Temperature dependence of biomass and ecosystem function depend on species interactions. Supplementary File 3: Zooplankton figures and tables.

Section S3.1: Zooplankton Abundance data over whole experiment

Figure S3. 1: Abundance of zooplankton (Number / 10L) over all tanks and weeks.
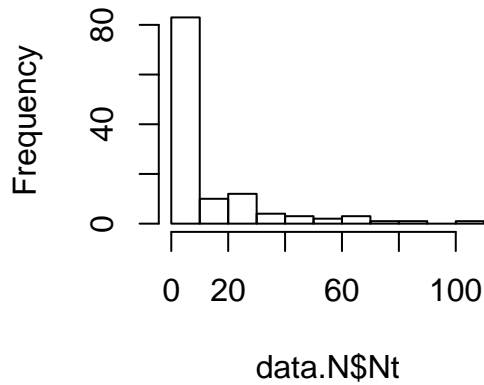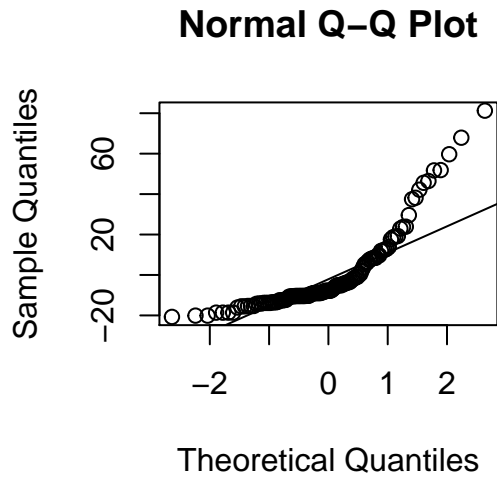

Figure S3. 2: Residual plot for linear model of abundance with normally distributed errors

```
chisq   ratio   rdf   p
97.1449726   0.8374567 116.0000000   0.8975533
```

Table S3. 1: Model selection results for zooplankton abundance, with 1|Tank as a random effect. Model terms are: intercept (Int), Temperature - weekly average (Tw), trophic treatment (TL), statistical estimates

|  | Int | $T_{ij}$ | $Z_j$ | df | logLik | AICc | d | w |
|---|---|---|---|---|---|---|---|---|
| nbinommod1b | -47.41 | 1.28 | NA | 5 | -367.00 | 744.53 | 0.00 | 0.49557915 |
| nbinommod1 | -48.76 | 1.32 | + | 6 | -366.37 | 745.47 | 0.95 | 0.30895745 |
| nbinommod1c | 2.95 | NA | NA | 4 | -369.46 | 747.26 | 2.74 | 0.12621312 |
| nbinommod1a | 3.07 | NA | + | 5 | -368.97 | 748.46 | 3.94 | 0.06925027 |

Figure S3. 3: Total Zooplankton abundance and modeled temperature dependence from negative binomial regression
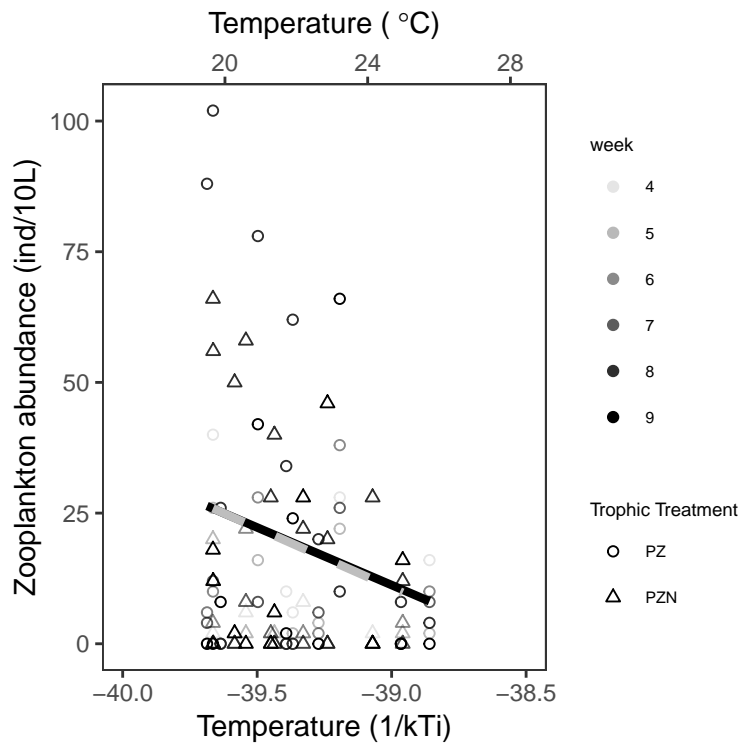


Section S3.2: Daphnia and Copepods

Figure S3. 4: Abundance of Daphnia and Copepods (Number / 10L) over all tanks and weeks.
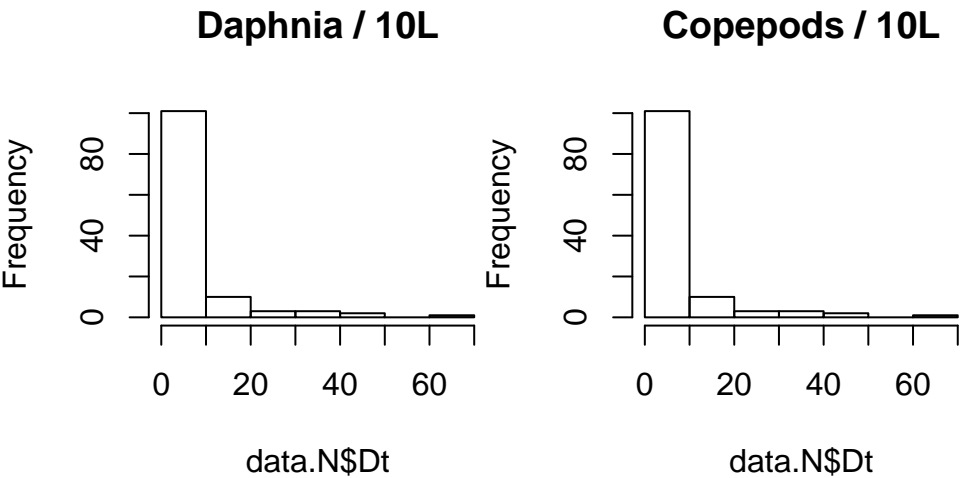
Table S3. 2: Daphnia abundance model selection results for Poisson regression. Model terms are: intercept (Int), trophic treatment (TL), Temperature - weekly average (Tw), and statistical estimates

|  | Int | $T_{ij}$ | $Z_j$ | $T_{ij}*Z_j$ | df | logLik | AICc | d | w |
|---|---|---|---|---|---|---|---|---|---|
| poismod.Db | -34.88 | 0.88 | + | NA | 4 | -115.75 | 239.85 | 0.00 | 0.63118106 |
| poismod.Da | -38.64 | 0.97 | + | + | 5 | -115.73 | 241.98 | 2.13 | 0.21709779 |
| poismod.Dd | -0.97 | NA | NA | NA | 2 | -119.71 | 243.52 | 3.67 | 0.10060719 |
| poismod.Dc | -31.32 | 0.77 | NA | NA | 3 | -119.33 | 244.87 | 5.03 | 0.05111395 |

Table S3. 3: Daphnia abundance model coefficients

|  | Estimate | se | Pr(>|z|) | LL | UL |
|---|---|---|---|---|---|
| (Intercept) | -34.88 | 29.57 | 0.24 | -92.85 | 23.08 |
| invTT | 0.88 | 0.75 | 0.24 | -0.60 | 2.35 |
| trophic.levelPZN | -1.14 | 0.40 | 0.00 | -1.91 | -0.36 |

Table S3. 4: Copepod abundance model selection results for Poisson regression. Model terms are: intercept (Int), trophic treatment (TL), Temperature - weekly average (Tw), temperature - expt average (Tt), interaction terms and statistical estimates

|  | Int | $T_{ij}$ | $Z_j$ | $T_{ij}*Z_j$ | df | logLik | AICc | d | w |
|---|---|---|---|---|---|---|---|---|---|
| poismod.Cc | -87.63 | 2.21 | NA | NA | 4 | -135.11 | 278.56 | 0.00 | 0.67753474 |
| poismod.Cb | -87.50 | 2.21 | + | NA | 5 | -135.10 | 280.72 | 2.16 | 0.23026158 |
| poismod.Ca | -96.20 | 2.43 | + | + | 6 | -135.04 | 282.83 | 4.27 | 0.07997327 |
| poismod.Cd | -0.34 | NA | NA | NA | 3 | -140.19 | 286.59 | 8.03 | 0.01223041 |

Table S3. 5: Copepod abundance model coefficients

|  | Estimate | se | Pr(>|z|) | LL | UL |
|---|---|---|---|---|---|
| (Intercept) | -87.63 | 28.01 | 0 | -142.54 | -32.73 |
| invTT | 2.21 | 0.71 | 0 | 0.82 | 3.61 |
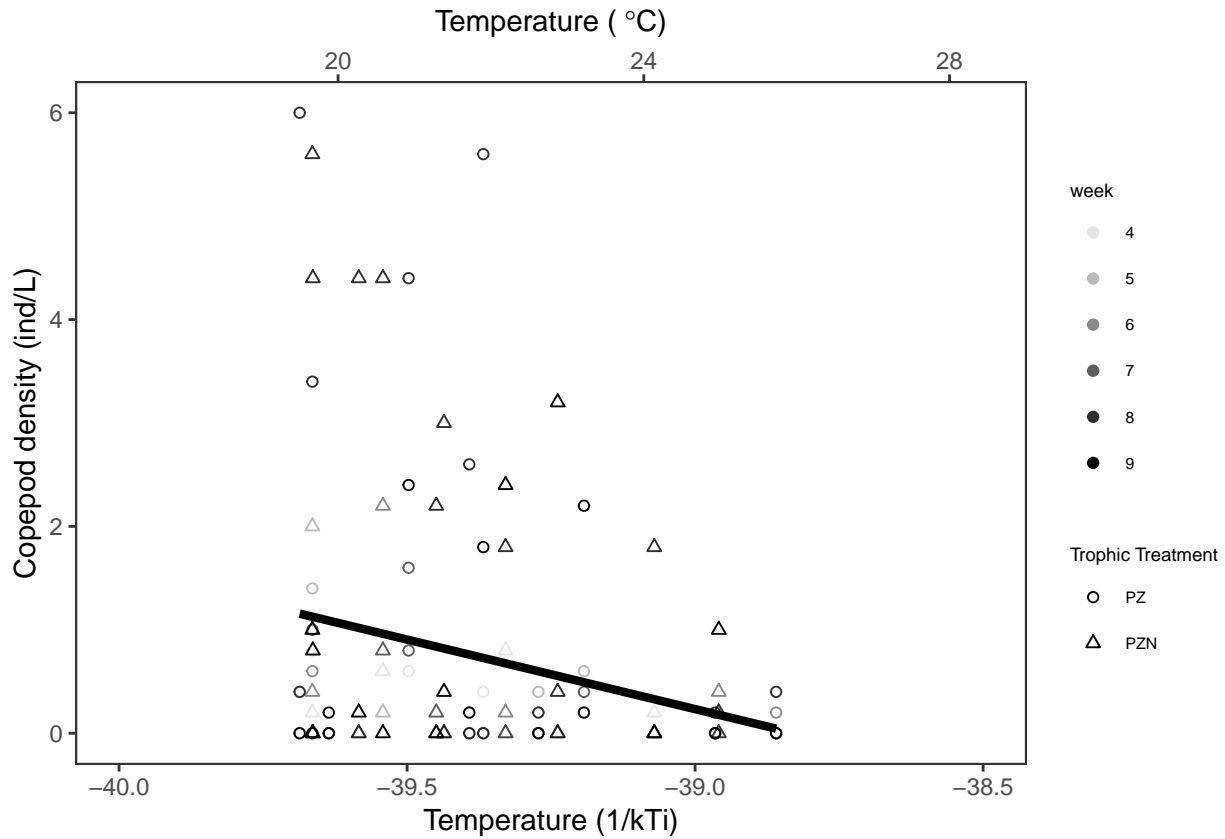
**Section S3.4: Zooplankton size analysis**

Figure S3. 7: Zooplankton body size (length) over all tanks and weeks.
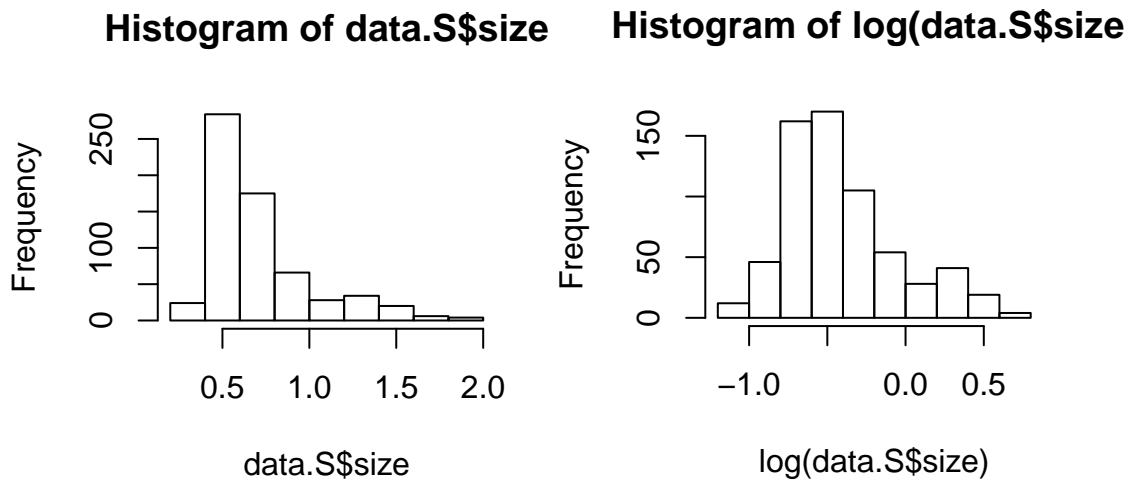


```
## Linear mixed model fit by maximum likelihood  ['lmerMod']
## Formula: log(size) ~ invTT * taxon * trophic.level + (1 | Tank)
##    Data: data.S
##
##     AIC     BIC   logLik deviance df.resid
##   176.0   220.7    -78.0    156.0      631
##
```

```
## Scaled residuals:
##     Min     1Q  Median      3Q     Max
## -3.6433 -0.5871 -0.0695  0.4866  3.4986
##
## Random effects:
##  Groups   Name         Variance Std.Dev.
##  Tank     (Intercept) 0.005115 0.07152
##  Residual             0.072303 0.26889
## Number of obs: 641, groups:  Tank, 18
##
## Fixed effects:
##                                    Estimate Std. Error t value
## (Intercept)                        -0.215915   4.955668  -0.044
## invTT                               0.001749   0.125677   0.014
## taxonCopepod                       -1.389227   4.673827  -0.297
## trophic.levelPZN                  -27.858315  11.159523  -2.496
## invTT:taxonCopepod                  0.023308   0.118503   0.197
## invTT:trophic.levelPZN              0.707073   0.284626   2.484
## taxonCopepod:trophic.levelPZN      29.244823  10.630503   2.751
## invTT:taxonCopepod:trophic.levelPZN -0.742089   0.271222  -2.736
##
## Correlation of Fixed Effects:
##            (Intr) invTT  txnCpp tr.PZN inTT:C iTT:.P tC:.PZ
## invTT      -1.000
## taxonCopepd -0.449  0.448
## trphc.lvPZN -0.444  0.444  0.199
## invTT:txnCp  0.448 -0.448 -1.000 -0.199
## invTT:t.PZN  0.442 -0.442 -0.198 -1.000  0.198
## txnCpp:.PZN  0.197 -0.197 -0.440 -0.787  0.440  0.788
## inTT:C:.PZN -0.196  0.196  0.437  0.788 -0.437 -0.789 -1.000
```

Table S3. 8: Zooplankton body size model selection results. Model terms are: intercept (Int), Temperature - weekly average (Tw), Taxon (Tx), trophic treatment (TL), and statistical estimates

	Int	Tw	Tx	TL	Tw*Tx	Tw*TL	Tx*TL	TwTxTl	df	logLik	AICc	d	w
m2b	-0.22	0.00	+	+	+	+	+	+	10	-78.01	176.37	0.00	3.199077e-01
m2a	-0.22	0.00	+	+	+	+	+	+	10	-78.01	176.37	0.00	3.199077e-01
m2g	-0.15	NA	+	+	NA	NA	+	NA	6	-82.44	177.00	0.63	2.332649e-01
m2c	-1.36	0.03	+	+	NA	NA	+	NA	7	-82.37	178.91	2.54	8.981011e-02
m2l	-8.50	0.21	+	NA	+	NA	NA	NA	6	-84.95	182.04	5.66	1.883366e-02
m2j	-8.19	0.20	+	+	+	NA	NA	NA	7	-84.79	183.75	7.38	7.994116e-03
m2h	-0.18	NA	+	NA	NA	NA	NA	NA	4	-88.14	184.33	7.96	5.968647e-03
m2e	-3.38	0.08	+	NA	NA	NA	NA	NA	5	-87.65	185.40	9.03	3.502201e-03
m2m	-1.33	0.03	+	+	NA	+	NA	NA	7	-87.07	188.33	11.96	8.110022e-04
m2i	-0.34	NA	NA	+	NA	NA	NA	NA	4	-199.46	406.99	230.62	2.676594e-51
m2d	-3.91	0.09	NA	+	NA	NA	NA	NA	5	-199.22	408.54	232.17	1.230711e-51
m2k	-9.62	0.24	NA	+	NA	+	NA	NA	6	-198.45	409.04	232.66	9.611447e-52
m2f	-5.03	0.12	NA	NA	NA	NA	NA	NA	4	-204.15	416.36	239.99	2.464245e-53

Table S3. 9: Zooplankton model estimates (model 2h), rom table S3.8

	Estimate	Lower	Upper
(Intercept)	-0.18	-0.23	-0.13

5

	Estimate	Lower	Upper
(Intercept)	-0.61	-0.66	-0.57

Figure S3. 8: Zooplankton body size (length) and modeled effects of predation