Supplemental Figure 7 - All Biomass Profiles

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Supplemental Figures

This pdf holds all the supplemental figures for "Comparison of an in-situ imaging device and net-based method to study mesozooplankton communities in an oligotrophic system."

All figures can also be viewed at the static io page.

All code and data are available on the github repo or in the zip file where this file is located.

1 Supplemental Figure 1: Descent Rate & Volume Sampled

The UVP descends through the water column taking photographs at a rate of 20Hz. Each UVP image captures an 18.8cm x 18.8cm x 3.11cm FOV. This creates the potential for overlap of images, capturing multiple instances of one individual

These figures show the raw descent rates of all cast and the volume sampled in 1-m bins. These also display the potential for overlap, however - it is impossible to truly know if overlap occured from this data because the pressure sensor on the UVP has a specificity of 10cm.

The UVP was lowered at a slower rate from 0-200m than it was from 200-1000m. The average descent rate (0.653 m/s) in the top 200m of the water column was just above the rate at which overlap is likely (0.622 m/s). Additionally, in the top 200m, there are more images taken (a higher volume sampled) than would be possible if no overlap occurred. This indicates that overlap is either occurring or the UVP is moving horizontally in the water column. In all likelihood both of these are a possibility considering ship-drift. In the mesopelagic, overlap is much less likely because the UVP descends at a much faster rate (average 1.099 m/s). The impact of duplicate images are investigated here
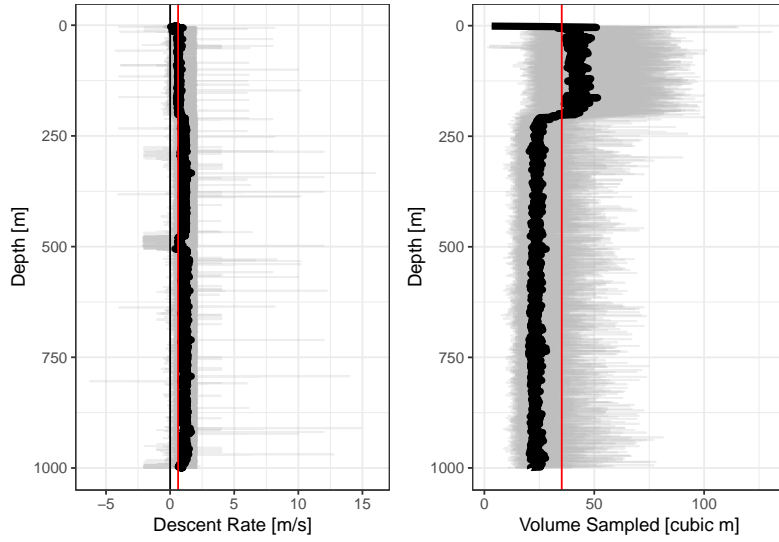
Figure 1.1: Supplemental Figure 1. Left: Descent rate calculated from raw uvp data. Grey lines show each individual cast while the thick black line shows the average of all casts. The red line shows the rate at which image ovrelap is likely (0.622m/s) because the UVP is descending too slowly to clear 3.11cm between images. If descent rate is below 0, this indicates the UVP was moving upwards. These data are from before the ecopart descent filter is applied. Right. Volume sampled in 1-m bins from UVP data after descent filter. Red line shows the maximum volume which can be imaged with no overlap in a 1-m bin, assuming images are perfectly stacked vertically.

2 Supplemental Figure 2: Example of duplicate individual

Duplicate recordings of individuals are a possible phenomena as the UVP5 descend through the water column. These are labels in processing as 'tnd' - technically not duplicate because the are captured in different pictures. A true duplicate would be if an individual was segmented into two pieces in zooprocess.
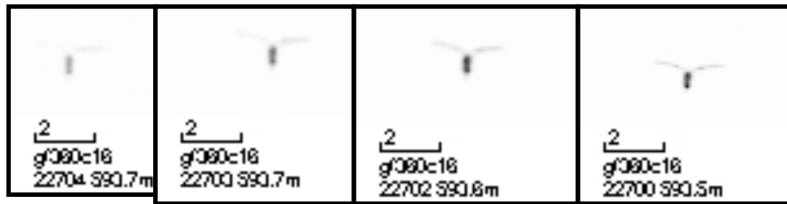

Figure 2.1: Supplemental Figure 2. Instance of a multiple-recorded copepod from an individual cast

3 Suppelemental Figure 3: Impact of multiple-imaged plankton

To assess the impact of duplicate images, for all casts in AE1912, the most abundant plankton taxonomic groups (Rhizaria, *Trichodesmium*, Copepods, *Eumalacostraca*) were all identified as either an independent observation or a "technically not duplicate" - a multiple instance of the same individual recorded in multiple pictures.

The abundance of these taxa were then calculated with two possible methods: 1- All technically not duplicate images were counted as independed observations. Density was then calculated using the volume sampled as determined by the UVP 2- Technically not duplicate images were removed. When

Method 1 is displayed by black points while Method 2 is displayed by blue points.

```
Registered S3 methods overwritten by 'ggalt':
  method                 from
  grid.draw.absoluteGrob  ggplot2
  grobHeight.absoluteGrob ggplot2
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$gf360c5_Chaetognatha



$gf360c5_Copepoda
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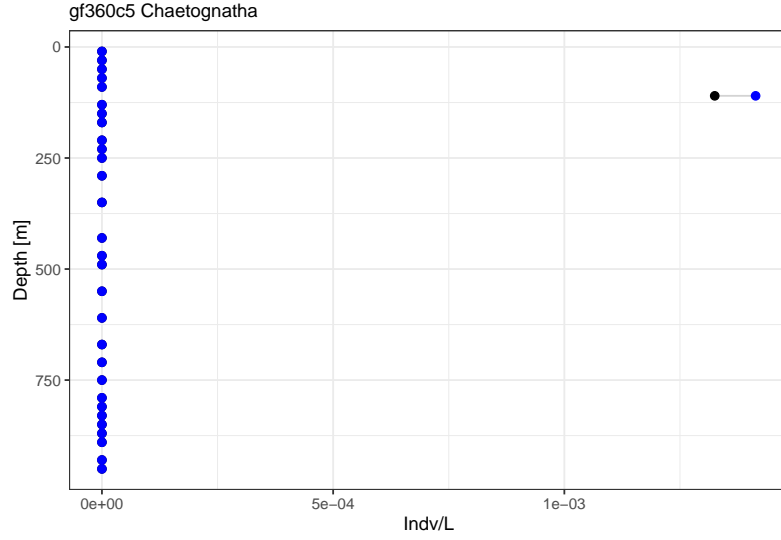
Figure 3.1: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
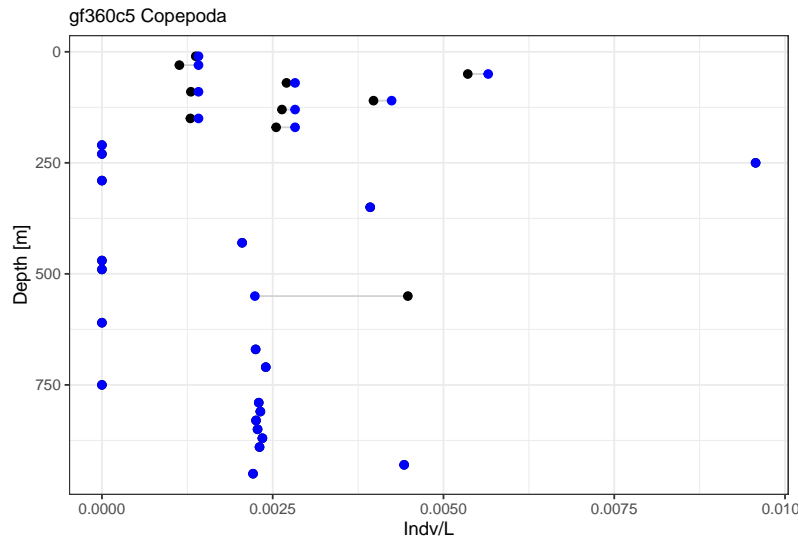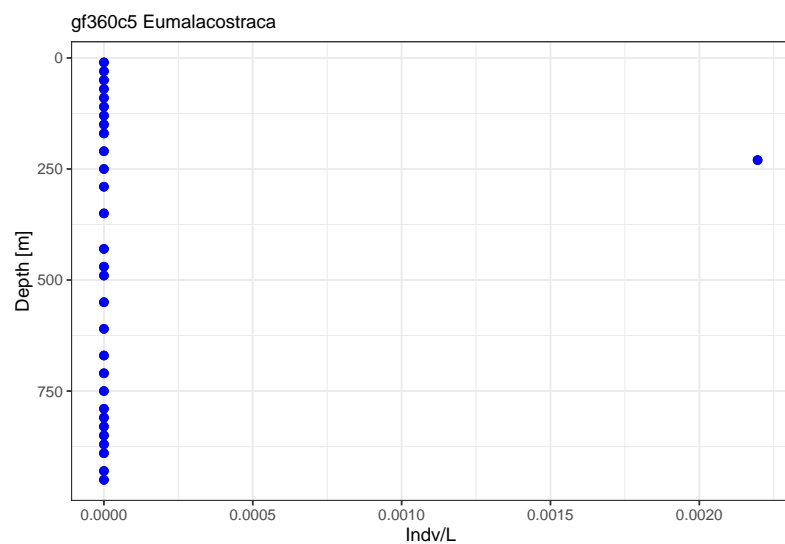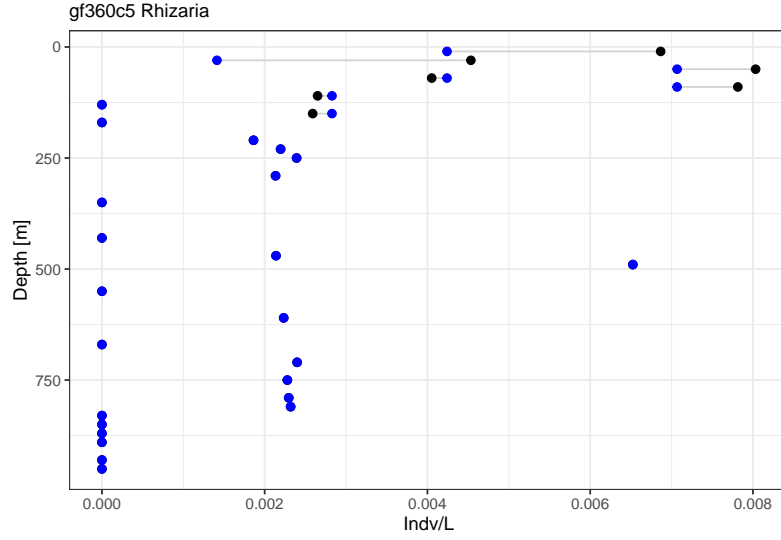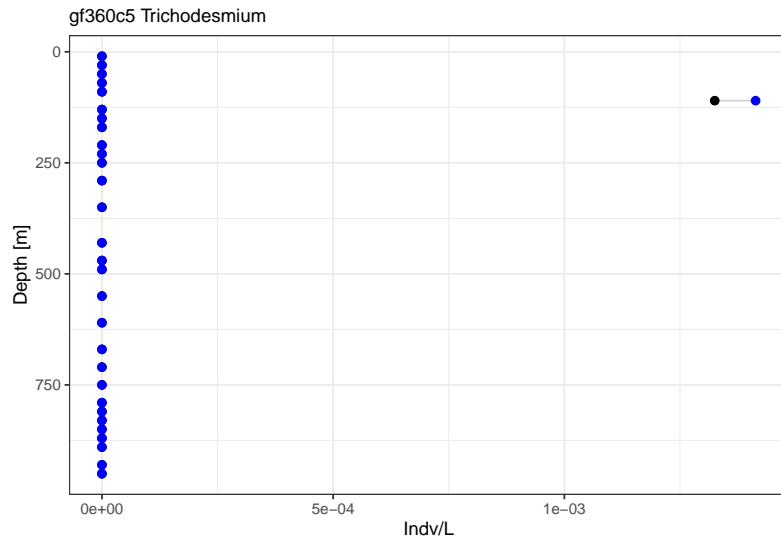

Figure 3.2: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
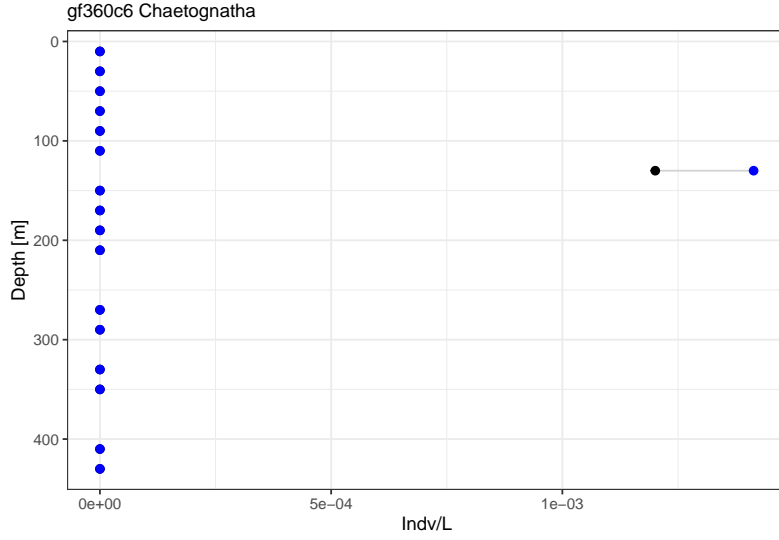
gf360c5 Eumalacostraca

Figure 3.3: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
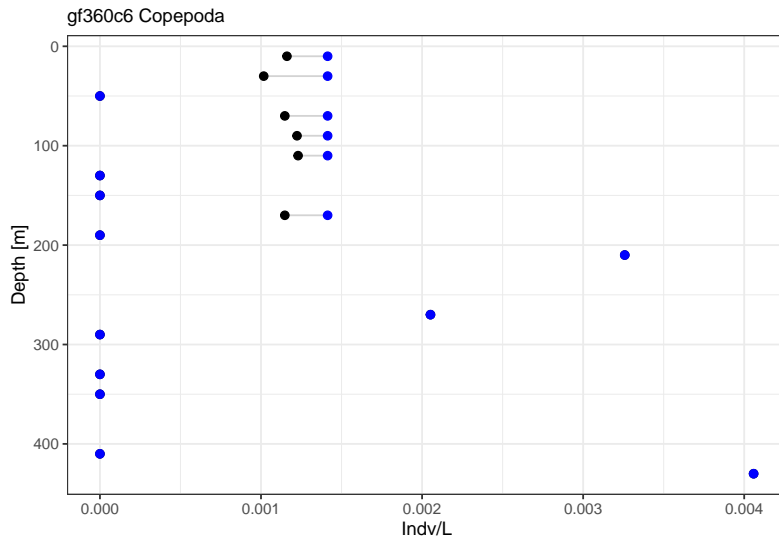
$gf360c5_Eumalacostraca

$gf360c5_Rhizaria

$gf360c5_Trichodesmium

$gf360c6_Chaetognatha

$gf360c6_Copepoda

$gf360c6_Eumalacostraca

$gf360c6_Rhizaria

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Figure 3.4: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
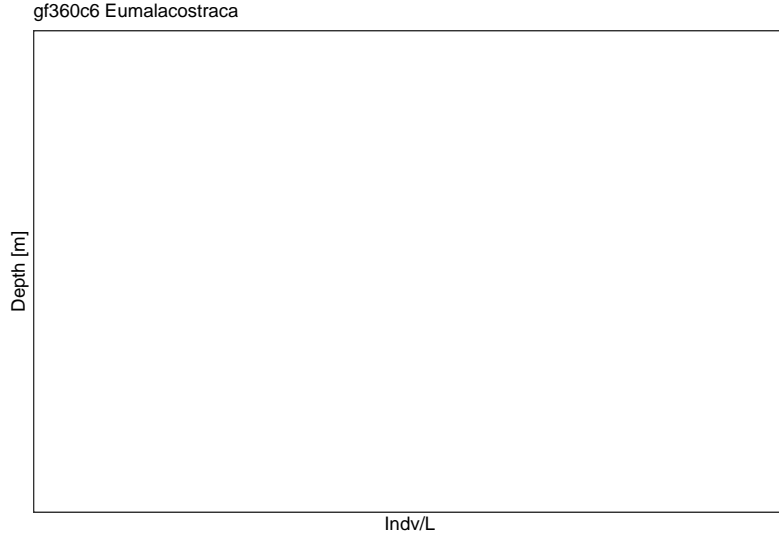

Figure 3.5: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
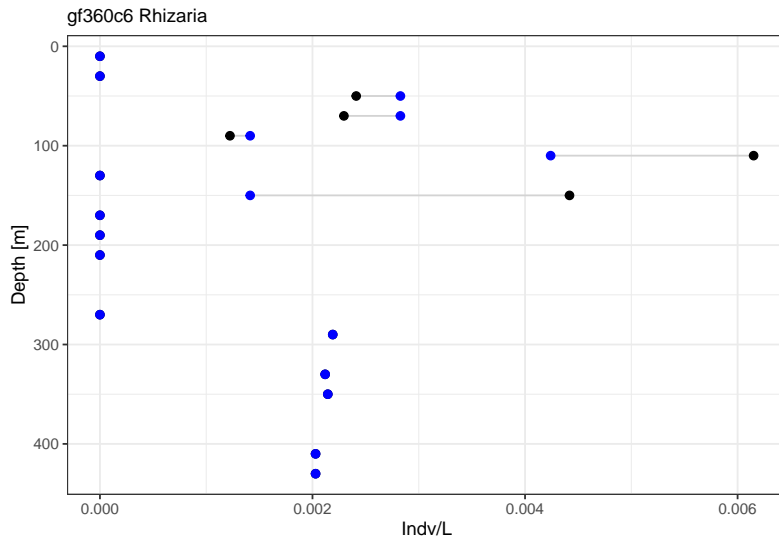
Figure 3.6: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
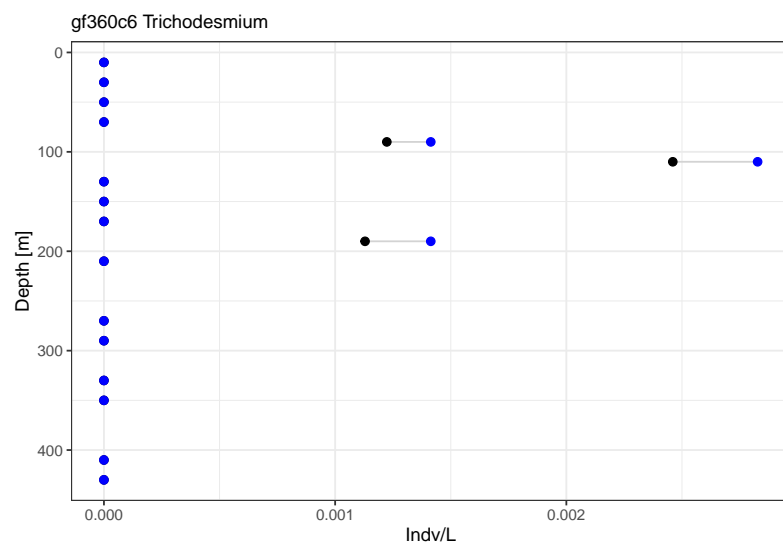

Figure 3.7: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
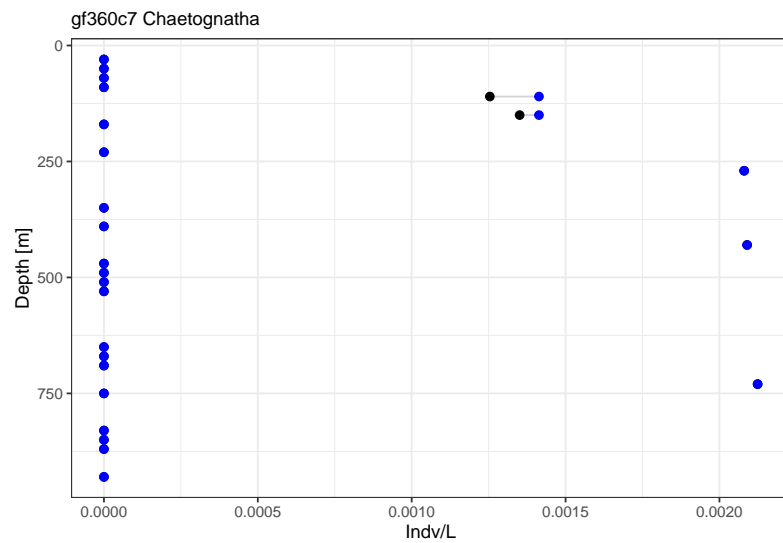
gf360c6 Eumalacostraca

Depth [m]

Indv/L

Figure 3.8: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

gf360c6 Rhizaria

Figure 3.9: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
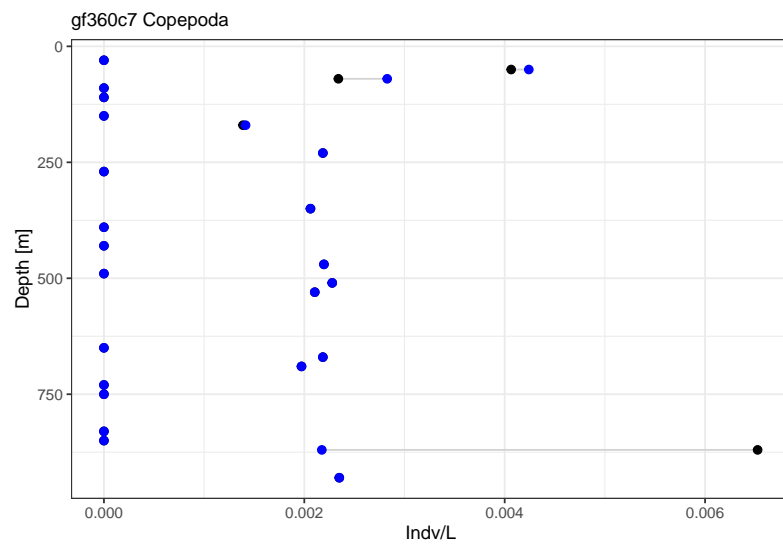
gf360c6 Trichodesmium

Figure 3.10: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c6_Trichodesmium

$gf360c7_Chaetognatha

$gf360c7_Copepoda

$gf360c7_Eumalacostraca

$gf360c7_Rhizaria

$gf360c7_Trichodesmium

$gf360c8_Chaetognatha

Figure 3.11: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
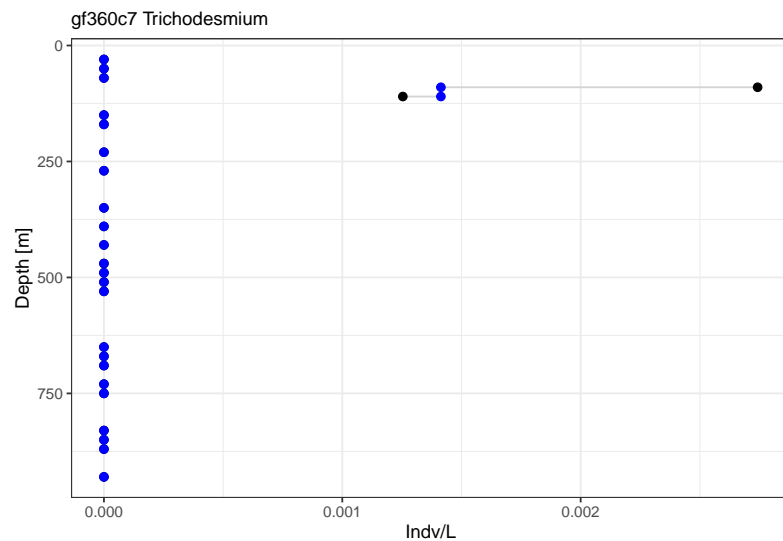

Figure 3.12: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
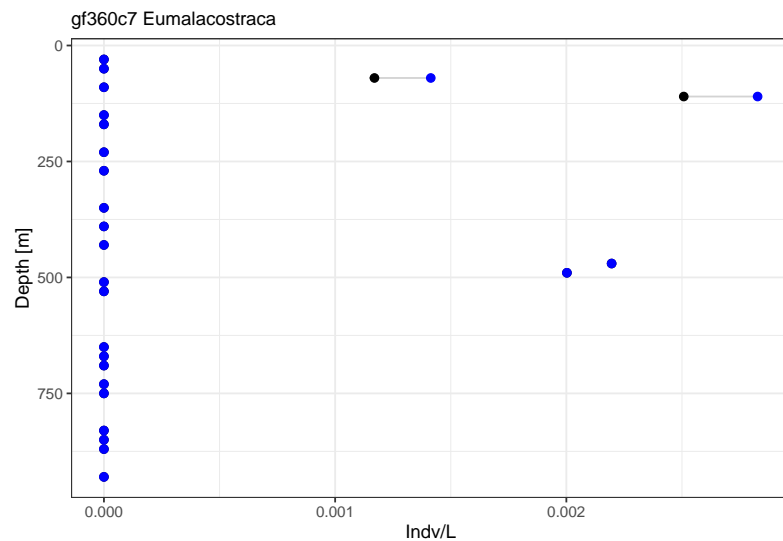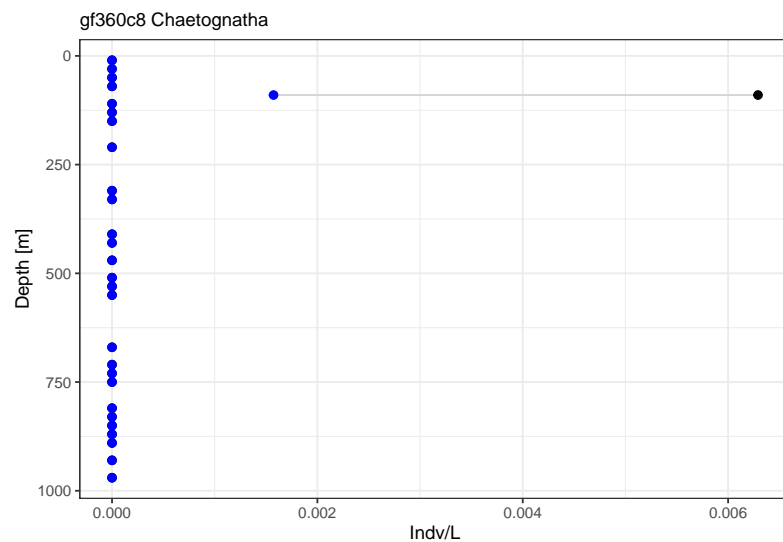
Figure 3.13: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
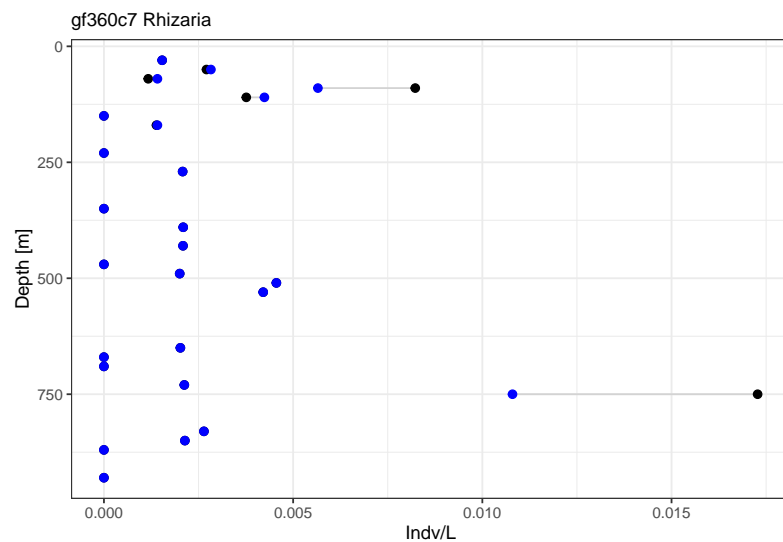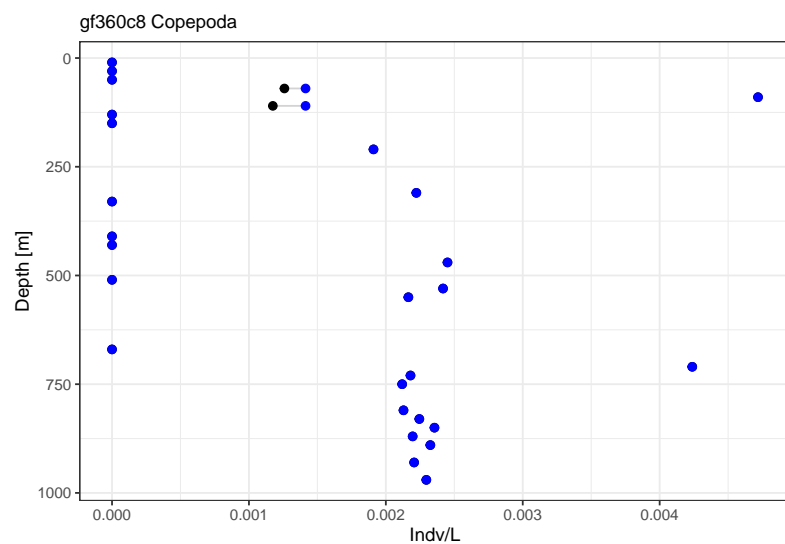

Figure 3.14: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
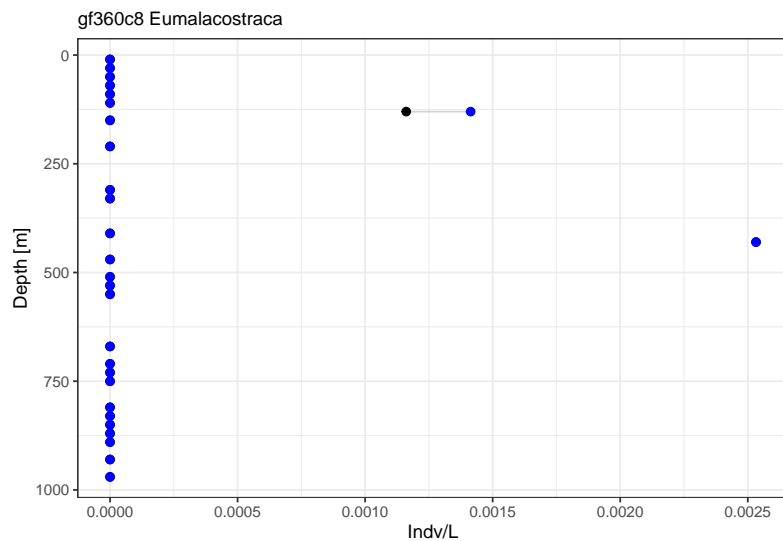
Figure 3.15: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

Figure 3.16: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
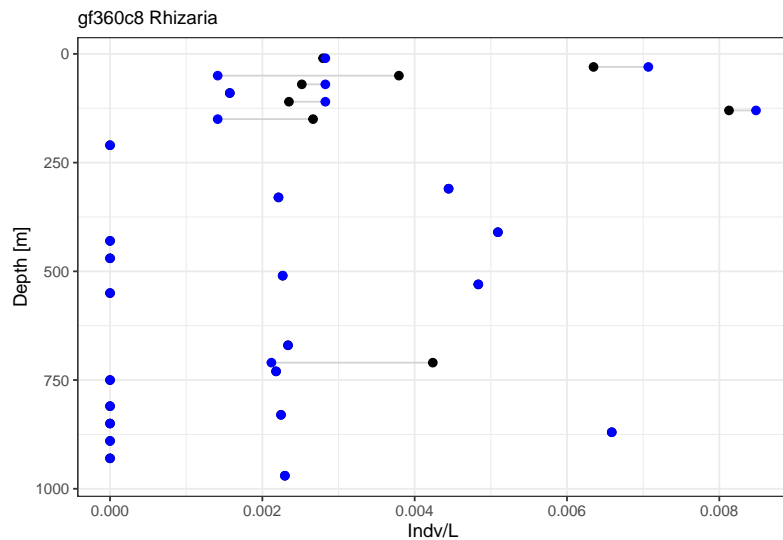
16

gf360c8 Copepoda

Figure 3.17: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c8_Copepoda

$gf360c8_Eumalacostraca

$gf360c8_Rhizaria

$gf360c8_Trichodesmium

$gf360c9_Chaetognatha

$gf360c9_Copepoda

$gf360c9_Eumalacostraca

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Figure 3.18: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
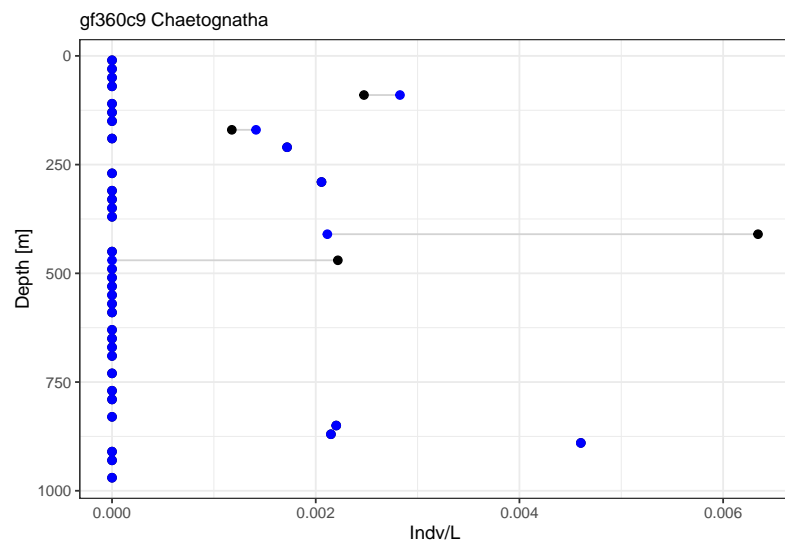

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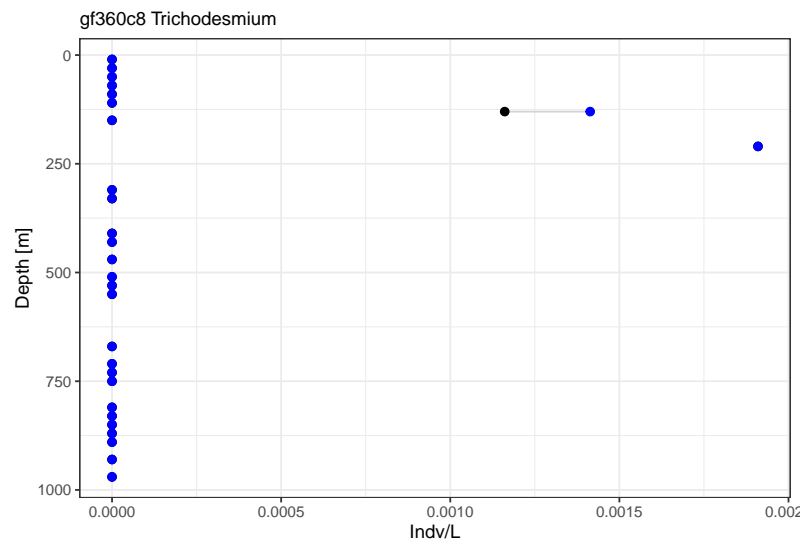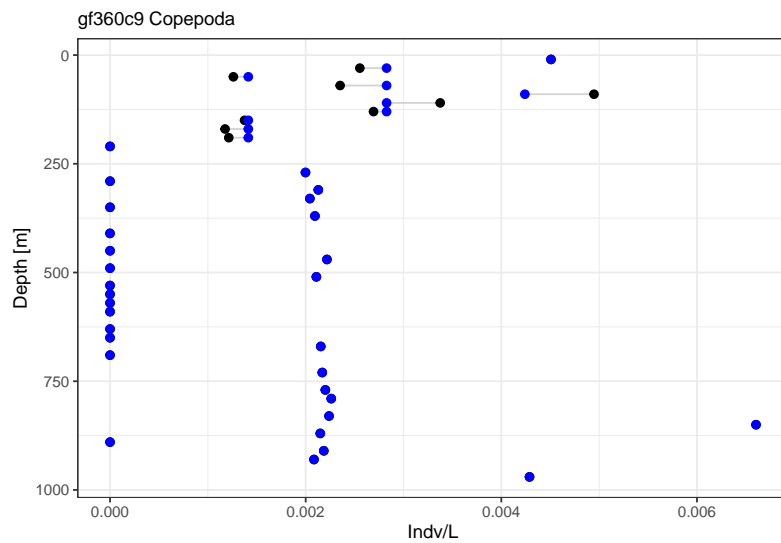
Figure 3.20: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
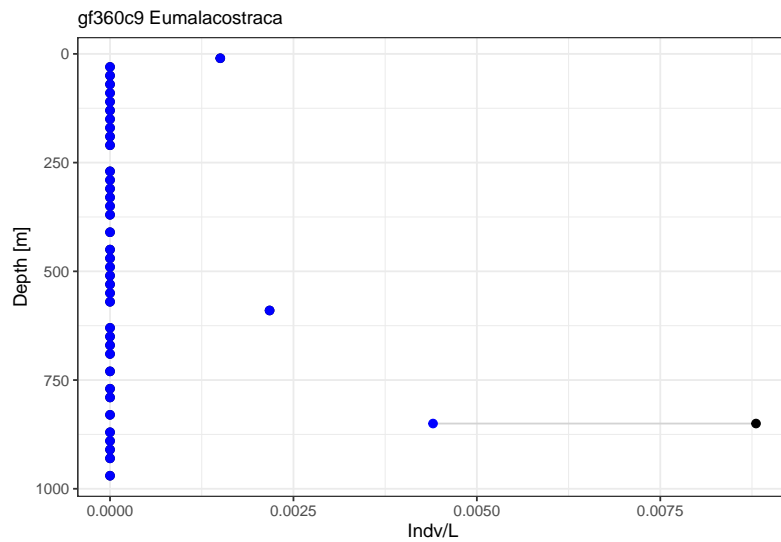

Figure 3.21: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
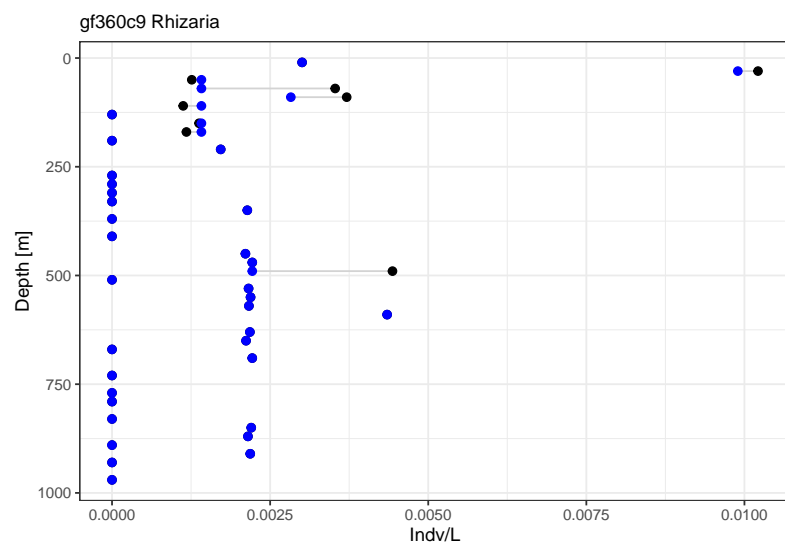
Figure 3.22: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
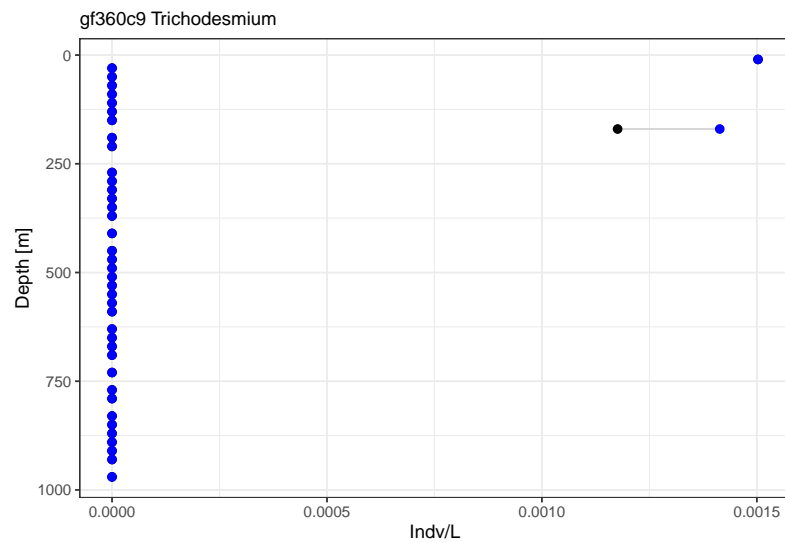

Figure 3.23: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

gf360c9 Rhizaria

Figure 3.24: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
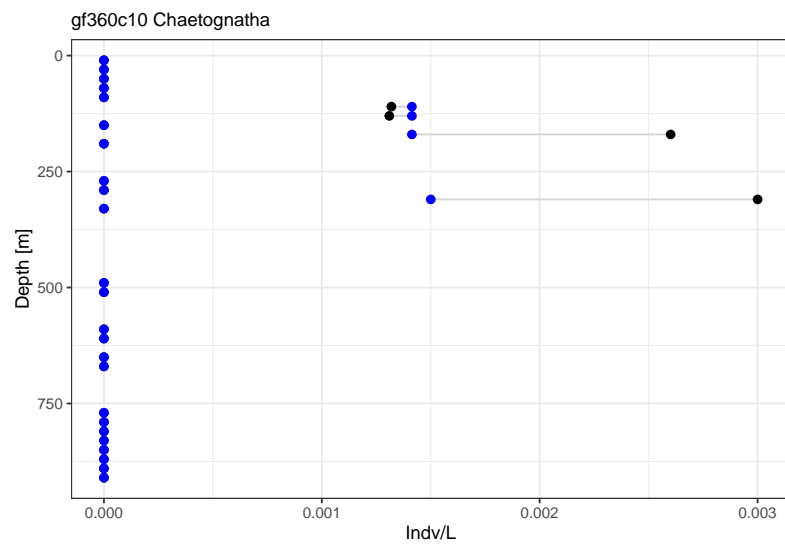
$gf360c9_Rhizaria

$gf360c9_Trichodesmium

$gf360c10_Chaetognatha

$gf360c10_Copepoda

$gf360c10_Eumalacostraca

$gf360c10_Rhizaria

$gf360c10_Trichodesmium

Figure 3.25: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
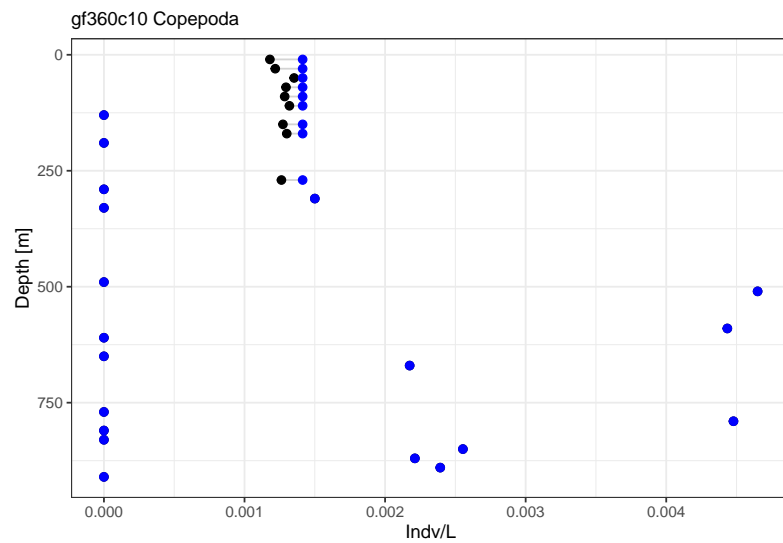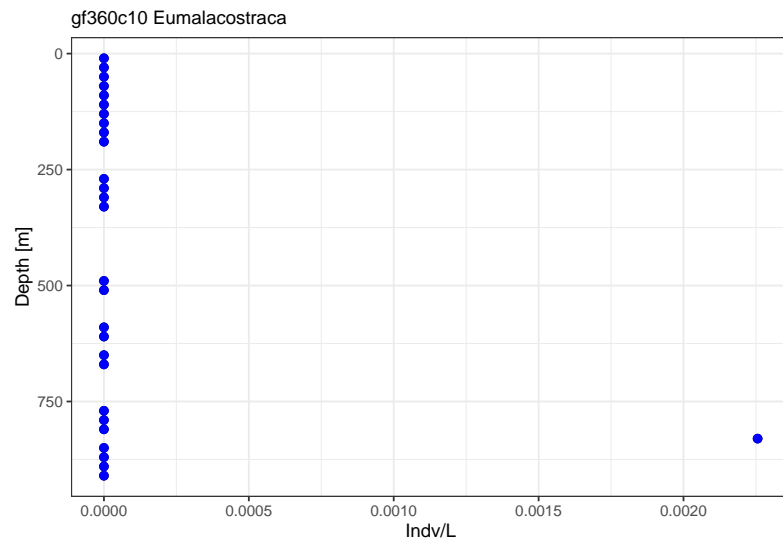

Figure 3.26: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
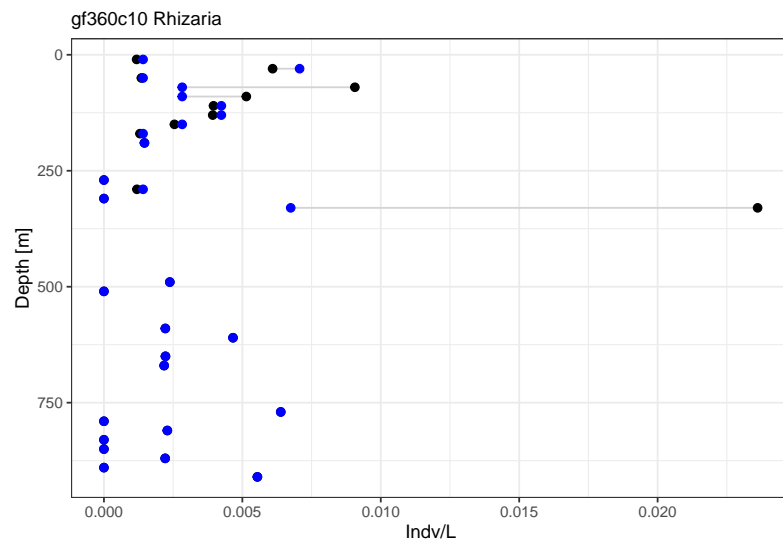
Figure 3.27: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

Figure 3.28: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
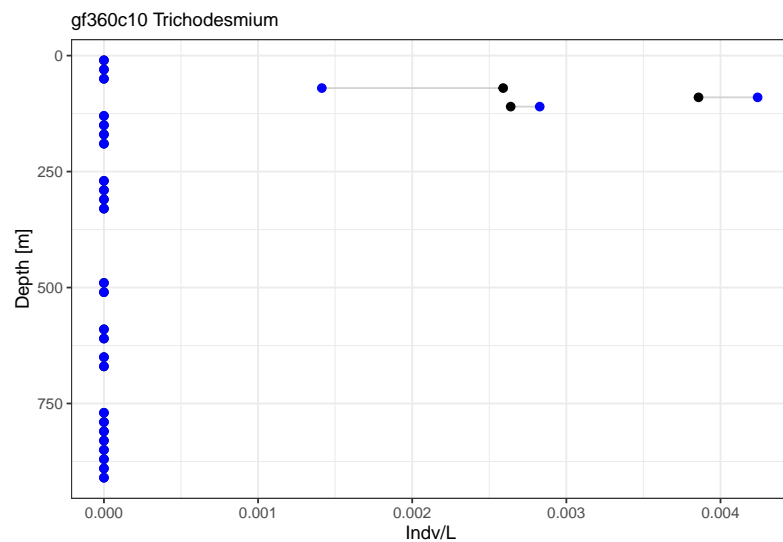
Figure 3.29: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
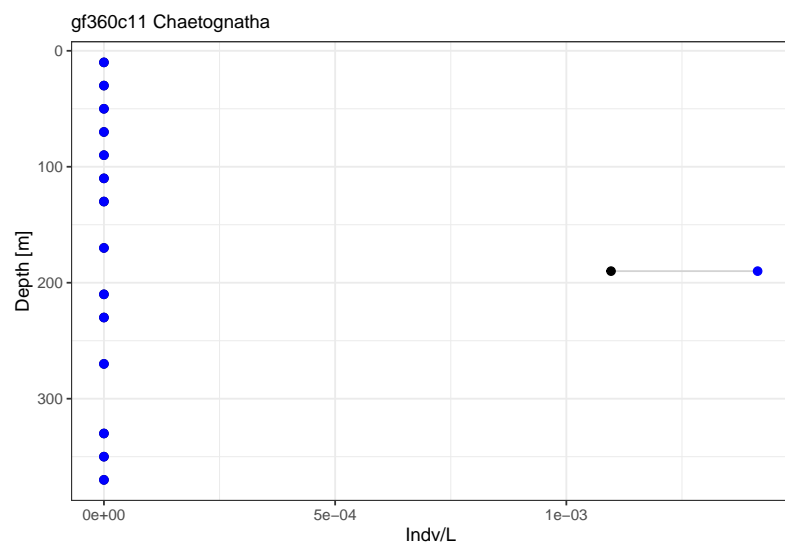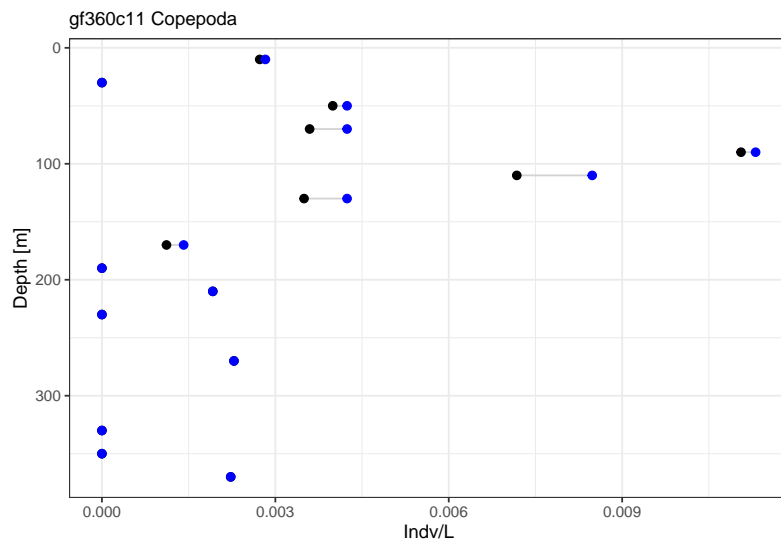

Figure 3.30: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

Figure 3.31: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c11_Chaetognatha

$gf360c11_Copepoda

$gf360c11_Eumalacostraca

$gf360c11_Rhizaria

$gf360c11_Trichodesmium

$gf360c13_Chaetognatha

$gf360c13_Copepoda

gf360c11 Copepoda

Figure 3.32: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
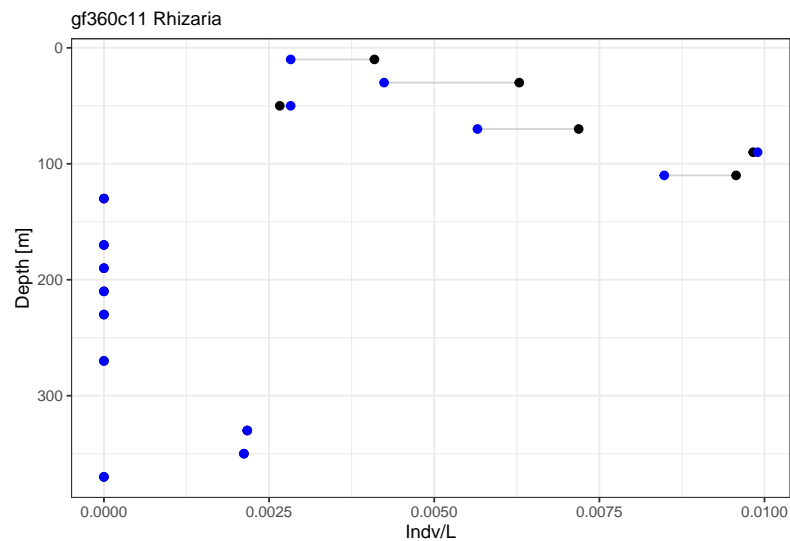

gf360c11 Eumalacostraca
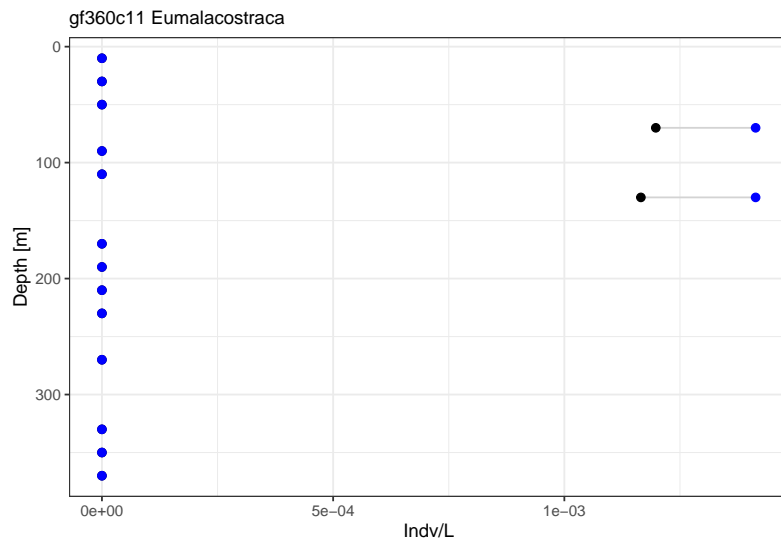
Figure 3.33: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
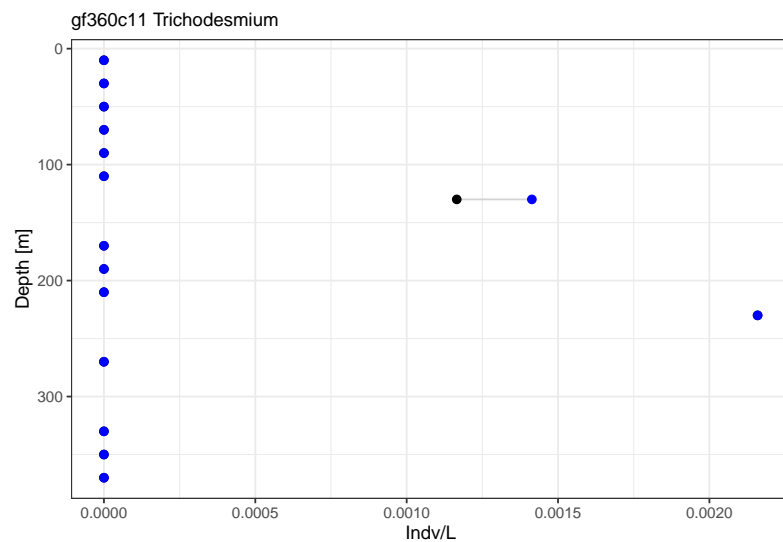
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Figure 3.34: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
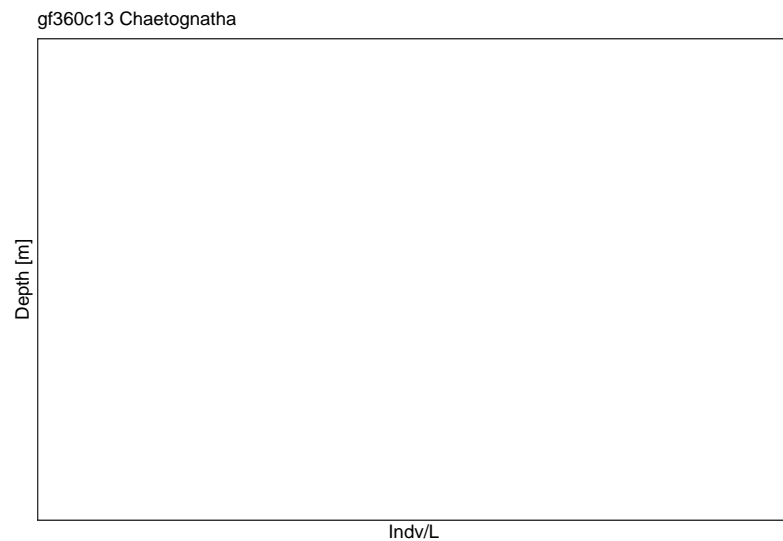

Figure 3.35: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
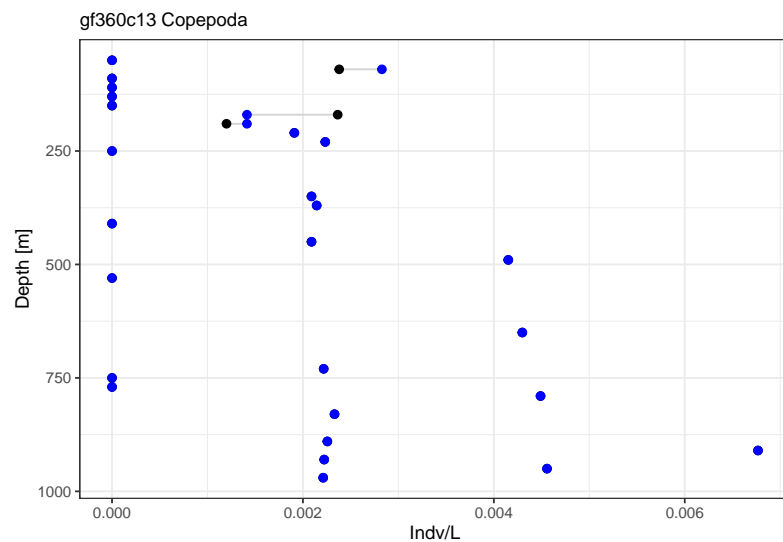
27

gf360c13 Chaetognatha

Depth [m]

Indv/L

Figure 3.36: Sup Fig 3. Imact of multiple-imaged organisms on
density estimates for specific taxa on individual
casts in 20m bins. Black points show inclusion of
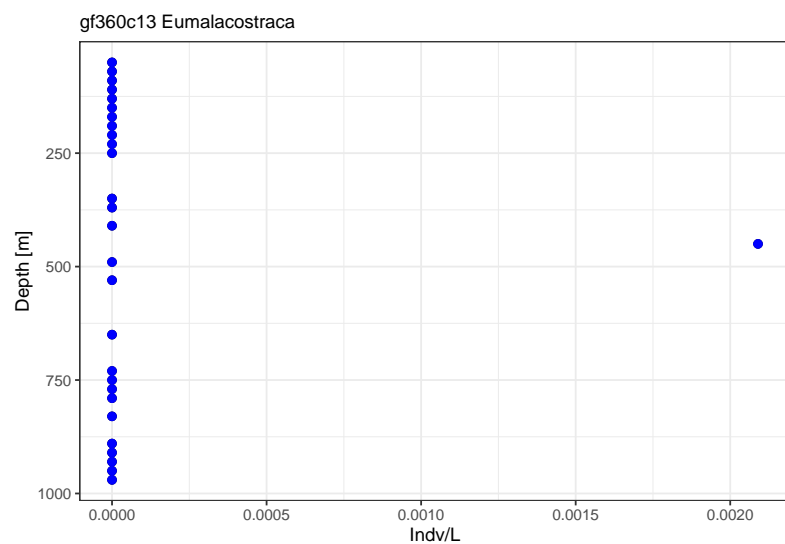multiples, blue points show exclusion.

gf360c13 Copepoda

Depth [m]

Indv/L

Figure 3.37: Sup Fig 3. Imact of multiple-imaged organisms on
density estimates for specific taxa on individual
casts in 20m bins. Black points show inclusion of
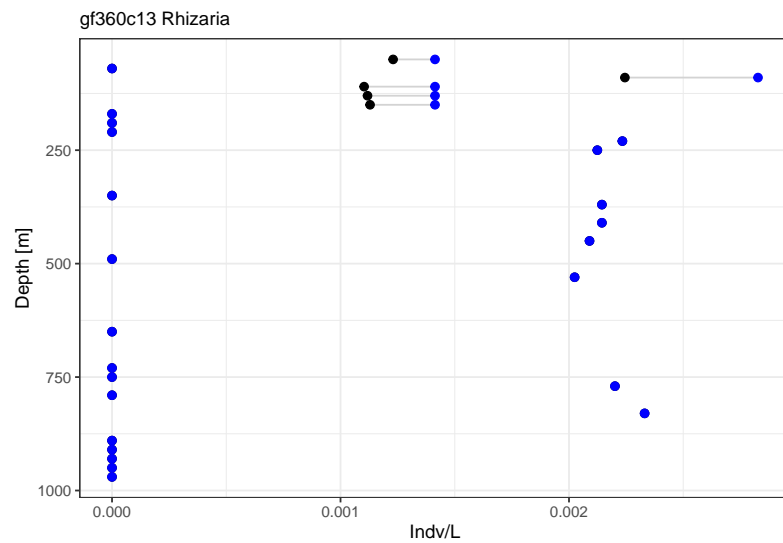multiples, blue points show exclusion.

gf360c13 Eumalacostraca

Figure 3.38: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
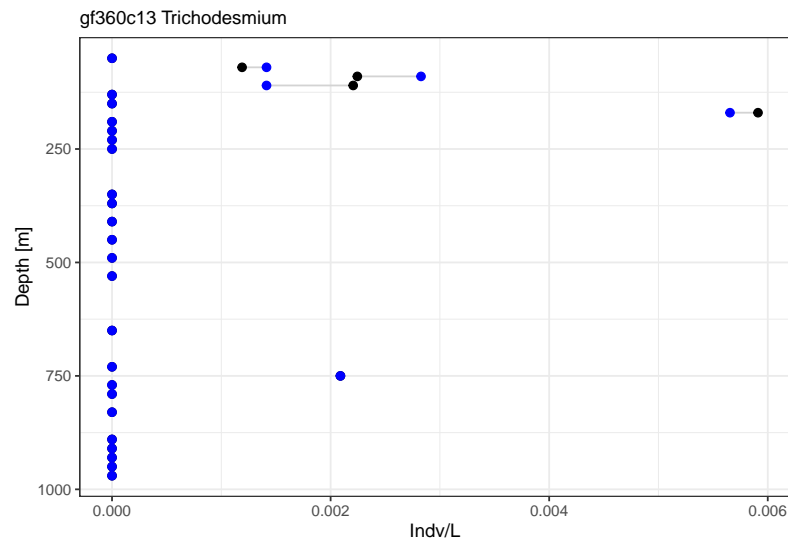
$gf360c13_Eumalacostraca

$gf360c13_Rhizaria

$gf360c13_Trichodesmium

$gf360c14_Chaetognatha

$gf360c14_Copepoda

$gf360c14_Eumalacostraca

$gf360c14_Rhizaria

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Figure 3.39: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
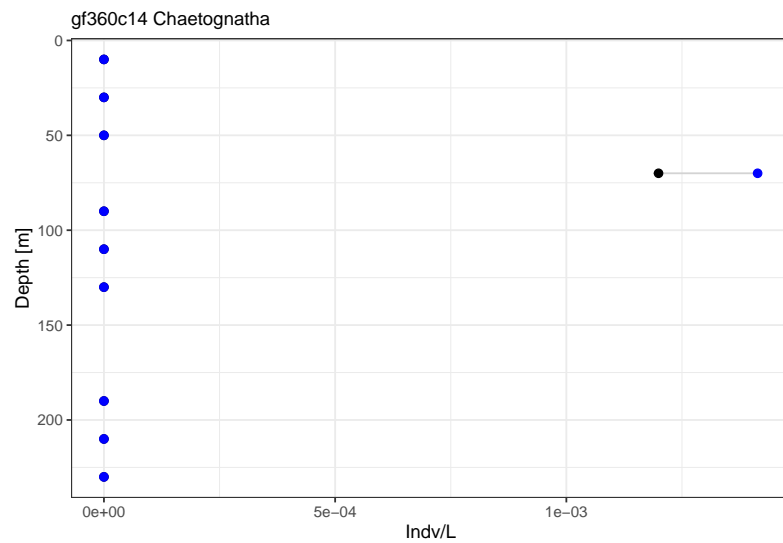

Figure 3.40: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
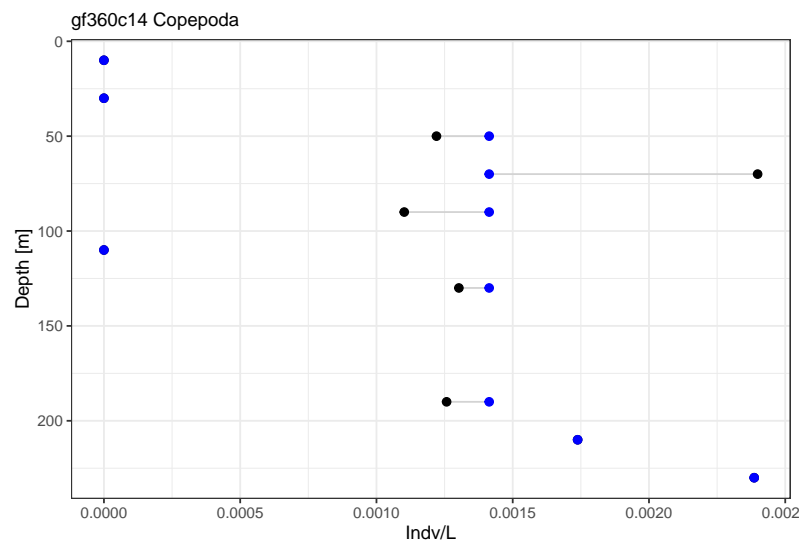
Figure 3.41: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
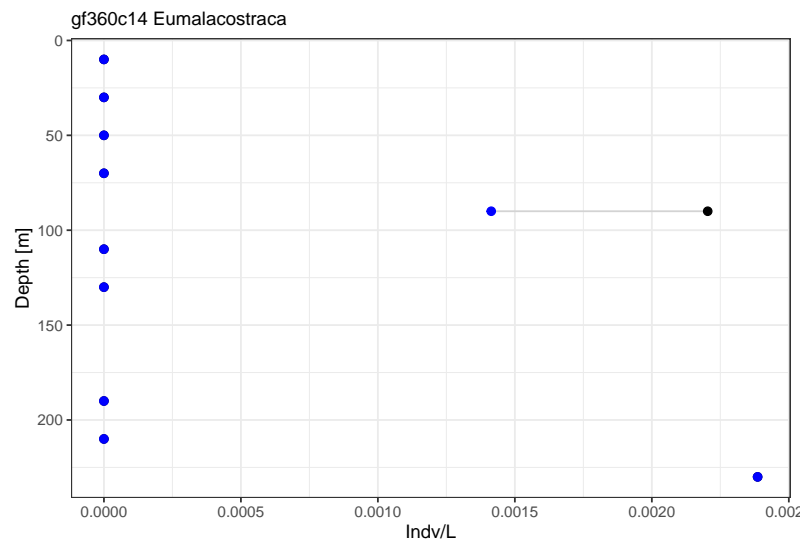

Figure 3.42: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
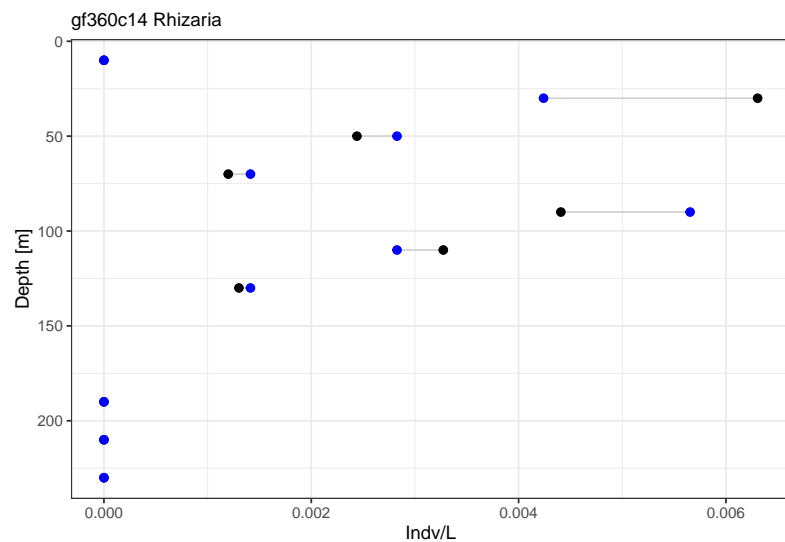
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Figure 3.43: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
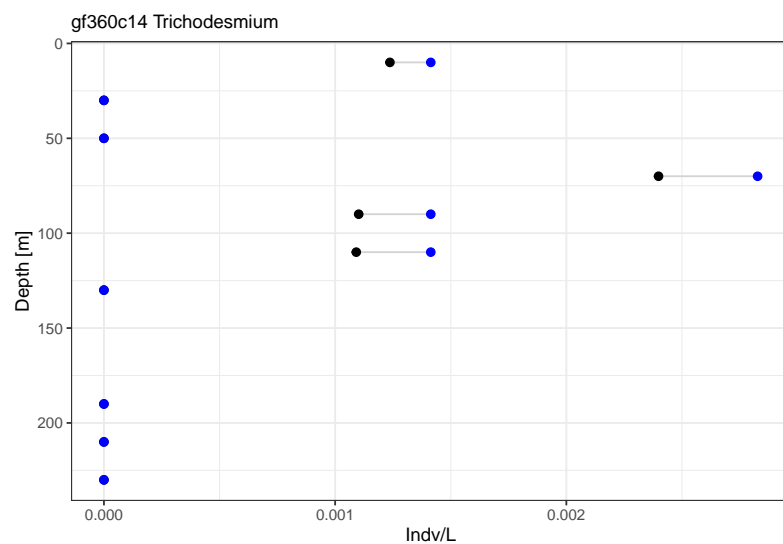

Figure 3.44: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
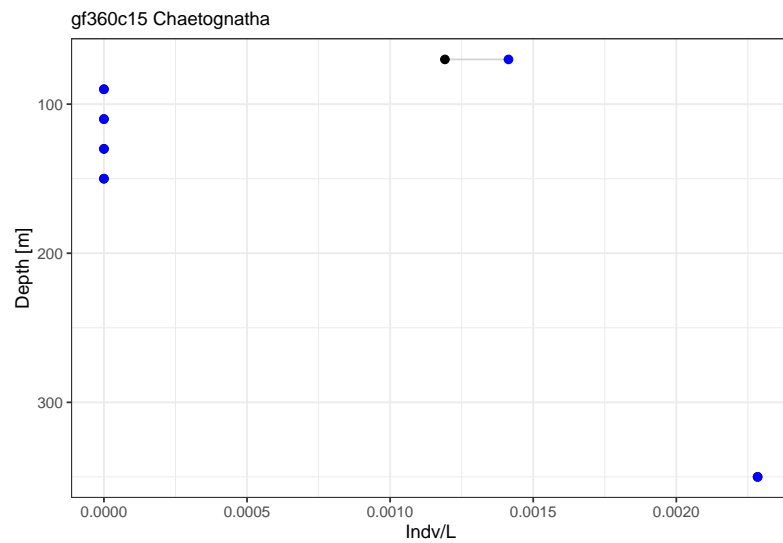
gf360c14 Trichodesmium

Figure 3.45: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c14_Trichodesmium

$gf360c15_Chaetognatha

$gf360c15_Copepoda

$gf360c15_Eumalacostraca

$gf360c15_Rhizaria

$gf360c15_Trichodesmium

$gf360c16_Chaetognatha

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Figure 3.46: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
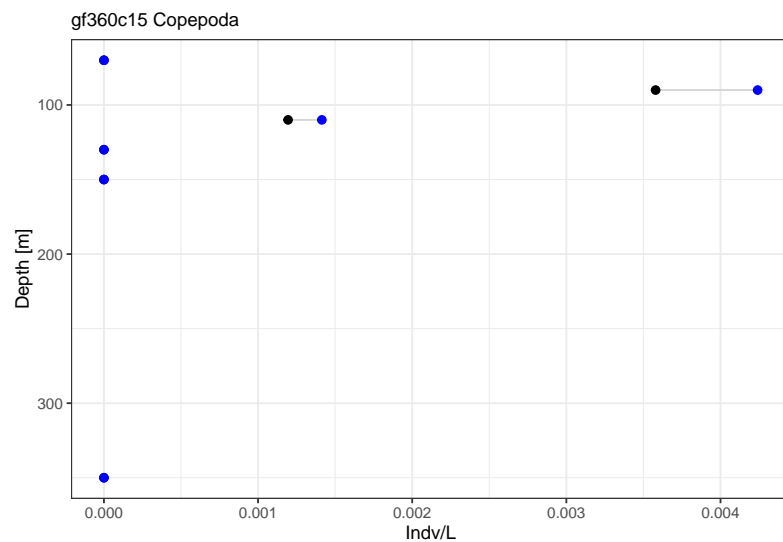

Figure 3.47: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
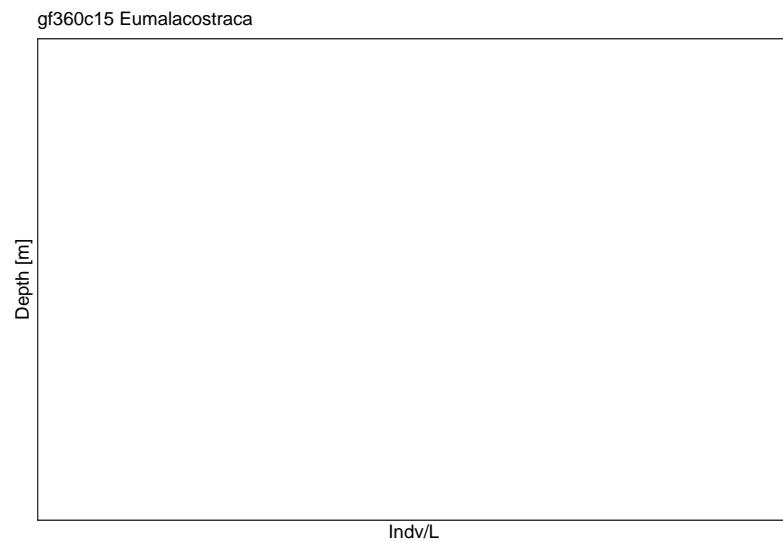
gf360c15 Eumalacostraca

Depth [m]

Indv/L

Figure 3.48: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
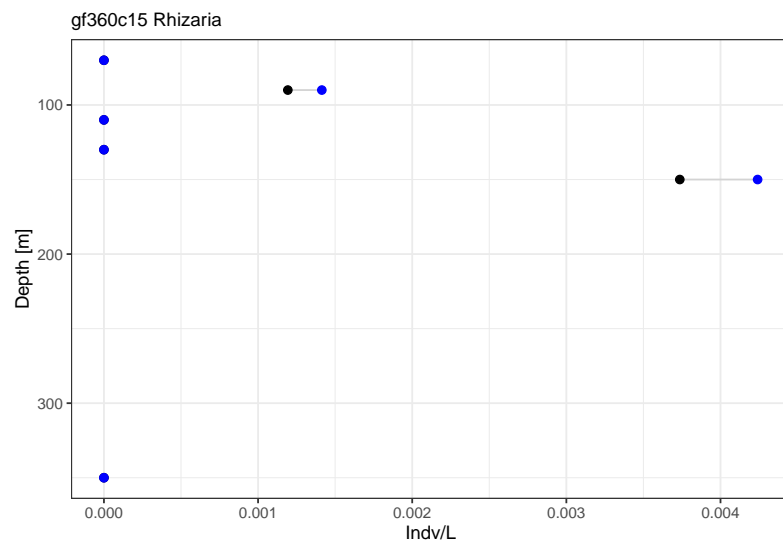
gf360c15 Rhizaria

Depth [m]

Indv/L

Figure 3.49: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
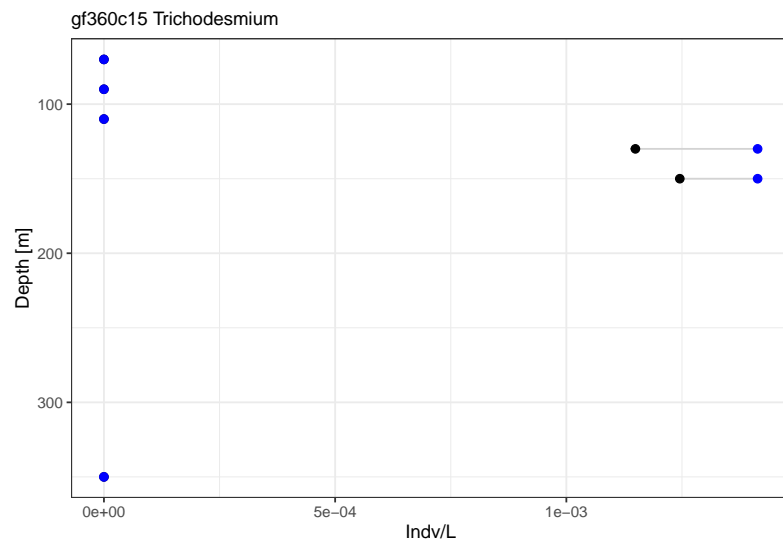
Figure 3.50: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
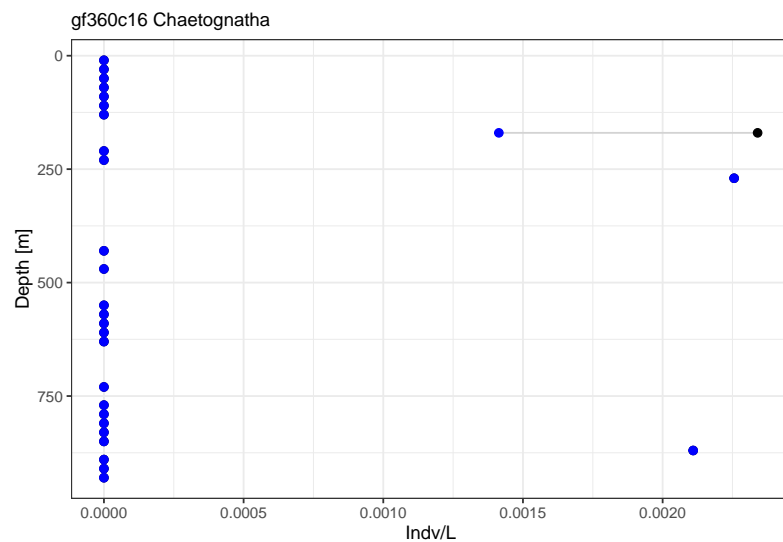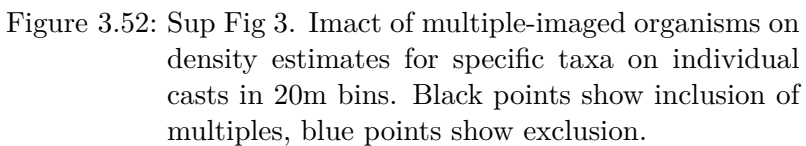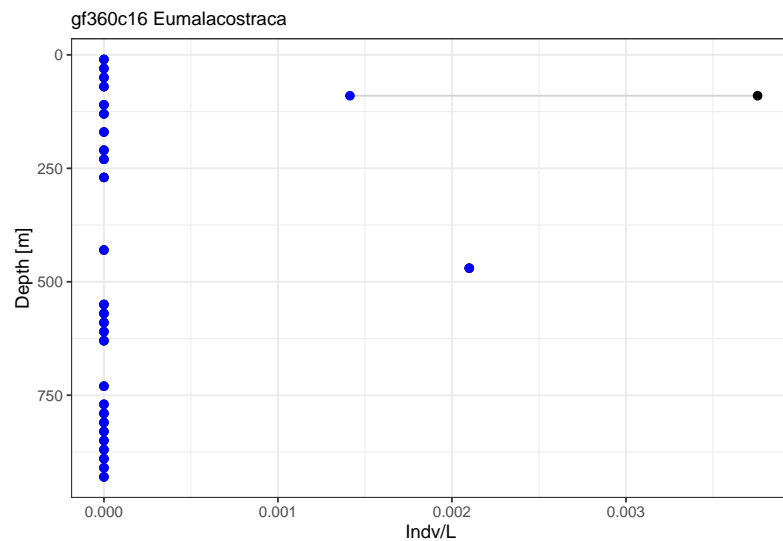

Figure 3.51: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

gf360c16 Copepoda

Figure 3.52: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
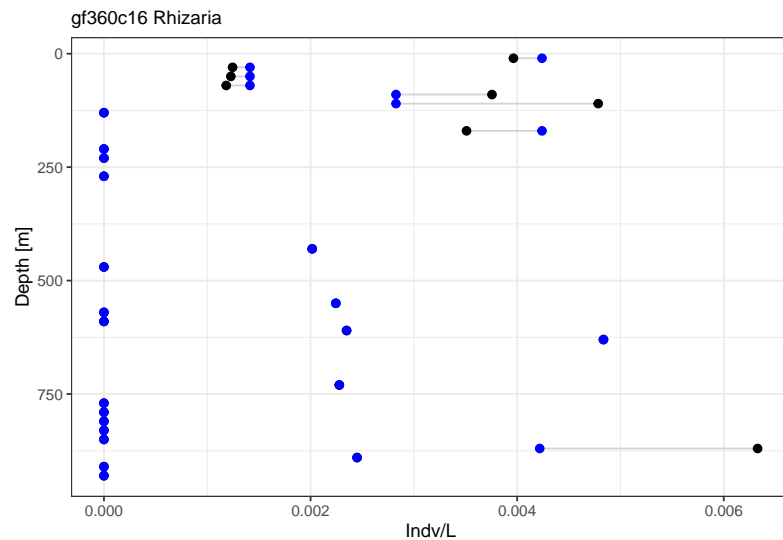
$gf360c16_Copepoda

$gf360c16_Eumalacostraca

$gf360c16_Rhizaria

$gf360c16_Trichodesmium

$gf360c17_Chaetognatha

$gf360c17_Copepoda

$gf360c17_Eumalacostraca

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Figure 3.53: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
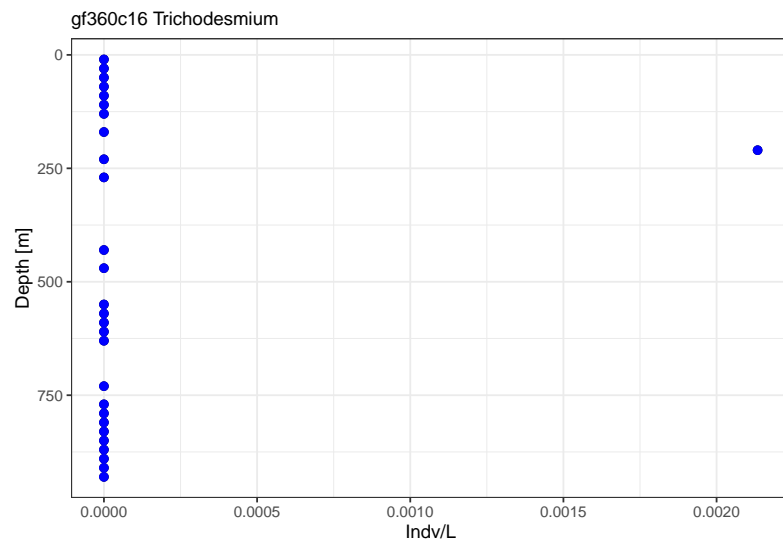

Figure 3.54: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
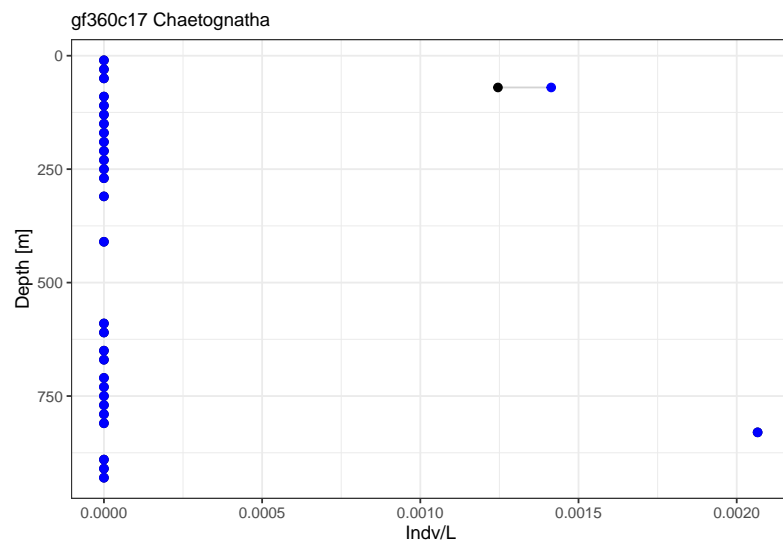
Figure 3.55: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
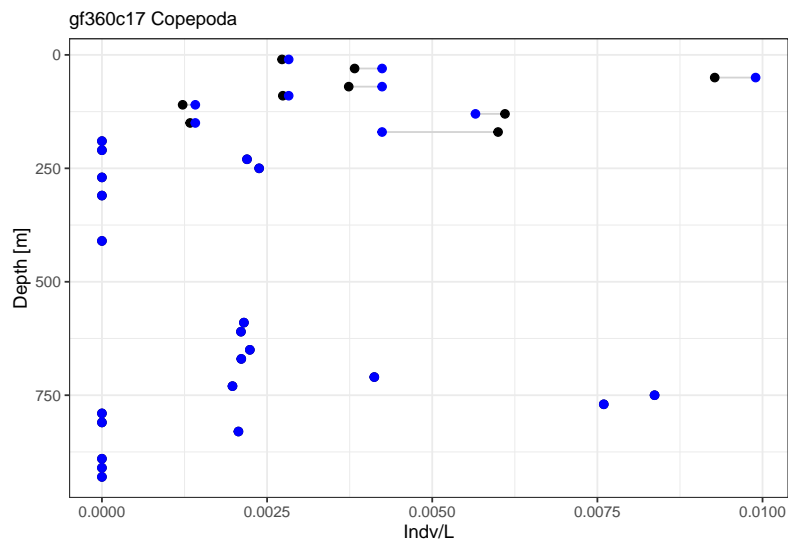

Figure 3.56: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
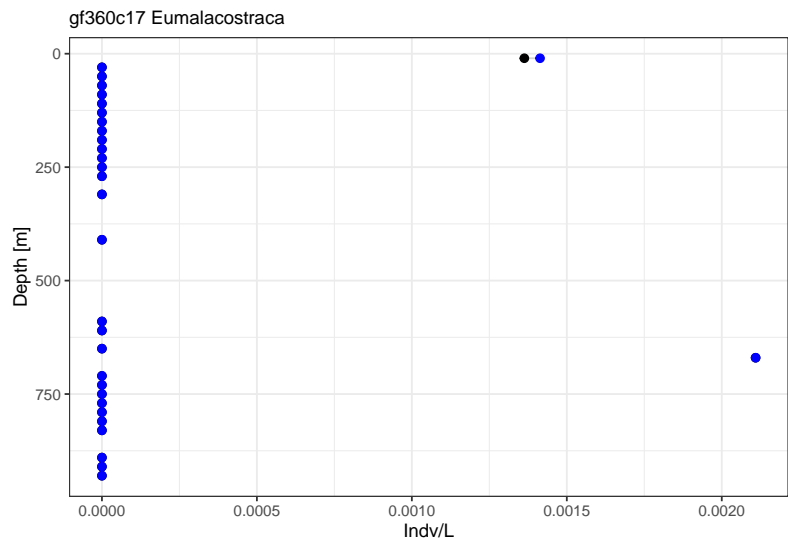
Figure 3.57: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
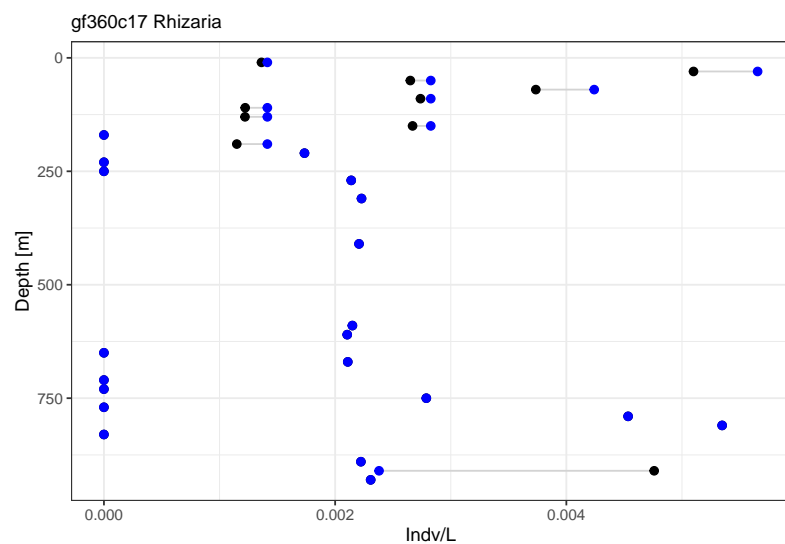

Figure 3.58: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
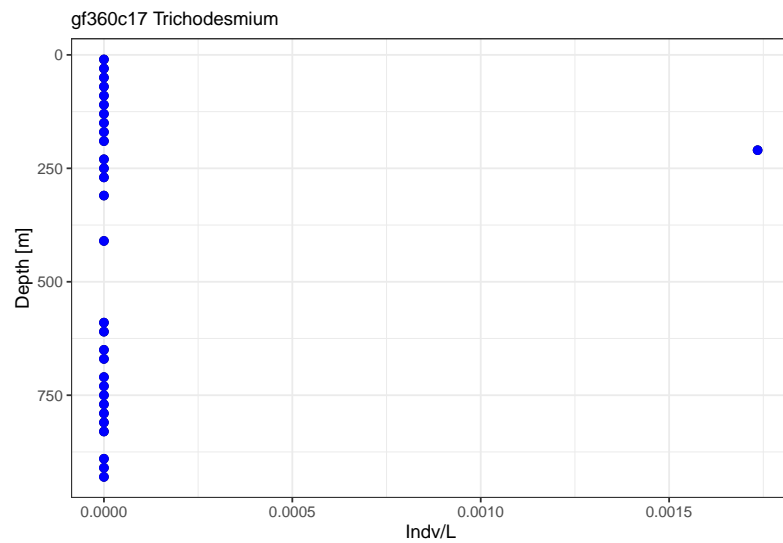
gf360c17 Rhizaria

Figure 3.59: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c17_Rhizaria

$gf360c17_Trichodesmium

$gf360c18_Chaetognatha

$gf360c18_Copepoda

$gf360c18_Eumalacostraca

$gf360c18_Rhizaria

$gf360c18_Trichodesmium

Figure 3.60: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
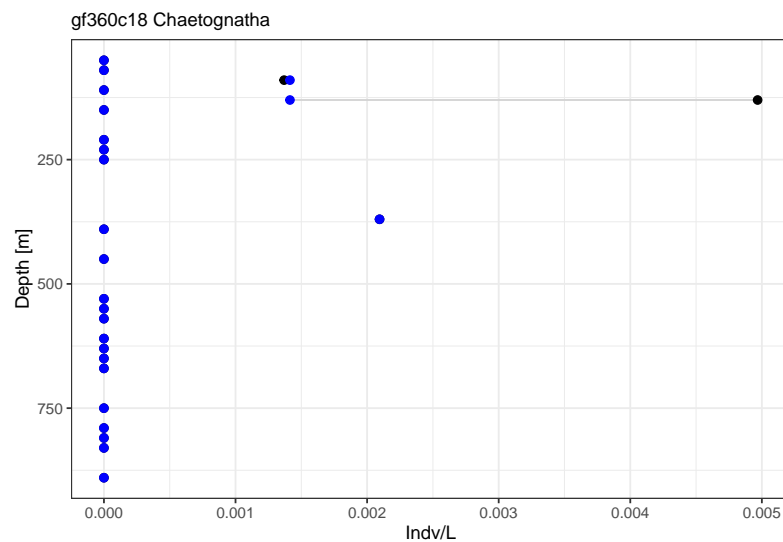

Figure 3.61: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
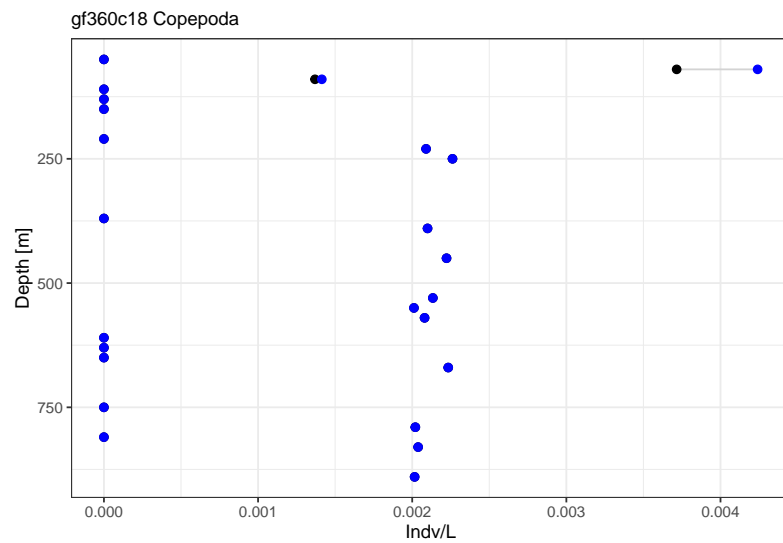
Figure 3.62: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
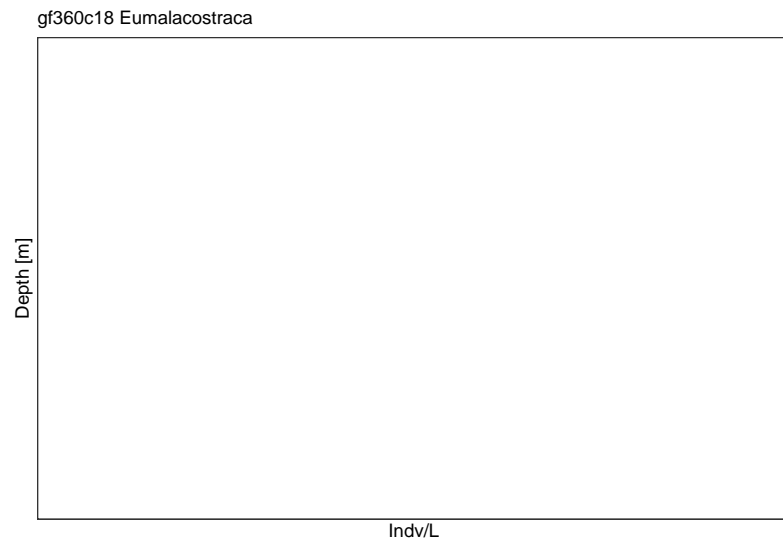

Figure 3.63: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
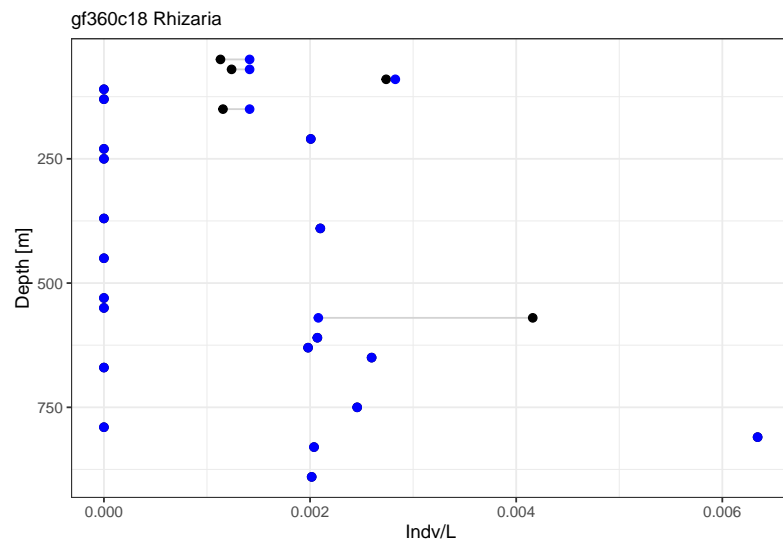
Figure 3.64: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
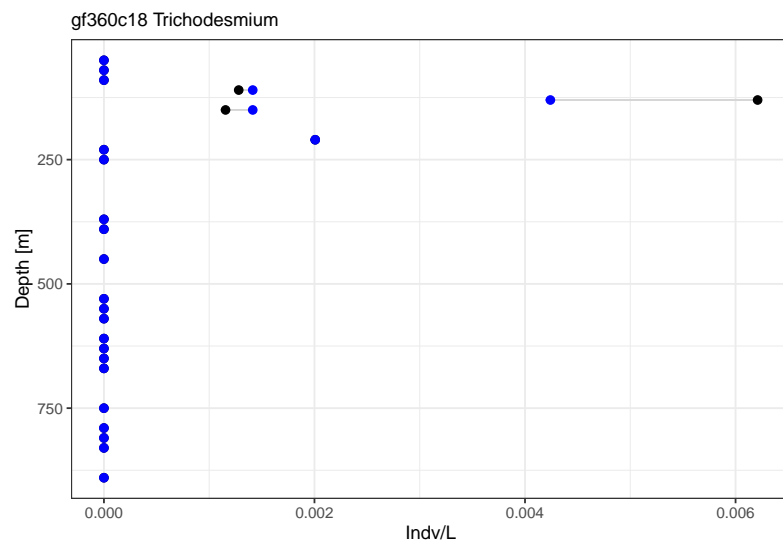

Figure 3.65: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
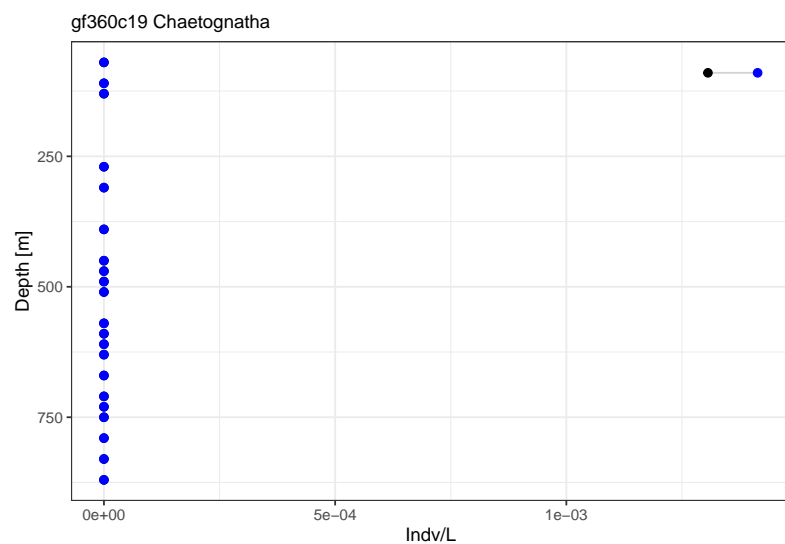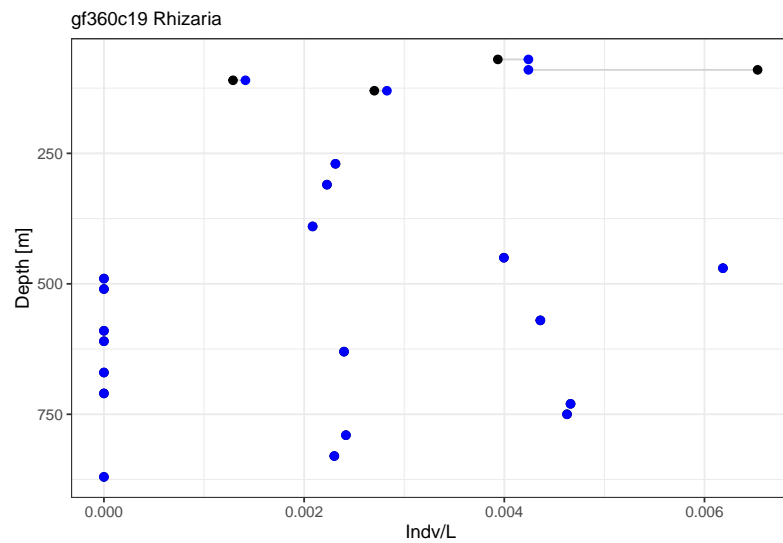
gf360c19 Chaetognatha

Figure 3.66: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

$gf360c19_Chaetognatha

$gf360c19_Copepoda

$gf360c19_Eumalacostraca

$gf360c19_Rhizaria

$gf360c19_Trichodesmium

gf360c19 Copepoda

Figure 3.67: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.
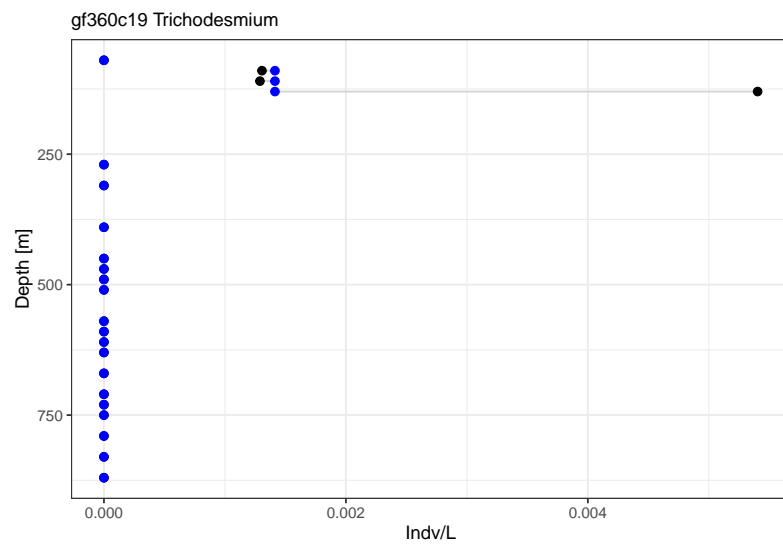

gf360c19 Eumalacostraca

Figure 3.68: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

Figure 3.69: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

Figure 3.70: Sup Fig 3. Imact of multiple-imaged organisms on density estimates for specific taxa on individual casts in 20m bins. Black points show inclusion of multiples, blue points show exclusion.

4 Supplemental Figure 4: UVP Bin-Width Investigation

The UVP records the exact depth position of each particle imaged. However, when estimating density, both in profiles or for depth-integration counts of plankton must be binned then concentration calculated. However bin width can impact these estimates. In this figure we investigated different bin-widths (between 1 - 100m) then determined how that impacted depth-integrated abundance estimates. Ideally the smallest bin-size should be used as this provides the most ecologically valuable information. However, too small of bins can impact depth-integration to be unstable estimates.

For this analysis, only casts which extended to, or beyond, 1000m were used. Depth integrated abundance was calculated for each casts for specific taxa then plotted:

For some very sparse taxa (*Mollusca*, *Actinopterygii*) estimates are very unstable across bins and there were few casts which detected these organisms. However, for more abundant organisms, 20m appears to be a reliable bin-width.
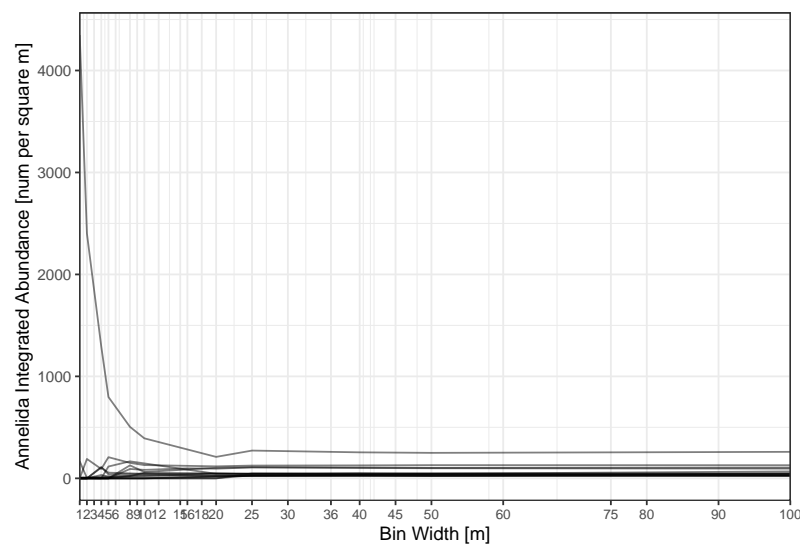
Figure 4.1: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted
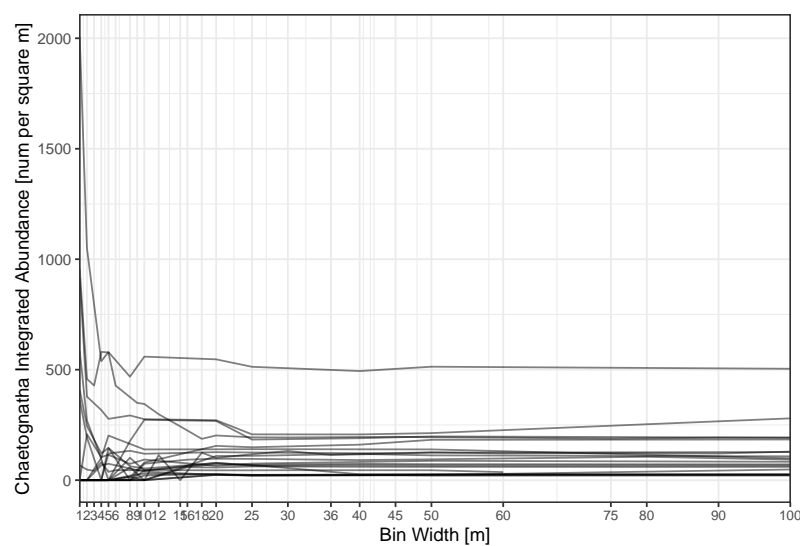

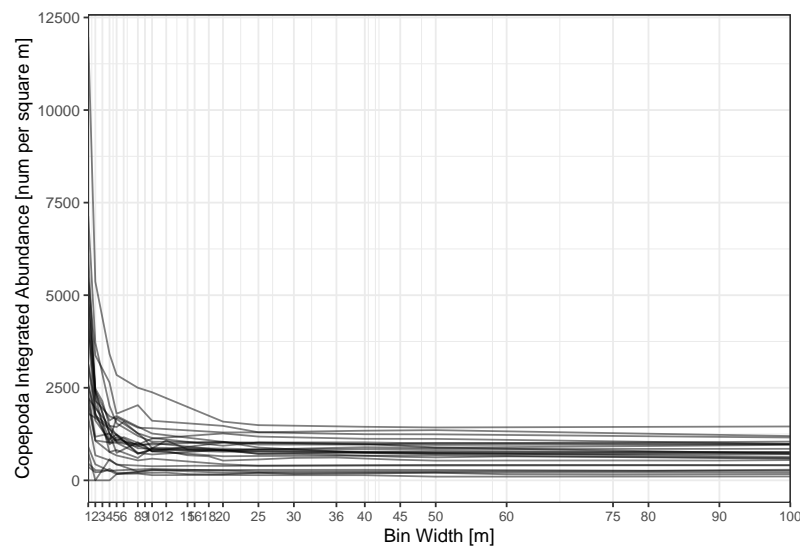Figure 4.2: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

Figure 4.3: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted
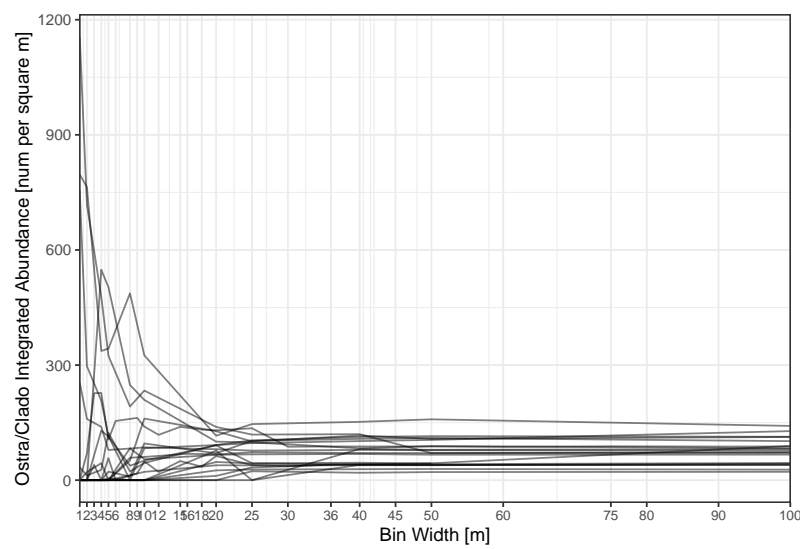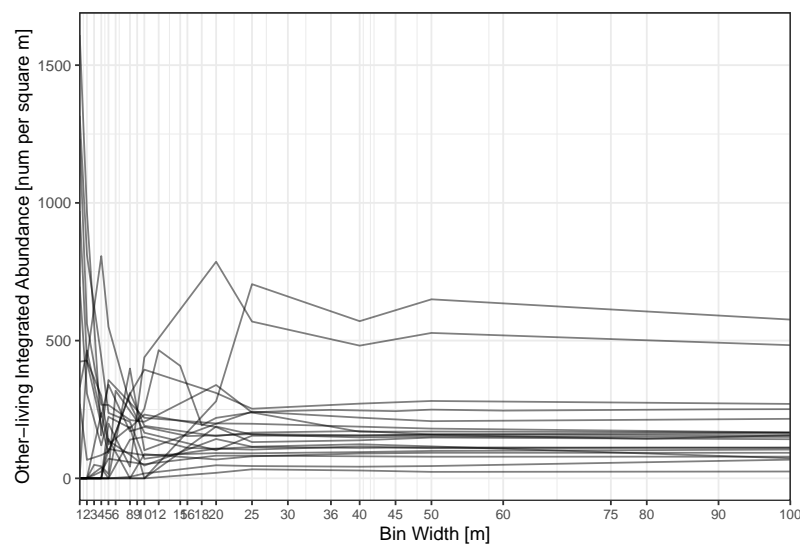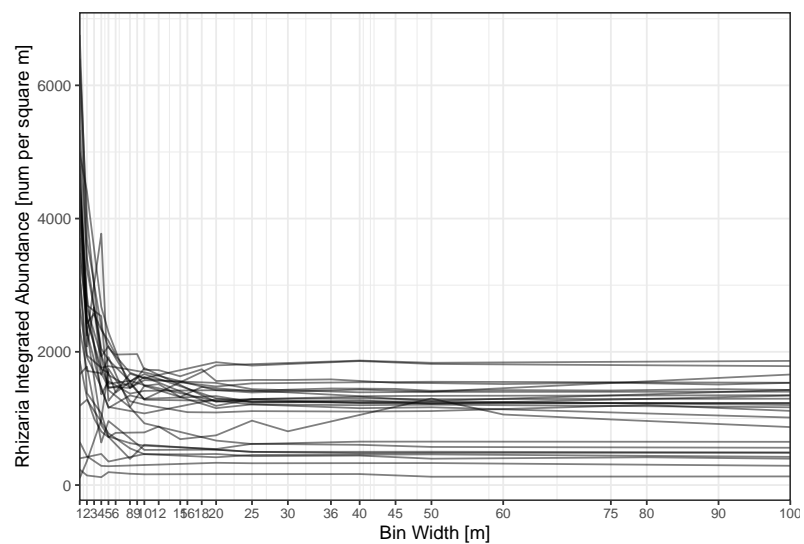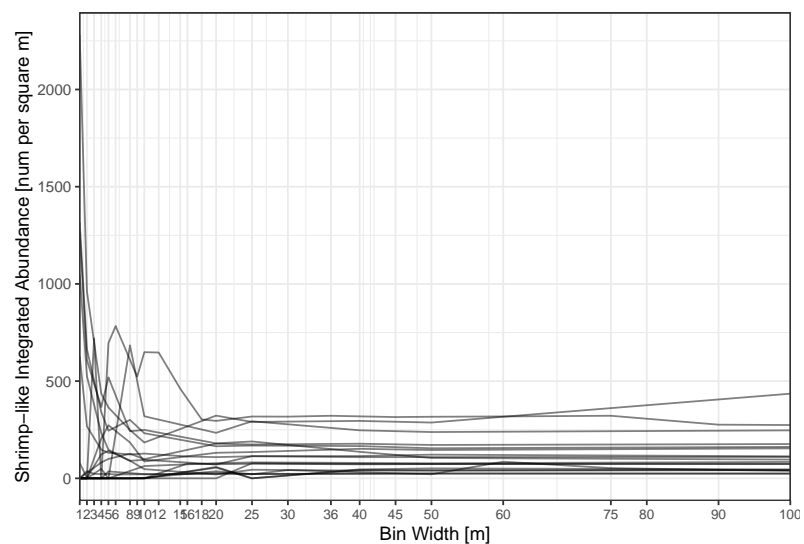

Figure 4.4: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted
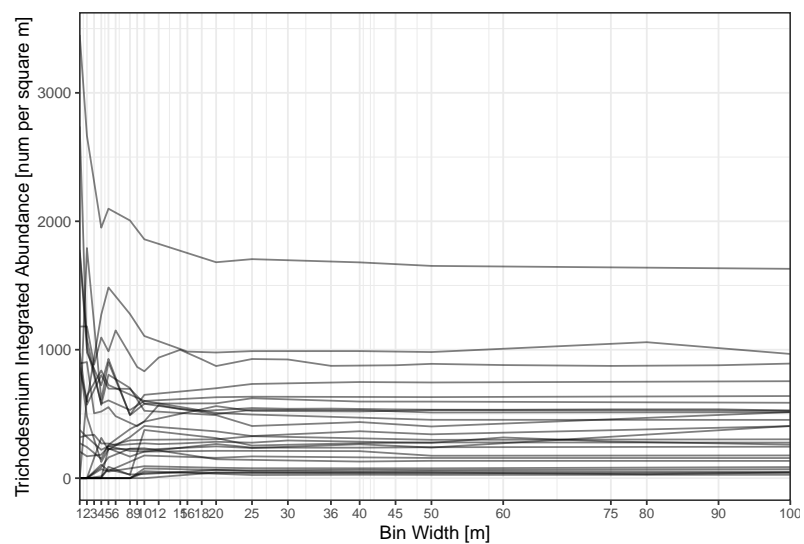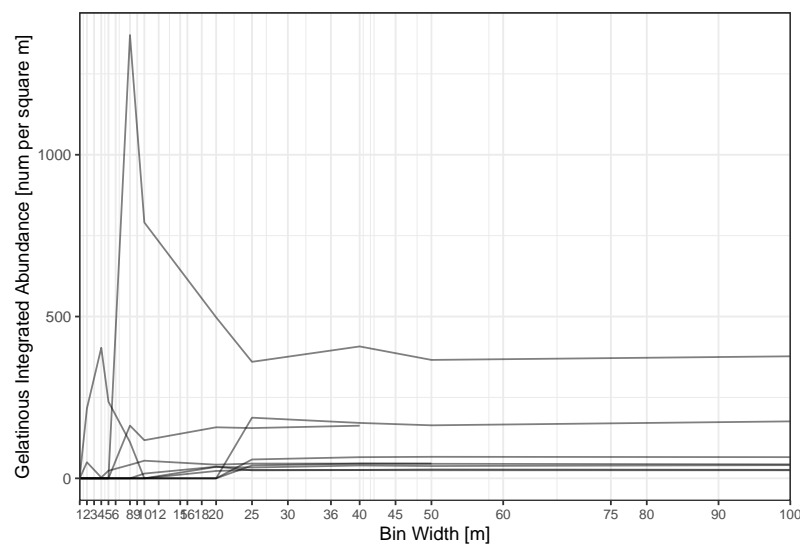
Figure 4.5: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

Figure 4.6: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted
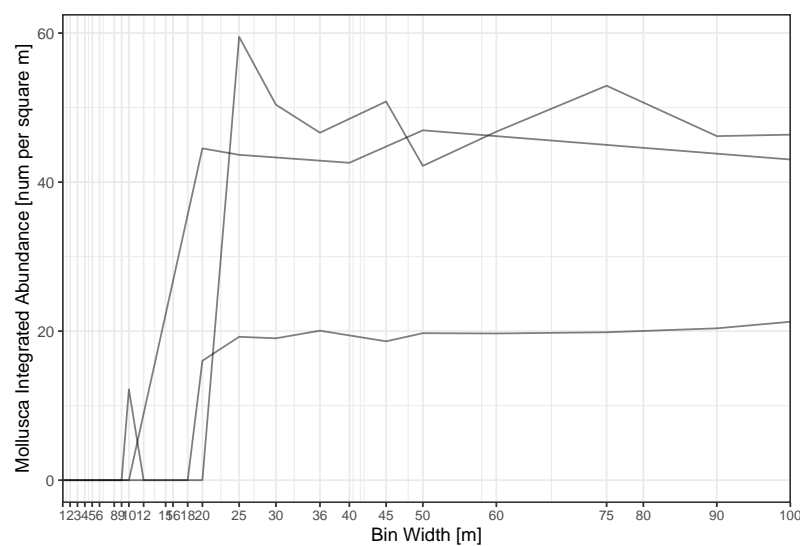
51

Figure 4.7: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

Figure 4.8: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

Figure 4.9: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

Figure 4.10: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted
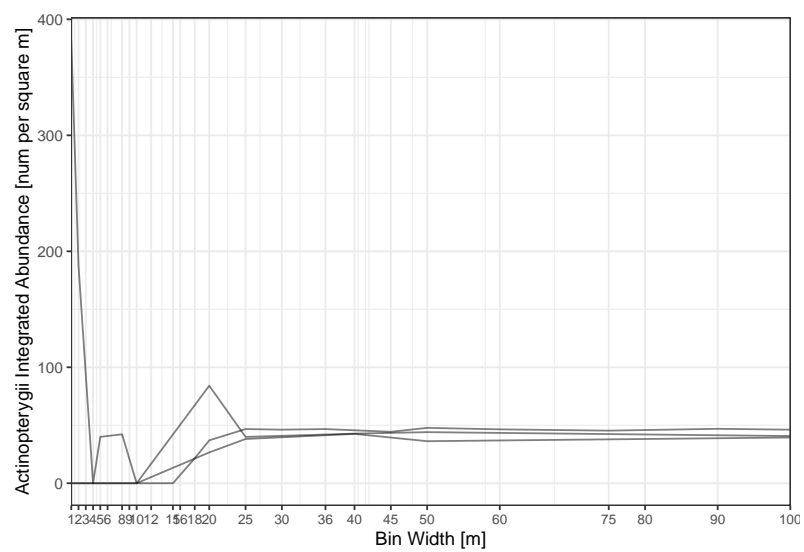
53

Figure 4.11: Supp Fig 4. Integrated Abundance for 0-1000m for specific taxa. All casts are plotted

5 Supplemental Figure 5 - Full size range of MOCNESS compared to UVP

As noted in the core paper, the MOCNESS samples a much larger range of sized-plankton than the UVP. For comparison, we look at MOCNESS-collected plankton which are equal to or larger than the smallest observed UVP plankton (0.934). The comparison of that size range can be found here. In this analysis, the full size range of the MOCNESS is shown. Additionally, the table below shows the proportion of MOCNESS-collected plankton which are excluded because they are smaller than 0.894mm
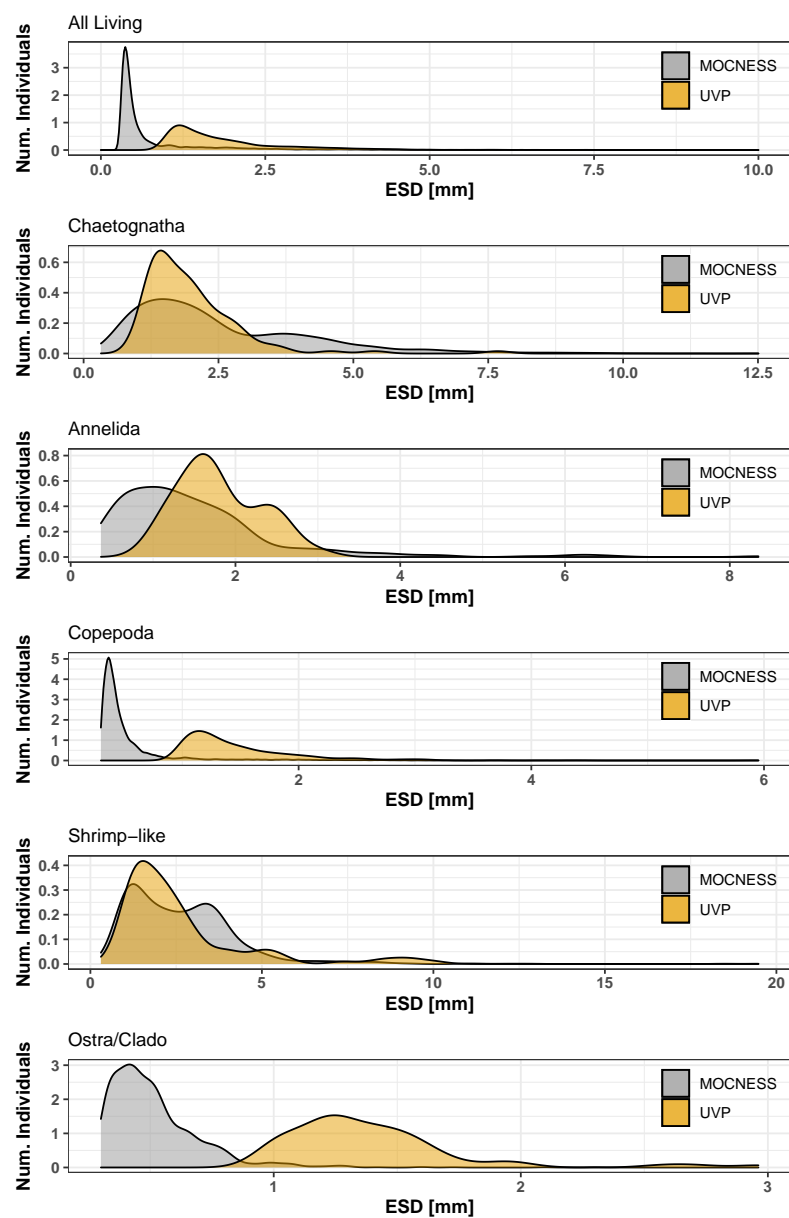
Figure 5.1: Size distributions for select taxa.

6 Supplemental Figure 6: All Density Profiles

Density profiles of comparable taxa are shown when measured by the MOCNESS/ZOOSCAN and the UVP. UVP estimates were calculated two ways. In one method, similar UVP casts are pooled then the density of organisms in a depth bin were calculated

$$\frac{\sum_i^N individuals_i}{\sum_i^N volumesampled_i}$$

. The other method, density is calculated in individual uvp casts, then averaged between all similar casts:

$$\frac{\sum_{i=1}^N \frac{individuals_i}{volumesampled_i}}{N}$$

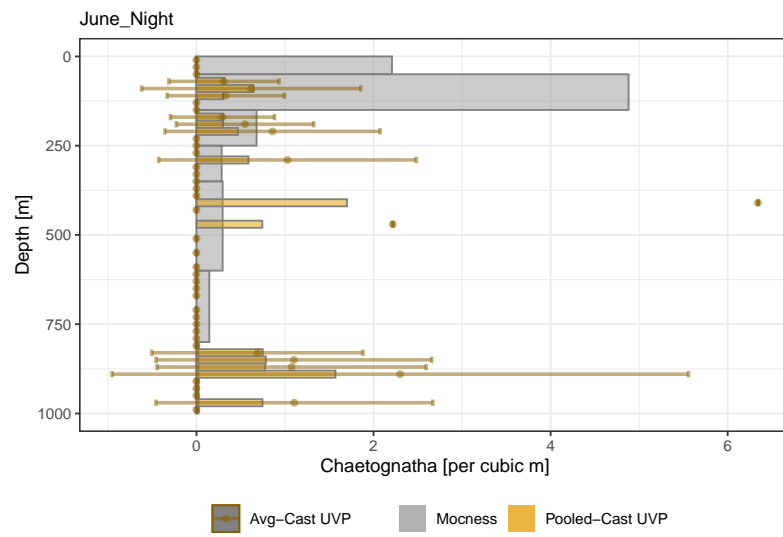For all i casts, with a total of N casts.

Figure 6.1: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
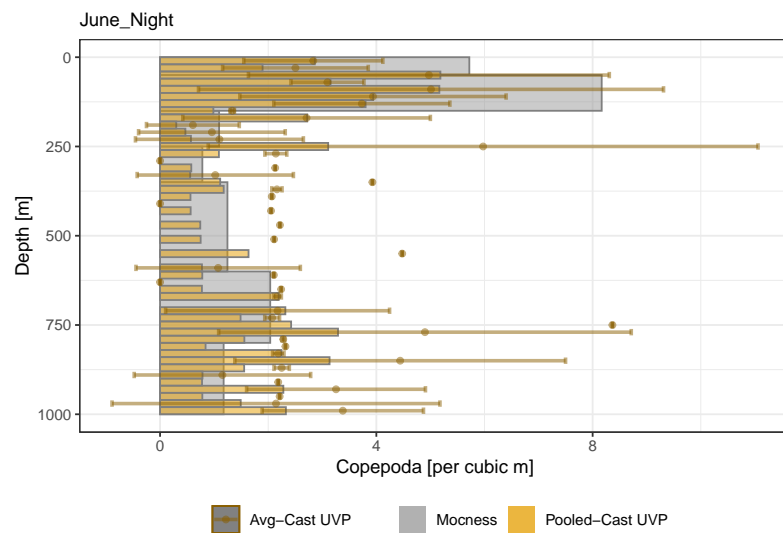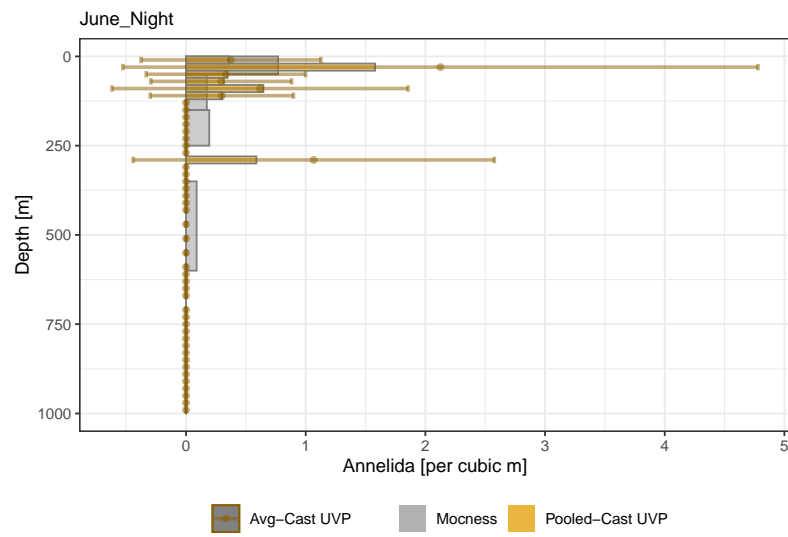

Figure 6.2: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
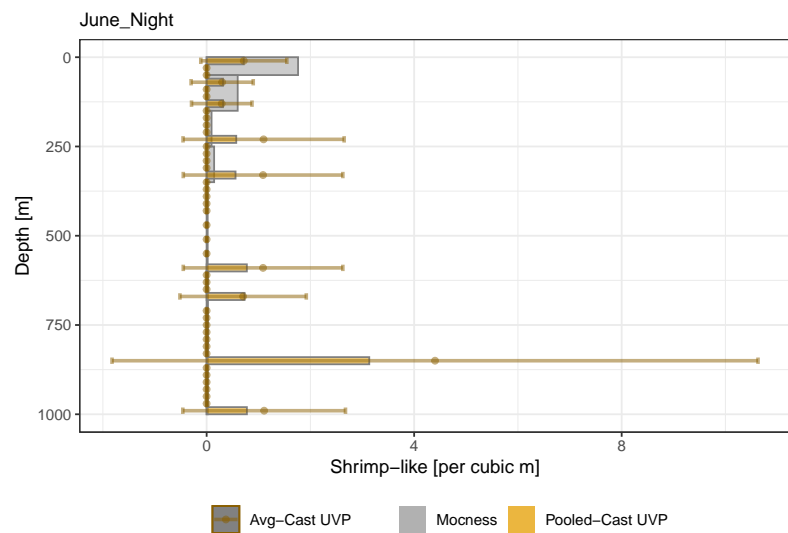
Figure 6.3: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
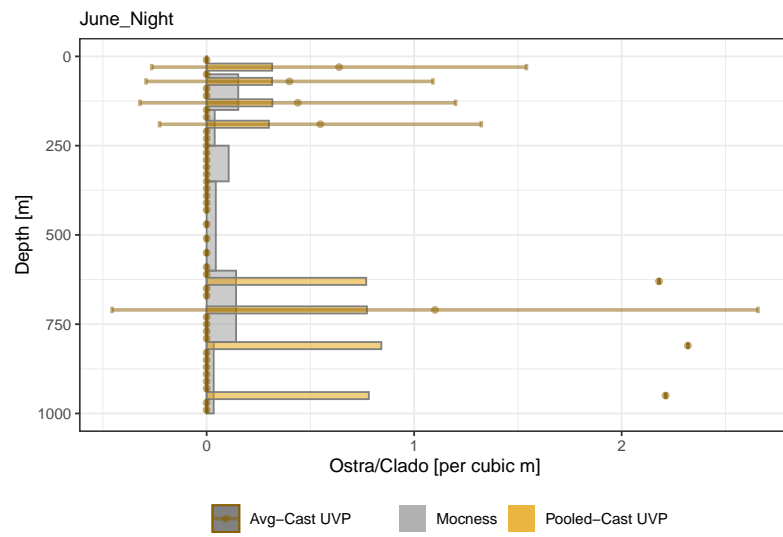

Figure 6.4: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
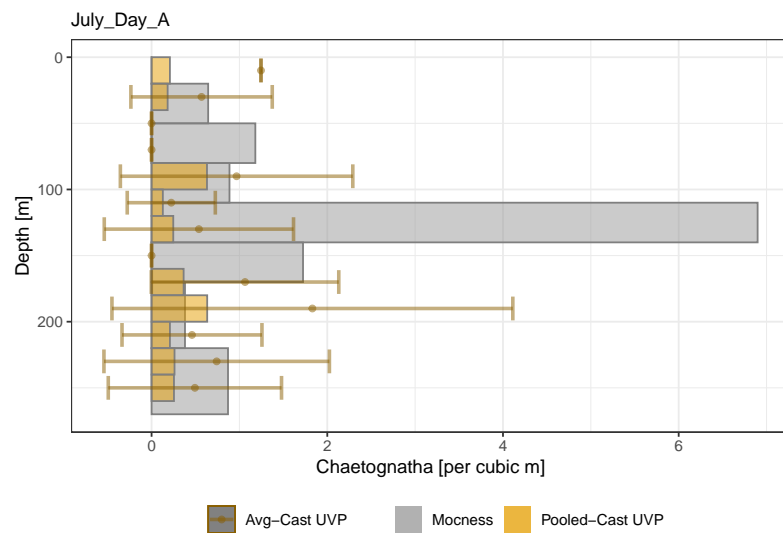
Figure 6.5: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
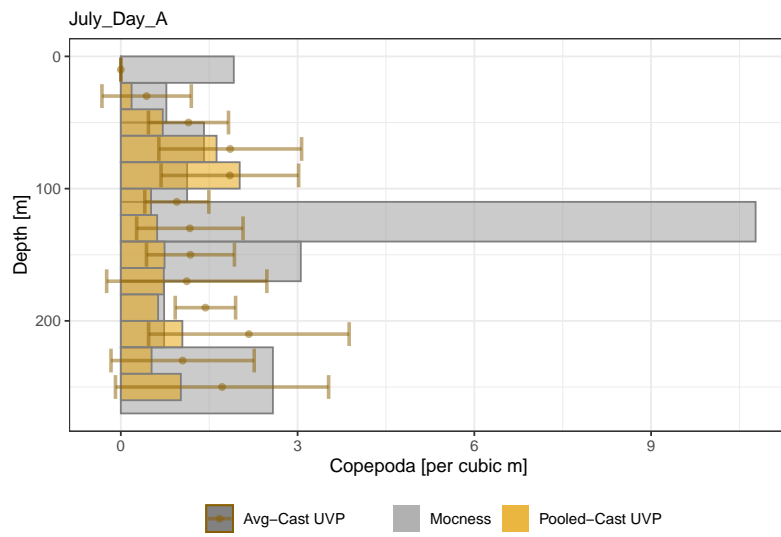

Figure 6.6: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
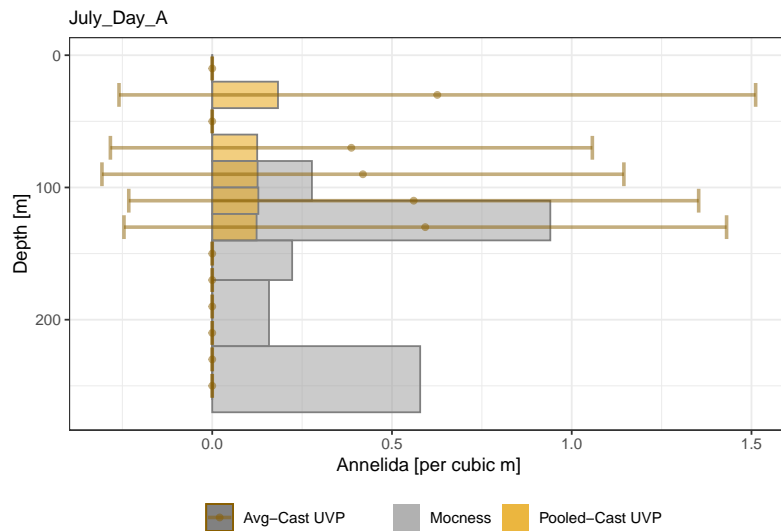
Figure 6.7: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
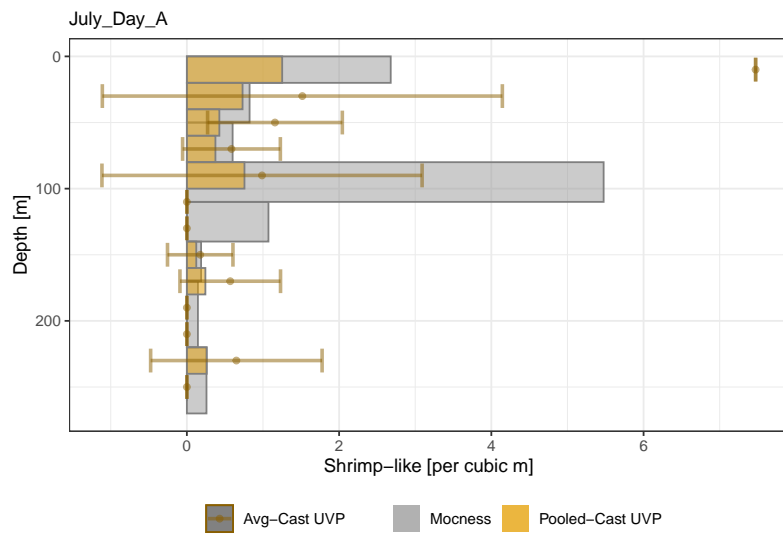

Figure 6.8: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
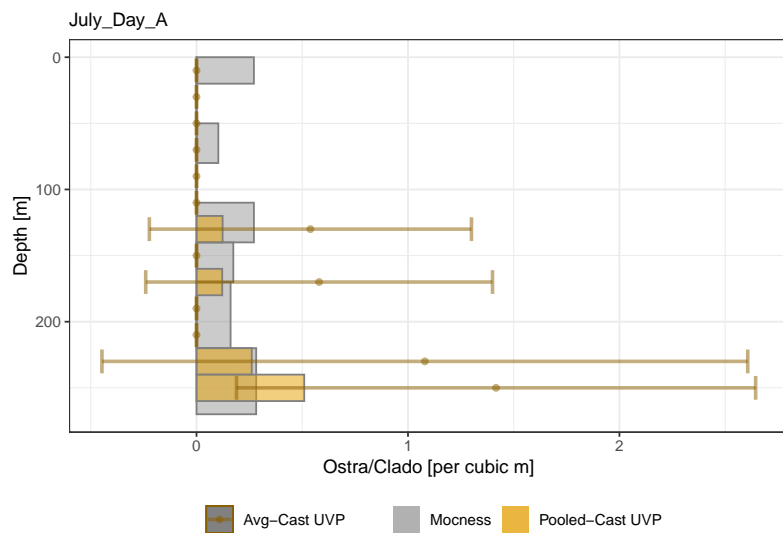
61

Figure 6.9: Supplemental Figure 4. Density profiles of all taxa.
Pooled-UVP cast estimates are shown as barplots.
Averaged-UVP casts estimates are shown by points
with standard deviation shown.

Figure 6.10: Supplemental Figure 4. Density profiles of all
taxa. Pooled-UVP cast estimates are shown
as barplots. Averaged-UVP casts estimates are
shown by points with standard deviation shown.
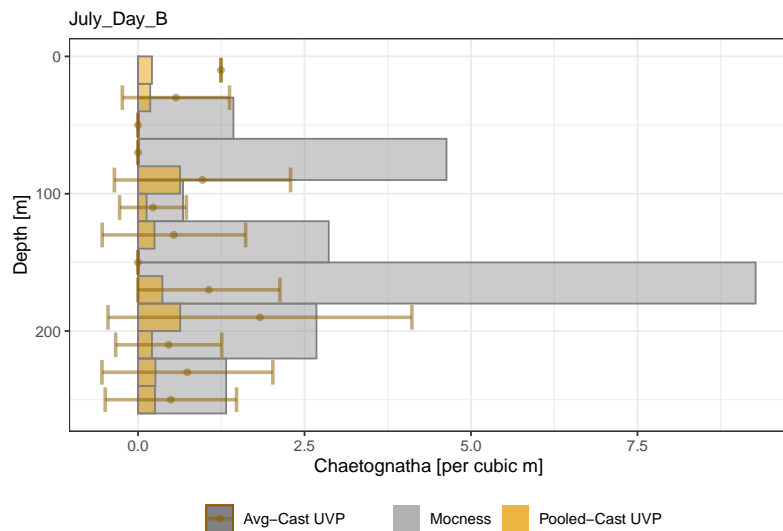
Figure 6.11: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
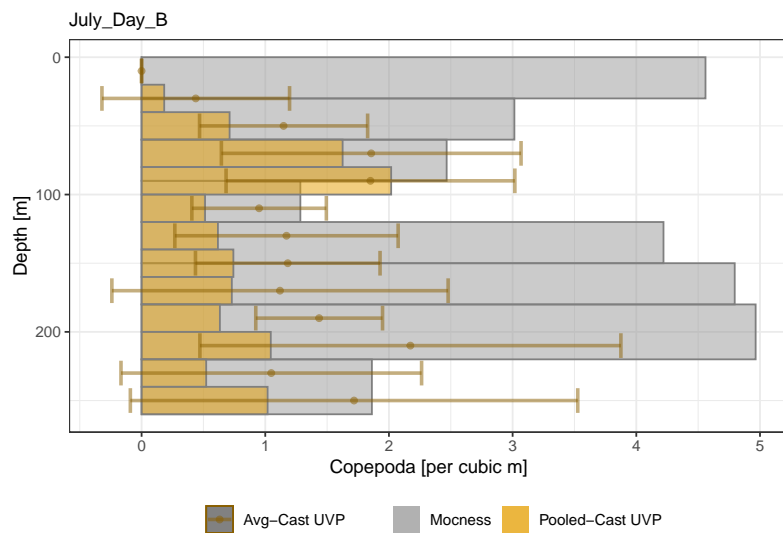

Figure 6.12: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
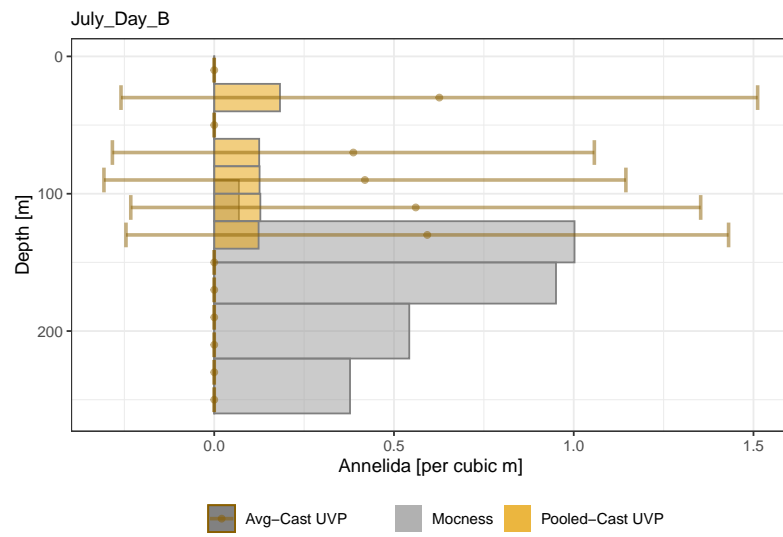
Figure 6.13: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
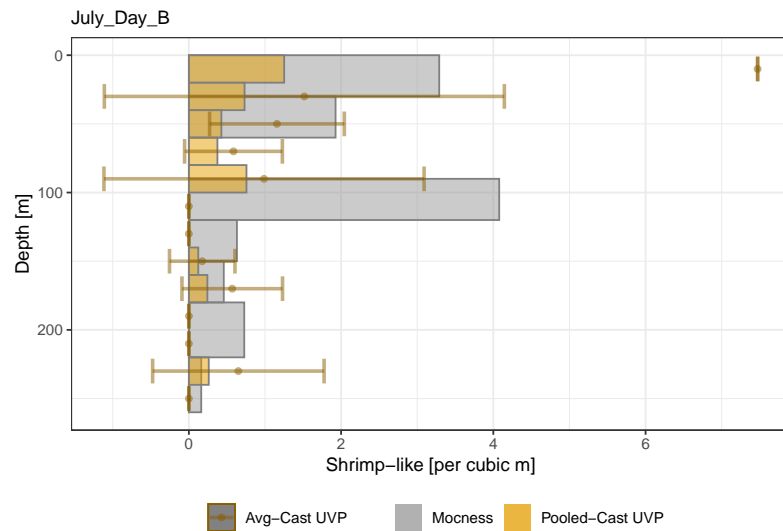

Figure 6.14: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
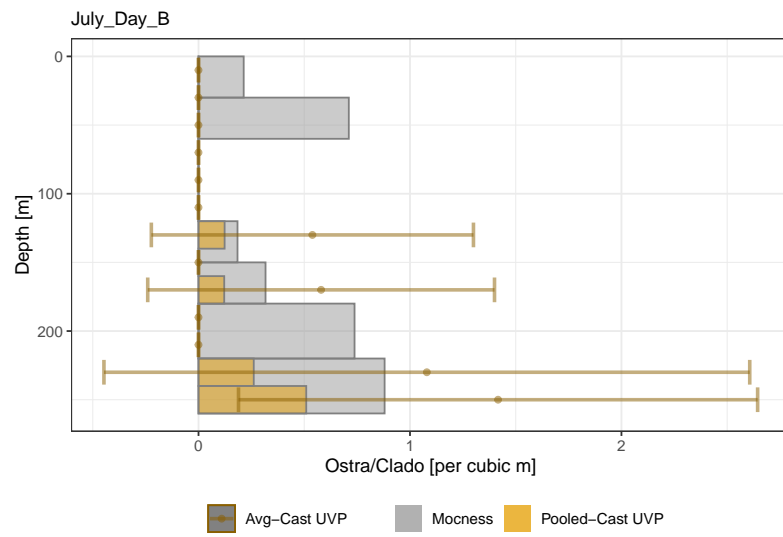
July_Day_B

Depth [m]

Ostra/Clado [per cubic m]

Avg–Cast UVP   Mocness   Pooled–Cast UVP

Figure 6.15: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
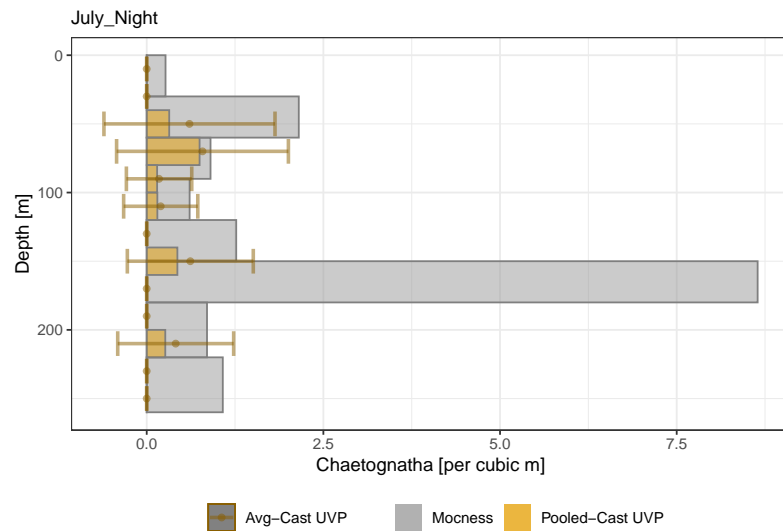

July_Night

Depth [m]

Chaetognatha [per cubic m]

Avg–Cast UVP   Mocness   Pooled–Cast UVP

Figure 6.16: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
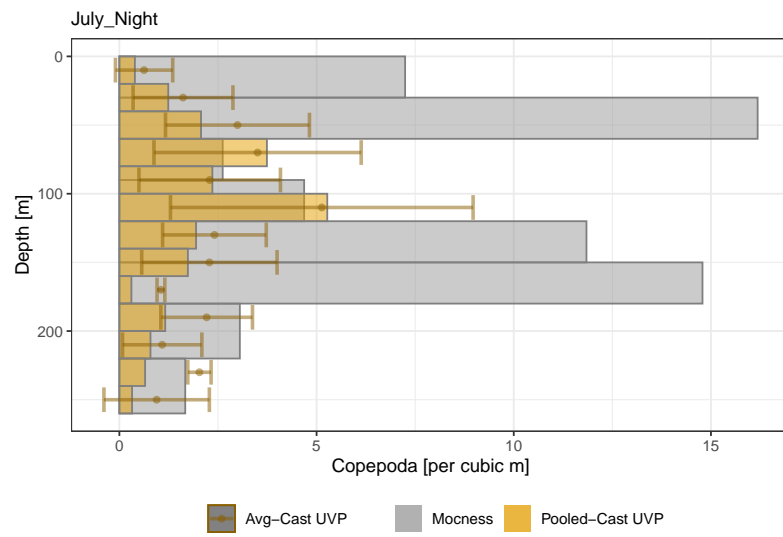
Figure 6.17: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
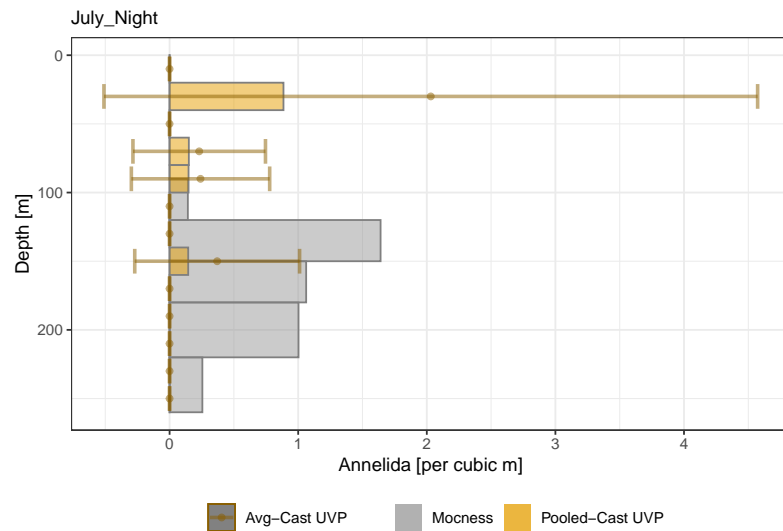

Figure 6.18: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
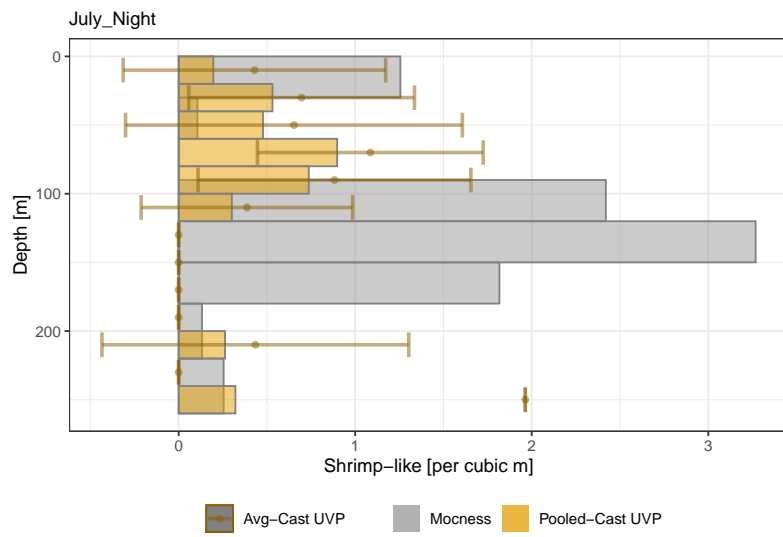
Figure 6.19: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
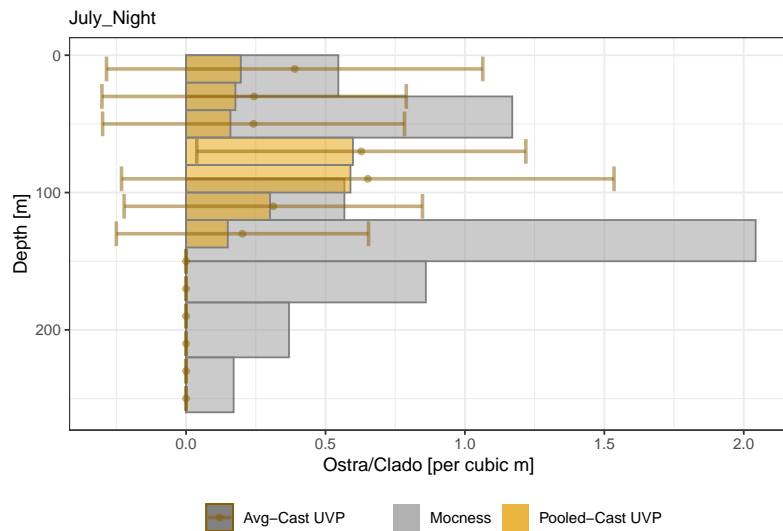

Figure 6.20: Supplemental Figure 4. Density profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.

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Figure 6.21: Supplemental Figure 4. Density profiles of all
taxa. Pooled-UVP cast estimates are shown
as barplots. Averaged-UVP casts estimates are
shown by points with standard deviation shown.

7 Supplemental Figure 7 - All Biomass Profiles

Biomass profiles of comparable taxa are shown when measured by the MOCNESS/ZOOSCAN and the UVP. UVP estimates were calculated two ways. In one method, similar UVP casts are pooled then the biomass concentration of organisms in a depth bin were calculated

$$\frac{\sum_i^N biomass_i}{\sum_i^N volumesampled_i}$$

. The other method, density is calculated in individual uvp casts, then averaged between all similar casts:

$$\frac{\sum_{i=1}^N \frac{biomass_i}{volumesampled_i}}{N}$$
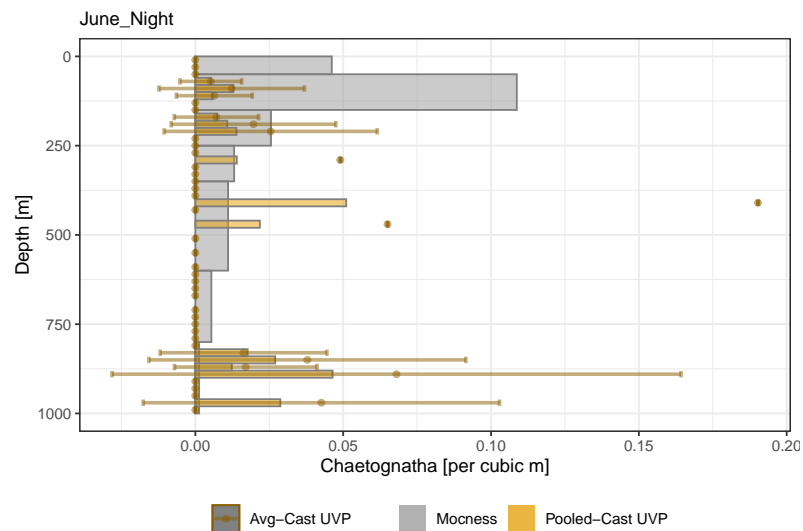
For all i casts, with a total of N casts.

Figure 7.1: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
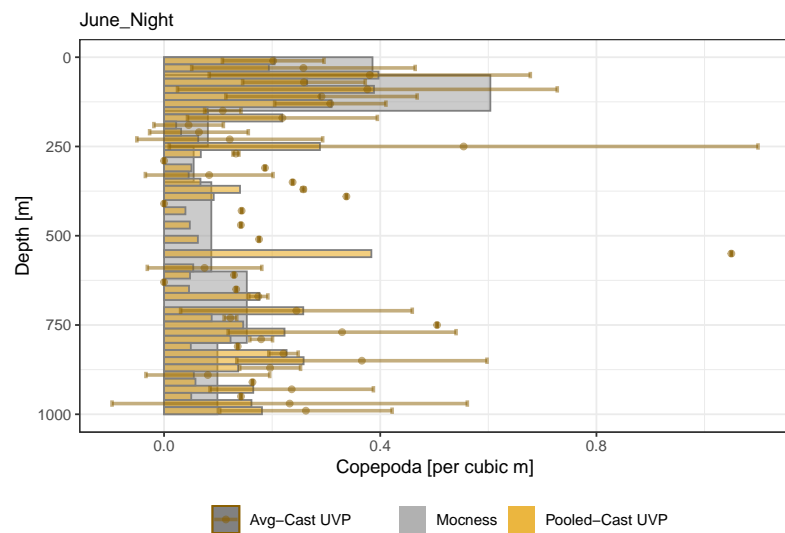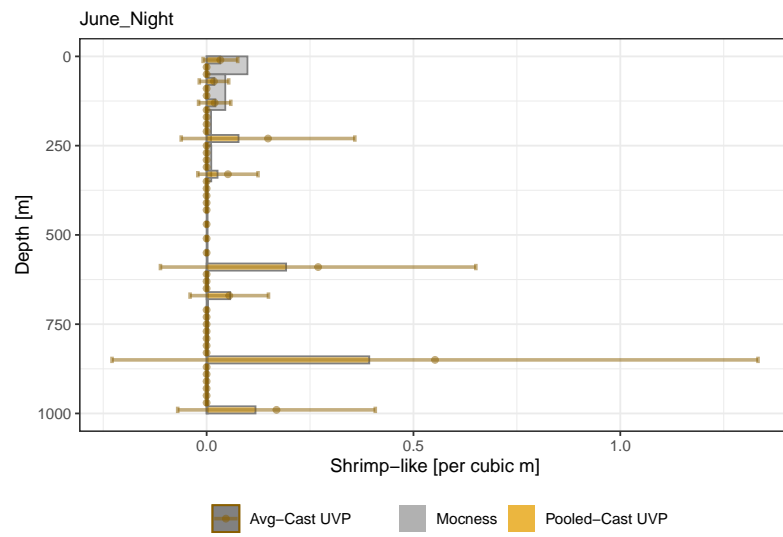

Figure 7.2: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.

Figure 7.3: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
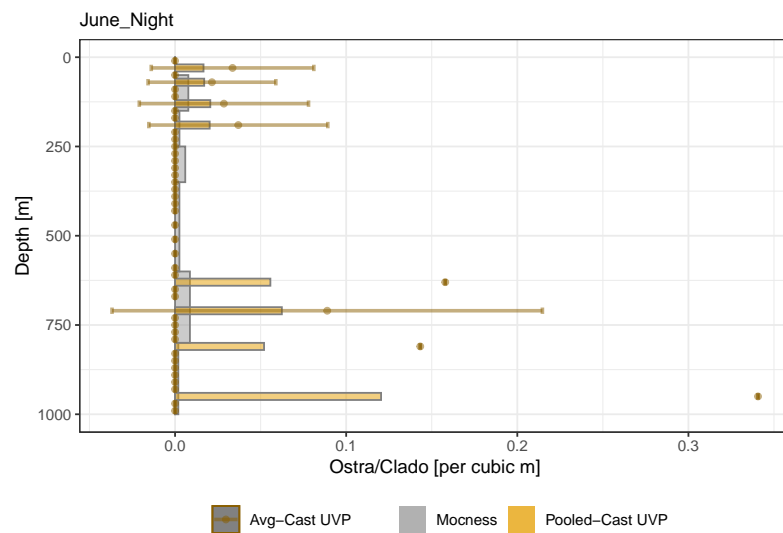

Figure 7.4: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
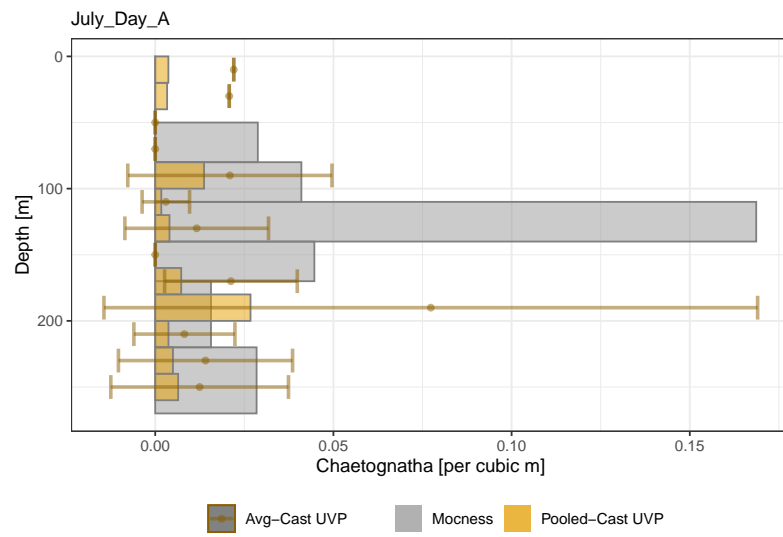
Figure 7.5: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
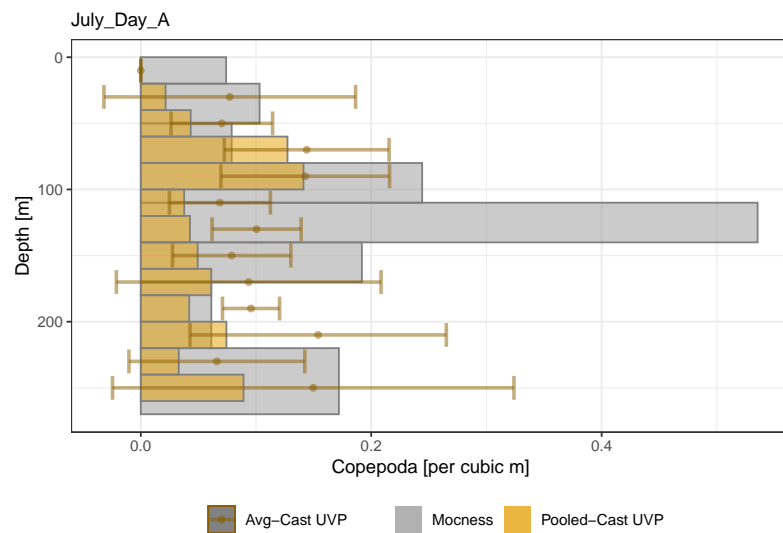

Figure 7.6: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
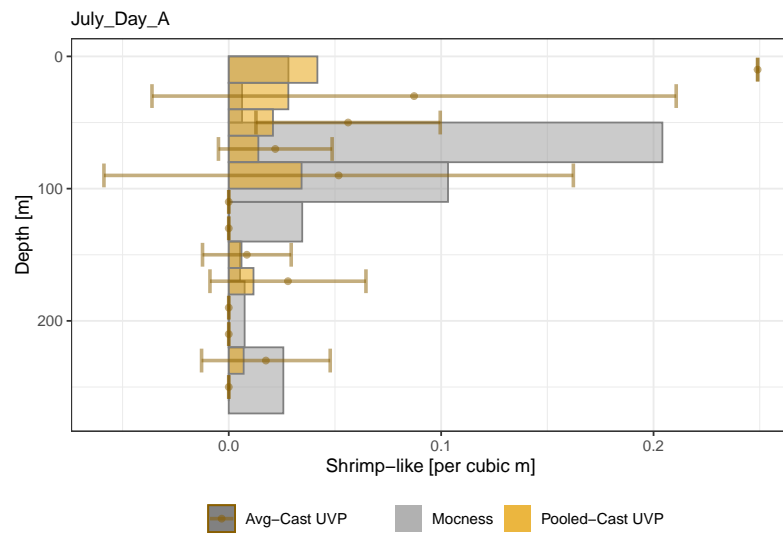
Figure 7.7: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
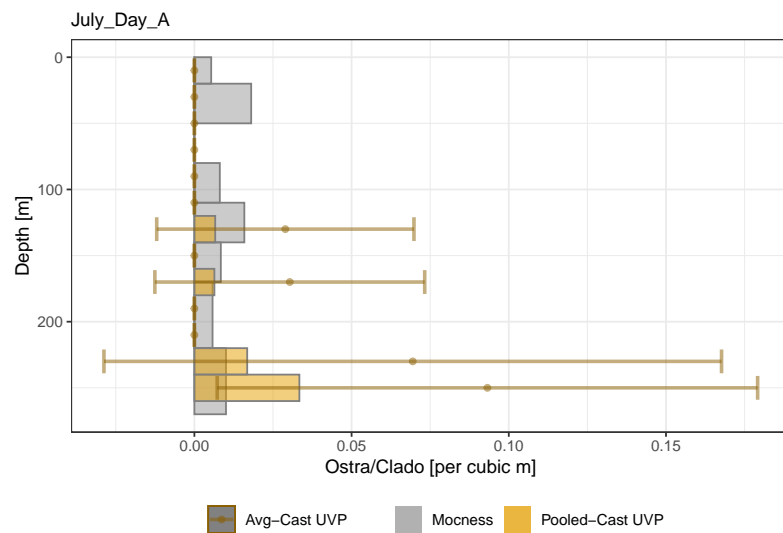

Figure 7.8: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
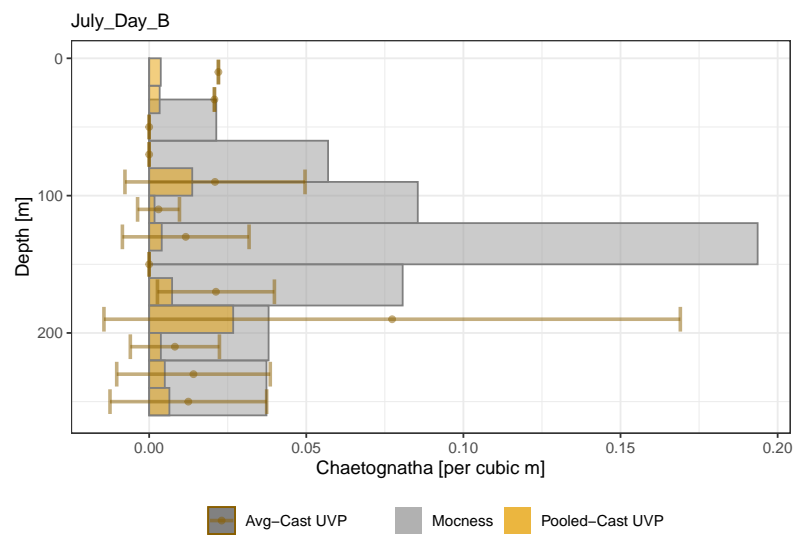
Figure 7.9: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
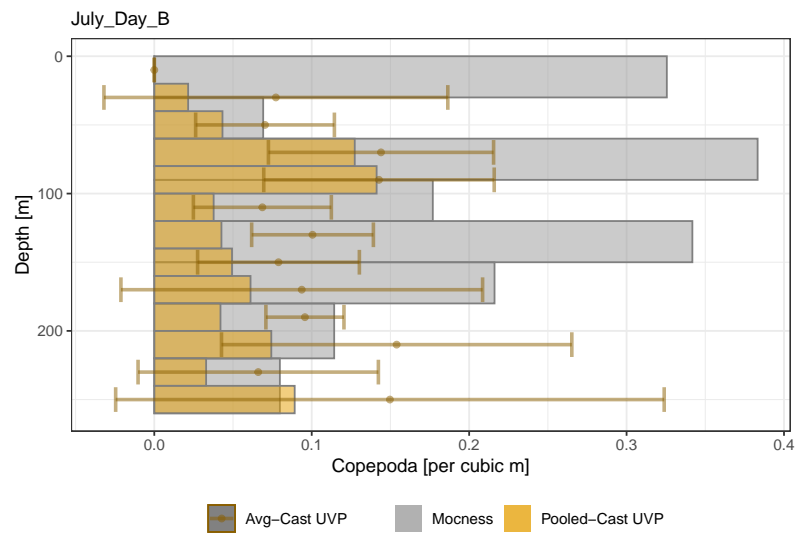
Figure 7.10: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
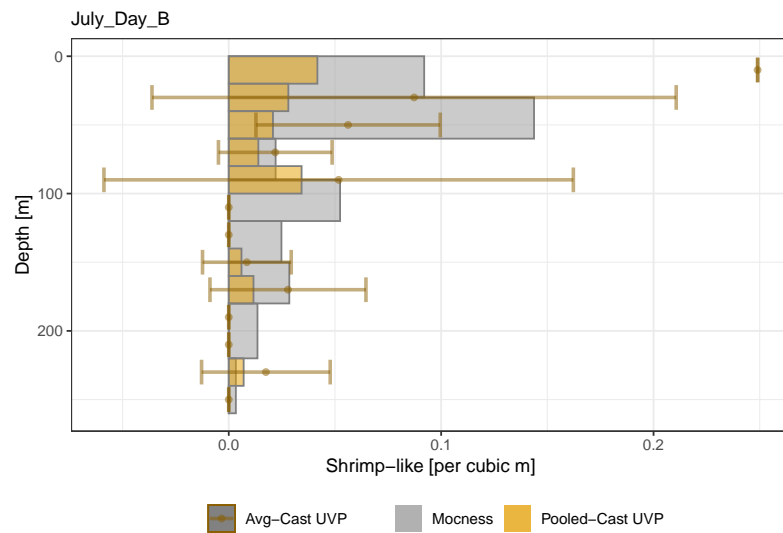
Figure 7.11: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
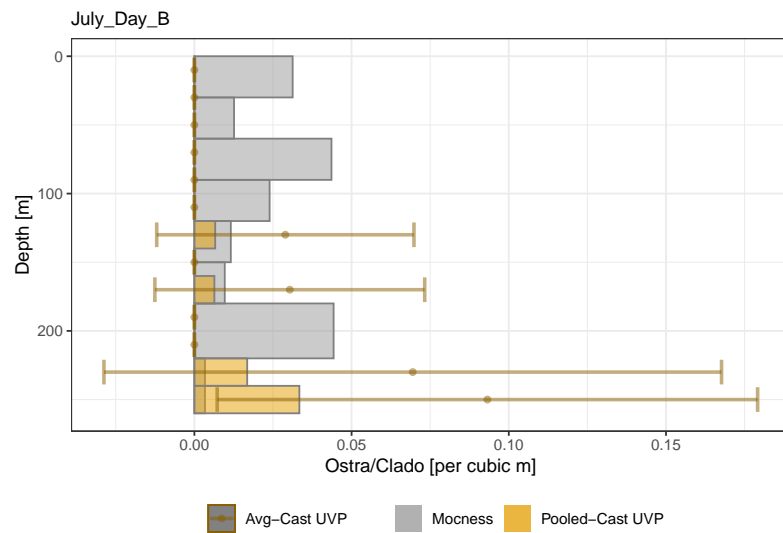
Figure 7.12: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
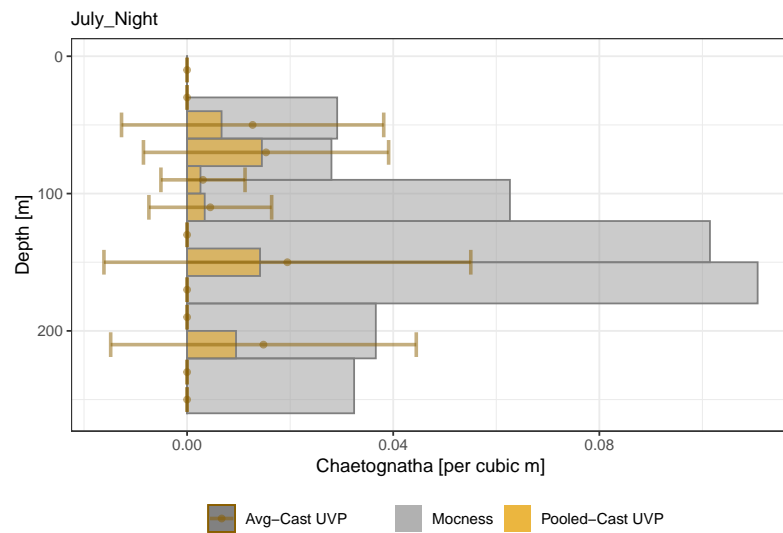
Figure 7.13: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
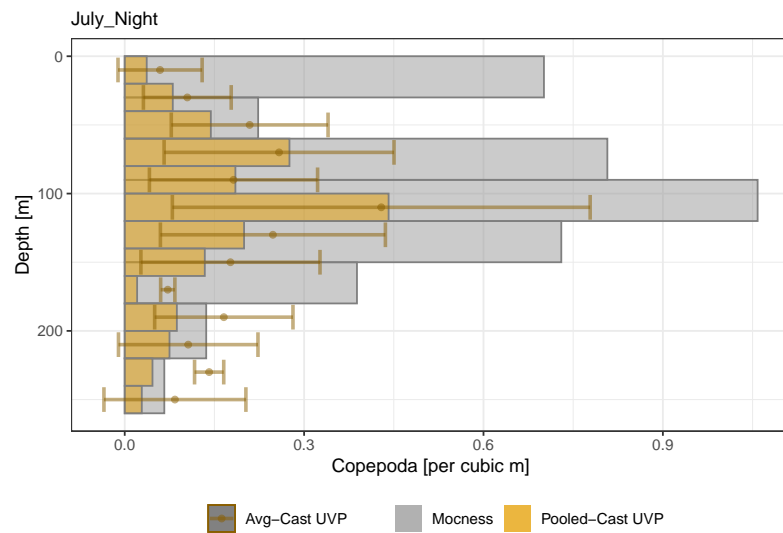
Figure 7.14: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
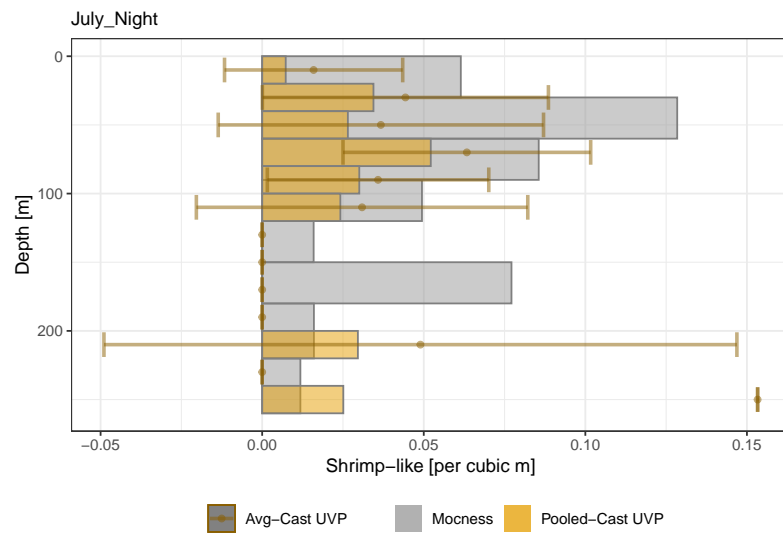
Figure 7.15: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.
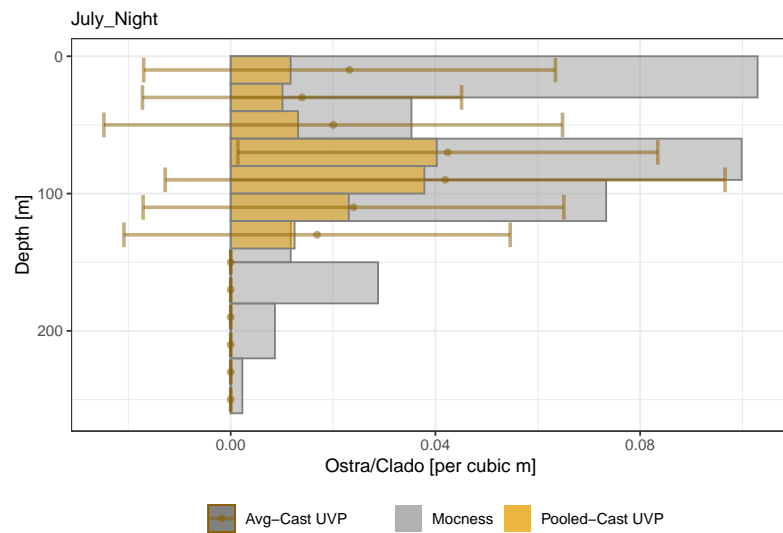
Figure 7.16: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.

Figure 7.17: Supplemental Figure 7. Biomass Concentration profiles of all taxa. Pooled-UVP cast estimates are shown as barplots. Averaged-UVP casts estimates are shown by points with standard deviation shown.