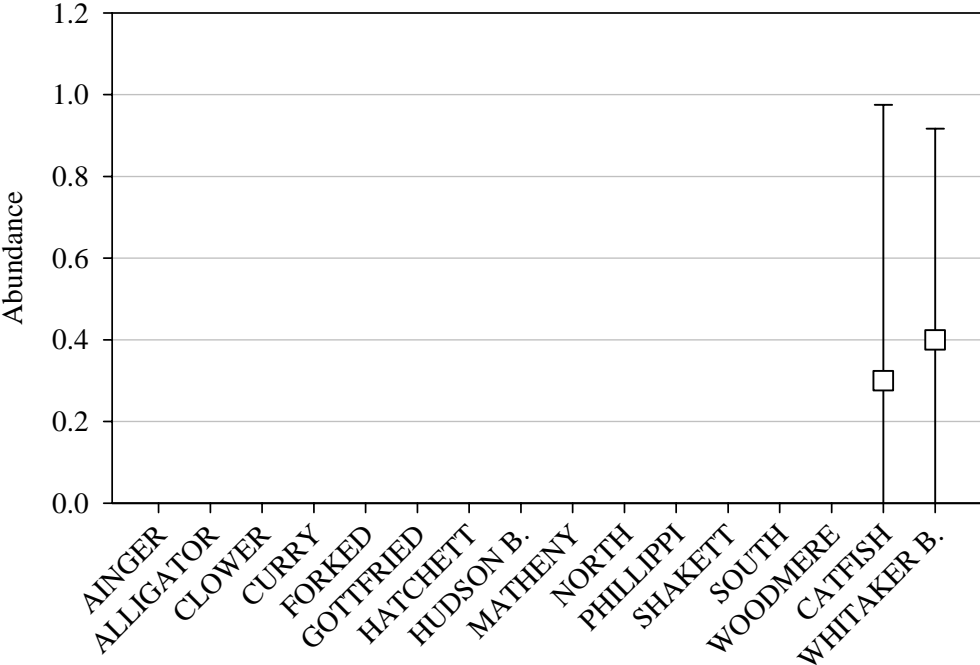
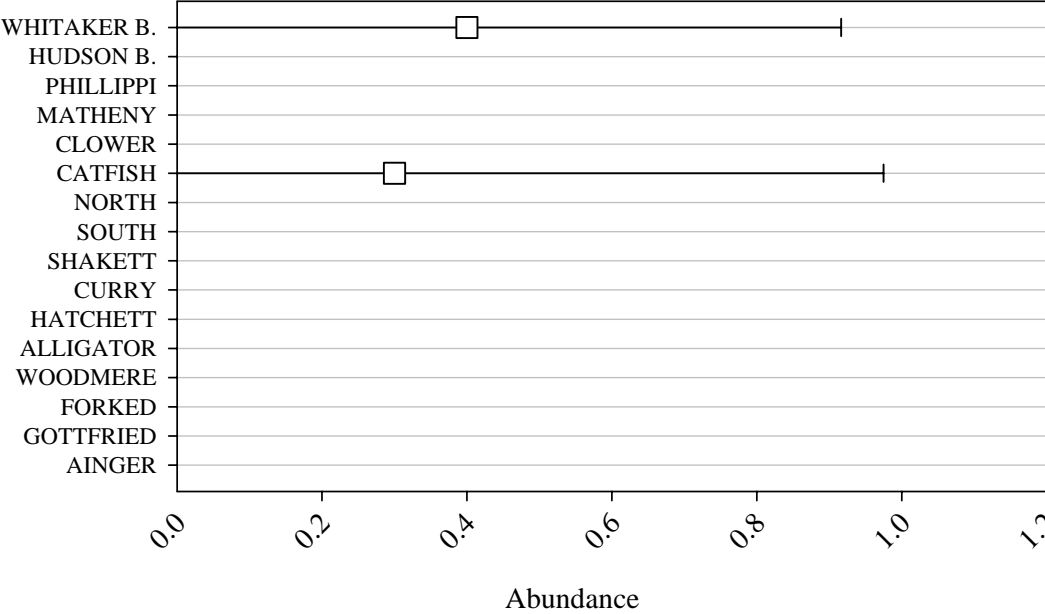
### Subtidal Drift Algae - Net Catch Total



### Intertidal Periphyton - Net Catch Total



### Subtidal Periphyton - Net Catch Total



### Subtidal SAV - Net Catch Total

