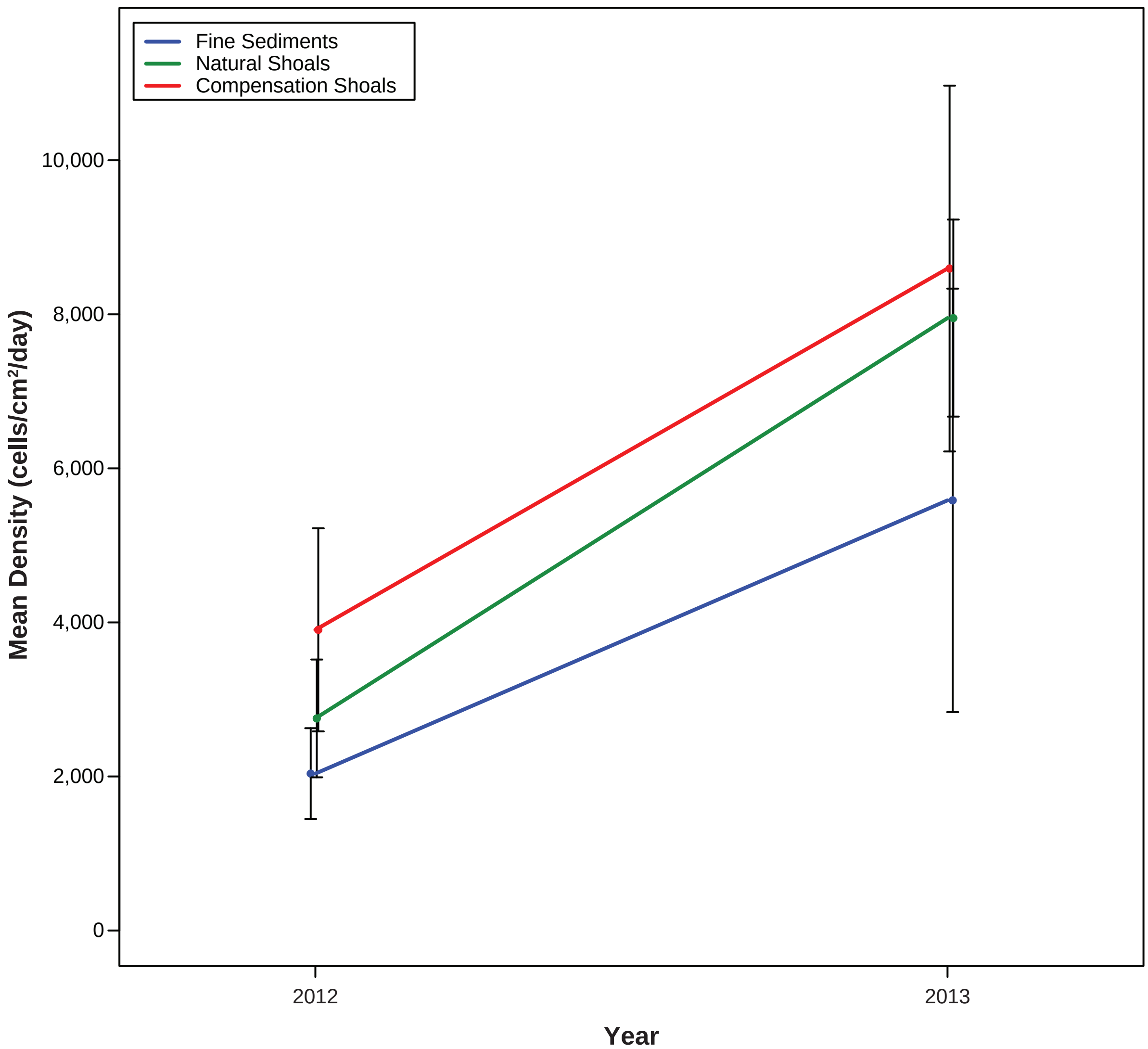
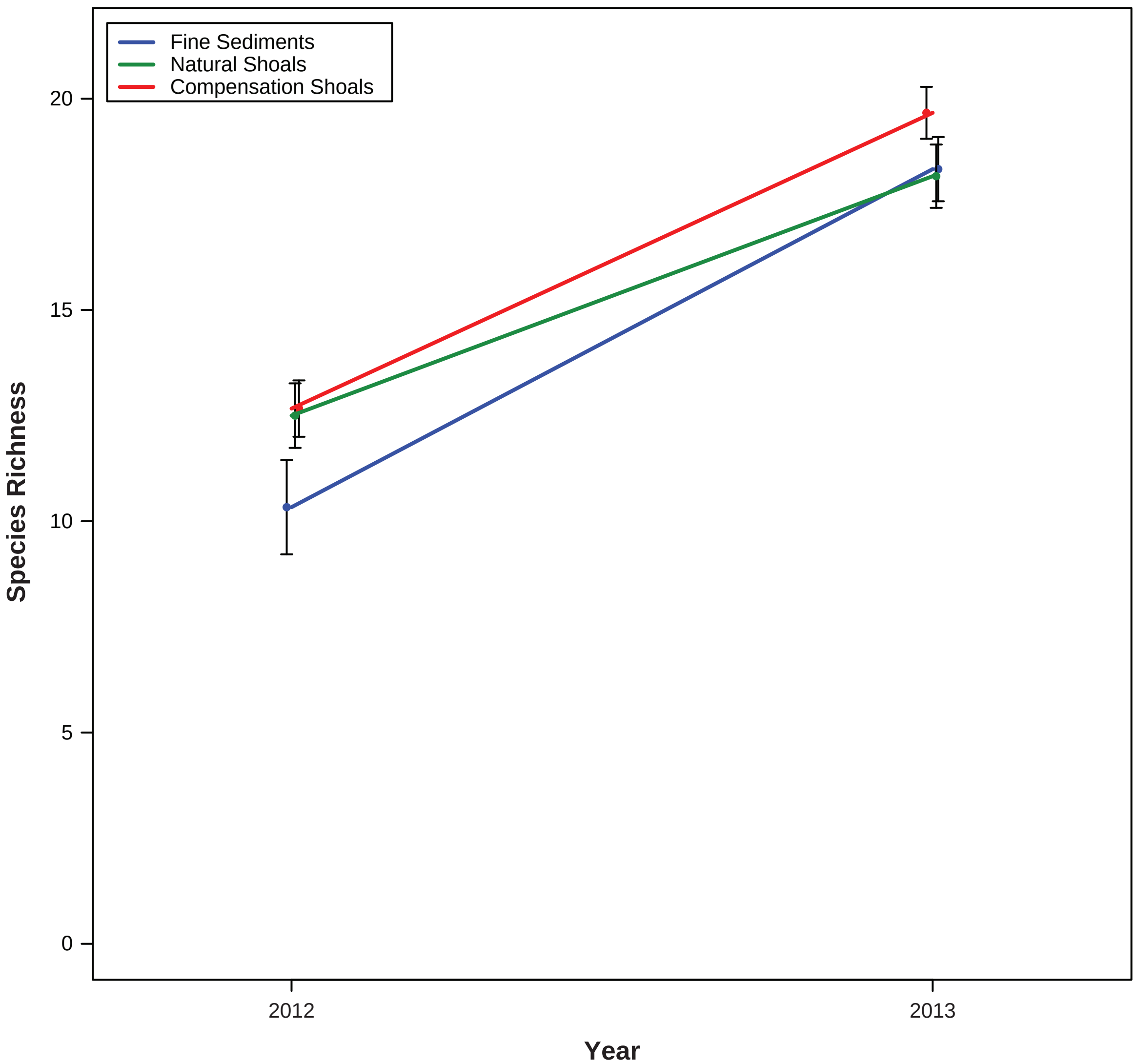


Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Trend in Periphyton Density at Compensation Shoals and Reference Sites (2012 to 2013)

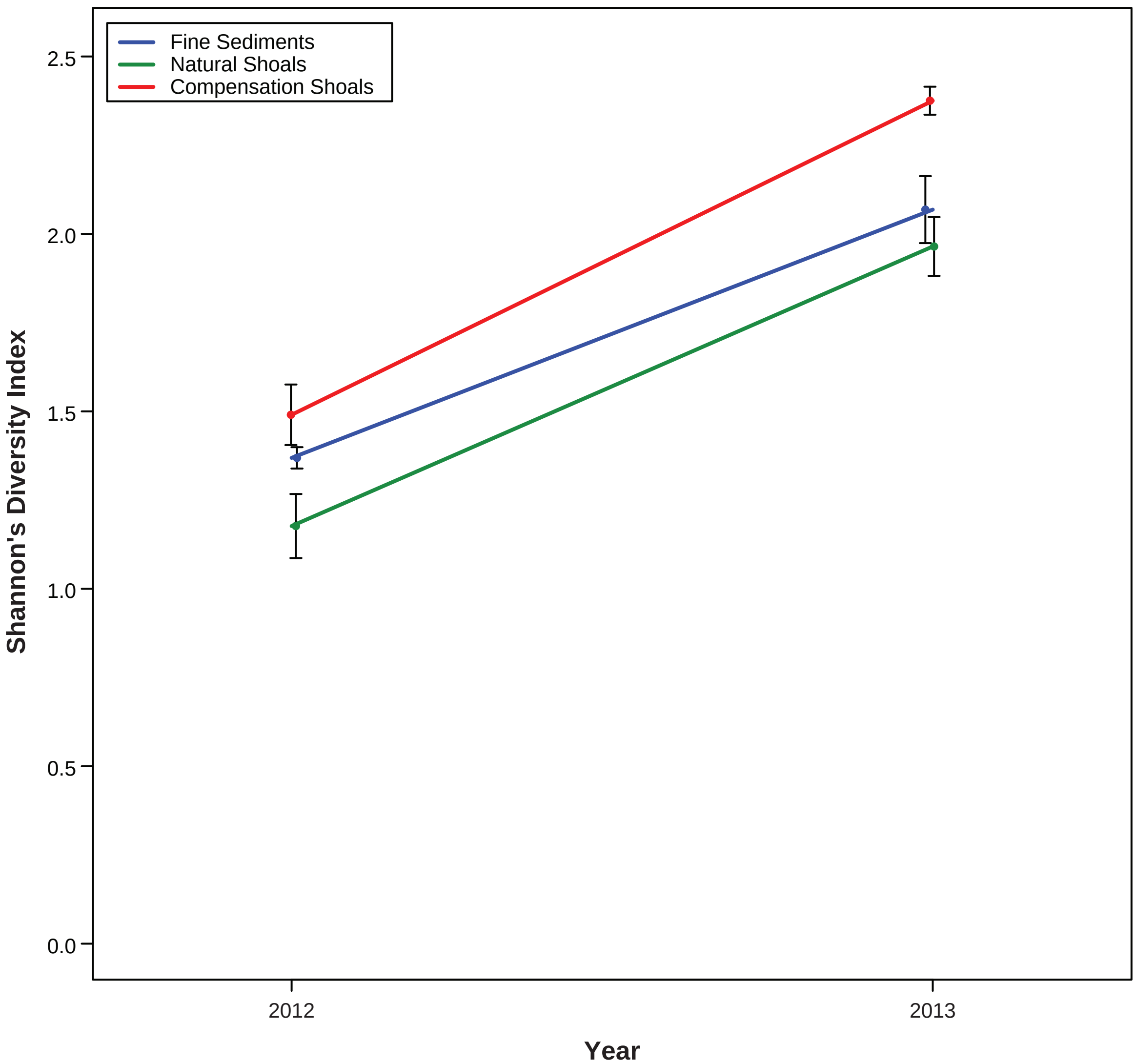
Figure 3.2-4



Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Trend in Periphyton Richness at Compensation Shoals and Reference Sites (2012 to 2013)

Figure 3.2-5



Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Trend in Periphyton Diversity at Compensation Shoals and Reference Sites (2012 to 2013)

Figure 3.2-6

Habitat Effects (Compensation vs. Reference)

In contrast to the main effect of year, the effect of habitat type was not consistent across periphyton indices. Periphyton biomass and diversity differed significantly among habitats ($P < 0.01$; Appendix 3.2-1), but there was no reliable trend as to which site had the lowest, or highest mean value. Compensation Shoals and Natural Shoals had similar, but lower mean biomass than Fine Sediment sites, whereas Compensation Shoals had higher mean diversity than both reference habitats (Figures 3.2-3 and 3.2-6). Differences among habitats in periphyton density and richness were not significant ($P > 0.09$; Appendix 3.2-1).

Taxonomy

The taxonomic composition of periphyton in 2013 was similar among habitat types (Figure 3.2-7) and the same three taxa predominated Compensation shoal, Natural Shoal, and Fine Sediment sites. The predominant three groups at all sites, in decreasing order, were blue-green algae of the genus *Anabaena* and diatoms in the genera *Nitzschia* and *Cyclotella* (Appendix 3.2-2).

Periphyton communities exhibited similar patterns of taxonomic composition in 2012 (Rescan 2012c). *Anabaena* was also the most predominant taxon, whereas *Nitzschia* was the third most abundant taxon, in 2012. Overall, diatoms were predominant in periphyton communities across all habitat types in both 2012 and 2013, but green algae made up a larger component of the communities in 2013 (Figure 3.2-7; Rescan 2012c).

Summary

Overall, the results from 2013 indicate that the periphyton community found at Compensation Shoals is similar to that found at Natural Shoals. Compensation shoals did not have significantly lower values than either of the reference sites for any of the indices measured in 2013, but the two factor analysis incorporating year suggests slight differences may still persist between Compensation Shoals and reference habitats in the second year post-construction. The taxonomic composition of periphyton was similar among habitat types, and the same three taxa predominated samples in both 2012 and 2013.

3.2.1.2 Benthic Macroinvertebrates

Density, Richness, and Diversity

Generally, benthic macroinvertebrate density, richness, and diversity were similar at Compensation Shoals and both types of reference sites. This mirrors the patterns observed for periphyton, which showed no significant variation in any measured index among habitat types.

Density of benthic macroinvertebrates was generally similar among habitat types. Based on the Hester Dendy traps, Fine Sediment sites exhibited significantly greater densities than both Compensation Shoals and Natural Shoals (Kruskal-Wallis, $K_{(2,15)} = 8.51$, $P = 0.014$; Appendix 3.2-1), but Compensation Shoals and Natural Shoals did not differ significantly for either Rock Traps or Hester Dendy traps (Figure 3.2-8 and Figure 3.2-9; Appendix 3.2-1).

Compensation Shoals did not differ statistically from reference sites for benthic macroinvertebrate taxonomic richness assessed using either sampling method (Appendix 3.2-1). Benthic macroinvertebrate richness in Rock Traps did not differ significantly among habitat types (ANOVA, $F_{(2,15)} = 1.13$, $P = 0.35$). In contrast, taxonomic richness varied significantly among habitats for Hester Dendy samples (ANOVA, $F_{(2,15)} = 3.96$, $P = 0.042$). However, post-hoc multiple comparisons only revealed a significant pairwise difference between Natural Shoals and Fine Sediment sites; Compensation Shoals did not differ with either reference habitat in these pairwise comparisons between habitats (Appendix 3.2-1).

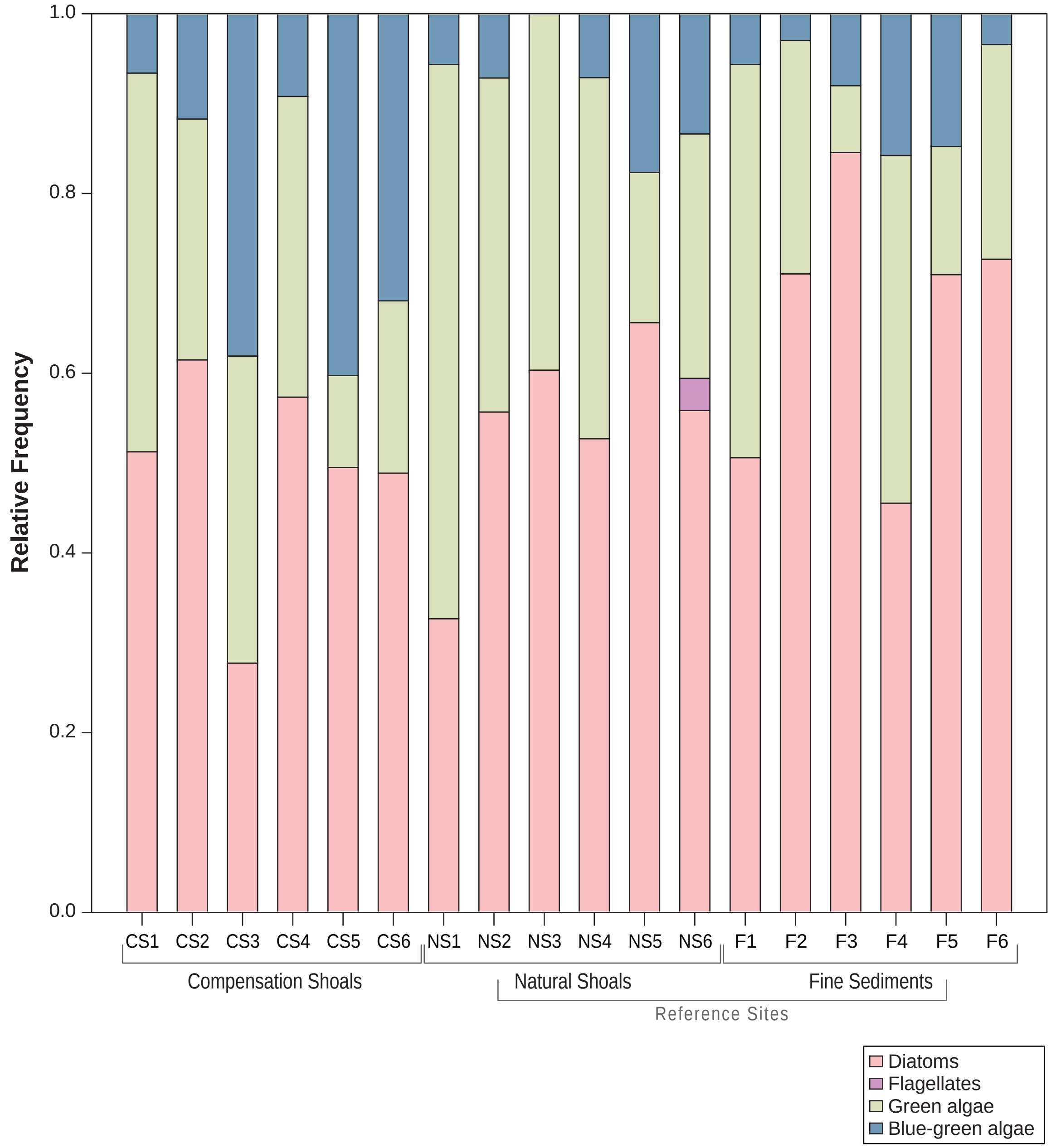


Figure 3.2-7

Relative Frequency of Major Periphyton Groups at Compensation Shoals and Reference Sites in Windy Lake, Doris North Project, 2013

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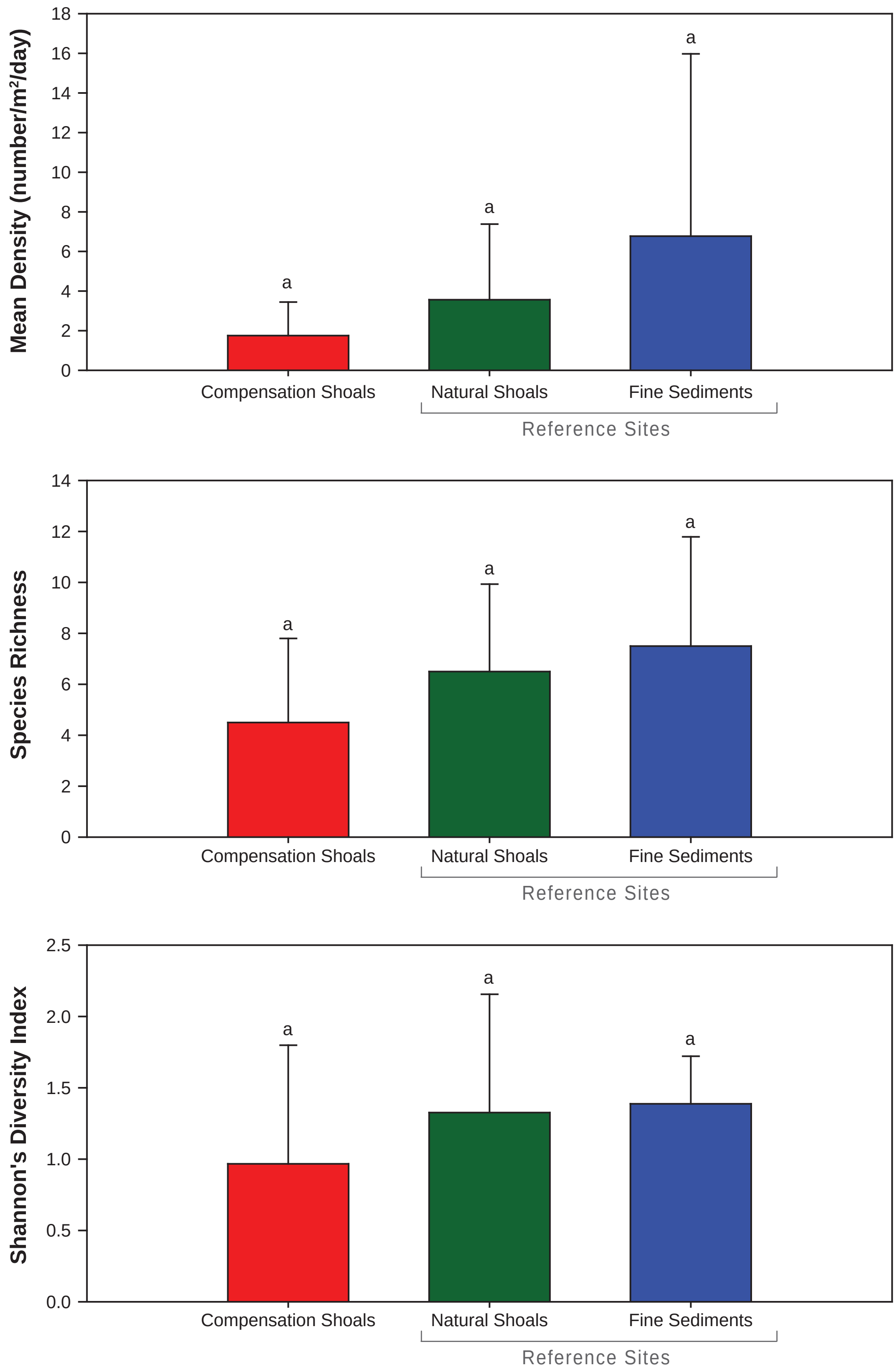

Note: Error bars represent the 95% confidence interval.
Groups that share the same letter are not significantly different at α = 0.05.

Figure 3.2-8

Benthic Macroinvertebrate Density, Richness and Diversity for Rock Traps at Compensation Shoals and Reference Sites in Windy Lake, Doris North Project, 2013

TMAC RESOURCES

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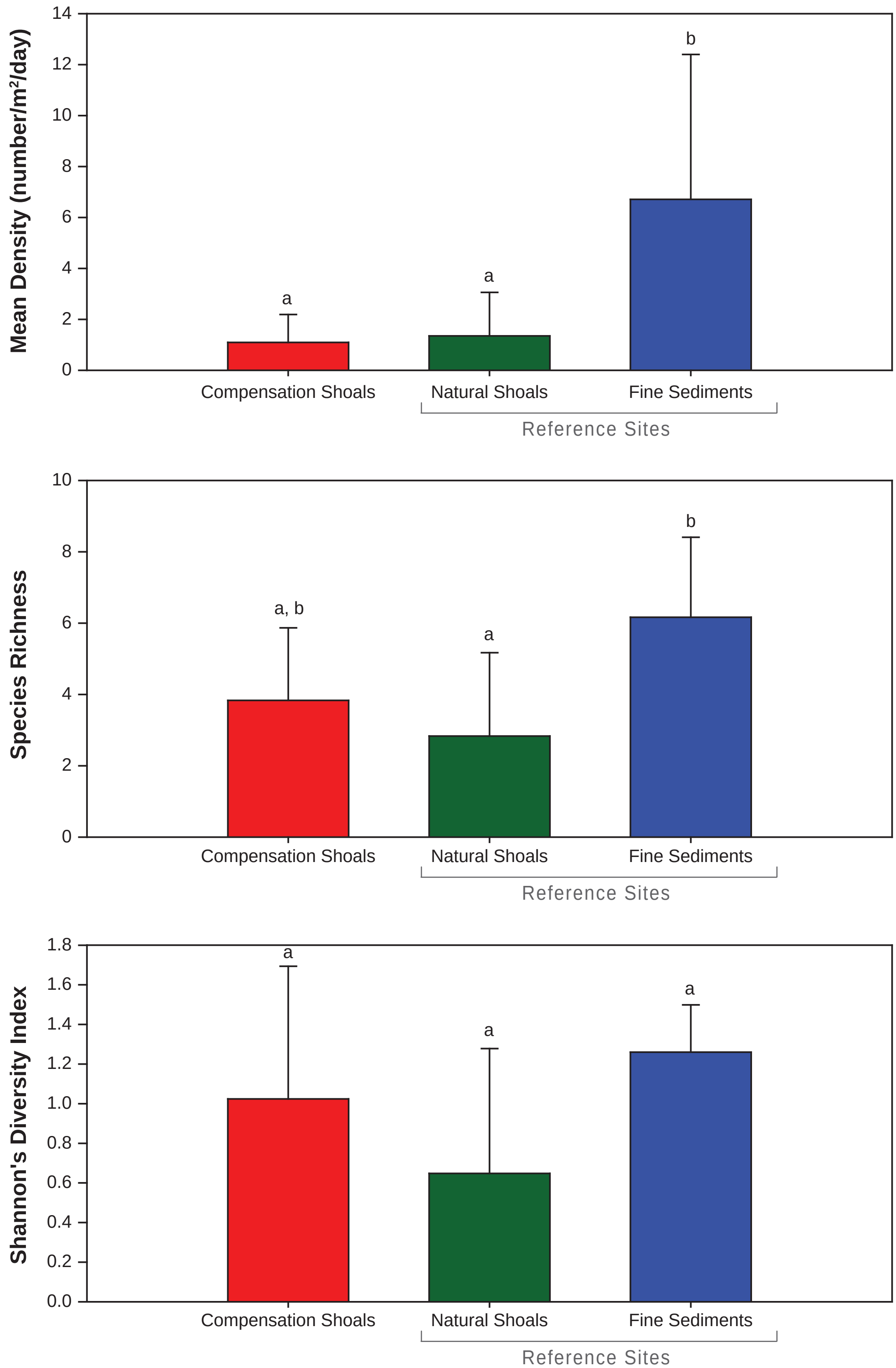


Note: Error bars represent the 95% confidence interval.
Groups that share the same letter are not significantly different at α = 0.05.

Benthic Macroinvertebrate Density, Richness and Diversity for Hester Dendy Traps at Compensation Shoals and Reference Sites in Windy Lake, Doris North Project, 2013

Figure 3.2-9

As illustrated in Figures 3.2-7 and 3.2-8, benthic macroinvertebrate diversity at Compensation Shoals was not significantly different from reference sites for either sampling method (results of One Way ANOVA for Rock Trap and Hester Dendy datasets, respectively: $F_{(2,15)}$ = 0.69, P = 0.52; $F_{(2,15)}$ = 2.09, P = 0.16).

Significantly more invertebrates were caught in minnow traps set at Fine Sediment sites than at Compensation Shoals, but there was no significant difference in macroinvertebrate density between Compensation Shoals and Natural Shoals (Kruskal-Wallis, $K_{(2,15)}$ = 8.43, P = 0.015; Appendix 3.2-1). Over 98% of all invertebrates incidentally caught in minnow traps (N = 1,497) were the isopod *Saduria entomon* (Appendix 2.2-3), suggesting that this particular invertebrate may have a preference for fine sediment substrate.

In general, each of the three measured indices of benthic macroinvertebrate communities differed little between Compensation Shoals and references sites, though Fine Sediments tended to exhibit the highest values for all three measures (density, taxonomic richness, and diversity). Overall, Compensation Shoals and Natural Shoals appeared more similar to one another than they were to Fine Sediment sites in terms of benthic macroinvertebrate community characteristics.

Comparison to 2012

To evaluate the effects of year and habitat type on macroinvertebrate indices, data from 2012 and 2013 were incorporated into a Two Factor (Year, Habitat) ANOVA. Analysis revealed no significant interaction (P > 0.47; Appendix 3.2-1) between year and habitat type for any of the macroinvertebrate indices (density, richness, diversity) allowing for direct comparisons of the main effects of Year and Habitat.

Year Effects

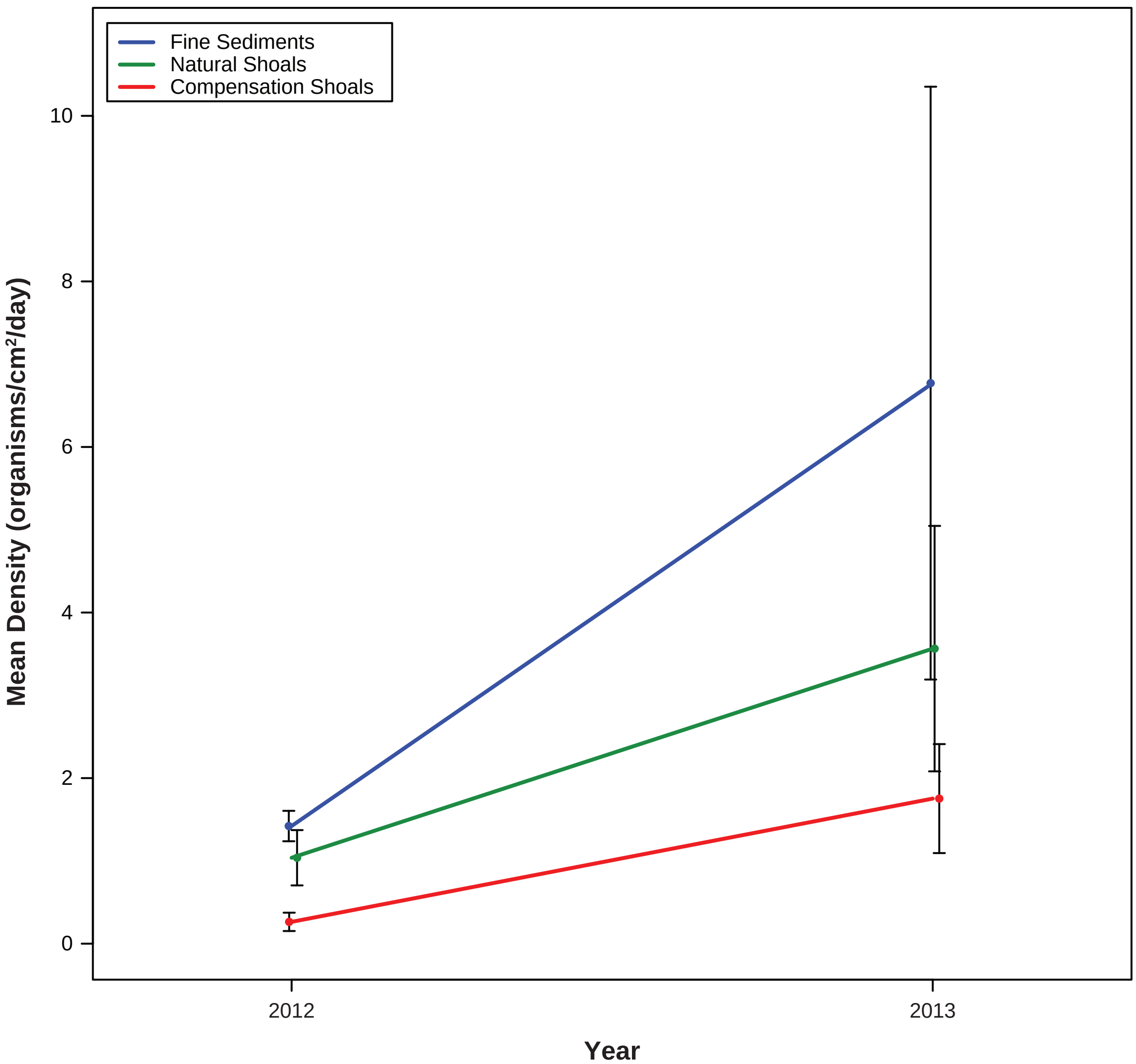
Year was a significant main effect for macroinvertebrate density and richness (P < 0.02; Appendix 3.2-1), but diversity did not differ significantly between years (P = 0.7; Appendix 3.2-1). Mean values of all indices at all habitat types (Compensation Shoals and reference sites) increased between 2012 and 2013 in density and richness, but at a lower magnitude for diversity (Figures 3.2-10 to 3.2-12).

Habitat Effects (Compensation vs. Reference)

Habitat was a significant main effect for macroinvertebrate richness and diversity (P < 0.02; Appendix 3.2-1). Macroinvertebrate richness and diversity at Compensation Shoals were consistently and significantly lower than both reference habitats, independent of year (Figures 3.2-11 and 3.2-12; Appendix 3.2-1). Though not significant (P = 0.17; Appendix 3.2-1), macroinvertebrate density was also lower at Compensation Shoals than both reference habitats (Figure 3.2-10).

Taxonomy

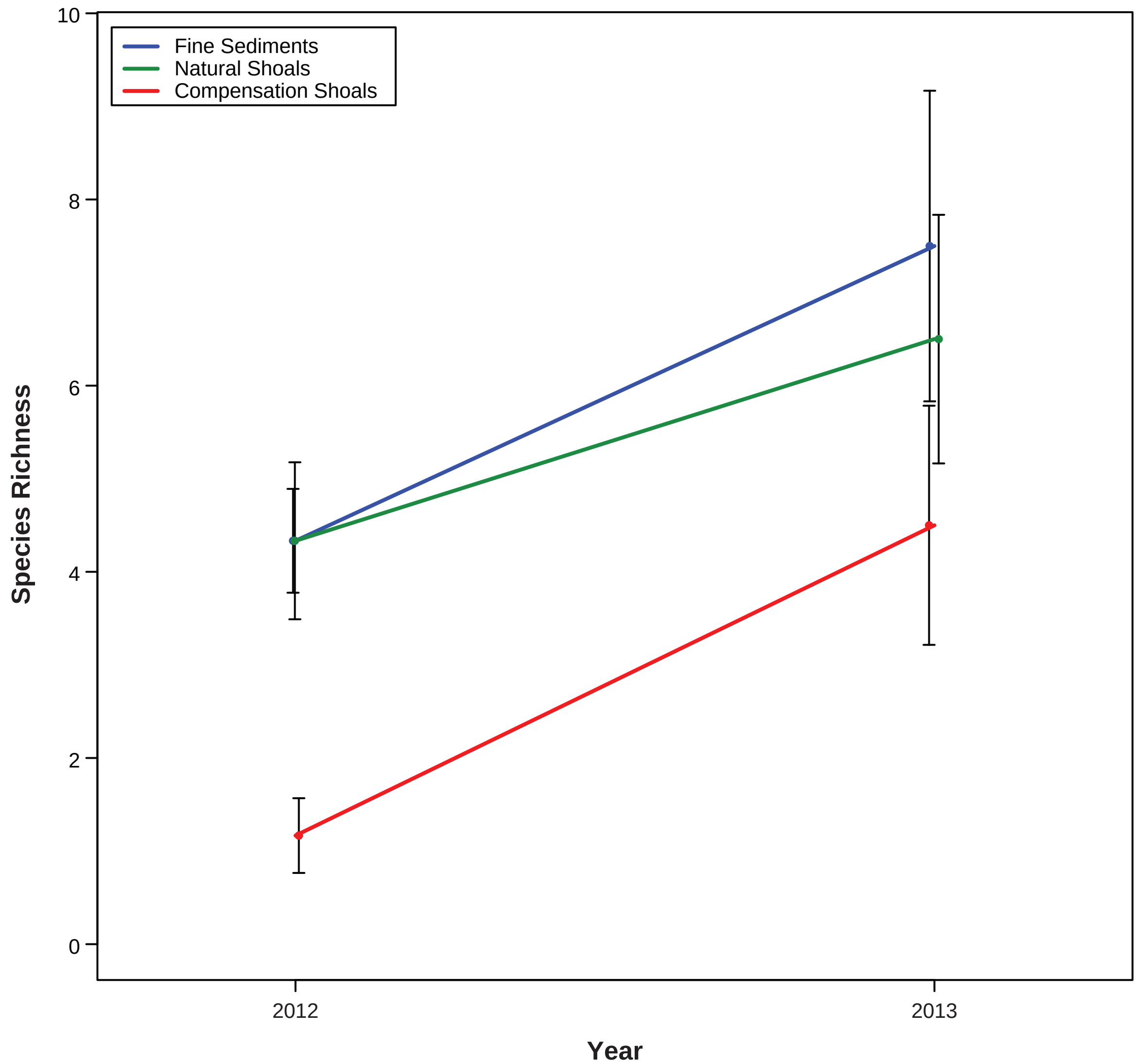
The taxonomic composition of benthic macroinvertebrates varied among habitat types (Figures 3.2-13 and 3.2-14; Appendix 3.2-3). In general, dipteran chironomids, particularly the genera *Paratanytarus* and *Micropsectra*, was predominant in the invertebrate community at each habitat type. In addition, these chironomid genera generally represented a larger proportion of the sample at Natural Shoal and Fine Sediment sites than at Compensation Shoals when the data for each habitat type were averaged across sampling methods (57% of the total count of individuals in the community at Compensation Shoals, 88% at Natural Shoals, and 81% at Fine Sediment sites). Samples from both methods (rock trap and Hester Dendy) were averaged to calculate the relative abundances presented here, as both methods were used, with equal replication, at all sites. Oligochaetes accounted for an average of 32% of the total count of individuals (averaged across sample methods) at Compensation Shoal sites; they made up less than 5% at the reference sites. Although some general trends were observed in community composition between Compensation Shoals and references sites, high variability in community composition was apparent within habitat types (Figures 3.2-13 and 3.2-14).



Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Trend in Rock Trap Benthic Macroinvertebrate Density at Compensation Shoals and Reference Sites (2012 to 2013)

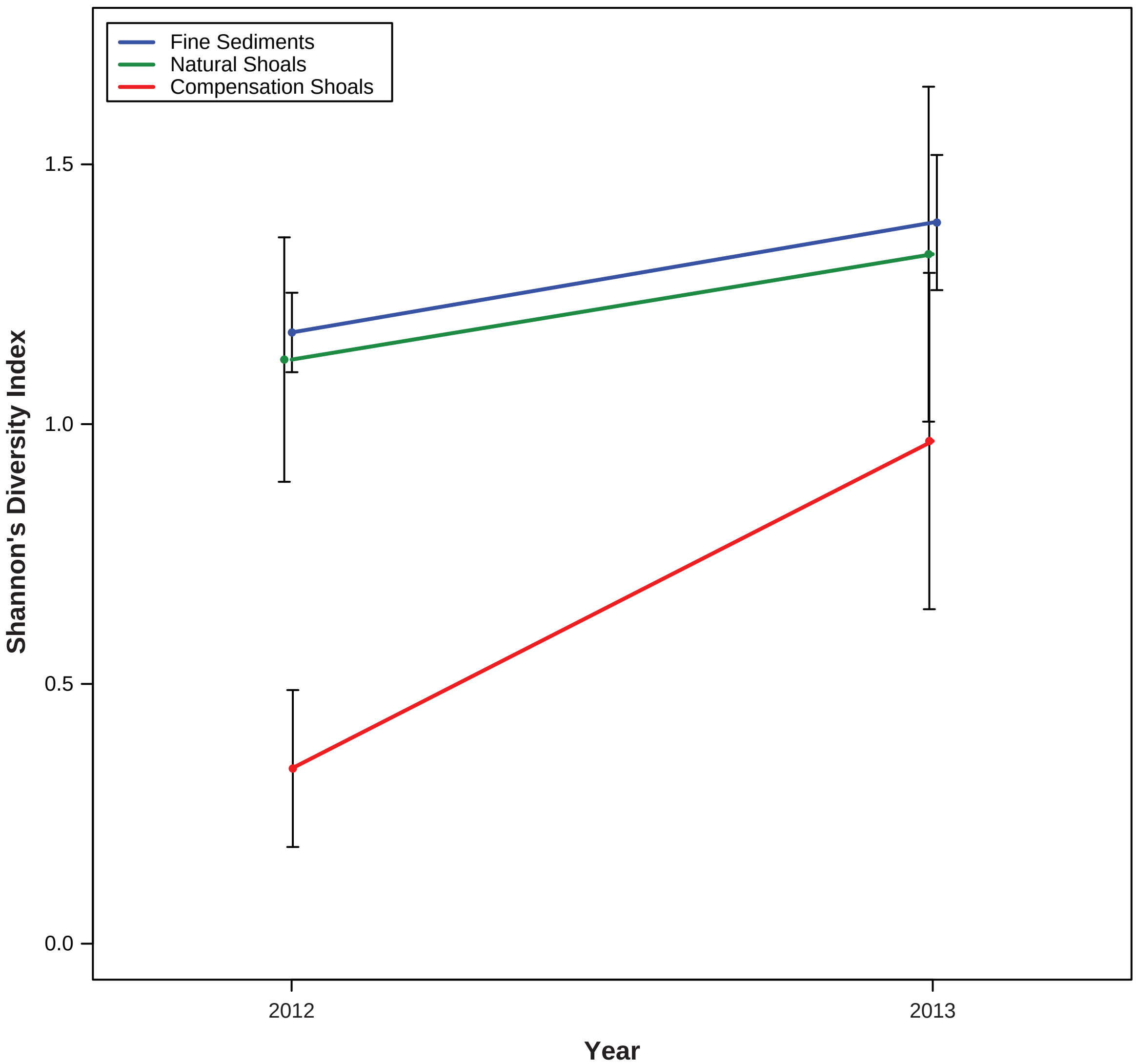
Figure 3.2-10



Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Trend in Rock Trap Benthic Macroinvertebrate Richness at Compensation Shoals and Reference Sites (2012 to 2013)

Figure 3.2-11



Note: Error bars represent Standard Error of the Mean and some points are slightly offset in time to show error bars.

Figure 3.2-12

Trend in Rock Trap Benthic Macroinvertebrate Diversity at Compensation Shoals and Reference Sites (2012 to 2013)

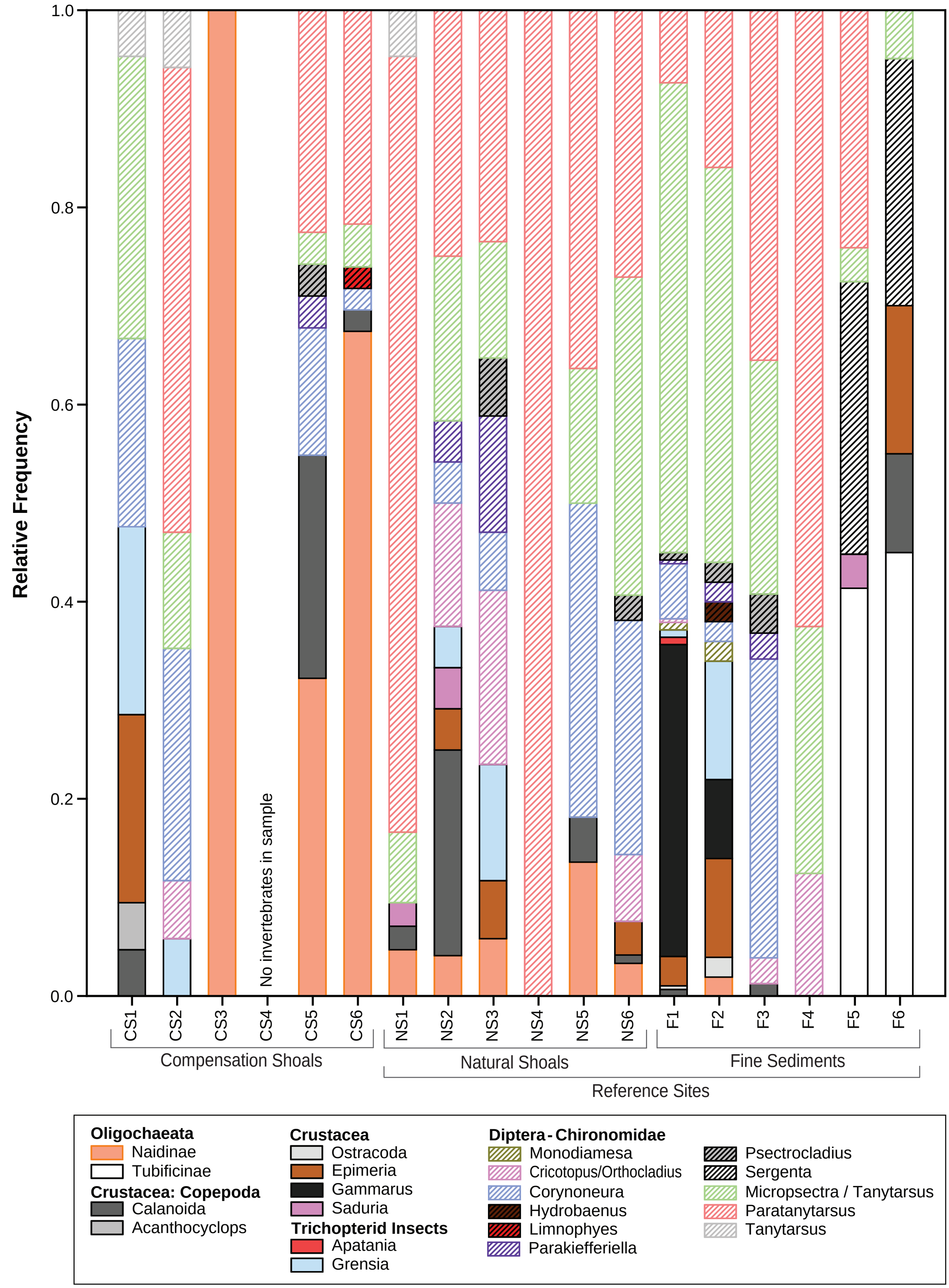


Figure 3.2-13

Relative Frequency of Benthic Macroinvertebrates in Rock Traps at Compensation Shoals and Reference Sites in Windy Lake, Doris North Project, 2013

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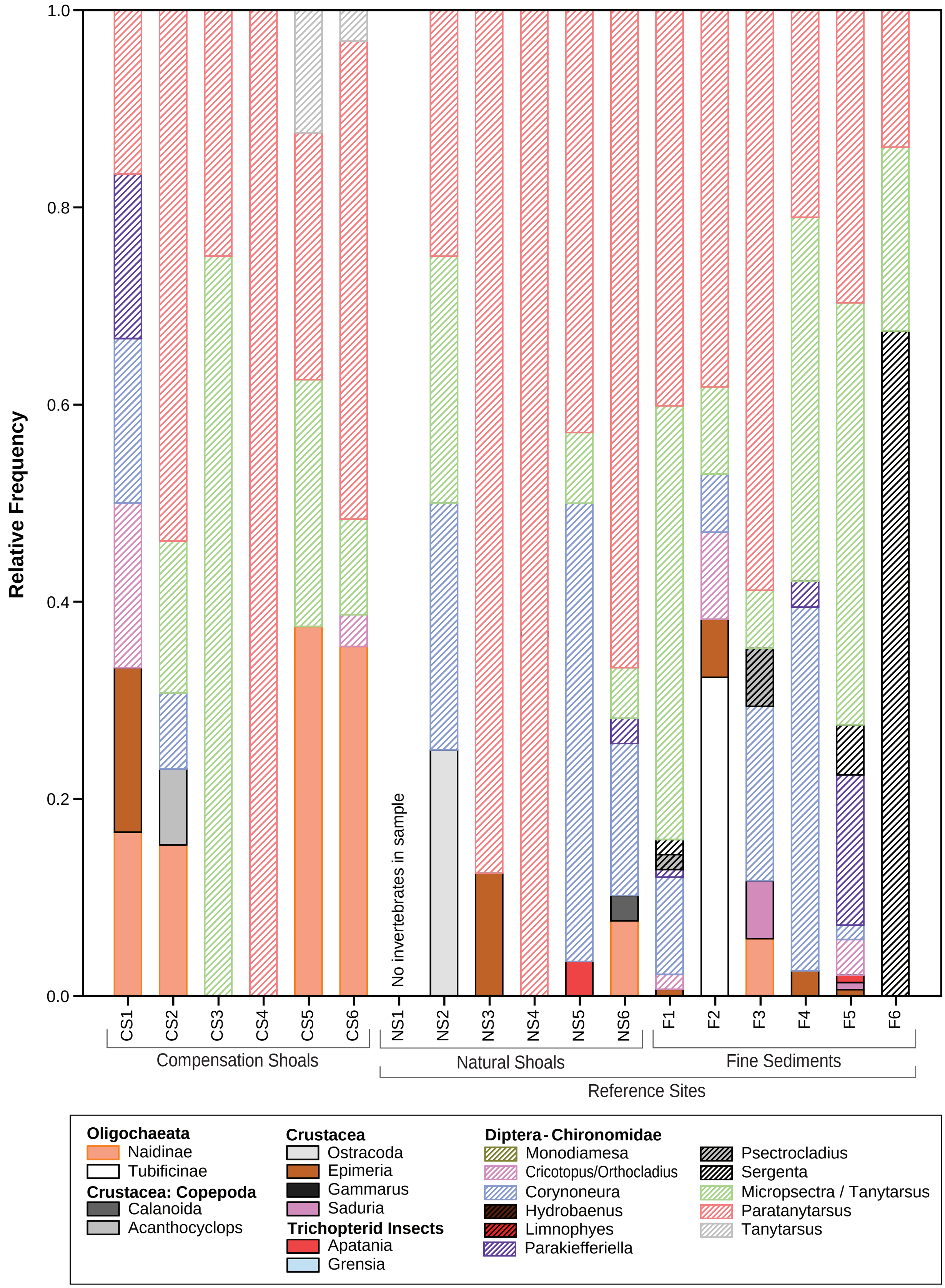

Figure 3.2-14

Relative Frequency of Benthic Macroinvertebrates in Hester Dendy Traps at Compensation Shoals and Reference Sites in Windy Lake, Doris North Project, 2013

Comparison to 2012

In 2012, the habitat types exhibited differences in the overall measures of benthic invertebrate community structure, whereas the taxonomic composition of the benthos was somewhat similar among habitats that year (Rescan 2012c). The same two major groups, amphipod crustaceans and chironomid insects, predominated compensation and reference habitats in 2012, though the predominant genera differed among habitat types. The benthic macroinvertebrate communities showed more taxonomic variability among samples in 2013, at which time amphipod crustaceans were proportionally less abundant and counts for chironomid taxa were more variable within habitat types than in 2012.

Future Sampling Recommendations

In 2013, Hester Dendy samplers were added to help determine whether the overall low macroinvertebrate abundances found in 2012 with Rock Samplers (Rescan 2012c) reflected a true pattern in Windy Lake, or were a result of a methodological artifact. Rock Traps had higher catch rates than Hester Dendy traps in 2013 (Appendix 3.2-3), suggesting that low abundances of benthic macroinvertebrates in 2012 reflects low natural abundance, and is not a result of sampling method. Rock Traps will therefore be used as the standard sampling method for benthic macroinvertebrates for the remainder of the monitoring program.

Summary

The general patterns of variation in macroinvertebrate community indices documented in 2013 were similar to those observed in 2012 (Rescan 2012c). Based on data from Rock Traps in 2012, Compensation Shoals had the lowest benthic macroinvertebrate density, richness, and diversity, whereas Natural Shoals and Fine Sediment sites tended to have intermediate and the highest values of these parameters, respectively (Figures 3.2-10 to 3.2-12). However, Compensation Shoals and Natural Shoals did not differ in density, richness, or diversity of benthic macroinvertebrates for either Rock Traps or Hester Dendy traps in 2013, indicating that Compensation Shoals are establishing benthic macroinvertebrate communities similar to those at Natural Shoals. Compensation Shoals are designed to replicate the habitat function of naturally occurring rock shoals. This type of habitat enhancement can be considered a success if, as observed in 2013, the habitat attributes of Compensation Shoals mimic those of the Natural Shoal sites in Windy Lake.

3.2.2 Fish Community

No fish were caught with minnow traps during the July or September sampling periods. The absence of trapped fish occurred despite a cumulative fishing time of approximately 144 hours (six days) per site, which is equivalent to 864 hours (or 36 days) of trapping per habitat type (Appendix 2.2-3). This finding is similar to that of 2012, when no fish were caught with a similar level of effort (Rescan 2012c). Historical catch records indicate that only one individual of one species, Ninespine Stickleback, has been captured using minnow trap methods in Windy Lake (Rescan 2010c).

Gill nets were also set at all 18 sites, but this method only caught fish at two Natural Shoals and at one Fine Sediment site (NS2, NS3, and F6). At both NS2 and NS3 a single lake trout was captured, and at F6 one lake trout and two Arctic Ciscoes were caught. Gill net effort ranged from 1.9 h to 3.7 h per site. CPUE did not differ significantly among habitat types for either Lake Trout or Arctic Cisco (results of Kruskal-Wallis tests for Lake Trout and Arctic Cisco, respectively: $K_{(2,15)} = 2.24$, $P = 0.33$; and $K_{(2,15)} = 2.00$, $P = 0.37$). This is not surprising, given that a CPUE of zero was found for so many sites (Table 3.2-1). No incidental mortalities of fish or wildlife (e.g. waterfowl) occurred during gill netting.

Table 3.2-1. Standard and Bootstrap Gill Net Catch-Per-Unit-Effort at Compensation Shoals and Reference Sites in Windy Lake, 2013

Habitat Type	Species	Standard CPUE (# Fish/100 m^2/h)						Bootstrap CPUE (# Fish/100 m^2/h)			
		n	Mean	SD	SE	Lower CI	Upper CI	Mean	SD	Lower CI	Upper CI
CS	Lake Trout	6	0	NA	NA	0	0	0	NA	0	0
	Arctic Cisco	6	0	NA	NA	0	0	0	NA	0	0
NS	Lake Trout	6	0.35	0.55	0.23	0	1.20	0.35	0.21	0	0.76
	Arctic Cisco	6	0	NA	NA	0	0	0	NA	0	0
F	Lake Trout	6	0.18	0.45	0.18	0	0.96	0.18	0.34	0	1.10
	Arctic Cisco	6	0.37	0.90	0.37	0	1.92	0.37	0.34	0	1.10

CPUE = catch-per-unit-effort (fish/100 m^2 of gillnet/h)
n = sample size (number of net sets)
SD = standard deviation
SE = standard error
CI = confidence interval (95%)

The gill netting program was designed to minimize incidental mortality (as described in Section 2.2.2 of Methods), but this approach had the drawback of reduced capture rates. Given the poor performance of minnow traps and the low capture rates of gill nets in Windy Lake, there is very little quantitative basis and essentially no statistical power for comparing fish community composition between Compensation Shoals and reference sites at this stage. Indeed, alternative methods for assessing fish distributions in the lake should be explored prior to the next year of sampling. Despite the low yields of fish traps and gill nets and the fact that no fish were captured by either method at the Compensation Shoals, visual observations of fish from two years of snorkel surveys (see Section 3.1.2 of Results and Discussion) demonstrate that at least sub-adult to adult Lake Trout are making use of the Compensation Shoals for refuge or foraging areas.

4. Summary

4. Summary

The objective of the Windy Lake Shoal Compliance Monitoring Program is to evaluate whether the Compensation Shoals installed in Windy Lake provide quality cover and rearing habitat for juvenile Lake Trout. The assessments conducted in 2013, and described herein, fulfill the requirements to monitor during Year-2 of post construction of the Compensation Shoals. These requirements were laid out in the Fisheries Authorization for the Project (NU-02-0117.2) and in the Project's No Net Loss Plan and its updates (Rescan 2010a, 2010b).

Two years of post-construction monitoring indicate that the Compensation Shoals provide quality cover and rearing habitat for juvenile Lake Trout in Windy Lake. Habitat assessments found that Compensation Shoals have the greatest proportion of cover, compared to reference habitats. Compensation Shoals have been successfully colonized by periphyton and benthic macroinvertebrate communities similar to those at reference sites, which will provide forage opportunities for rearing juvenile Lake Trout. However, to date, fish capture and observation rates at all sites have been extremely low, so evidence of the use of Compensation Shoals by juvenile Lake Trout is limited at this time.

4.1 OBSERVATIONS OF SHOAL HABITAT AND ITS USE BY INVERTEBRATES AND FISH

Visual inspection of the Compensation Shoals in 2013 confirmed that they were stable and exhibited no signs of slumping or collapse. Habitat assessments revealed that Compensation Shoals, Natural Shoals, and Fine Sediment sites form distinct habitat types. Compensation Shoals have the greatest proportion of cover and the highest amount of boulder substrate. Consequently, the Compensation Shoals provide important habitat in Windy Lake by providing fish with increased levels of structural complexity and refuge compared to Natural Shoals and Fine Sediment sites. Despite these differences between the Compensation and Nature Shoal sites, the underwater observations in 2013 also revealed that the Compensation Shoals are similar, in many regards, to the Natural Shoal habitats they were designed to simulate.

Snorkeling observations of invertebrates and fish were variable among sites and habitat types. Differences in depth and visibility among sites accounted for much of the variability in observations. However, visual observations of Lake Trout at Compensation Shoals confirm that at least some fish have begun to make use of this habitat type, and that the Compensation Shoals are beginning to work effectively for fish habitat offsetting in Windy Lake.

4.2 COMMUNITY ECOLOGY

Periphyton and benthic macroinvertebrate communities at the Compensation Shoals have gone through colonization, population expansion, and ecological succession since shoal construction in 2011, and the Compensation Shoals now support communities that are similar to those on Natural Shoal habitat. In 2013, Compensation Shoals contained periphyton communities with characteristics and taxonomic compositions similar to those at Natural Shoal and Fine Sediment reference sites. In addition, Compensation Shoals did not differ from Natural Shoals in terms of the density, richness, or diversity of benthic macroinvertebrates, yet habitat types differed in the taxonomic composition of the macroinvertebrate communities. Given the overall similarities of both the periphyton and macroinvertebrate communities between Compensation Shoals and Natural Shoals, the constructed habitats appear to be successfully advancing along the continuum of natural ecological succession.

Additionally, Hester Dendy samplers confirmed that the low benthic macroinvertebrate abundances obtained with the Rock Trap samplers in 2012 were real. Thus, only Rock Traps will continue to be used to sample invertebrates for the remainder of the monitoring program.

4.3 FISH COMMUNITY

Despite intense sampling efforts, no fish have been caught at any site with minnow traps in either year of sampling. Historical catch records indicate that only one individual Ninespine Stickleback has been captured using minnow traps in Windy Lake.

Gill nets set in July of 2013 also had limited effectiveness, as fish were caught at only three sites. The gill netting program was designed to minimize incidental mortality, but this approach had low capture rates. Alternative methods for assessing fish distributions in Windy Lake are under consideration and will be finalized prior to the next year of monitoring.

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Definitions of the acronyms and abbreviations used in this reference list can be found in the Glossary and Abbreviations section.

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Appendix 2.2-1

Benthic Macroinvertebrate Trap and Periphyton Plate Locations and Set Times, Windy Lake, Doris North Project, 2013

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Appendix 2.2-1. **Benthic Macroinvertebrate Trap and Periphyton Plate Locations and Set Times, Windy Lake, Doris North Project, 2013**

Habitat Type	Site	Trap Type	Trap Number	UTM Coordinates Zone	Easting	Northing	Date in	Date Out	Duration (days)	Notes
Compensation Shoal	CS1	Rock/Peri	1	13 W	431345	7554478	11-Jul-13	14-Sep-13	65	
	CS1	Rock/Peri	2	13 W	431355	7554468	11-Jul-13	14-Sep-13	65	
	CS1	Hester Dendy	3	13 W	431338	7554462	11-Jul-13	14-Sep-13	65	
	CS2	Rock/Peri	1	13 W	431157	7554080	11-Jul-13	14-Sep-13	65	
	CS2	Rock/Peri	2	13 W	431187	7554062	11-Jul-13	14-Sep-13	65	
	CS2	Hester Dendy	3	13 W	431175	7554064	11-Jul-13	14-Sep-13	65	
	CS3	Rock/Peri	1	13 W	432244	7553384	11-Jul-13	13-Sep-13	64	
	CS3	Rock/Peri	2	13 W	432225	7553382	11-Jul-13	13-Sep-13	64	
	CS3	Hester Dendy	3	13 W	432243	7553389	11-Jul-13	11-Sep-13	62	
	CS4	Rock/Peri	1	13 W	432230	7553224	11-Jul-13	13-Sep-13	64	
	CS4	Rock/Peri	2	13 W	432219	7553214	11-Jul-13	13-Sep-13	64	
	CS4	Hester Dendy	3	13 W	432239	7553237	11-Jul-13	11-Sep-13	62	
	CS5	Rock/Peri	1	13 W	432401	7550800	11-Jul-13	13-Sep-13	64	
	CS5	Rock/Peri	2	13 W	432395	7550791	11-Jul-13	13-Sep-13	64	
	CS5	Hester Dendy	3	13 W	432397	7550790	11-Jul-13	11-Sep-13	62	
	CS6	Rock/Peri	1	13 W	432368	7550969	11-Jul-13	13-Sep-13	64	
	CS6	Rock/Peri	2	13 W	432368	7550945	11-Jul-13	13-Sep-13	64	
	CS6	Hester Dendy	3	13 W	432389	7550963	11-Jul-13	11-Sep-13	62	
Natural Shoal (reference sites)	NS1	Rock/Peri	1	13 W	430966	7553220	11-Jul-13	14-Sep-13	65	
	NS1	Rock/Peri	2	13 W	430969	7553211	11-Jul-13	14-Sep-13	65	
	NS1	Hester Dendy	3	13 W	430946	7553246	11-Jul-13	11-Sep-13	62	
	NS2	Rock/Peri	1	13 W	430909	7553263	11-Jul-13	14-Sep-13	65	
	NS2	Rock/Peri	2	13 W	430911	7553290	11-Jul-13	14-Sep-13	65	
	NS2	Hester Dendy	3	13 W	430915	7553289	11-Jul-13	14-Sep-13	65	
	NS3	Rock/Peri	1	13 W	431230	7554202	11-Jul-13	14-Sep-13	65	
	NS3	Rock/Peri	2	13 W	431230	7554237	11-Jul-13	14-Sep-13	65	
	NS3	Hester Dendy	3	13 W	431252	7554180	11-Jul-13	14-Sep-13	65	
	NS4	Rock/Peri	1	13 W	432374	7552766	11-Jul-13	13-Sep-13	64	
	NS4	Rock/Peri	2	13 W	432378	7552834	11-Jul-13	13-Sep-13	64	
	NS4	Hester Dendy	3	13 W	432400	7552760	11-Jul-13	13-Sep-13	64	
	NS5	Rock/Peri	1	13 W	432458	7552538	11-Jul-13	13-Sep-13	64	

Appendix 2.2-1. Benthic Macroinvertebrate Trap and Periphyton Plate Locations and Set Times, Windy Lake, Doris North Project, 2013

Habitat Type	Site	Trap Type	Trap Number	UTM Coordinates			Date in	Date Out	Duration (days)	Notes
				Zone	Easting	Northing				
Natural Shoal (reference sites; *cont'd*)	NS5	Rock/Peri	2	13 W	432439	7552550	11-Jul-13	13-Sep-13	64	
	NS5	Hester Dendy	3	13 W	432430	7552570	11-Jul-13	11-Sep-13	62	
	NS6	Rock/Peri	1	13 W	432417	7551267	11-Jul-13	13-Sep-13	64	
	NS6	Rock/Peri	2	13 W	432417	7551192	11-Jul-13	13-Sep-13	64	
	NS6	Hester Dendy	3	13 W	432402	7551215	11-Jul-13	11-Sep-13	62	
Fine Sediments (reference sites)	F1	Rock/Peri	1	13 W	430876	7553155	11-Jul-13	14-Sep-13	65	
	F1	Rock/Peri	2	13 W	430876	7553187	11-Jul-13	14-Sep-13	65	
	F1	Hester Dendy	3	13 W	430862	7553121	11-Jul-13	11-Sep-13	62	
	F2	Rock/Peri	1	13 W	431273	7554407	11-Jul-13	14-Sep-13	65	
	F2	Rock/Peri	2	13 W	431274	7554403	11-Jul-13	14-Sep-13	65	
	F2	Hester Dendy	3	13 W	431236	7554428	11-Jul-13	14-Sep-13	65	
	F3	Rock/Peri	1	13 W	431426	7554888	11-Jul-13	14-Sep-13	65	
	F3	Rock/Peri	2	13 W	431458	7554903	11-Jul-13	14-Sep-13	65	
	F3	Hester Dendy	3	13 W	431434	7554927	11-Jul-13	14-Sep-13	65	
	F4	Rock/Peri	1	13 W	432306	7552941	11-Jul-13	13-Sep-13	64	
	F4	Rock/Peri	2	13 W	432301	7552937	11-Jul-13	13-Sep-13	64	Rock trap empty
	F4	Hester Dendy	3	13 W	432310	7552944	11-Jul-13	11-Sep-13	62	
	F5	Rock/Peri	1	13 W	432076	7549676	11-Jul-13	13-Sep-13	64	
	F5	Rock/Peri	2	13 W	432056	7549671	11-Jul-13	13-Sep-13	64	Did not recover
	F5	Hester Dendy	3	13 W	432054	7549677	11-Jul-13	11-Sep-13	62	
	F6	Rock/Peri	1	13 W	432248	7549695	11-Jul-13	13-Sep-13	64	
	F6	Rock/Peri	2	13 W	432286	7549699	11-Jul-13	13-Sep-13	64	
	F6	Hester Dendy	3	13 W	432263	7549690	11-Jul-13	11-Sep-13	62	

Note: Rock/Peri = Combined invertebrate rock and periphyton trap.

Appendix 2.2-2

Summary of Chlorophyll *a* Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

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Appendix 2.2-2. Summary of Chlorophyll *a* Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

Habitat Type	Site	Set Date	Sample Date	Total Chl *a* (µg)	Detection Limit (µg)	Surface Area of Sample (cm^2)	Chl *a* (µg/cm^2/day)
Compensation Shoal	CS1	11-Jul	14-Sep	4.95	0.10	200	0.002
	CS2	11-Jul	14-Sep	4.21	0.10	200	0.002
	CS3	11-Jul	13-Sep	1.07	0.01	200	0.000
	CS4	11-Jul	13-Sep	5.02	0.10	200	0.001
	CS5	11-Jul	13-Sep	4.18	0.10	200	0.002
	CS6	11-Jul	13-Sep	2.47	0.01	200	0.001
Natural Shoal (reference sites)	NS1	11-Jul	14-Sep	2.66	0.01	200	0.001
	NS2	11-Jul	14-Sep	2.89	0.10	200	0.001
	NS3	11-Jul	14-Sep	3.33	0.10	200	0.003
	NS4	11-Jul	13-Sep	2.18	0.01	200	0.001
	NS5	11-Jul	13-Sep	2.65	0.01	200	0.001
	NS6	11-Jul	13-Sep	4.09	0.10	200	0.002
Fine Sediments (reference sites)	F1	11-Jul	14-Sep	3.49	0.10	200	0.001
	F2	11-Jul	14-Sep	5.79	0.10	200	0.004
	F3	11-Jul	14-Sep	6.80	0.10	200	0.005
	F4	11-Jul	13-Sep	2.27	0.01	200	0.000
	F5	11-Jul	13-Sep	4.00	0.10	100	0.003
	F6	11-Jul	13-Sep	13.20	0.10	200	0.005

Notes: Site F5 only had one periphyton plate retrieved thus the surface area was 100, not 200 cm^2 as for all other sites.

In 2012, surface area of periphyton plates was incorrectly calculated as 20 cm^2 but should have been 200 cm^2.

Appendix 2.2-3

Minnow Trap Data from Windy Lake, Doris North Project, 2013

Appendix 2.2-3. Minnow Trap Data from Windy Lake, Doris North Project, 2013

			UTM Coordinates								Fish		Invertebrates			
Habitat Type	Site	Trap Number	Zone	Easting	Northing	Date In	Date Out	Time In	Time Out	Duration (h)	Number Caught	CPUE	Isopods	Mysis	Gammarus	Caddisfly
Compensation Shoal	CS1	1	13 W	431354	7554500	10-Jul	11-Jul	16:44	17:50	25.1	0	0	0	0	0	0
	CS1	2	13 W	431342	7554493	10-Jul	11-Jul	16:44	17:50	25.1	0	0	0	0	0	0
	CS1	3	13 W	431363	7554463	10-Jul	11-Jul	16:44	17:50	25.1	0	0	0	0	0	0
	CS2	1	13 W	431180	7554077	10-Jul	11-Jul	16:33	17:20	24.8	0	0	1	0	0	0
	CS2	2	13 W	431165	7554057	10-Jul	11-Jul	16:33	17:20	24.8	0	0	10	0	0	0
	CS2	3	13 W	431172	7554041	10-Jul	11-Jul	16:33	17:20	24.8	0	0	4	0	0	0
	CS3	1	13 W	432224	7553383	10-Jul	11-Jul	16:15	16:40	24.4	0	0	22	0	0	0
	CS3	2	13 W	432233	7553379	10-Jul	11-Jul	16:15	16:40	24.4	0	0	0	0	0	0
	CS3	3	13 W	432245	7553385	10-Jul	11-Jul	16:15	16:40	24.4	0	0	1	0	0	0
	CS4	1	13 W	432239	7553237	10-Jul	11-Jul	16:08	16:30	24.4	0	0	0	0	0	0
	CS4	2	13 W	432232	7553231	10-Jul	11-Jul	16:08	16:30	24.4	0	0	0	0	0	0
	CS4	3	13 W	432219	7553207	10-Jul	11-Jul	16:08	16:30	24.4	0	0	7	0	0	0
	CS5	1	13 W	432398	7550780	10-Jul	11-Jul	15:48	15:40	23.9	0	0	35	0	0	0
	CS5	2	13 W	432394	7550792	10-Jul	11-Jul	15:48	15:40	23.9	0	0	2	0	0	0
	CS5	3	13 W	432400	7550805	10-Jul	11-Jul	15:48	15:40	23.9	0	0	0	0	0	0
	CS6	1	13 W	432363	7550956	10-Jul	11-Jul	15:51	15:46	23.9	0	0	1	0	0	0
	CS6	2	13 W	432366	7551008	10-Jul	11-Jul	15:51	15:46	23.9	0	0	71	0	0	0
	CS6	3	13 W	432367	7550996	10-Jul	11-Jul	15:51	15:46	23.9	0	0	98	0	0	0
Natural Shoal	NS1	1	13 W	430965	7553206	10-Jul	11-Jul	16:27	17:05	24.6	0	0	4	0	0	0
(reference sites)	NS1	2	13 W	430964	7553235	10-Jul	11-Jul	16:27	17:05	24.6	0	0	10	0	0	0
	NS1	3	13 W	430965	7553230	10-Jul	11-Jul	16:27	17:05	24.6	0	0	1	0	0	0
	NS2	1	13 W	430911	7553272	10-Jul	11-Jul	16:28	17:10	24.7	0	0	1	0	0	0
	NS2	2	13 W	430910	7553270	10-Jul	11-Jul	16:28	17:10	24.7	0	0	3	0	0	0
	NS2	3	13 W	430910	7553267	10-Jul	11-Jul	16:28	17:10	24.7	0	0	34	0	0	0
	NS3	1	13 W	431262	7554196	10-Jul	11-Jul	16:35	17:35	25.0	0	0	1	0	0	0
	NS3	2	13 W	431235	7554238	10-Jul	11-Jul	16:35	17:35	25.0	0	0	1	0	0	0
	NS3	3	13 W	431228	7554208	10-Jul	11-Jul	16:35	17:35	25.0	0	0	0	0	0	0
	NS4	1	13 W	432385	7552769	10-Jul	11-Jul	16:02	18:15	26.2	0	0	0	0	0	0
	NS4	2	13 W	432375	7552847	10-Jul	11-Jul	16:02	18:15	26.2	0	0	0	0	0	0
	NS4	3	13 W	432382	7552814	10-Jul	11-Jul	16:02	18:15	26.2	0	0	0	0	0	0
	NS5	1	13 W	432454	7552539	10-Jul	11-Jul	16:00	16:20	24.3	0	0	3	0	0	0
	NS5	2	13 W	432435	7552554	10-Jul	11-Jul	16:00	16:20	24.3	0	0	0	0	0	0
	NS5	3	13 W	432437	7552508	10-Jul	11-Jul	16:00	16:20	24.3	0	0	0	0	0	0
	NS6	1	13 W	432416	7551224	10-Jul	11-Jul	15:55	16:00	24.1	0	0	1	0	0	0
	NS6	2	13 W	432414	7551251	10-Jul	11-Jul	15:55	16:00	24.1	0	0	5	0	0	0
	NS6	3	13 W	432415	7551172	10-Jul	11-Jul	15:55	16:00	24.1	0	0	10	0	0	0

Appendix 2.2-3. Minnow Trap Data from Windy Lake, Doris North Project, 2013

			UTM Coordinates								Fish		Invertebrates			
Habitat Type	Site	Trap Number	Zone	Easting	Northing	Date In	Date Out	Time In	Time Out	Duration (h)	Number Caught	CPUE	Isopods	Mysis	Gammarus	Caddisfly
Fine Sediments (reference sites)	F1	1	13 W	430872	7553164	10-Jul	11-Jul	16:22	17:00	24.6	0	0	40	0	0	0
	F1	2	13 W	430873	7553187	10-Jul	11-Jul	16:22	17:00	24.6	0	0	2	0	0	0
	F1	3	13 W	430875	7553197	10-Jul	11-Jul	16:22	17:00	24.6	0	0	3	0	0	0
	F2	1	13 W	431272	7554393	10-Jul	11-Jul	16:37	17:45	25.1	0	0	23	0	0	0
	F2	2	13 W	431277	7554429	10-Jul	11-Jul	16:37	17:45	25.1	0	0	9	0	0	0
	F2	3	13 W	431275	7554419	10-Jul	11-Jul	16:37	17:45	25.1	0	0	9	0	0	0
	F3	1	13 W	431466	7554905	11-Jul	12-Jul	13:20	15:00	25.7	0	0	1	0	0	0
	F3	2	13 W	431435	7554886	11-Jul	12-Jul	13:20	15:00	25.7	0	0	1	0	0	0
	F3	3	13 W	431444	7554894	11-Jul	12-Jul	13:20	15:00	25.7	0	0	47	0	0	0
	F4	1	13 W	432296	7552921	10-Jul	11-Jul	14:05	16:30	26.4	0	0	4	0	0	0
	F4	2	13 W	432301	7552920	10-Jul	11-Jul	14:05	16:30	26.4	0	0	0	0	0	0
	F4	3	13 W	432310	7552946	10-Jul	11-Jul	14:05	16:30	26.4	0	0	4	0	0	0
	F5	1	13 W	432051	7549669	10-Jul	11-Jul	15:24	15:10	23.8	0	0	4	0	0	0
	F5	2	13 W	432073	7549672	10-Jul	11-Jul	15:24	15:10	23.8	0	0	18	0	0	0
	F5	3	13 W	432068	7549675	10-Jul	11-Jul	15:24	15:10	23.8	0	0	8	0	0	0
	F6	1	13 W	432296	7549707	10-Jul	11-Jul	15:21	15:00	23.7	0	0	11	0	0	0
	F6	2	13 W	432250	7549696	10-Jul	11-Jul	15:21	15:00	23.7	0	0	1	0	0	0
	F6	3	13 W	432271	7549695	10-Jul	11-Jul	15:21	15:00	23.7	0	0	1	0	0	0
Compensation Shoal	CS1	1	13 W	431355	7554500	16-Sep	17-Sep	9:44	8:56	23.2	0	0	1	0	0	0
	CS1	2	13 W	431367	7554505	16-Sep	17-Sep	9:44	8:56	23.2	0	0	0	0	0	0
	CS1	3	13 W	431357	7554478	16-Sep	17-Sep	9:44	8:56	23.2	0	0	0	0	0	0
	CS2	1	13 W	431186	7554031	16-Sep	17-Sep	9:53	9:06	23.2	0	0	0	0	0	0
	CS2	2	13 W	431158	7554080	16-Sep	17-Sep	9:53	9:06	23.2	0	0	0	0	0	0
	CS2	3	13 W	431174	7554042	16-Sep	17-Sep	9:53	9:06	23.2	0	0	0	0	0	0
	CS3	1	13 W	432249	7553382	15-Sep	16-Sep	10:00	9:00	23.0	0	0	0	0	0	0
	CS3	2	13 W	432230	7553381	15-Sep	16-Sep	10:00	9:00	23.0	0	0	0	0	0	0
	CS3	3	13 W	432238	7553380	15-Sep	16-Sep	10:00	9:00	23.0	0	0	0	0	0	0
	CS4	1	13 W	432221	7553199	15-Sep	16-Sep	9:58	8:56	23.0	0	0	1	0	0	0
	CS4	2	13 W	432219	7553216	15-Sep	16-Sep	9:58	8:56	23.0	0	0	0	0	0	0
	CS4	3	13 W	432230	7553220	15-Sep	16-Sep	9:58	8:56	23.0	0	0	0	0	0	0
	CS5	1	13 W	432400	7550775	15-Sep	16-Sep	9:35	8:25	22.8	0	0	2	0	2	0
	CS5	2	13 W	432395	7550759	15-Sep	16-Sep	9:35	8:25	22.8	0	0	1	0	0	0
	CS5	3	13 W	432396	7550771	15-Sep	16-Sep	9:35	8:25	22.8	0	0	3	0	0	0
	CS6	1	13 W	432366	7550970	15-Sep	16-Sep	9:40	8:31	22.8	0	0	0	0	1	0
	CS6	2	13 W	432367	7551002	15-Sep	16-Sep	9:40	8:31	22.8	0	0	0	0	0	0
	CS6	3	13 W	432361	7550981	15-Sep	16-Sep	9:40	8:31	22.8	0	0	0	0	0	0

Appendix 2.2-3. Minnow Trap Data from Windy Lake, Doris North Project, 2013

Habitat Type	Site	Trap Number	UTM Coordinates			Date In	Date Out	Time In	Time Out	Duration (h)	Fish		Invertebrates			
			Zone	Easting	Northing						Number Caught	CPUE	Isopods	Mysis	Gammarus	Caddisfly
Natural Shoal (reference sites)	NS1	1	13 W	430962	7553246	16-Sep	17-Sep	10:00	9:14	23.2	0	0	4	0	0	0
	NS1	2	13 W	430964	7553234	16-Sep	17-Sep	10:00	9:14	23.2	0	0	0	0	0	0
	NS1	3	13 W	430968	7553226	16-Sep	17-Sep	10:00	9:14	23.2	0	0	1	0	0	0
	NS2	1	13 W	430911	7553282	16-Sep	17-Sep	9:55	9:13	23.3	0	0	4	6	2	0
	NS2	2	13 W	430908	7553299	16-Sep	17-Sep	9:55	9:13	23.3	0	0	78	0	0	0
	NS2	3	13 W	430908	7553268	16-Sep	17-Sep	9:55	9:13	23.3	0	0	0	0	0	0
	NS3	1	13 W	431243	7554230	16-Sep	17-Sep	9:50	9:03	23.2	0	0	14	10	1	0
	NS3	2	13 W	431264	7554210	16-Sep	17-Sep	9:50	9:03	23.2	0	0	4	0	0	0
	NS3	3	13 W	431245	7554225	16-Sep	17-Sep	9:50	9:03	23.2	0	0	2	0	0	0
	NS4	1	13 W	432375	7552802	15-Sep	16-Sep	9:52	8:48	22.9	0	0	4	0	0	0
	NS4	2	13 W	432403	7552814	15-Sep	16-Sep	9:52	8:48	22.9	0	0	0	0	0	0
	NS4	3	13 W	432369	7552821	15-Sep	16-Sep	9:52	8:48	22.9	0	0	2	0	0	0
	NS5	1	13 W	432472	7552487	15-Sep	16-Sep	9:49	8:44	22.9	0	0	7	0	1	0
	NS5	2	13 W	432466	7552517	15-Sep	16-Sep	9:49	8:44	22.9	0	0	0	0	0	0
	NS5	3	13 W	432460	7552479	15-Sep	16-Sep	9:49	8:44	22.9	0	0	15	0	0	0
	NS6	1	13 W	432414	7551257	15-Sep	16-Sep	9:43	8:36	22.9	0	0	5	0	1	0
	NS6	2	13 W	432415	7551167	15-Sep	16-Sep	9:43	8:36	22.9	0	0	4	0	0	0
	NS6	3	13 W	432415	7551216	15-Sep	16-Sep	9:43	8:36	22.9	0	0	17	0	0	0
Fine Sediments (reference sites)	F1	1	13 W	430874	7553164	16-Sep	17-Sep	10:05	9:21	23.3	0	0	50	0	0	0
	F1	2	13 W	430870	7553182	16-Sep	17-Sep	10:05	9:21	23.3	0	0	36	0	1	0
	F1	3	13 W	430875	7553200	16-Sep	17-Sep	10:05	9:21	23.3	0	0	68	0	0	0
	F2	1	13 W	431274	7554390	16-Sep	17-Sep	9:47	8:58	23.2	0	0	33	0	0	0
	F2	2	13 W	431277	7554433	16-Sep	17-Sep	9:47	8:58	23.2	0	0	39	0	0	3
	F2	3	13 W	431277	7554426	16-Sep	17-Sep	9:47	8:58	23.2	0	0	72	0	0	0
	F3	1	13 W	431446	7554887	16-Sep	17-Sep	9:42	8:52	23.2	0	0	8	0	0	0
	F3	2	13 W	431434	7554889	16-Sep	17-Sep	9:42	8:52	23.2	0	0	29	0	0	0
	F3	3	13 W	431465	7554902	16-Sep	17-Sep	9:42	8:52	23.2	0	0	31	0	0	0
	F4	1	13 W	432307	7552943	15-Sep	16-Sep	9:55	8:51	22.9	0	0	17	0	0	0
	F4	2	13 W	432302	7552920	15-Sep	16-Sep	9:55	8:51	22.9	0	0	50	0	0	0
	F4	3	13 W	432302	7552958	15-Sep	16-Sep	9:55	8:51	22.9	0	0	79	0	0	0
	F5	1	13 W	432073	7549672	15-Sep	16-Sep	9:02	8:14	23.2	0	0	59	0	0	0
	F5	2	13 W	432050	7549670	15-Sep	16-Sep	9:02	8:14	23.2	0	0	54	0	0	0
	F5	3	13 W	432047	7549673	15-Sep	16-Sep	9:02	8:14	23.2	0	0	12	0	0	0
	F6	1	13 W	432294	7549706	15-Sep	16-Sep	9:06	8:20	23.2	0	0	6	0	0	0
	F6	2	13 W	432285	7549693	15-Sep	16-Sep	9:06	8:20	23.2	0	0	62	0	0	0
	F6	3	13 W	432280	7549701	15-Sep	16-Sep	9:06	8:20	23.2	0	0	83	0	0	0

Note: CPUE = Catch per unit effort (fish/trap/24 h)

Appendix 2.2-4

Gill Net Data from Windy Lake, Doris North Project, 2013

Appendix 2.2-4. Gill Net Data from Windy Lake, Doris North Project, 2013

					UTM Coordinates			UTM Coordinates						Duration	Lake Trout		Cisco	
Habitat Type	Site	Set Number	GPS No.	GPS No.	Zone	Easting	Northing	Zone	Easting	Northing	Date	Time In	Time Out	(h)	No. Caught	CPUE	No. Caught	CPUE
Compensation Shoal	CS1	1	227	228	13 W	431348	7554485	13 W	431324	7554472	20-Jul	14:38	16:11	1:33	0	0.0	0	0.0
	CS1	2	230	231	13 W	431331	7554450	13 W	431355	7554465	20-Jul	14:42	16:14	1:32	0	0.0	0	0.0
	CS2	1	214	215	13 W	431171	7554087	13 W	431186	7554079	20-Jul	11:20	13:11	1:51	0	0.0	0	0.0
	CS2	2	216	217	13 W	431196	7554088	13 W	431173	7554094	20-Jul	11:22	13:13	1:51	0	0.0	0	0.0
	CS3	1	236	-	13 W	432232	7553386	-	-	-	20-Jul	16:33	17:55	1:22	0	0.0	0	0.0
	CS3	2	237	238	13 W	432269	7553383	13 W	432259	7553369	20-Jul	16:35	17:57	1:22	0	0.0	0	0.0
	CS4	1	239	240	13 W	432235	7553251	13 W	432215	7553232	20-Jul	16:37	18:05	1:28	0	0.0	0	0.0
	CS4	2	241	242	13 W	432254	7553227	13 W	432242	7553214	20-Jul	16:39	18:08	1:29	0	0.0	0	0.0
	CS5	1	189	190	13 W	432416	7550790	13 W	432401	7550769	19-Jul	15:43	16:40	0:57	0	0.0	0	0.0
	CS5	2	190	191	13 W	432401	7550769	13 W	432410	7550812	19-Jul	15:46	16:44	0:58	0	0.0	0	0.0
	CS6	1	185	186	13 W	432383	7550982	13 W	432379	7550960	19-Jul	15:33	16:30	0:57	0	0.0	0	0.0
	CS6	2	187	188	13 W	432375	7550974	13 W	432351	7550971	19-Jul	15:38	16:36	0:58	0	0.0	0	0.0
Natural Shoal	NS1	1	207	208	13 W	430958	7553245	13 W	430957	7553223	20-Jul	9:40	11:08	1:28	0	0.0	0	0.0
(reference sites)	NS1	2	209	210	13 W	430943	7553253	13 W	430932	7553234	20-Jul	9:42	11:10	1:28	0	0.0	0	0.0
	NS2	1	218	211	13 W	430896	7553286	13 W	430899	7553266	20-Jul	11:13	12:52	1:39	0	0.0	0	0.0
	NS2	2	212	213	13 W	430888	7553328	13 W	430871	7553341	20-Jul	11:18	12:54	1:36	1	1.7	0	0.0
	NS3	1	219	220	13 W	431244	7554191	13 W	431238	7554173	20-Jul	13:16	14:17	1:01	1	2.7	0	0.0
	NS3	2	221	222	13 W	431268	7554202	13 W	431277	7554183	20-Jul	13:18	14:29	1:11	0	0.0	0	0.0
	NS4	1	248	249	13 W	432411	7552778	13 W	432394	7552776	21-Jul	9:05	10:07	1:02	0	0.0	0	0.0
	NS4	2	250	251	13 W	432408	7552745	13 W	432390	7552744	21-Jul	9:07	10:10	1:03	0	0.0	0	0.0
	NS5	1	198	199	13 W	432431	7552586	13 W	432418	7552576	19-Jul	16:56	18:17	1:21	0	0.0	0	0.0
	NS5	2	200	201	13 W	432419	7552610	13 W	432402	7552617	19-Jul	16:59	18:20	1:21	0	0.0	0	0.0
	NS6	1	194	195	13 W	432404	7551234	13 W	432390	7551239	19-Jul	16:47	18:03	1:16	0	0.0	0	0.0
	NS6	2	196	197	13 W	432411	7551264	13 W	432396	7551265	19-Jul	16:50	18:12	1:22	0	0.0	0	0.0
Fine Sediments	F1	1	203	204	13 W	430875	7553116	13 W	430877	7553117	20-Jul	9:34	10:58	1:24	0	0.0	0	0.0
(reference sites)	F1	2	205	206	13 W	430857	7553130	13 W	430872	7553136	20-Jul	9:36	11:03	1:27	0	0.0	0	0.0
	F2	1	223	224	13 W	431212	7554409	13 W	431230	7554394	20-Jul	13:21	14:31	1:10	0	0.0	0	0.0
	F2	2	225	226	13 W	431232	7554437	13 W	431241	7554425	20-Jul	13:23	14:35	1:12	0	0.0	0	0.0
	F3	1	232	233	13 W	431404	7554901	13 W	431422	7554891	20-Jul	14:45	16:14	1:29	0	0.0	0	0.0
	F3	2	234	235	13 W	431444	7554942	13 W	431455	7554908	20-Jul	14:47	16:31	1:44	0	0.0	0	0.0
	F4	1	244	245	13 W	432871	7559041	13 W	432871	7559041	21-Jul	9:00	10:03	1:03	0	0.0	0	0.0
	F4	2	246	247	13 W	432324	7552941	13 W	432307	7552936	21-Jul	9:02	10:05	1:03	0	0.0	0	0.0
	F5	1	254	255	13 W	431999	7549670	13 W	432012	7549682	21-Jul	10:19	11:17	0:58	0	0.0	0	0.0
	F5	2	256	257	13 W	432047	7549655	13 W	432050	7549675	21-Jul	10:21	11:31	1:10	0	0.0	0	0.0
	F6	1	258	259	13 W	432251	7549676	13 W	432243	7549694	21-Jul	10:23	11:36	1:13	1	2.3	1	2.3
	F6	2	260	261	13 W	432293	7549691	13 W	432294	7549711	21-Jul	10:25	11:42	1:17	0	0.0	1	2.1

Note: CPUE = Catch per unit effort (fish/trap/24 h)

Appendix 2.4-1

Quality Assurance/Quality Control (QA/QC) Reports

Appendix 2.4-1. Quality Assurance/Quality Control (QA/QC) Reports

A. Periphyton QA/QC Report from Eco-Analysts

6537.02-04	Original Abundance (0.0039% Counted)	Relative Abundance (%)	Dominance Rank	Duplicate Abundance (0.00417% Counted)	Relative Abundance (%)	Dominance Rank	Percent Similarity
Achnanthidium spp.	0	0.00	-	6	0.02	-	0.00%
Amphora spp.	5	0.02	-	18	0.06	-	1.67%
Anabaena spp.	17	0.06	-	28	0.09	3	5.67%
Calothrix spp.	0	0.00	-	1	0.00	-	0.00%
Campylodiscus spp.	1	0.00	-	0	0.00	-	0.00%
Cocconeis spp.	0	0.00	-	3	0.01	-	0.00%
Cosmarium spp.	0	0.00	-	3	0.01	-	0.00%
Cyclotella spp.	35	0.12	3	49	0.16	2	11.67%
Cymatopleura solea	0	0.00	-	2	0.01	-	0.00%
Cymbella spp.	13	0.04	-	0	0.00	-	0.00%
Diatoma spp.	19	0.06	5	21	0.07	5	6.33%
Diploneis spp.	21	0.07	4	3	0.01	-	0.99%
Encyonema spp.	0	0.00	-	2	0.01	-	0.00%
Epithemia spp.	39	0.13	2	10	0.03	-	3.31%
Fragilaria spp.	4	0.01	-	2	0.01	-	0.66%
Gomphonema spp.	1	0.00	-	0	0.00	-	0.00%
Gyrosigma spp.	1	0.00	-	5	0.02	-	0.33%
Hippodonta spp.	0	0.00	-	3	0.01	-	0.00%
Leptolyngbya spp.	2	0.01	-	24	0.08	4	0.67%
Mougeotia spp.	17	0.06	-	16	0.05	-	5.30%
Navicula spp.	13	0.04	-	16	0.05	-	4.33%
Nitzschia spp.	77	0.26	1	61	0.20	1	20.20%
Oedogonium spp.	2	0.01	-	0	0.00	-	0.00%
Phormidium spp.	0	0.00	-	1	0.00	-	0.00%
Planothidiumm spp.	0	0.00	-	4	0.01	-	0.00%
Rhopalodia spp.	11	0.04	-	4	0.01	-	1.32%
Staurosira spp.	0	0.00	-	9	0.03	-	0.00%
Staurosirella spp.	0	0.00	-	2	0.01	-	0.00%
Stephanodiscus spp.	0	0.00	-	1	0.00	-	0.00%
Surirella spp.	3	0.01	-	2	0.01	-	0.66%
Synedra spp.	19	0.06	5	0	0.00	-	0.00%
Trachelomonas spp.	0	0.00	-	4	0.01	-	0.00%
Tryblionella spp.	0	0.00	-	1	0.00	-	0.00%
Undetermined Pennate	0	0.00	-	1	0.00	-	0.00%
Totals	**300**			**302**			**63.12%**

6537.02-17	Original Abundance (0.00521% Counted)	Relative Abundance (%)	Dominance Rank	Duplicate Abundance (0.00472% Counted)	Relative Abundance (%)	Dominance Rank	Percent Similarity
Amphipleura pellucida	0	0.00	-	1	0.00	-	0.00%
Cocconeis spp.	0	0.00	-	12	0.04	-	0.00%
Fragilaria spp.	0	0.00	-	4	0.01	-	0.00%
Hippodonta spp.	0	0.00	-	5	0.02	-	0.00%
Leptolyngbya spp.	0	0.00	-	5	0.02	-	0.00%
Lyngbya spp.	0	0.00	-	1	0.00	-	0.00%
Oocystis spp.	0	0.00	-	1	0.00	-	0.00%
Planothidiumm spp.	0	0.00	-	3	0.01	-	0.00%
Pseudanabaena spp.	0	0.00	-	1	0.00	-	0.00%
Reimeria sinuata	0	0.00	-	1	0.00	-	0.00%
Staurosira spp.	0	0.00	-	3	0.01	-	0.00%
Staurosirella spp.	0	0.00	-	1	0.00	-	0.00%
Trachelomonas spp.	0	0.00	-	2	0.01	-	0.00%
Undetermined Pennate	0	0.00	-	2	0.01	-	0.00%
Oedogonium spp.	1	0.00	-	2	0.01	-	0.33%

Appendix 2.4-1. Quality Assurance/Quality Control (QA/QC) Reports

A. Periphyton QA/QC Report from Eco-Analysts

6537.02-17	Original Abundance (0.00521% Counted)	Relative Abundance (%)	Dominance Rank	Duplicate Abundance (0.00472% Counted)	Relative Abundance (%)	Dominance Rank	Percent Similarity
Surirella spp.	1	0.00	-	4	0.01	-	0.33%
Amphora spp.	3	0.01	-	9	0.03	-	1.00%
Diploneis spp.	3	0.01	-	2	0.01	-	0.66%
Gyrosigma spp.	3	0.01	-	2	0.01	-	0.66%
Rhoicosphenia spp.	3	0.01	-	0	0.00	-	0.00%
Gomphonema spp.	7	0.02	-	1	0.00	-	0.33%
Synedra spp.	7	0.02	-	1	0.00	-	0.33%
Anabaena spp.	8	0.03	-	5	0.02	-	1.65%
Achnanthidium spp.	9	0.03	-	6	0.02	-	1.98%
Cymbella spp.	12	0.04	-	1	0.00	-	0.33%
Navicula spp.	15	0.05	-	12	0.04	**5**	3.96%
Diatoma spp.	23	0.08	**5**	28	0.09	**2**	7.67%
Epithemia spp.	26	0.09	**3**	3	0.01	-	0.99%
Mougeotia spp.	26	0.09	**3**	18	0.06	**4**	5.94%
Cyclotella spp.	27	0.09	**2**	25	0.08	**3**	8.25%
Nitzschia spp.	126	0.42	**1**	142	0.47	**1**	42.00%
Totals	**300**			**303**			**76.42%**

B. Chlorophyl a QA/QC Report from ALS Environmental

Plant Pigments	QC Type*	Analyte	QC Sample No.	Result	Target	Units	%	Limits
Water	LCS	Chlorophyll a	WG1758798-2	0.896	1	ug	89.6	80-120
Water	LCS	Chlorophyll a	WG1758798-3	0.899	1	ug	89.9	80-120
Water	LCS	Chlorophyll a	WG1758798-5	0.887	1	ug	88.7	80-120
Water	MB	Chlorophyll a	WG1758798-1	<0.010	<0.01	ug	-	0.01
Water	MB	Chlorophyll a	WG1758798-4	<0.010	<0.01	ug	-	0.01
Water	MB	Chlorophyll a	WG1758798-6	<0.010	<0.01	ug	-	0.01

** LCS= Lab Control Sample, MB = Method Blank*

C. Benthic Invertebrate QA/QC Report from Jack Zloty Ltd.

Site	% Sorting Efficiency
H-D CS #2	[1-(0/(13+0))]*100 = 100
H-D NS #4	[1-(0/(2+0))]*100 = 100
RT CS #1	[1-(0/(21+0))]*100 = 100
RT F #3	[1-(0/(76+0))]*100 = 100
Mean efficiency	100%

Appendix 3.1-1

Principal Coordinate Axis Loadings from Principal Coordinate Analysis of Compensation and Reference Habitats in Windy Lake, Doris North Project, 2013

Appendix 3.1-1. Principal Coordinate Axis Loadings from Principal Coordinate Analysis of Compensation and Reference Habitats in Windy Lake, Doris North Project, 2013

A. Principal Coordinate Axis Loadings for Habitat Variables

Factor		CA1	CA2
Cover	Total	-0.023	0.005
	Small woody debris (swd)	3.072	0.935
	Boulder	0.294	-0.036
	Cobble	0.081	-1.088
	Vegetation	1.501	-0.555
Substrate	Bedrock	-0.125	-1.219
	Boulder	-0.136	0.270
	Cobble	0.332	-0.227
	Gravel	0.654	-0.639
	Fines	2.402	-0.387

Note: CA = Coordinate Axis

B. Principal Coordinate Axis Loadings for Sites

Habitat Type	Factor	CA1	CA2
Compensation Shoal	CS1	-0.403	0.710
	CS2	-0.414	0.438
	CS3	-0.415	0.774
	CS4	-0.395	0.657
	CS5	-0.410	0.412
	CS6	-0.406	0.385
Natural Shoal (reference sites)	NS1	-0.190	-1.181
	NS2	-0.289	-1.179
	NS3	-0.176	-0.821
	NS4	-0.305	0.404
	NS5	-0.311	0.249
	NS6	-0.206	-0.374
Fine Sediments (reference sites)	F1	1.759	-0.845
	F2	5.141	-0.437
	F3	0.575	-2.469
	F4	1.331	-3.205
	F5	3.194	1.889
	F6	3.359	2.011

Note: CA = Coordinate Axis

Appendix 3.2-1

Summary of Community Ecology Statistical Tests in Windy Lake, Doris North Project, 2013

Appendix 3.2-1. Summary of Community Ecology Statistical Tests in Windy Lake, Doris North Project, 2013

Type	Sample Method	Year	Parameter	Transformation	Test	Test Statistic	DF (Model, Residual)	P	Significance	Significant Multiple Comparisons
Periphtyon	Plexiglas ™ plate	2013	Biomass	non-parametric	Kruskal-Wallis (*K*)	3.52	2, 15	0.17	NS	NS
	Plexiglas ™ plate	2013	Density	Ln	ANOVA (F)	3.52	2, 15	0.06	NS	NS
	Plexiglas ™ plate	2013	Richness	-	ANOVA (F)	1.34	2, 15	0.29	NS	NS
	Plexiglas ™ plate	2013	Diversity	-	ANOVA (F)	0.69	2, 15	0.52	NS	NS
Benthic Macroinvertebrates	Hester Dendy	2013	Density	non-parametric	Kruskal-Wallis (*K*)	8.51	2, 15	0.01	*	Compensation and Natural < Fine
	Hester Dendy	2013	Richness	-	ANOVA (*F*)	3.96	2, 15	0.04	*	Natural < Fine
	Hester Dendy	2013	Diversity	Ln	ANOVA (*F*)	2.09	2, 15	0.16	NS	NS
	Rock Trap	2013	Density	non-parametric	Kruskal-Wallis (*K*)	2.23	2, 15	0.33	NS	NS
	Rock Trap	2013	Richness	-	ANOVA (*F*)	1.13	2, 15	0.35	NS	NS
	Rock Trap	2013	Diversity	Ln	ANOVA (*F*)	0.69	2, 15	0.52	NS	NS
	Minnow Traps	2013	Count	-	Kruskal-Wallis (*K*)	8.43	2, 15	0.02	*	Compensation and Natural < Fine

Note: Each row is a test for differences in the specified parameter among habitat types (Compensation, Natural, Fine) and if significant, was followed by multiple comparisons with P-values adjusted for the False Discovery Rate.

*Significance codes: *** <0.001, ** <0.01, * <0.05, NS = non-significant*

Type	Sample Method	Year	Parameter	Source of Variation	Transformation	Test	Test Statistic	DF (Model, Residual)	P	Significance	Significant Multiple Comparisons
Periphyton	Plexiglas ™ plate	2012 vs 2013	Biomass	Habitat	-	Two Factor ANOVA with replication (F)	5.08	2, 30	0.01	*	Compensation and Natural < Fine
	Plexiglas ™ plate	2012 vs 2013	Biomass	Year	-	Two Factor ANOVA with replication (F)	18.45	2, 30	0.00	***	2012 < 2013
	Plexiglas ™ plate	2012 vs 2013	Biomass	Habitat:Year	-	Two Factor ANOVA with replication (F)	3.35	2, 30	0.06	NS	NS
	Plexiglas ™ plate	2012 vs 2013	Density	Habitat	-	Two Factor ANOVA with replication (F)	1.04	2, 30	0.36	NS	NS
	Plexiglas ™ plate	2012 vs 2013	Density	Year	-	Two Factor ANOVA with replication (F)	10.31	2, 30	0.00	**	2012 < 2013
	Plexiglas ™ plate	2012 vs 2013	Density	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.14	2, 30	0.87	NS	NS
	Plexiglas ™ plate	2012 vs 2013	Richness	Habitat	-	Two Factor ANOVA with replication (F)	2.67	2, 30	0.09	NS	NS
	Plexiglas ™ plate	2012 vs 2013	Richness	Year	-	Two Factor ANOVA with replication (F)	112.73	2, 30	0.00	***	2012 < 2013
	Plexiglas ™ plate	2012 vs 2013	Richness	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.93	2, 30	0.42	NS	NS
	Plexiglas ™ plate	2012 vs 2013	Diversity	Habitat	-	Two Factor ANOVA with replication (F)	11.83	2, 30	0.00	***	Natural < Compensation
	Plexiglas ™ plate	2012 vs 2013	Diversity	Year	-	Two Factor ANOVA with replication (F)	167.25	2, 30	0.00	***	2012 < 2013
	Plexiglas ™ plate	2012 vs 2013	Diversity	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.95	2, 30	0.41	NS	NS
Benthic Macroinvertebrates	Rock Trap	2012 vs 2013	Density	Habitat	-	Two Factor ANOVA with replication (F)	1.85	2, 30	0.17	NS	NS
	Rock Trap	2012 vs 2013	Density	Year	-	Two Factor ANOVA with replication (F)	5.62	2, 30	0.02	*	2012 < 2013
	Rock Trap	2012 vs 2013	Density	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.77	2, 30	0.47	NS	NS
	Rock Trap	2012 vs 2013	Richness	Habitat	-	Two Factor ANOVA with replication (F)	4.44	2, 30	0.02	*	Compensation < Natural and Fine
	Rock Trap	2012 vs 2013	Richness	Year	-	Two Factor ANOVA with replication (F)	10.15	2, 30	0.00	**	2012 < 2013
	Rock Trap	2012 vs 2013	Richness	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.16	2, 30	0.85	NS	NS
	Rock Trap	2012 vs 2013	Diversity	Habitat	-	Two Factor ANOVA with replication (F)	4.71	2, 30	0.02	*	Compensation < Natural and Fine
	Rock Trap	2012 vs 2013	Diversity	Year	-	Two Factor ANOVA with replication (F)	3.53	2, 30	0.07	NS	NS
	Rock Trap	2012 vs 2013	Diversity	Habitat:Year	-	Two Factor ANOVA with replication (F)	0.58	2, 30	0.57	NS	NS

Note: Each row is a test for differences in the specified parameter among habitat types (Compensation, Natural, Fine) and if significant, was followed by multiple comparisons with P-values adjusted for the False Discovery Rate.

*Significance codes: *** <0.001, ** <0.01, * <0.05, NS = non-significant*

Appendix 3.2-2

Summary of Periphyton Taxonomic Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

Appendix 3.2-2. Summary of Periphyton Taxonomic Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

Taxonomic Group				Compensation Shoals						Natural Shoals (Reference Sites)						Fine Sediments (Reference Sites)					
Class	Order	Family	Genus/species	CS1	CS2	CS3	CS4	CS5	CS6	NS1	NS2	NS3	NS4	NS5	NS6	F1	F2	F3	F4	F5	F6
Bacillariophyceae (Diatoms)	Centrales	Stephanodiscaceae	*Cyclotella*	1,468,726	975,498	79,969	896,296	384,127	529,711	1,201,549	1,275,656	1,723,962	9,078,585	518,571	1,443,396	1,081,216	5,059,413	2,107,628	749,579	908,998	2,891,093
	Pennales	Achnanthaceae	*Cocconeis*	194,390	223,552	9,408	0	0	0	18,918	0	0	0	0	0	0	0	0	0	0	309,760
			Achnanthidium	0	0	0	0	0	18,918	304,229	130,603	185,277	59,333	172,857	0	46,338	993,813	508,738	178,471	267,352	103,253
		Bacillariaceae	*Nitzschia*	1,403,929	1,829,059	413,959	1,971,852	653,016	1,343,196	834,081	9,125,013	3,125,103	2,284,433	2,646,789	2,822,258	3,819,759	2,272,495	20,195,220	2,699,644	2,420,000	1,255,942
		Catenulaceae	*Amphora*	172,791	101,614	18,816	128,042	12,804	132,428	33,803	130,603	185,277	88,999	57,619	56,236	0	271,040	218,030	0	0	137,671
		Cymbellaceae	*Cymbella*	86,396	243,875	18,816	332,910	179,259	113,510	270,425	156,724	1,482,218	237,331	230,476	224,945	123,568	542,080	254,369	267,707	347,558	103,253
		Diploneidaceae	*Diploneis*	669,566	182,906	23,520	537,778	166,455	18,918	236,622	287,327	741,109	237,331	57,619	243,690	278,027	1,806,933	327,046	89,236	133,676	34,418
		Eunotiaceae	*Eunotia*	0	0	0	0	0	18,918	0	0	0	0	0	0	15,446	271,040	0	0	0	0
			Synedra	0	548,718	65,857	486,561	294,497	378,365	439,441	182,844	741,109	207,665	134,444	168,709	216,243	90,347	218,030	89,236	427,764	172,089
			Diatoma	0	40,646	51,745	486,561	38,413	832,403	202,819	182,844	0	771,327	480,159	18,745	92,676	632,427	181,692	124,930	80,206	34,418
			Fragilaria	2,008,699	1,503,893	169,347	588,995	1,165,185	0	1,521,143	2,324,737	9,078,585	207,665	0	581,107	478,824	5,782,187	2,071,290	464,025	1,229,821	0
		Gomphonemataceae	*Gomphonema*	0	0	14,112	25,608	76,825	18,918	0	156,724	185,277	0	134,444	131,218	0	0	0	232,013	26,735	137,671
		Naviculaceae	*Navicula*	431,978	203,229	23520.39	332910.05	64,021	170,264	1,216,914	1,070,946	13,710,516	474,663	288,095	243,690	370,703	3,794,560	1,126,491	392,637	1,470,438	2,409,244
		Pleurosigmataceae	*Gyrosigma*	172,791	101,614	0	25,608	153,651	18,918	101,410	26,121	555,832	148,332	57,619	18,745	0	90,347	254,369	17,847	187,147	68,836
		Rhoicospheniaceae	*Rhoicosphenia*	0	0	0	0	0	0	0	0	0	0	57,619	18,745	0	0	0	0	0	0
		Rhopalodiaceae	*Epithemia*	129,593	40,646	221,092	998,730	755,450	699,975	439,441	78,362	1,482,218	1,008,658	499,365	693,580	525,162	813,120	690,430	249,860	133,676	34,418
			Rhopalodia	345,583	487,749	79,969	281,693	89,630	75,673	236,622	104,483	0	118,666	0	18,745	123,568	451,733	181,692	0	53,470	240,924
		Surirellaceae	*Campylodiscus*	107,995	40,646	0	25,608	12,804	113,510	0	0	741,109	0	0	37,491	0	451,733	36,338	0	0	68,836
			Cymatopleura solea	86,396	40,646	0	0	25,608	94,591	0	0	0	29,666	0	0	0	0	36,338	0	26,735	34,418
			Surirella	107,995	60,969	23,520	76,825	25,608	56,755	0	78,362	185,277	0	19,206	18,745	46,338	632,427	109,015	17,847	0	34,418
Chlorophyceae (Green algae)	Chaetophorales	Chaetophoraceae	*Stigeoclonium*	0	0	583,306	0	332,910	0	0	0	0	0	0	0	0	0	1,489,875	71,389	240,617	0
	Chlorococcales	Chlorococcaceae	*Tetraedron minimum*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Microthamniales	Microthamniaceae	*Microthamnion kuetzingianum*	0	0	0	0	678,624	0	0	0	0	0	0	0	0	0	0	0	0	0
	Oedogoniales	Oedogoniaceae	*Oedogonium*	0	365811.81	559785.3	204867.72	243,280	245,937	0	548,533	0	415,330	307,302	431,144	0	0	0	1,534,853	0	137,671
	Zygnematales	Desmidiaceae	*Cosmarium*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Zygnemataceae	*Mougeotia*	950,352	894,207	522,153	947,513	2,074,286	2,780,983	1,216,914	1,410,514	0	1,423,988	1,133,175	1,105,978	803,189	993,813	1,199,168	321,248	1,363,497	240,924
			Spirogyra	0	0	0	0	0	0	0	0	0	177,999	0	74,982	0	0	0	0	0	0
Euglenophyceae (Flagellates)	Chromulinales	Chrysosphaeraceae	*Chrysosphaera*	0	0	0	0	0	0	0	0	0	0	0	431,144	0	0	0	0	0	0
Myxophyceae (Blue-green algae)	Nostocales	Nostocaceae	*Anabaena*	2,462,276	833,238	465,704	2,202,328	845,079	1,381,033	12,879,010	8,410,844	9,819,694	9,671,254	1,363,651	3,280,444	5,128,055	8,763,627	1,090,152	3,515,885	1,550,644	2,065,067
		Rivulariaceae	*Calothrix*	0	0	743,244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Oscillatoriales	Pseudanabaenaceae	*Leptolyngbya*	3,607,018	2,052,611	286,949	1,997,460	0	435,120	439,441	1,802,324	12,598,853	1,720,653	0	0	1,112,108	0	1,417,198	1,213,605	0	585,102
		Phormidiaceae	*Phormidium*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Number				*14,406,474*	*10,771,126*	*4,374,793*	*12,548,148*	*8,271,534*	*9,478,045*	*21,592,784*	*27,483,565*	*56,541,418*	*28,361,878*	*8,159,011*	*12,063,738*	*14,261,220*	*33,713,135*	*33,713,110*	*12,230,012*	*10,868,335*	*11,099,426*

Note: Numbers indicate the total number of cells per sample

Appendix 3.2-3

Summary of Benthic Macroinvertebrate Taxonomic Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

Appendix 3.2-3. Summary of Benthic Macroinvertebrate Taxonomic Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

Taxonomic Group					Hester-Dendy Traps																	
					Compensation Shoals						Natural Shoals						Fine Sediments					
Major Group		**Family**	**Subfamily**	**Genus**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**NS1**	**NS2**	**NS3**	**NS4**	**NS5**	**NS6**	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**
Oligochaeta		Naididae	Naidinae	-	1	2	-	-	3	11	-	-	-	-	-	3	-	-	1	-	-	-
		Naididae	Tubificinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-
Crustacea	Copepoda - Calanoida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Copepoda - Cyclopoida	Cyclopidae	Cyclopinae	*Acanthocyclops*	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ostracoda	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Amphipoda	Epimeriidae	-	*Epimeria loricata*	1	-	-	-	-	-	-	-	1	-	-	-	1	2	-	1	1	-
		Gammaridae	-	*Gammarus lacustris*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Isopoda	Chaetiliidae	-	*Saduria entomon*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Insecta	Plecoptera	Chloroperlidae	-	(i/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Trichoptera	Apataniidae	-	*Apatania*	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
		Limnephilidae	-	(i/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			-	*Grensia praeterica*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diptera	Chironomidae	-	(pupa)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Prodiamesinae	*Monodiamesa*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Orthocladiinae	(i/d)	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	3	-
				Cricotopus/Orthocladius	1	-	-	-	-	1	-	-	-	-	-	-	2	3	-	-	5	-
				Corynoneura	1	1	-	-	-	-	-	1	-	-	13	6	13	2	3	14	2	-
				Hydrobaenus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Limnophyes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Parakiefferiella	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	21	-
				Psectrocladius	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-
			Chironominae	*Sergenta*	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	7	29
				(i/d)	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
				Micropsectra	-	2	3	-	2	3	-	1	-	-	2	2	58	3	-	14	59	8
				Micropsectra / Tanytarsus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
				Paratanytarsus	1	7	1	4	2	15	-	1	7	2	12	26	53	13	10	8	41	6
				Tanytarsus	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Terrestrial		**-**	**-**	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Number					***6***	***13***	***4***	***4***	***8***	***31***	***0***	***4***	***8***	***2***	***29***	***39***	***136***	***34***	***17***	***38***	***141***	***43***

Note: numbers indicate the total number of individuals per sample

Appendix 3.2-3. Summary of Benthic Macroinvertebrate Taxonomic Data for Each Sampling Site in Windy Lake, Doris North Project, 2013

					Rock Traps																	
Taxonomic Group					Compensation Shoals						Natural Shoals						Fine Sediments					
Major Group		**Family**	**Subfamily**	**Genus**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**NS1**	**NS2**	**NS3**	**NS4**	**NS5**	**NS6**	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**
Oligochaeta		Naididae	Naidinae	-	-	-	1	-	10	31	2	1	1	-	3	4	-	1	-	-	-	-
		Naididae	Tubificinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	9
Crustacea	Copepoda - Calanoida	-	-	-	1	-	-	-	7	1	1	5	-	-	1	1	2	-	1	-	-	2
	Copepoda - Cyclopoida	Cyclopidae	Cyclopinae	*Acanthocyclops*	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ostracoda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
	Amphipoda	Epimeriidae	-	*Epimeria loricata*	4	-	-	-	-	-	-	1	1	-	-	4	8	5	-	-	-	3
		Gammaridae	-	*Gammarus lacustris*	-	-	-	-	-	-	-	-	-	-	-	-	85	4	-	-	-	-
	Isopoda	Chaetiliidae	-	*Saduria entomon*	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	-
Insecta	Plecoptera	Chloroperlidae	-	(i/d)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Trichoptera	Apataniidae	-	*Apatania*	-	-	-	-	-	-	-	-	-	-	-	-	2		-	-	-	-
		Limnephilidae	-	(i/d)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
			-	*Grensia praeterica*	4	1	-	-	-	-	-	1	2	-	-	-	2	6	-	-	-	-
	Diptera	Chironomidae	-	(pupa)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
			Prodiamesinae	*Monodiamesa*	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-
			Orthocladiinae	(i/d)	-	1	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-
				Cricotopus/Orthocladius	-	1	-	-	-	-	-	3	3	-	-	8	1	-	2	1	-	-
				Corynoneura	4	4	-	-	4	1	-	1	1	-	7	28	15	1	23	-	-	-
				Hydrobaenus	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
				Limnophyes	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
				Parakiefferiella	-	-	-	-	1	-	-	1	2	-	-	-	1	1	2	-	-	-
				Psectrocladius	-	-	-	-	1	-	-	-	1	-	-	3	2	1	3	-	-	-
			Chironominae	*Sergenta*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5
				(i/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Micropsectra	3	2	-	-	1	2	2	4	2	-	3	38	128	20	17	2	1	1
				Micropsectra / Tanytarsus	3	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
				Paratanytarsus	-	8	-	-	7	10	33	6	4	13	8	32	20	8	27	5	7	-
				Tanytarsus	1	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Terrestrial		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Total Number					***21***	***18***	***1***	***0***	***32***	***47***	***42***	***24***	***17***	***13***	***22***	***121***	***269***	***52***	***76***	***8***	***29***	***20***

Note: numbers indicate the total number of individuals per sample