

**DIDYMO SURVEY, LOWER FRYINGPAN RIVER,
BASALT, COLORADO 2015
Second Annual Report**



PREPARED FOR: ROARING FORK CONSERVANCY

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Natural Resource
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dFRYPAN RIVER DIDYMO ANALYSIS (2015-Second Annual)

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FRYINGPAN RIVER DIDYMO ANALYSIS (2015-Second Annual)

Executive Summary

As a follow up to research initiated in 2014, Colorado Mountain College Natural Resource Management program (CMC NRM) monitored the Fryingpan River for didymo presence three times during 2015. The first sampling event was in May prior to spring runoff and peak flows, the second was in July following peak flows, and the third was in October to represent baseflow conditions.

Didymo is a native, nuisance species in rivers and streams throughout Colorado. A fast growing diatom, didymo covers substrate and has the potential to alter historic macroinvertebrate habitat. Creating effective mechanisms to prevent the spread or introduction of invasive and nuisance species is important for maintaining the health of the Fryingpan River ecosystem and fishery. The continued education of anglers and river users is important to reducing the spread of didymo to other water bodies in the watershed and around the Colorado. Wader washing stations can help reduce the spread of didymo and the introduction of new non-native or nuisance species.

This study suggests that increased flushing flows at or above 700 cfs during the spring simulate natural snowmelt conditions and promote bedload migration and the removal of didymo from the substrate. Results indicate increased didymo at all reference sites compared to the 2014 data. Responsible management and consistent dialog between the Bureau of Reclamation, water managers, water stewards, and recreational businesses will assist with flow control for environmental and recreational purposes.

Continued monitoring of fish populations, benthic invertebrates, and water quality for nutrient concentrations throughout the Fryingpan could help describe the relationship of didymo in the aquatic ecosystem. An ongoing monitoring strategy is recommended for the Fryingpan River to include sampling of five key sites (Site 1, 8, 12, 15, and 20) three times annually, plus three reference sites upstream of Ruedi Reservoir (Appendix I). This sampling should be complimented with a comprehensive 5 year study at all sites.

Methodology

Sampling methodology in 2015 was the same methodology used in 2014 (see *Didymo Survey, Lower Fryingpan River, 2014*). 20 sites were sampled in 2014. In 2015 some sites were not sampled at each event because of restricted access.



Figure 1. Colorado Mountain College field technicians observing didymo coverage with a gridded viewing bucket

Table 1. Site locations on the Fryingpan River. Site 1 is the most downstream site, Site 20 is closest to Ruedi Reservoir

Site #	Latitude	Longitude	Elevation (meters)	Average width of river (meters)
Site 1	4359737.27	325111.76	2026.38	18.30
Site 2	4360342.87	326247.01	2053.35	15.55
Site 3	4360275.03	327171.40	2080.21	13.72
Site 4	4360131.45	328129.99	2075.98	22.87
Site 5	4360310.63	328894.53	2097.16	22.87
Site 6	4360565.22	330038.83	2116.96	24.70
Site 7	4360759.15	330970.15	2118.50	13.72
Site 8	4360835.73	332129.37	2132.95	27.45
Site 9	4360373.15	332750.36	2154.66	22.87
Site 10	4360555.00	333830.00	2171.66	13.72
Site 11	4360716.83	334505.54	2156.88	27.45
Site 12	4360439.50	335477.03	2165.46	22.87
Site 13	4360326.35	336348.41	2171.99	13.72
Site 14	4360421.28	337319.98	2191.78	22.87
Site 15	4360082.71	338490.97	2220.00	18.30
Site 16	4359409.83	339213.60	2233.73	18.30
Site 17	4359351.64	340494.25	2251.38	25.62
Site 18	4358936.70	340964.26	2245.92	13.72
Site 19	4358541.00	341676.33	2274.41	22.87
Site 20	4358854.93	342890.30	2286.95	41.17

Results

The following charts represent the total didymo biomass recorded (g/in^2) at each site visited and for each seasonal sampling event. Raw data is presented in Appendix II.



Figure 2. Colorado Mountain College field technicians scraping didymo from a rock to be analyzed in the lab

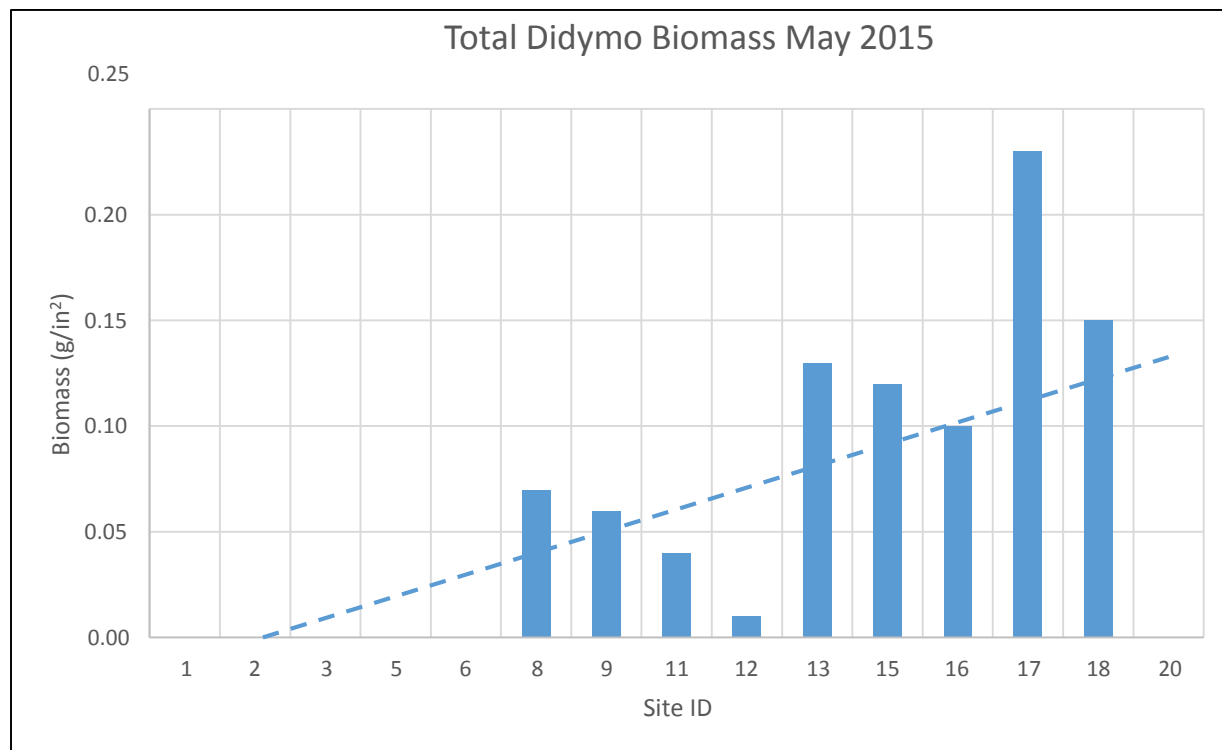


Figure 1. Summary of Didymo Biomass from May 2015 Sampling Event

* Note 2. The dotted line on the graphs for May and July represents the trend of didymo biomass from Site 1 to Site 20.

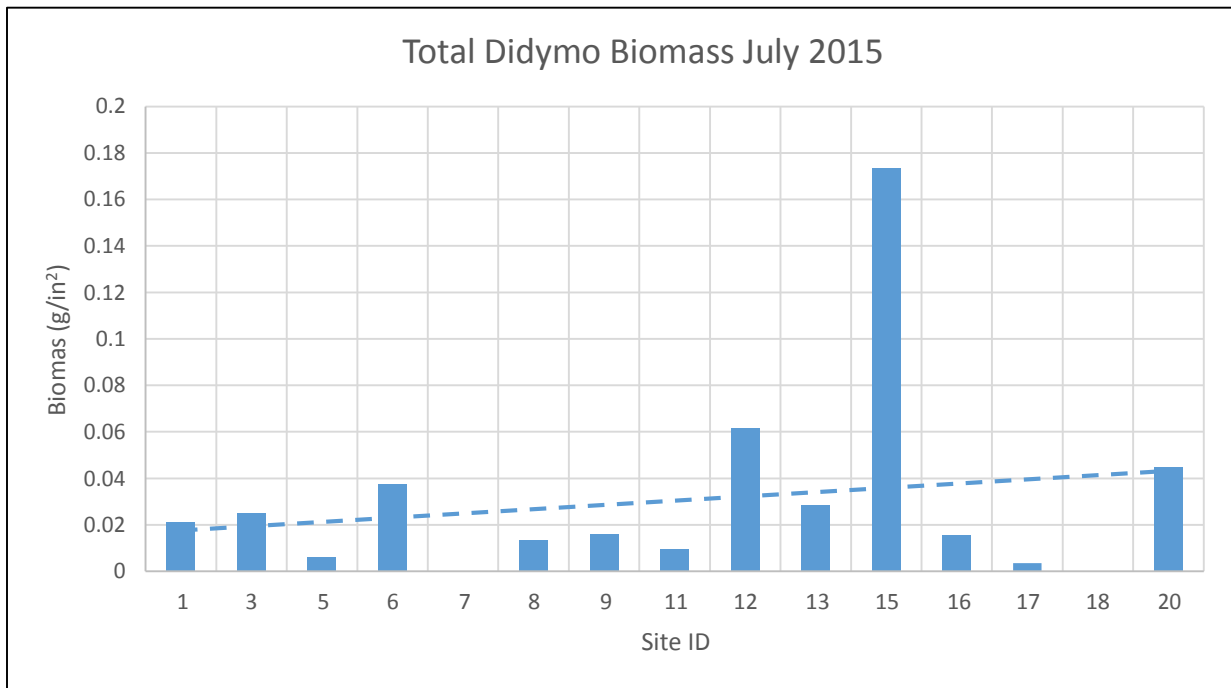


Figure 2. Summary of Didymo Biomass from July 2015 Sampling Event

*Note 2. The dotted line on the graphs for May and July represents the trend of Didymo biomass from Site 1 to Site 20.

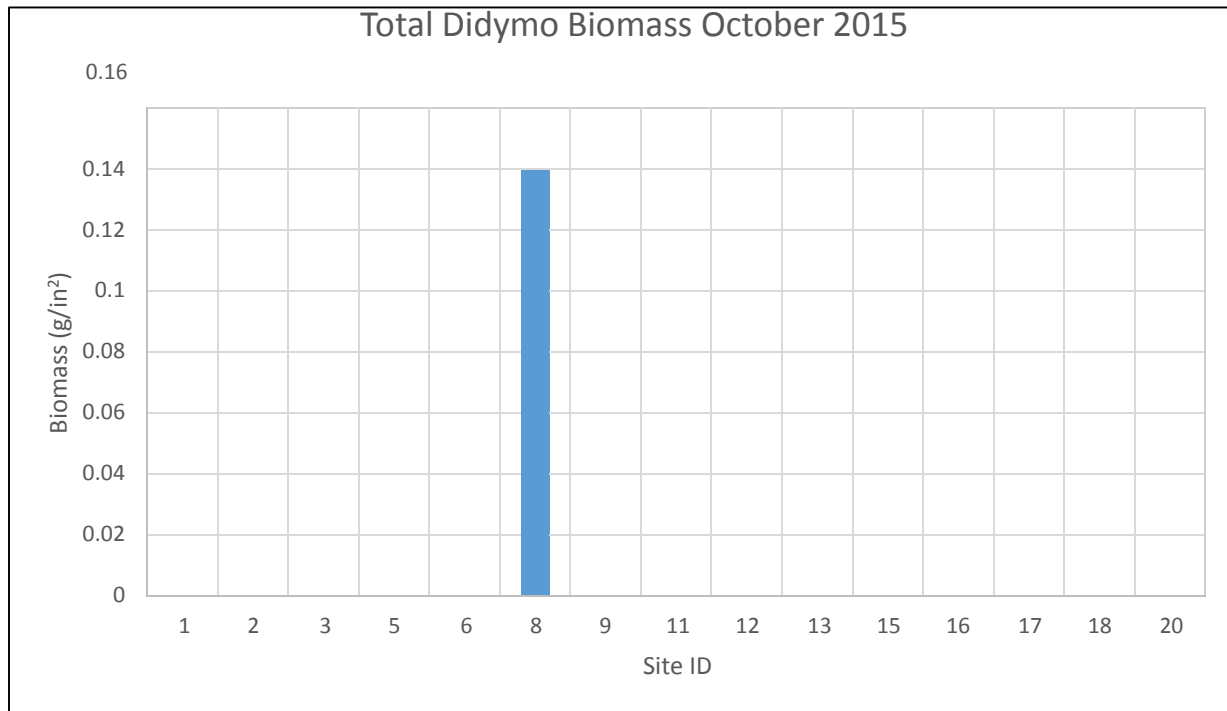


Figure 3. Summary of Didymo Biomass from October 2015 Sampling Event

Discussion of Results

The high flow of approximately 830 cfs on June 6th, 2015 had a noticeable effect on downstream sites closest to Basalt, but didn't reduce the presence of didymo at the more upstream sites. In 2014, peak flow was approximately 760 cfs and lasted 3 days, with flows maintained above 400 cfs for almost two weeks. In contrast, the 2015 hydrograph shows two distinct periods of higher flows. One peak was approximately 700 cfs on June 6th, 2015 and a second, more sustained peak lasted 4 days, beginning on June 18th. After these two flushing events the flow returned to 300 cfs or less for the remainder of the summer and fall.

The mass of didymo per unit area (g/in²) was measured during the May, July and October 2015 sampling events, represented in Figures 1-3.

In May, didymo presence was concentrated near the tailwaters of Ruedi Reservoir and decreased downstream.

In July, didymo was distributed more equally throughout the sample sites, with the highest biomass found at Site 15. Didymo presence at the reference sites increased during the May and July 2015 sampling events compared to the same sampling times in 2014. The high flow event in 2014 was significantly higher in nearby gaged tributaries (USGS 09078475 and 09079450) compared to the high flow event in 2015.

In October, didymo presence of greater than 5% was observed only at Site 8. The biomass of didymo at Site 8 increased significantly from July to October, but decreased or remained the same for the rest of the sites. This phenomenon may warrant further investigation if similar trends are documented in the future.

Recommendations

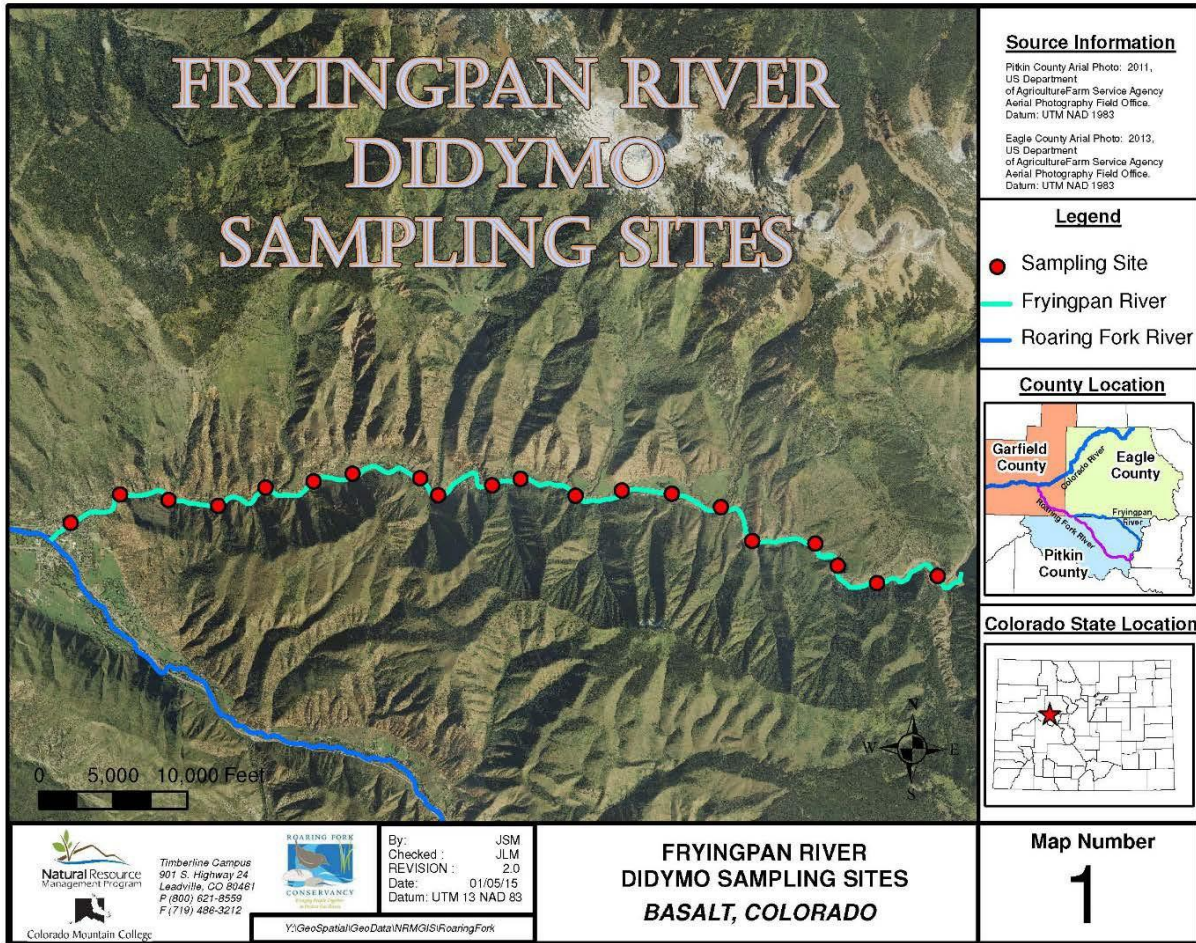
Creating effective mechanisms to prevent the spread or introduction of non-native and nuisance species is important for maintaining the health of the Fryingpan River ecosystem. The continued education of anglers and river users is important to reducing the spread of didymo to other water bodies in the watershed and around the State of Colorado. Wader washing stations can help reduce the spread of didymo and the introduction of new non-native or nuisance species.

This study suggests that increased flushing flows (at or above 700 cfs) for an extended period of time during the spring simulate natural snowmelt conditions and promote bedload migration and the removal of didymo from the substrate. Responsible management and consistent dialog between the U.S. Bureau of Reclamation, water managers, water stewards, recreational businesses and other stakeholders will promote appropriate flow control for environmental and recreational purposes.

Monitoring fish populations, benthic invertebrates, and water quality for nutrient concentrations throughout the Fryingpan could help reveal correlations between the relationship of didymo and the surrounding aquatic ecosystem.

An effective didymo monitoring protocol to detect changes in the ecosystem and document any new occurrences is crucial to understanding both presence and impacts of didymo. Recommended didymo monitoring for the Fryingpan River includes five key sites on the lower Fryingpan (Site 1, 8, 12, 15, and 20) and the three reference sites upstream of Ruedi Reservoir to be sampled three times annually: pre-high flow, post-high flows and late summer/fall (baseline flow)(Appendix I). This sampling regime should continue annually, supplemented with comprehensive 5 year studies at all sites. Sampling should follow the same protocol CMC NRM used, which can be found in the *Didymo Survey, Lower Fryingpan River, Basalt, Colorado 2014 Report*.

Appendix I. Map of Study Area



Appendix II.

Didymo Sampling Raw Data: Weight Analysis and Total Biomass Calculations

May 2015 Foil Weight (g)	Inlet	Norrie	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20
1	0.4528	0.3267	NR	NR	NR	NR	NR	0.8397	0.4714	NR	0.8817	0.206	0.4989	NR	0.3665	0.481	0.5717	0.3669	NR	0.6178
2	NR	NR	NR	NR	NR	NR	NR	0.4423	0.543	NR	0.6657	0.5908	0.2481	NR	0.8521	0.5764	0.5831	0.3146	NR	0.3376
3	NR	NR	NR	NR	NR	NR	NR	0.5139	0.8184	NR	0.5567	0.5291	0.5365	NR	0.3061	0.6526	0.3398	0.2704	NR	0.3884
4	NR	NR	NR	NR	NR	NR	NR	0.3605	0.1213	NR	0.842	0.4419	0.2162	NR	0.3606	0.3415	0.4504	0.3739	NR	0.3873
5	NR	NR	NR	NR	NR	NR	NR	0.4848	0.3756	NR	0.4501	0.2463	0.252	NR	0.4162	0.2645	0.5093	0.3798	NR	0.5483
Conversion to Inches²																				
1	11.5237	8.310296	NR	NR	NR	NR	NR	21.38308	11.99769	NR	22.45336	5.234498	12.69847	NR	9.32452	12.24232	14.55363	9.334713	NR	15.7284
2	NR	NR	NR	NR	NR	NR	NR	11.25613	13.82227	NR	16.94903	15.04036	6.307332	NR	21.69906	14.6734	14.84414	8.001952	NR	8.588061
3	NR	NR	NR	NR	NR	NR	NR	13.08071	20.84029	NR	14.17139	13.46806	13.65663	NR	7.785346	16.61521	8.644123	6.875603	NR	9.882597
4	NR	NR	NR	NR	NR	NR	NR	9.171622	3.076088	NR	21.44169	11.24594	5.494425	NR	9.17417	8.687445	11.46254	9.513094	NR	9.854566
5	NR	NR	NR	NR	NR	NR	NR	12.33916	9.556415	NR	11.4549	6.261463	6.406716	NR	10.59102	6.725254	12.96349	9.663443	NR	13.95733
Average Area (in²)																				
	11.5237	8.310296	NR	NR	NR	NR	NR	13.44614	11.85855	NR	17.29407	10.25006	8.912714	NR	11.71482	11.78873	12.49359	8.677761	NR	11.60219
TOC %																				
	3.53%	0.00%	NR	NR	NR	NR	NR	25.38%	19.41%	NR	13.46%	4.00%	13.45%	NR	16.24%	9.83%	17.52%	15.95%	NR	8.60%
Average Didymo Wt (g)																				
	0.06	0	NR	NR	NR	NR	NR	0.99	0.66	NR	0.7	0.12	1.13	NR	1.38	1.17	2.82	1.34	NR	
Biomass g/in²																				
	INLET	NORRIE	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20
	0.01	0.00	NR	NR	NR	NR	NR	0.07	0.06	NR	0.04	0.01	0.13	NR	0.12	0.10	0.23	0.15	NR	0.00

July 2015																							
Rock Foil Weights	Inlet	Norrie	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20	North Fork
1	NR	NR	0.8509	NR	NR	NR	1.516	NR	NR	0.611	0.3241	NR	2.018	NR	0.4977	NR	0.6228	0.7736	0.3345	0.3736	NR	1.343	0.6358
2	NR	NR	0.3169	NR	NR	NR	NR	NR	NR	0.4455	0.8833	NR	0.493	NR	NR	NR	0.3751	0.2208	0.3794	0.5275	NR	0.5009	NA
3	NR	NR	0.2648	NR	NR	NR	0.8082	NR	NR	0.8758	0.5696	NR	1.0408	0.4813	0.6621	NR	0.3434	0.5309	0.4742	0.6876	NR	1.1524	NA
4	NR	NR	0.4799	NR	NR	NR	NR	0.4435	NR	0.3362	0.2208	NR	0.5196	0.5048	0.2379	NR	1.1169	0.5177	0.6234	0.234	NR	1.3731	NA
5	NR	NR	0.282	NR	0.4161	NR	NR	1.1186	NR	NR	0.8258	NR	NR	0.2421	0.6957	NR	0.3854	0.2249	0.6759	0.2367	NR	1.1543	NA
Foil Surface Area (in²)																							
1	NR	NR	21.45257	NR	0	NR	38.31352	0	NR	15.37086	8.097659	NR	51.03972	0	12.49859	NR	15.67	19.49293	8.36131	9.352534	NR	33.92779	15.99957
2	NR	NR	7.915132	NR	0	NR	0	0	NR	11.17527	22.27394	NR	12.37944	0	0	NR	9.39056	5.478901	9.499569	13.25405	NR	12.57972	NA
3	NR	NR	6.594345	NR	0	NR	20.37008	0	NR	22.08381	14.32133	NR	26.26672	12.08284	16.6663	NR	8.586933	13.34025	11.90284	17.31275	NR	29.09589	NA
4	NR	NR	12.04734	NR	0	NR	0	11.12457	NR	8.404406	5.478901	NR	13.05378	12.67858	5.912403	NR	28.19593	13.00561	15.68521	5.813534	NR	34.69086	NA
5	NR	NR	7.030382	NR	10.42995	NR	0	28.23903	NR	0	20.81626	NR	0	6.018877	17.51809	NR	9.651675	5.58284	17.01614	5.881982	NR	29.14406	NA
Didymo Average Area	NR	NR	11.00795	NR	2.08599	NR	11.73672	7.872719	NR	11.40687	14.19762	NR	20.54793	6.15606	10.51908	NR	14.29902	11.38011	12.49302	10.32297	NR	27.88766	15.99957
TOC %																							
Average Didymo Wt (g)	NR	NR	0.2303		0.0518	0.2896	0.0726	0.2962	0.4529	0.1503	0.2283	0.2069	0.1988	0.3781	0.2989	0.2656	2.4794	0.1766	0.0431	0	0	1.2525	
Total Biomass (g/in²)																							
	Inlet	S Fork	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20	Sum
Total Biomass (g/in²)	NR	NR	0.020921	NR	0.024832	NR	0.006186	0.037624	NR	0.013176	0.01608	NR	0.009675	0.061419	0.028415	NR	0.173396	0.015518	0.00345	NR	NR	0.044912	0.455606

Oct-15	
Rock Foil Weights (g)	Site 8
Subsite 1	0.3333
Subsite 2	0.1279
Subsite 3	0.2704
Subsite 4	0.3622
Subsite 5	0.2163
Foil Surface Area (inches^2)	
1	11.71872
2	4.417978
3	9.482998
4	12.74594
5	7.560067
Average Area (in^2)	9.185139
Average Didymo Wt (g)	1.2525
	Site 8
Total Biomass g/in²	0.14

Appendix III. Water Quality Data, Viewing Bucket Coverage, and Field Observations

May Water Quality Data

Site #	Time	Date	Temp. (°C)	pH	SC (us/cm)	DO (mg/L)	Notes
Site 1	10:30:00 AM	5/7/2015	7.3	7.93	293.7	10.86	Water turbid from storms/runoff/spring melt. Los of sandstone floc.
Site 2	11:15:00 AM	5/7/2015	7.9	8.08	238.9	10.87	Lots of red floc.
Site 3	11:30:00 AM	5/7/2015	8.3	8.15	236.4	10.72	
Site 4**							Not visited.
Site 5	12:00:00 PM	5/7/2015	8.4	7.96	236.9	10.57	At mile marker 3
Site 6	12:25:00 PM	5/7/2015	8.8	8.16	240.3	10.46	Continued red floc, water turbid.
Site 7**							
Site 8	1:00:00 PM	5/7/2015	9	8.14	233.5	10.64	Water clear, not turbid, no floc.
Site 9	1:30:00 PM	5/7/2015	9.8	7.9	188.1	10.71	Bucket 1 went into bottle 8. 4th bucket is from channel.
Site 10**							
Site 11	2:00:00 PM	5/7/2015	9.9	7.9	188.1	10.71	
Norrie*	3:30:00 PM	5/7/2015	9.1	7.45	44.5	10.29	Thin 60% coverage. Did not see this last year.
N. Fork*	3:45:00 PM	5/7/2015					No sign of didymo.
Res Inlet*	4:15:00 PM	5/7/2015	8.3	7.89	80.9	10.66	75% coverage. Much more than last year Site
Site 12	8:45:00 AM	5/8/2015	5.1	7.3	226.2	10.8	Water clear, thin coverage but all over rock.
Site 13	9:15:00 AM	5.8.15	5.5	7.88	228.7	10.86	Check foils. Might have +1
Site 14**							
Site 15	10:00:00 AM	5/8/2015	5.5	7.94	224.8	10.45	
Site 16	10:30:00 AM	5/8/2015	6.1	7.99	216.2	10.55	
Site 17	11:00:00 AM	5/8/2015	6.1	8.07	226.1	10.26	
Site 18	11:30:00 AM	5/8/2015	5.8	8.17	222.6	10.54	Thick in channel
Site 19**							
Site 20	11:30:00 AM	5/8/2015	5.5	8.2	183.1	11.43	

*Reference sites at Norrie, N. Fork and Res Inlet

**Sites 4, 7, 10, 14, and 19 were not visited

May Viewing Bucket % Coverage												
Site #	Time	Date	Bucket # 1	Location # 2	Location # 3	Location # 4	Location # 5	Location	Bucket avg			
Site 1	10:30:00 AM	5/7/2015	0	middle	0 R	0 R	0 R	0 R	0			
Site 2	11:15:00 AM	5/7/2015	0	R	0 R	0 R	0 R	0 R	0			
Site 3	11:30:00 AM	5/7/2015	0	R	0 M	0 M	0 M	0 M	0			
Site 4**	Not visited											
Site 5	12:00:00 PM	5/7/2015	0	R	0 R	0 R	0 R	0 R	0			
Site 6	12:25:00 PM	5/7/2015	0	L	0 L	0 M	0 R	0 R	0			
Site 7**	Not visited											
Site 8	1:00:00 PM	5/7/2015	60	R	45 R	20 M	15 L	25 M	33			
Site 9	1:30:00 PM	5/7/2015	35	M	15 R	75 M	80 R	40 M	49			
Site 10**	Not visited.											
Site 11	2:00:00 PM	5/7/2015	30	R	20 M	80 R	40 R	20 R	38			
Norrie*	3:30:00 PM	5/7/2015										
N. Fork*	3:45:00 PM	5/7/2015										
Res Inlet*	4:15:00 PM	5/7/2015										
Site 12	8:45:00 AM	5/8/2015	25	M	50 R	50 R	50 R	75 R	50			
Site 13	9:15:00 AM	5.8.15	80	R	50 R	65 R	60 R	80 R	67			
Site 14**	Not visited											
Site 15	10:00:00 AM	5/8/2015	95	R	95 R	80 R	80 R	80 R	86			
Site 16	10:30:00 AM	5/8/2015	80+	R	R	60 R	80 R	90 R				
Site 17	11:00:00 AM	5/8/2015	100	M	100 R	100 R	100 R	100 R				
Site 18	11:30:00 AM	5/8/2015	25	R	40 R	75 R	100 R	100 R				
Site 19**	Not visited											
Site 20	11:30:00 AM	5/8/2015	100	M	100 R	100 M	100 R	100 R				

*Reference sites at Norrie, N. Fork and Res Inlet

**Sites 4, 7, 10, 14, and 19 were not visited

July Water Quality Data							
Site #	Time	Date	Temp. (°C)	pH	SC (us/cm)	DO (mg/L)	Notes
Site 1	3:00:00 PM	7/15/2015	13.7	7.67	224.6	8.65	A LOT OF SEDIMENT AND OTHER ALGAE - HARD TO SEE DIDYMO
Site 2	NA	NA	NA	NA	NA	NA	NOT VISITED DUE TO CONSTRUCTION
Site 3	3:00:00 PM	7/14/2015	12.8	8.17	226.8	9.2	
Site 4**	NA	NA	NA	NA	NA	NA	NO VISITED
Site 5	2:35:00 PM	7/14/2015	11.9	7.62	225.1	9.18	#3 WAS 100% COVERED IN A THIN LAYER OF DIDYMO LAYERED WITH A LOT OF SEDIMENT
Site 6	2:00:00 PM	7/15/2015	13.7	8.12	221.9	8.58	
Site 7**	NA	NA	NA	NA	NA	NA	NOT VISITED
Site 8	1:10:00 PM	7/15/2015	12.6	8.22	216.1	9	
Site 9	1:55:00 PM	7/14/2015	10.9	8.07	216.6	9.65	
Site 10**	NA	NA	NA	NA	NA	NA	NOT VISITED
Site 11	12:40:00 PM	7/15/2015	11.5	7.42	209.1	9.13	
Norrie*	11:20:00 AM	7/15/2015	11.9	6.72	44.4	8.45	
N. Fork*	11:40:00 AM	7/15/2015	9.9	6.7	28.6	8.75	
Res Inlet*	12:00:00 PM	7/15/2015	12.4	7.46	882.1	8.2	EXTREMELY HIGH WATER
Site 12	8:50:00 AM	7/15/2015	7.6	7.59	210.1	9.63	
Site 13	9:30:00 AM	7/15/2015	8.3	7.81	212	9.83	
Site 14**	NA	NA	NA	NA	NA	NA	NOT VISITED
Site 15	1:00:00 PM	7/14/2015	9.3	7.98	207.5	9.71	
Site 16	10:20:00 AM	7/15/2015	8.3	7.91	203.8	10.36	
Site 17	12:20:00 PM	7/14/2015	8.7	7.87	206.2	9.88	
Site 18	11:30:00 AM	7/14/2015	7.5	7.7	206.3	10.01	
Site 19**	NA	NA	NA	NA	NA	NA	NOT VISITED
Site 20	9:50:00 AM	7/14/2015	6.7	6.87	203.3	10.51	

*Reference sites at Norrie, N. Fork and Res Inlet

**Sites 4, 7, 10, 14, and 19 were not visited

July Viewing Bucket % Coverage													
Site #	Date	Bucket # 1	Location	# 2	Location	# 3	Location	# 4	Location	# 5	Location	Bucket avg	
Site 1	7/15/2015	50	R		20	R		30	R		20	R	26
Site 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 3	7/14/2015	>5	R		0	R		>5	R		0	R	~5
Site 4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 5	7/14/2015	10	R		>5	R		100	R		>5	R	25
Site 6	7/15/2015	>5	R		>5	M		<5	R		15	R	~11
Site 7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 8	7/15/2015	40	R		20	R		20	R		30	L	~23
Site 9	7/14/2015	40	R		50	L		70	R		15	R	47
Site 10**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 11	7/15/2015	10	M		10	R		5	R		15	R	~9
Norrie*	7/15/2015	40	R		NA	NA		NA	NA		NA	NA	40
N. Fork*	7/15/2015	35	R		NA	NA		NA	NA		NA	NA	35
Res Inlet*	7/15/2015	>5	R		NA	NA		NA	NA		NA	NA	>5
Site 12	7/15/2015	>5	R		>5	R		25	R		70	R	~25
Site 13	7/15/2015	60	R		>5	R		30	R		40	R	~37
Site 14**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 15	7/14/2015	60	R		20	R		20	R		80	R	37
Site 16	7/15/2015	40	R		70	R		90	R		60	M	62
Site 17	7/14/2015	50	M		70	R		15	R		70	R	61
Site 18	7/14/2015	30	R		40	R		70	R		35	R	39
Site 19**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Site 20	7/14/2015	50	M		80	L		75	R		50	M	61

*Reference sites at Norrie, N. Fork and Res Inlet

**Sites 4, 7, 10, 14, and 19 were not visited

October Water Quality Data																	
Site #	Date	Time	pH	Temp (SC (µS/cm)	DO (mg/L)	Notes											
Norrie*	10/27/2015	11:25	7.45	3	69.2	11.3	No sample taken										
North Fork*	10/27/2015	11:35	7.54	3.4	38.4	11.64	No sample taken										
Res Inlet*	10/27/2015	11:55	7.87	4	133.3	12.13	A lot of green & brown algae covering rocks										
20	10/27/2015	12:25	8.62	9.9	176.2	12.22	Thick mats of green algae, more algae than didymo but didymo present										
18	10/27/2015	12:45	8.4	9.5	186.1	10.27											
17	10/27/2015	12:58	8.31	9.2	187.7	10.3											
16	10/27/2015	13:12	8.4	9.2	186.8	10.41											
15	10/27/2015	13:18	8.32	9.1	187.7	10.06	More didymo in areas with less moving water										
13	10/27/2015	13:35	8.24	9	206.1	10.43											
12	10/27/2015	13:42	8.28	8.5	198.2	10.52											
11	10/27/2015	13:50	8.29	8.4	200.6	10.74											
9	10/27/2015	14:00	8.4	8.1	209	10.89	No sample taken										
8	10/27/2015	14:07	8.53	8.1	210.4	10.95											
6	10/27/2015	14:31	8.47	8.1	218.4	10.84	Where there is moving water there is no didymo. Banks have ~50% but is covered in red silt										
5	10/27/2015	14:42	8.43	7.9	225.1	10.94											
3	10/27/2015	14:52	8.41	7.7	229.8	10.96											
2	10/27/2015	15:00	8.37	7.6	230.7	10.97											
1	10/27/2015	15:10	8.34	7.5	231.4	10.84	No sample taken										

*Reference sites at Norrie, N. Fork and Res Inlet

October Viewing Bucket % Coverage						
Site #	Date	Section 1	Section 2	Section 3	Section 4	Section 5
Norrie	10/27/2015	<5%	<5%	<5%	<5%	<5%
North Fork	10/27/2015	<5%	<5%	<5%	<5%	<5%
Res Inlet	10/27/2015	<5%	<5%	<5%	<5%	<5%
20	10/27/2015					
18	10/27/2015	0	0	0	0	0
17	10/27/2015	0	0	0	0	0
16	10/27/2015	0	0	0	0	0
15	10/27/2015	<5%	<5%	<5%	<5%	<5%
13	10/27/2015	0	0	0	0	0
12	10/27/2015	0	0	0	0	0
11	10/27/2015	0	0	0	0	0
9	10/27/2015	<5%	<5%	<5%	<5%	<5%
8	10/27/2015	20% R	60% R	10% M	80% R	60% M
6	10/27/2015	50% RB				
5	10/27/2015	0	0	0	0	0
3	10/27/2015	0	0	0	0	0
2	10/27/2015	0	0	0	0	0
1	10/27/2015	>5	>5	>5	>5	>5