Whatshan Project Water Use Plan

Lower Whatshan Fish Habitat Enhancement (Year 7)

Implementation Year 7
Reference: WGSMON-1

Whatshan Water Use Plan Monitoring Program:

Lower Whatshan River Fish Habitat Enhancement Physical and Biological Effectiveness Monitoring

Study Period: 2012

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December 2013

LOWER WHATSHAN RIVER FISH HABITAT ENHANCEMENT PHYSICAL and BIOLOGICAL EFFECTIVENESS MONITORING 2012 (Year 7) Program No. WGSMON-1

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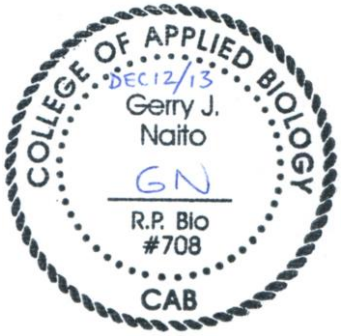

NE Project No. 304-02-06

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EXECUTIVE SUMMARY

The Lower Whatshan River flows for approximately 7 km from BC Hydro's Whatshan Dam to Lower Arrow Lake. The Whatshan Hydroelectric Project diverts water from Whatshan Lake via a tunnel to the Whatshan Generating Station (WGS) located on Lower Arrow Lake approximately 4.5 km north of the Needles-Fauquier ferry crossing. Since there is currently no minimum flow release from Whatshan Dam, almost all flow to the Lower Whatshan River is provided by its main tributary, Barnes Creek.

Flow reduction is believed to have negatively affected production of Rainbow Trout (*Oncorhynchus mykiss*) in the Lower Whatshan River. However, providing a fish flow release from Whatshan Dam raised several concerns including increased water temperature, introduction of competing fish species, and loss of power generation revenue. Therefore, the Consultative Committee (CC) for the Whatshan Water Use Plan (WUP) agreed that in lieu of an operational change to provide a minimum flow, BC Hydro would instead undertake fish habitat enhancement in Reach W3.2, a 1.3 km section of low gradient stream with low habitat complexity located in the vicinity of the Highway 6 Bridge. A control reach was also selected at Barnes Creek Reach B3 for comparison with the study reach.

The enhancement project was intended to be conducted over a 10-year time frame in three phases: 1) pre-enhancement work; 2) construction; and 3) post-enhancement monitoring. The primary management questions from the WUP Terms of Reference (TOR) are as follows:

1) Do habitat structures in Reach W3 of the lower Whatshan River increase the availability of suitable habitat for Rainbow Trout?
2) How long do habitat structures continue to function?
3) Do habitat structures increase available habitat for Rainbow Trout in a more cost-effective manner than would a minimum flow release from the Whatshan Dam?
4) Does the increase in available habitat benefit Rainbow Trout in Reach W3?

Pre-enhancement work consisting of channel assessment, habitat designs, and monitoring of physical habitat and fish populations was conducted in 2006, 2007, and 2008 (Naito and Bates 2007, 2008, 2009). Construction of habitat enhancement measures in Reach W3.2 was completed in the summer of 2009. The enhancement measures were intended to increase habitat complexity, especially pools and large woody debris cover, and to narrow the channel to promote natural channel processes (e.g., scour and deposition) that had been diminished under reduced flows resulting from hydroelectric diversion.

The following report presents results from the second year of post-enhancement monitoring conducted during September 2012. The first of three years of post-enhancement monitoring was in 2010, and the final year is planned for 2015. . Due to budget limitations, the 2010 and 2012 reports primarily present results. The final report, due following the 2015 studies, will include multi-year comparisons and hypothesis testing of whether habitat enhancements in Reach W3.2 of the lower Whatshan River have benefited Rainbow Trout.

Field procedures in 2012 were similar to those reported previously for pre-enhancement studies conducted in 2006, 2007, and 2008 and the first year of post-enhancement work conducted in 2010. Physical habitat assessment methodology was based on the Fish Habitat Assessment Procedures (FHAP), while fish sampling was conducted using multiple pass electrofishing within stopnet enclosures.

A total of 14% of total habitat area was sampled in Reach W3.2, while 10% of total area was sampled in Reach B3. The same four fish species - Slimy Sculpin (*Cottus cognatus*), Eastern Brook Trout (*Salvelinus fontinalis*), Longnose Dace (*Rhinichthys cataractae*), and Rainbow Trout (*Oncorhynchus mykiss*) - that were captured in Whatshan Reach W3.2 during previous years were found again in 2012, while sculpin, brook trout, and Rainbow Trout were captured in Barnes Reach B3. The total number of fishes captured in Reach W3.2 in 2012 was 1,435 compared with 1,178 fish in Reach B3. As in previous years, Slimy Sculpin was by far the most abundant species, making up 61% of the total captured in W3.2 and 76% in B3. Rainbow Trout contributed 17-21% of the fishes captured in each reach, with Longnose Dace making up 12% of fishes captured in W3.2 and Eastern Brook Trout 6-7% in each reach.

There was a tendency for juvenile/adult fishes of all species to be slightly larger in W3.2 than in B3, likely due to higher water temperature and nutrient levels. The largest Rainbow Trout that could be aged were several Age 4+ specimens from W3.2.

In the enhancement reach W3.2, pool-forming structures have increased the number of pools from 5-7 pre-enhancement to 10-11 after. Both large woody debris cover and spawning gravel area have approximately tripled. Mean depth has been steadily increasing in the enhancement reach, whereas it has been decreasing in the control reach. The only clear pattern in habitat area in W3.2 seems to an approximately 20% decrease in riffle area. Total pool area has been highly variable from year to year, but, average pool area has been in steady decline. A decline in side channel area is consistent with enhancement work to narrow the channel and restore natural channel processes, but side channel area has been on a steady decline even prior to enhancement. In the control reach B3, numbers of pools, side channels, total habitat units, large woody debris cover, and spawning gravel area appear to have remained unchanged.

While habitat enhancement in Whatshan Reach W3.2 has increased the number of pools, mean depth, and amount of large woody debris and spawning gravel area, all changes that favour Rainbow Trout, the potential indicators of CPUE, length, weight, and condition of juvenile/adult Rainbow Trout thus far do not appear to indicate a benefit to the target species.

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1 INTRODUCTION

The Lower Whatshan River flows for approximately 7 km from BC Hydro's Whatshan Dam to Lower Arrow Lake. Reaches 1 and 2 of this river section are steep, bedrock-confined sections with falls and cascades that prevent upstream fish passage from Arrow Lake. In contrast, Reach 3 is wide with a gentle gradient and substrate of cobble and boulder, reverting again to bedrock canyon in Reach 4 up to the dam.

The Whatshan Hydroelectric Project diverts water from Whatshan Lake via a tunnel to the Whatshan Generating Station (WGS) located on Lower Arrow Lake approximately 4.5 km north of the Needles-Fauquier ferry crossing. Since there is currently no minimum flow release from Whatshan Dam, almost all flow to the Lower Whatshan River is provided by its main tributary, Barnes Creek, which enters at the upstream end of Reach 3.

Flow reduction is believed to have negatively affected production of Rainbow Trout (*Oncorhynchus mykiss*) in the Lower Whatshan River. However, providing a fish flow release from Whatshan Dam raised several concerns including increased water temperature, introduction of competing fish species, and loss of power generation revenue. Therefore, the Consultative Committee (CC) for the Whatshan Water Use Plan (WUP) agreed that in lieu of an operational change to provide a minimum flow, BC Hydro would instead undertake fish habitat enhancement in Reach W3.2, a 1.3 km section of low gradient stream with low habitat complexity located in the vicinity of the Highway 6 Bridge (Figure 1). A control site was also selected at Barnes Creek Reach B3 for comparison with the study reach.

The enhancement project was intended to be conducted over a 10-year time frame in three phases: 1) pre-enhancement work; 2) construction; and 3) post-enhancement monitoring.

The primary management questions from the WUP Terms of Reference (TOR) are as follows (BC Hydro 2005, p. 7):

1) Do habitat structures in Reach W3 of the lower Whatshan River increase the availability of suitable habitat for Rainbow Trout?
2) How long do habitat structures continue to function?
3) Do habitat structures increase available habitat for Rainbow Trout in a more cost-effective manner than would a minimum flow release from the Whatshan Dam?
4) Does the increase in available habitat benefit Rainbow Trout in Reach W3?

"The objective of this program is to evaluate the general ecological and specific fish and fish habitat benefits expected from habitat enhancement structures installed in Reach W3 of the lower Whatshan River." (BC Hydro 2005, p. 8)

Pre-enhancement work consisting of channel assessment, habitat designs, and monitoring of physical habitat and fish populations was conducted in 2006 and 2007 (Naito and Bates 2007, 2008), with an additional year of physical and biological monitoring conducted in 2008 (Naito and Bates 2009). The 2008 studies were conducted because an unplanned outage of the Whatshan Generating Station (WGS) resulted in the release of virtually all freshet flows

from Whatshan Dam for the first time since its completion in 1952. These unusual large spill flows had the potential to change the channel morphology in Reach W3.2, with consequent effects on proposed enhancement activities. Furthermore, the abnormally high flows might have affected the fish populations, potentially resulting in a negative impact.

The original enhancement plan called for habitat enhancement measures at thirty sites that were intended to increase habitat complexity, especially pools and large woody debris cover, and to narrow the channel to promote natural channel processes (e.g., scour and deposition) that had been diminished under reduced flows resulting from hydroelectric diversion. The proposed enhancement measures consisted of 20 log/debris jams, 7 additions of large woody debris cover, and 3 additions of large boulders. Some sites combined more than one enhancement measure (e.g., boulders plus wood debris).

Construction of habitat enhancement measures in Reach W3.2 was completed in the summer of 2009. Since eight structures could not be completed due to lack of consent from private landowners, additional habitat enhancement was completed at other sites by incorporating more material than originally planned. In addition to these larger structures, extra boulder habitat was created at four sites, and additional LWD was installed near three sites. The end result was that enhancement work was successfully completed at a total of 31 sites in Reach W3.2. These sites consisted of 12 triangular log jams, 6 lateral log jams, 8 boulder groups, 3 single or double boulder placements, and 2 single or multiple log placements. Twenty-two of the sites were in the original enhancement plan, while the others were added to utilize excess materials. A comparison of the enhancement measures that were originally proposed versus actually constructed is provided in Table 1. In relation to the enhancement objectives, one notable difference is that only 12 of 18 triangular log jams, the primary pool-forming measure, were constructed.

Table 1. Comparison of habitat enhancement measures proposed versus actually constructed in Lower Whatshan River Reach W3.2 in August 2009.

Enhancement Measure	No. Proposed	No. Constructed
triangular log jam	18	12
lateral log jam	2	6
boulder group	2	8
single/double boulder	0	3
single/multiple log	7	2
boulders + logs	1	0
TOTAL	30	31

This report provides results of the second year of post-enhancement monitoring (Year 7) conducted in 2012. The first year of post-enhancement monitoring was conducted in 2010 (Naito 2011), and the final year of study is scheduled for 2015 (Year 10). Due to budget limitations, the Year 5 and Year 7 reports (study periods 2010 and 2012) are to be data reports only, with minimal comparison among years. The Year 10 report will provide analyses including multi-year comparisons of the Rainbow Trout populations in the study

and control reaches to determine if habitat enhancement in Reach W3.2 has benefited Rainbow Trout.

2 METHODS

2.1 STUDY TEAM

The study team in 2012 consisted of Mr. Gerry Naito, R.P. Bio (Naito Environmental, Vernon, BC), with field assistance provided by Ms. Cathy MacPherson of Tsuius Consulting, Cherryville, BC for both the fish sampling and physical habitat surveys, and by Ms. Robyn Laubman, B.Sc. of Ecora Natural Resource Group, Kelowna, BC for the fish sampling.

2.2 SITE ACCESS

Access to the study sites in 2012 had not changed from previous years. There was easy automobile access to Whatshan Reach W3.2 from the Whatshan Forest Service Road (FSR), while access to Barnes Creek Reach B3 was by automobile via Whatshan FSR and the power line road to the creek crossing, from which there was reasonably easy foot access downstream. Accommodation was at a field camp at the south end of Whatshan Lake.

2.3 FISH HABITAT SURVEY

Physical habitat was assessed to detect changes resulting from enhancement and to relate those changes to changes in the fish population. As recommended in the TOR, a Before-After-Control-Impact (BACI) design is being used to detect whether habitat enhancement results in an increase in numbers and/or biomass of Rainbow Trout. The same assessment methods used in the pre-enhancement studies (Naito and Bates 2007, 2008, 2009) and in the first post-enhancement study in 2010 (Naito 2011) were repeated in 2012.

2.3.1 Field Assessment Procedures

The physical habitat survey took place during September 4-7, 2012, prior to the fish sampling that occurred during September 10-17, so that habitat units could be identified and selected for fish sampling. The physical habitat monitoring methodology used in 2006, 2007, 2008, and 2010, based on the Fish Habitat Assessment Procedures (FHAP) (Johnston and Slaney 1996), was repeated in 2012. Starting from the downstream end of both Reach W3.2 and Reach B3, the distance, length, and wetted width of each habitat unit (pool, riffle, glide) were measured under late summer, low flow conditions. Habitat unit length was measured with a 50 m fiberglass tape. Habitat unit width was the average of one to six wetted widths (depending on variability of width) measured with the same tape.

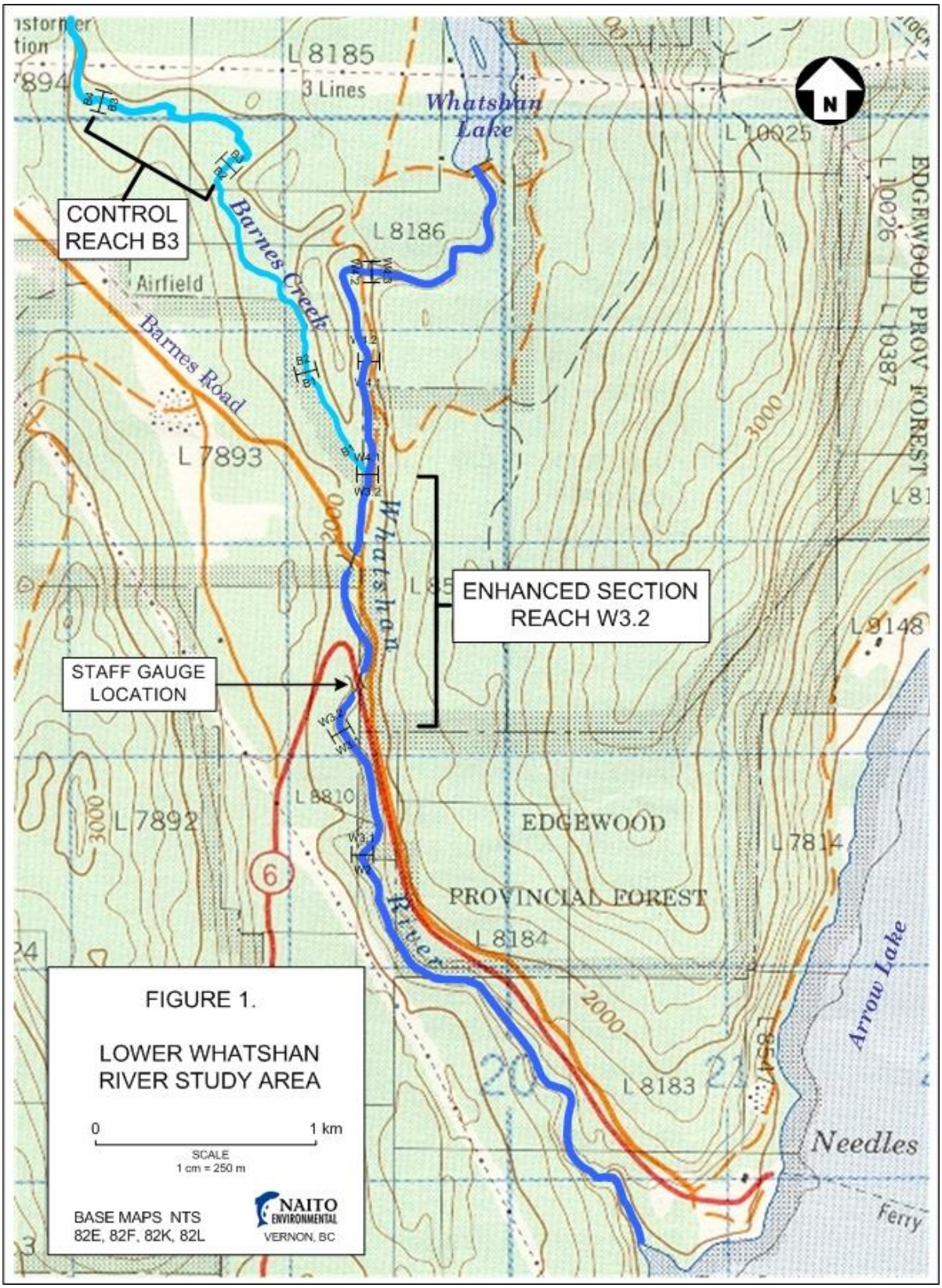


Figure 1. Map showing location of Lower Whatshan River study area.

Habitat units were distinguished using FHAP definitions and minimum size criteria. For each habitat unit, the following physical habitat variables were documented:

- estimated cover area (m^2) of large woody debris, small woody debris, boulders, undercut banks, overhanging vegetation;
- substrate composition;
- area of spawning gravel (10-40 mm) suitable for (small) resident trout;
- water depth measured at ¼, ½, and ¾ of unit width; and
- maximum and pool outlet (crest) water depth in pools.

Areas of cover and spawning gravel were estimated by tallying individual pieces or patches whose areas were visually estimated or measured with meter stick or tape. Water depths were measured with a meter stick.

Physical data were recorded on custom-designed field forms printed on waterproof paper.

The permanent markers posted at 100 m intervals starting from the downstream end of each reach in September 2006 were used to identify distance locations of individual habitat units. In cases where habitat unit boundaries had changed from 2010, the new distance locations were measured from the nearest permanent marker using a 50 m fiberglass tape.

2.3.2 DATA ANALYSES

Physical data were entered and summarized using MS Excel. The area of each habitat unit was calculated by multiplying length × mean wetted width, and the overall areas of each habitat type were summed to yield total reach area. Mean values by habitat type were calculated by reach to compare their physical characteristics including habitat unit length and area, wetted width, water depth, cover area, and spawning gravel area.

2.4 FISH SAMPLING

2.4.1 SAMPLE SITE SELECTION

As in 2010, the sampling protocol for the 2012 survey was a stratified random sampling design, where each reach was first stratified into four habitat types (glide, pool, riffle, side/back channel). A sample of habitat units was then randomly selected from each habitat stratum by sampling every *i*th unit where *i* was the desired number of units to be sampled (same numbers of units as in 2008), starting with a unit between 1 and *i* randomly selected by rolling a die. A multiple-pass removal method was then used to sample fish from all or a portion of each selected unit.

2.4.2 FISH SAMPLING

Fish sampling was conducted by multiple-pass removal electrofishing with a Smith-Root Model 12B backpack electrofisher operated as a shore-based unit with a 30 m anode cable using a two-person crew plus an equipment attendant. Electrofisher settings were 300 or 400V, 50 Hz, and 8 ms.

Smaller habitat units were sampled in their entirety while representative portions of larger units were sampled. All fish sample sites were fully enclosed within stopnets with 9.5 mm stretched mesh. The number of passes conducted varied from two to five and was primarily determined by whether an adequate decline in catch had occurred for all species and life stages of fish, although time constraints (e.g., onset of darkness) sometimes required compromises to be made. An "adequate decline in catch" was defined subjectively to result in acceptably narrow confidence limits for the population estimate, based on the lead biologist's experience in calculating multiple pass population estimates. The acceptable decline in catch differed by species and the number of fish involved, with the most stringent standard for Rainbow Trout and the least stringent for Slimy Sculpin.

Captured fishes were anaesthetized in a CO_2 solution created by dissolving one or two tablets of Alka Seltzer™ in 3-4 L of water, measured for fork length (trout, dace) or total length (sculpins) to the nearest millimeter on a fish board, and weighed to the nearest 0.1 gram using an AccuLab VIC-1501 electronic balance. Scale samples were collected from selected trout and submitted to Hamaguchi Fish Aging Services in Kamloops for age determination. After being measured and weighed, captured fishes were allowed to recover in a single screened live bucket outside of the enclosed sample area until completion of all removals and fish measurements, then were released back to the sample area.

2.4.3 FISH HABITAT DOCUMENTATION

To correlate fish use with habitat characteristics, the following physical habitat variables were measured or documented at fish sample sites in both the treatment and control reaches:

- depth and velocity measured with a Swoffer Model 2100 flow meter with topset wading rod at 1 m intervals along a fiberglass tape extended across a representative portion of the sample site;
- cover area (m^2) for same cover types as in the physical survey;
- maximum depth; and
- substrate composition.

In cases where an entire habitat unit was fish sampled, the cover, depth, and substrate data collected in the physical habitat survey were used.

2.4.4 DATA ANALYSES

2.4.4.1 Age Distribution

Length frequency distribution was used to separate fish into fry (young-of-the-year) and adult age categories. Due to indistinct peaks in fish length frequency distributions, plus potential different ages of maturity for male and female fish, it was not considered practical to differentiate between juvenile and adult fish. Fish aging by scale analysis (for Rainbow Trout) and lengths at age from McPhail (2007) and Scott and Crossman (1998) were used to help interpret length frequency distribution data.

2.4.4.2 Population and Biomass Estimates

In 2008, Dr. Carl Schwarz of the Statistical Consulting Service (SCS) of Simon Fraser University was subcontracted to calculate species population estimates and conduct statistical comparisons of fish size, abundance, and biomass on the data from 2006, 2007, and 2008. Multiple pass population estimates were calculated for fry and juvenile/adults of each species. As the 2010 and 2012 reports were intended to be data reports only, no population or biomass estimates were calculated from the 2010 and 2012 sampling. However, Dr. Schwarz has confirmed that he expects to be available to conduct the statistical analyses in Year 10 (2015).

A power analysis conducted by Dr. Schwarz in 2008 indicated that greater than 8 years of data would be required to detect a 20% change in population of juvenile/adult rainbow trout (Naito and Bates 2009, Appendix 3). During 2013-2014, Dr. Schwarz will be provided with the results to date to identify a strategy to improve the likelihood of answering the management questions relating to the benefits of habitat enhancement to rainbow trout.

2.4.4.3 Catch Per Unit Effort (CPUE)

Catch per unit effort (CPUE) is a way to standardize fish catches among habitat types and reaches without calculating sample site population estimates and resulting fish densities. CPUE can be expressed as fish per unit area or fish per unit of electrofishing time. For comparison of pre- versus post-enhancement results in relation to the management objectives, CPUE as fish per unit area (number of fish captured per 100 m^2) was calculated for juvenile/adult Rainbow Trout. CPUE is only a surrogate for density and will not necessarily always follow the same pattern as density. For example, the 3-pass removal patterns of 20, 4, 1 and 10, 8, 7 both total 25 fish and would yield the same CPUE but result in the much different population estimates of 25 and 44.

2.4.4.4 Condition Factor

Condition factor is a measure of the general health or well-being of a fish based on its weight in relation to its length. A fish that is heavier than another one for a given length will have a higher condition factor. A Fulton-type condition factor was calculated for all fishes to compare fish condition between the treatment and control reaches. The formula used to calculate condition was

$$K = (W/L^3) \times 100{,}000$$

where W = weight in grams and L = fork length in millimeters.

3 RESULTS

Results of the 2012 field studies are provided below in Sections 3.1 through 3.2. Some results from previous years are provided for comparison.

3.1 PHYSICAL HABITAT

3.1.1 HABITAT ENHANCEMENT MEASURES

As described in Section 1, habitat enhancement work in 2009 could not be completed at eight out of 30 sites due to lack of consent from private landowners. Therefore, more material than originally planned was incorporated into some enhancement structures such as log jams to utilize excess materials, while other extra material was used to create new boulder groups and single boulder or log placements.

While no detailed or systematic assessment of the habitat enhancement measures was conducted in 2012, all enhancements appeared stable compared with when they were installed. A formal assessment of the enhancement measures will be conducted in 2015 (Year 10).

3.1.2 HABITAT TYPES AND CHARACTERISTICS

Table 2 and Table 3 provide a summary of physical characteristics for Whatshan W3.2 and Barnes B3 in 2012. Photographs of habitat at fish sample sites are provided in Appendix 1, and the raw physical data are provided in Appendix 2.

Table 2. Physical characteristics by habitat type for Whatshan Reach W3.2, September 2012.

Characteristic	Habitat Type				
	Glide	Pool	Riffle	Side Channel	TOTAL
No. of Units	15	11	17	1	44
Total Length[a] (m)	629	207	655	87	1,578
Total Habitat Area (m^2)	9,046	2,669	8,633	491	20,839
% of Total Area	43%	13%	41%	2%	100%
Mean Area (m^2)	603 (SD=619)	243 (SD=241)	508 (SD=358)	491 (SD=na)	474 (SD=454)
Total Spawn Gravel Area (m^2)	187	24	316	23	549
Mean Wetted Width (m)	13.4 (SD=4.6)	11.9 (SD=2.4)	12.7 (SD=4.2)	5.6 (SD=na)	12.6 (SD=4.0)
Mean Depth (m)[b]	0.36 (SD=.10)	0.73 (SD=.13)	0.26 (SD=.08)	0.13 (SD=na)	0.37 (SD=.25
Mean Max. Depth[b] (m)	0.45 (SD=.15)	0.91 (SD=.12)	0.32 (SD=.10)	0.20 (SD=na)	0.51 (SD=.27)
Mean Max. Pool Depth[c] (m)		1.06 (SD=.17)			
Mean Resid. Pool Depth[d] (m)		0.76 (SD=.17)			
Cover Area (m^2): Total	478	355	462	19	1,283
large woody debris	86	175	114	6	382
small woody debris	20	32	19	2	72
boulder	221	125	127	4	477
undercut bank	3	1	1	0	5
overhanging vegetation	118	22	201	7	348
deep pool	31	362	15	0	408

[a] Overall total exceeds reach length due to sections of multiple channel and side channels.
[b] From habitat unit measurements at ¼, ½, and ¾ of wetted width at most units.
[c] From individual maximum depth measurements in each pool.
[d] From habitat unit assessment. Equal to maximum pool depth minus pool crest (outlet) depth.

Table 3. Physical characteristics by habitat type for Barnes Reach B3, September 2012.

Characteristic	Habitat Type				
	Glide	Pool	Riffle	Back Channel	TOTAL
No. of Units	26	15	24	7	72
Total Length[a] (m)	933	291	689	370	2,283
Total Habitat Area (m^2)	7,547	2,719	5,692	815	16,772
% of Total Area	45%	16%	34%	5%	100%
Mean Area (m^2)	290 (SD=310)	181 (SD=123)	237 (SD=240)	116 (SD=116)	233 (SD=244)
Total Spawn Gravel Area (m^2)	54	9	83	47	193
Mean Wetted Width (m)	8.1 (SD=2.3)	8.1 (SD=2.2)	7.7 (SD=2.8)	2.1 (SD=1.0)	7.4 (SD=2.9)
Mean Depth[b] (m)	0.34 (SD=.09)	0.72 (SD=.13)	0.22 (SD=.05)	0.08 (SD=.02)	0.35 (SD=.22)
Mean Max. Depth[b] (m)	0.42 (SD=.11)	0.90 (SD=.13)	0.27 (SD=.07)	0.09 (SD=.03)	0.44 (SD=.28)
Mean Max. Pool Depth[c] (m)		1.05 (SD=.21)			
Mean Resid. Pool Depth[d] (m)		0.76 (SD=.21)			
Cover Area (m^2): Total	451	1,126	444	93	2,114
large woody debris	141	408	90	29	669
small woody debris	34	32	29	8	103
boulder	100	83	156	2	340
undercut bank	18	17	18	14	67
overhanging vegetation	117	43	101	23	284
deep pool	41	543	51	18	653

[a] Overall total exceeds reach length due to meandering flow within channel, sections of multiple channel, and backchannels.

[b] From habitat unit measurements at ¼, ½, and ¾ of wetted width.

[c] From individual maximum depth measurements in each pool.

[d] From habitat unit assessment. Equal to maximum pool depth minus pool crest (outlet) depth.

3.1.3 WATER TEMPERATURE AND CONDUCTIVITY

Water temperature at the Whatshan W3.2 and Barnes B3 fish sample sites in mid-September 2012 ranged from 8.1 to 12.9°C, while conductivity varied between 111 and 138 µS/cm (Table 4). Conductivity was approximately 15 µS/cm higher and maximum water temperature was 1.7 degrees higher in W3.2.

Table 4. Minimum and maximum water temperature and conductivity at mainstem Whatshan W3.2 and Barnes B3 fish samples sites during 2006, 2007, 2008, 2010, and 2012.

Reach	Year	Dates	Water Temperature (°C)		Conductivity (µS/cm)	
			Minimum	Maximum	Minimum	Maximum[a]
W3.2	2006	Sep 11-18	10.4	16.2	144	151
	2007	Sep 10-13	10.2	16.0	140	150
	2008	Sep 29-Oct 8	7.8	12.9	97	119
	2010	Sep 22-27	7.3	12.2	80	84
	2012	Sep 10-17	8.1	12.9	127	138
B3	2006	Sep 15-17	7.4	13.0	121	138
	2007	Sep 14-17	10.6	13.7	116	187
	2008	Oct 3-6	6.3	11.5	87	107
	2010	Sep 28-30	7.6	12.4	67	123
	2012	Sep 10-17	8.4	11.2	111	126

[a] Conductivity 279 µS/cm in side channel site on Barnes Creek in 2012.

3.1.4 STAGE AND DISCHARGE

A staff gauge was installed at the Highway 6 Bridge in 2006, and staff gauge readings and discharge measurements from 2006, 2007, and 2008 (Table 5) yielded the following stage-discharge relationship:

$$Q = 0.0754e^{5.7942x} \quad (R^2 = 0.934)$$

where Q is discharge (m^3/s) and x is staff gauge reading (m).

Assuming that the same relationship still applied in 2012, the discharge of 0.714 m^3/s during the field studies in September 2012 was slightly higher than that experienced during the pre-enhancement studies in 2006-2008, and only half or less of the high discharges encountered while fish sampling during late September 2010 (Table 5).

Table 5. Stage-Discharge Measurements for Staff Gauge at Highway 6 Bridge.

Date	Staff Gauge Reading (m)	Measured Discharge (m^3/s)[a]	Predicted Discharge (m^3/s)	Barnes Creek Discharge (m^3/s)[b]
September 13/06	0.330	0.506	0.510	0.610
August 30/06	0.343	0.631	0.550	0.667
September 16/07	0.310	0.428	0.454	0.620
October 23/07	0.450	1.039	1.023	1.180
October 4/08	0.388	0.657	0.714	0.838
September 8/10	0.426	not measured	0.890	0.700E
September 20/10	0.586	not measured	2.249	2.50
September 21/10	0.622	not measured	2.771	2.61
September 22/10	0.532	not measured	1.645	1.74
September 23/10	0.501	not measured	1.374	1.42
September 24/10	0.491	not measured	1.297	1.41
September 17/12	0.388	0.730	0.714	0.660

[a] Measured at discharge transect established downstream of Barnes FSR Bridge.

[b] Environment Canada, Water Survey of Canada Station No. 08NE077 Barnes Creek Near Needles.

E = estimated.

3.2 FISH RESOURCES

3.2.1 FISH SAMPLING EFFORT

As in 2010, four of each mainstem habitat type (glide, pool, riffle) and one side channel were sampled in Reach W3.2 in 2012, while three of each habitat type and one side channel were sampled in B3 (Table 6). A total of 2,904 m^2, or 14% of total habitat area, was sampled in Reach W3.2 with a total effort of 50,408 electrofishing seconds, while 1,748 m^2, 10% of total area, was sampled in Reach B3 with 30,205 seconds of effort. Photographs of 2012 fish sample sites are provided in Appendix 1 while electrofishing specifications are provided in Appendix 3.

Table 6. Number of electrofishing sites, area sampled, and electrofishing effort by habitat type in Whatshan Reach W3.2 and Barnes Reach B3 during September 10-17, 2012.

Habitat Type	Area Sampled (m^2) and Electrofishing Effort (seconds)							
	Whatshan W3.2				Barnes B3			
	# of Sites	Area	% Area	EF sec	# of Sites	Area	% Area	EF sec
glide	4	742	26	17,544	3	531	30	9,814
pool	4	1,207	42	17,616	3	413	24	8,839
riffle	4	884	30	13,559	3	754	43	10,060
s/b chnl	1	71	2	1,689	1	50	3	1,492
ALL	**13**	**2,904**	**100**	**50,408**	**11**	**1,748**	**100**	**30,205**

3.2.2 SPECIES AND NUMBERS CAPTURED

The same four fish species - Slimy Sculpin, Eastern Brook Trout, Longnose Dace, and Rainbow Trout - that were captured in Whatshan Reach W3.2 during previous years were found again in 2012 (Table 7). Sculpin, Brook Trout, and Rainbow Trout were captured in Barnes Reach B3.

Table 7. Common and scientific names and species codes of fishes captured in Whatshan Reach W3.2 and Barnes Reach B3 during September 10-17, 2012.

Common Name	Scientific Name	Species Code	Reaches
Slimy Sculpin	*Cottus cognatus*	CCG	W3.2, B3
Eastern Brook Trout	*Salvelinus fontinalis*	EB	W3.2, B3
Longnose Dace[a]	*Rhinichthys cataractae*	LNC	W3.2
Rainbow Trout	*Oncorhynchus mykiss*	RB	W3.2, B3

[a] Longnose dace not present in Reach B3.

The total number of fishes captured in Reach W3.2 in 2012 was 1,435 compared with 1,178 fish in Reach B3 (Table 8). Slimy sculpins were by far the most abundant species, making up 61% of the total captured in W3.2 and 76% in B3. Rainbow trout contributed 17-21% of the fishes captured in each reach, with Longnose Dace making up 12% of fishes captured in W3.2 and Eastern Brook Trout 6-7% in each reach. A breakdown by life stage (fry versus juvenile/adult) is provided in the Fish Collection Form in Appendix 3, while individual fish data are provided in Appendix 4.

Table 8. Number of fishes captured, by species and life stage, in each habitat type in Whatshan Reach W3.2 and Barnes Reach B3, during September 10-17, 2012.

W3.2	Glide	Pool	Riffle	Channel	ALL	% of Total
CCGf	32	22	30	2	86	6
CCGa	333	127	311	17	788	55
EBf	23	11	25	4	63	4
EBa	5	18	4	0	27	2
LNCf	21	9	7	0	37	3
LNCj	23	19	10	0	52	4
LNCa	43	11	25	0	79	6
RBf	27	12	31	18	88	6
RBj	21	44	26	1	92	6
RBa	24	77	22	0	123	9
ALL	**552**	**350**	**491**	**42**	**1,435**	**100%**
% of Total	***38%***	***24%***	***34%***	***3%***	***100%***	
B3	Glide	Pool	Riffle	Channel	ALL	% of Total
CCGf	1	0	0	0	1	0%
CCGa	395	136	364	0	895	76%
EBf	5	13	11	18	47	4%
EBa	4	15	17	0	36	3%
RBf	34	18	27	2	81	7%
RBj	16	14	18	0	48	4%
RBa	11	32	27	0	70	6%
ALL	**466**	**228**	**464**	**20**	**1,178**	**100%**
% of Total	***40%***	***19%***	***39%***	***2%***	***100%***	

Note: Refer to Table 7 for species code definitions; f = fry, j = juvenile, a = adult.

3.2.3 LENGTH AND AGE

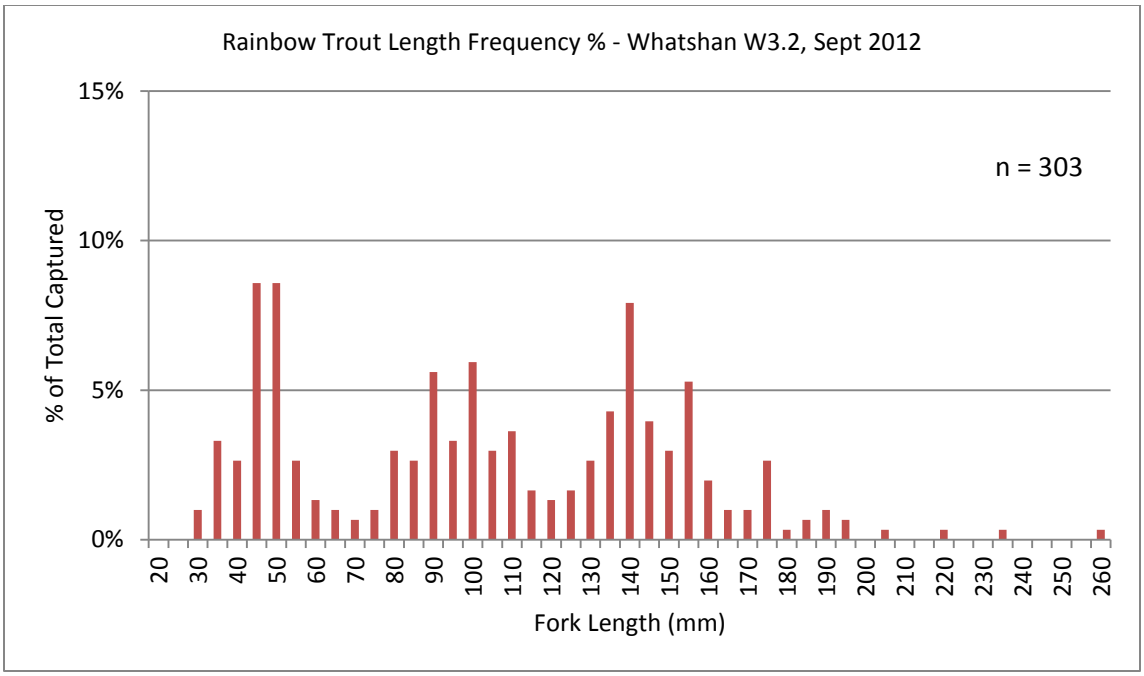
Fishes captured in 2012 ranged in length from a 13 mm Slimy Sculpin up to a 256 mm Rainbow Trout, both in Whatshan River. There was a tendency for non-fry fishes of all species to be slightly larger in W3.2 than in B3 (Table 9), possibly due to higher water temperature and/or nutrients in W3.2 (Table 4). The length frequency distributions (Figure 2) used in conjunction with the aging data (Appendix 5) show that Age 1+ Rainbow Trout centered from around 90 mm (Barnes) to 100 mm (Whatshan), while the peak of Age 2+ Rainbow Trout was around 125 mm (Barnes) to 140 mm (Whatshan). The largest Rainbow Trout that could be aged were several Age 4+ specimens from W3.2. The presence of sculpin fry in W3.2 but not B3 is suspected to be due to warmer water in W3.2 – fry had either not emerged or at least were not vulnerable to capture (e.g., too small) yet in B3 in mid-September.

Table 9. Mean fish length by habitat type in Whatshan Reach W3.2 and Barnes Reach B3 during September 10-17, 2012.

	Mean Length (mm)[a]						
W3.2	Glide	Pool	Riffle	Channel	**ALL**	n	Range
CCGf	25	24	23	24	**24**	86	13-34
CCGa	66	64	65	58	**65**	788	38-104
EBf	67	72	70	67	**69**	63	55-92
EBa	136	159	142	---	**152**	27	112-245
LNCf	23	25	23	---	**24**	37	17-30
LNCj	42	39	45	---	**41**	52	32-55
LNCa	71	83	83	---	**77**	79	57-118
RBf	43	43	46	46	**45**	88	28-64
RBa	122	129	119	---	**126**	214	69-256
B3	Glide	Pool	Riffle	Channel	ALL	n	Range
CCGf	27	---	---	---	**27**	1	27-27
CCGa	61	62	62	---	**61**	895	33-96
EBf	70	68	74	71	**71**	47	52-92
EBa	133	130	140	---	**135**	36	103-204
RBf	38	40	38	43	**39**	81	23-55
RBa	104	124	114	---	**115**	118	65-205

[a] Fork length for EB, LNC, and RB; total length for CCG.

Refer to Table 7 for species code definitions; f= fry, ja= juvenile/adult.



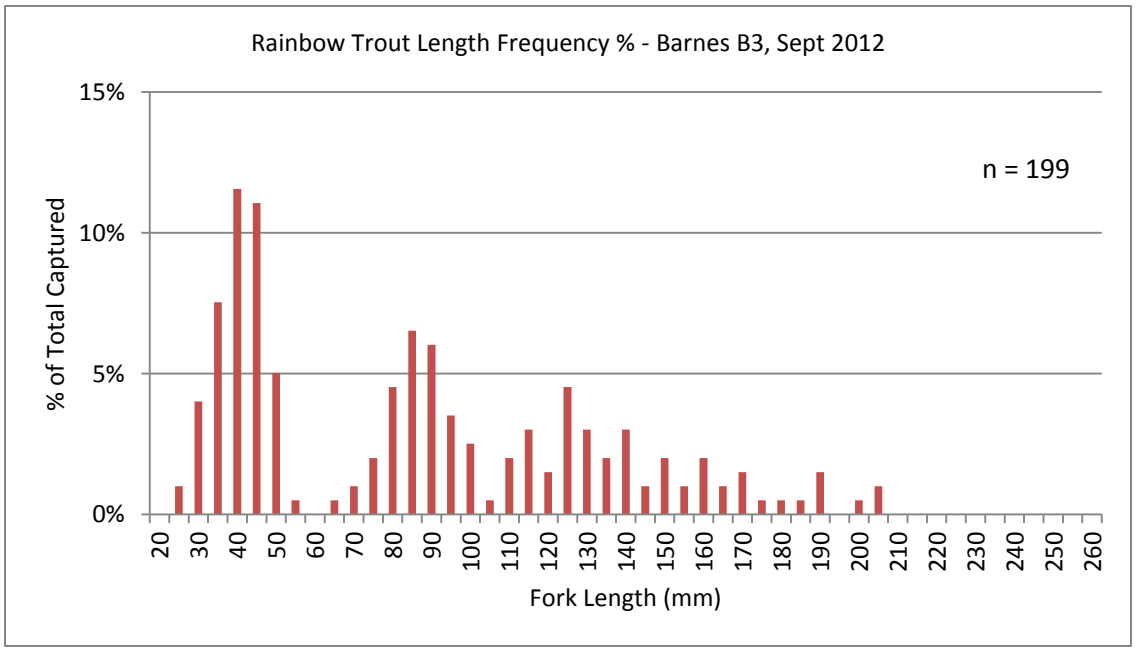


Figure 2. Length frequency distributions of Rainbow Trout captured in Whatshan River Reach W3.2 and Barnes Creek B3 during September 10-17, 2012.

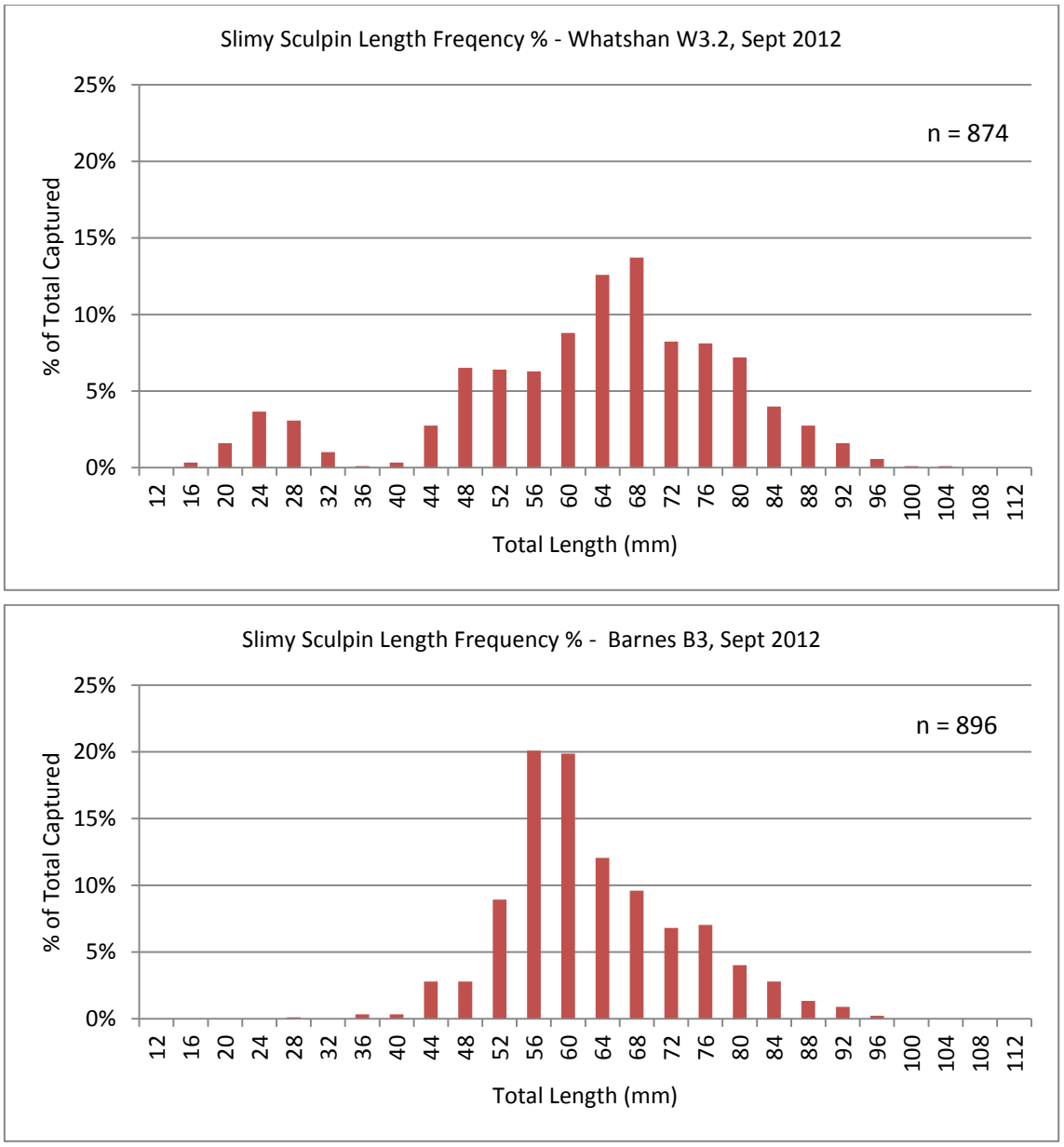


Figure 3. Length frequency distributions of Slimy Sculpins captured in Whatshan River Reach W3.2 and Barnes Creek Reach B3 during September 10-17, 2012.

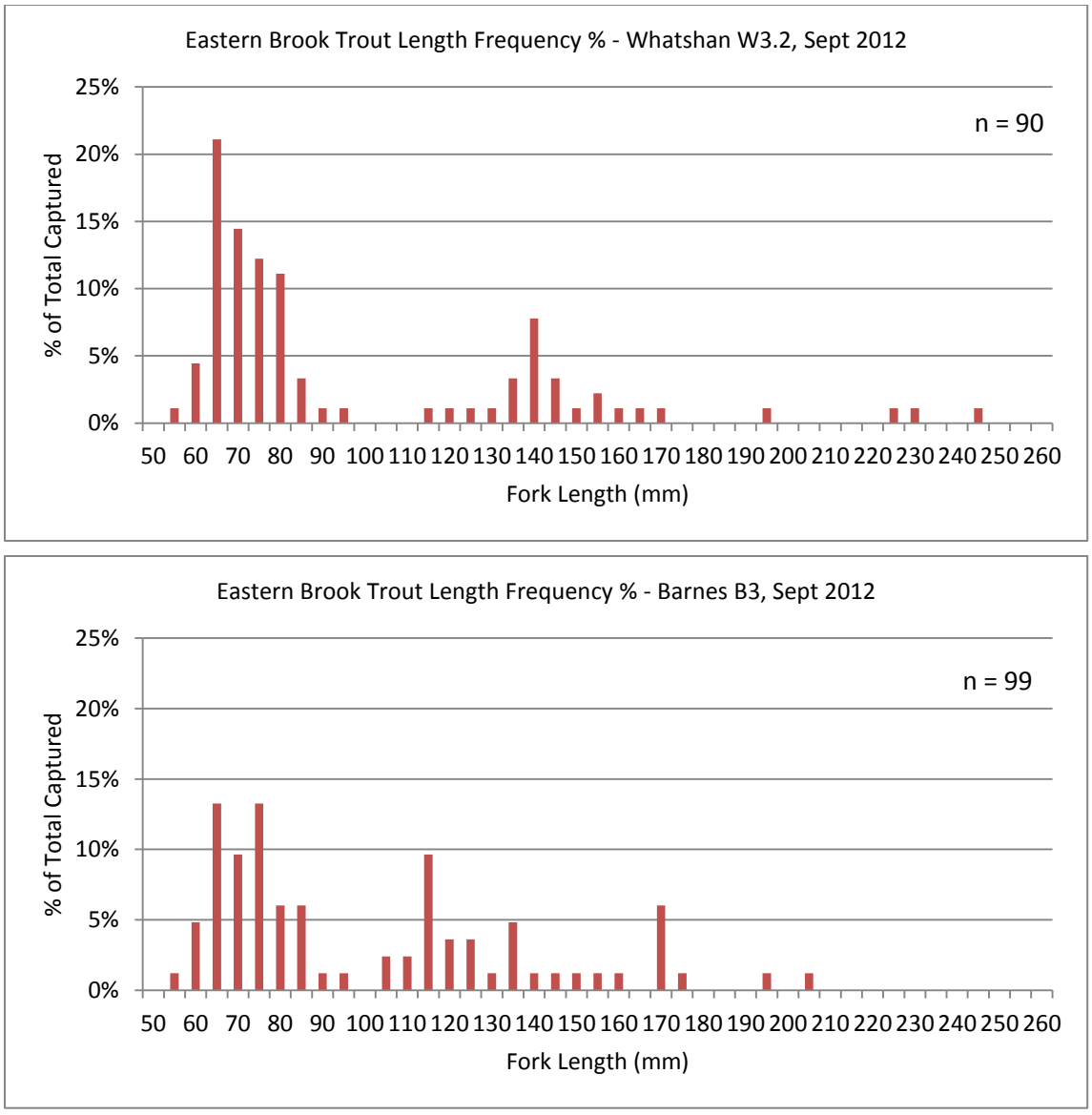


Figure 4. Length frequency distributions of Eastern Brook Trout captured in Whatshan River Reach W3.2 and Barnes Creek Reach B3 during September 10-17, 2012.

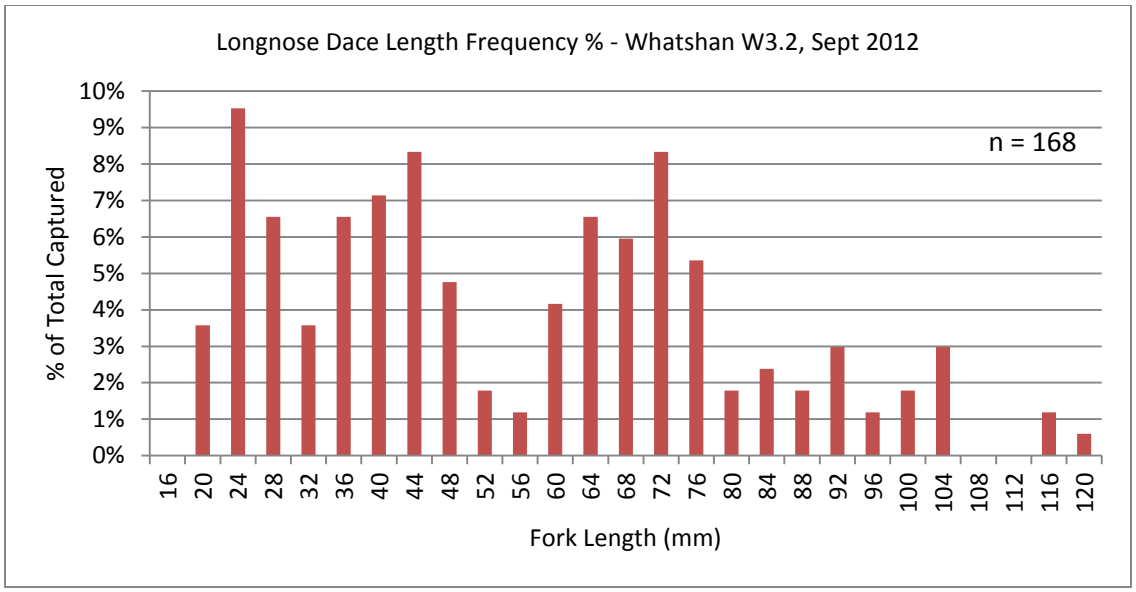


Figure 5. Length frequency distribution of Longnose Dace captured in Whatshan River Reach W3.2 during September 10-17, 2012.

3.2.4 WEIGHT AND CONDITION

With the exception of brook trout fry, average weights of fish of the same species and life stage were greater in Reach W3.2 than in B3 (Table 10), possibly due to higher water temperatures and/or nutrient levels in W3.2. Similarly, condition factors were generally higher in W3.2 (Table 16). Condition factors of Rainbow Trout were between 0.97 and 1.09, within the same range reported by Carlander (1969) from a review of numerous studies. Other species had values similar to Rainbow Trout. Variability in condition was highest and considered least reliable for fry of Sculpin and Longnose Dace due to low precision of weight measurements (0.1 g) in relation to total fish weight. Rainbow trout condition was consistent with the findings of Slaney et al. (1992), who reported that condition factors for this species from Whatshan River and Barnes Creek were generally in the range of 1.0 to 1.1.

Table 10. Mean fish weight by habitat type in Whatshan Reach W3.2 and Barnes Reach B3 during September 10-17, 2012.

	Mean Fish Weight (g)					
W3.2	Glide	Pool	Riffle	Channel	**ALL**	Range
CCGf	0.2	0.2	0.1	0.2	**0.2**	0.0-0.8
CCGa	3.0	2.6	2.8	1.9	**2.8**	0.4-11.7
EBf	3.3	4.0	3.7	3.4	**3.6**	1.7-7.4
EBa	25.2	48.6	27.3	---	**41.1**	13.4-150.5
LNCf	0.2	0.3	0.1	---	**0.2**	0.0-0.6
LNCj	1.0	0.8	1.0	---	**0.9**	0.3-2.1
LNCa	4.4	7.9	7.3	---	**5.8**	1.4-20.5
RBf	1.0	1.0	1.1	1.0	**1.0**	0.1-3.0
RBj	8.7	8.3	8.0	0.9	**8.2**	0.9-16.1
RBa	32.0	36.2	35.6		**35.3**	12.3-165.3
B3	Glide	Pool	Riffle	Channel	**ALL**	Range
CCGf	0.1	---	---	---	**0.1**	0.1-0.1
CCGa	2.3	2.3	2.4	---	**2.3**	0.4-8.4
EBf	3.8	3.5	4.0	3.8	**3.8**	1.3-6.7
EBa	27.0	26.7	30.6	---	**28.6**	10.2-88.7
RBf	0.6	0.7	0.6	0.8	**0.6**	0.1-1.7
RBj	6.0	5.7	6.3		**6.0**	2.8-9.1
RBa	25.6	31.6	26.4		**28.6**	9.1-85.9

Refer to Table 7 for species code definitions; f= fry, ja= juvenile/adult.

Table 11. Mean fish condition by habitat type in Whatshan Reach W3.2 and Barnes Reach B3 during September 10-17, 2012.

	Mean Fish Condition by Habitat Type					
W3.2	Glide	Pool	Riffle	Channel	**ALL**	Range
CCGf	1.28	1.18	0.92	1.13	**1.13**	0.00-5.63
CCGja	0.97	0.96	0.94	0.86	**0.95**	0.41-1.82
EBf	1.08	1.04	1.03	1.11	**1.06**	0.87-1.66
EBja	0.96	1.00	0.95	---	**0.98**	0.87-1.16
LNCf	1.86	1.71	0.68	---	**1.60**	0.00-4.11
LNCja	1.21	1.31	1.13	---	**1.21**	0.56-1.37
RBf	1.13	1.14	1.07	1.06	**1.09**	0.25-2.14
RBja	0.98	0.99	0.98	0.81	**0.98**	0.67-1.58
B3	Glide	Pool	Riffle	Channel	**ALL**	Range
CCGf	0.51	---	---	---	**0.51**	0.51-0.51
CCGja	0.92	0.91	0.96	---	**0.93**	0.46-1.53
EBf	1.07	1.09	0.98	1.02	**1.04**	0.86-1.35
EBja	1.05	1.04	1.02	---	**1.03**	0.89-1.26
RBf	1.09	0.95	0.96	0.99	**1.02**	0.41-2.22
RBja	1.01	0.99	1.00	---	**1.00**	0.81-1.31

Refer to Table 7 for species code definitions; f= fry, ja= juvenile/adult.

Physical data from fish sample sites are provided in Appendix 6.

4 PRE- VERSUS POST-ENHANCEMENT COMPARISONS

Comparisons of pre- and post-enhancement habitat and CPUE, length, weight, and condition of juvenile/adult Rainbow Trout are presented below to look for evidence that habitat changes have improved the numbers or biomass of Rainbow Trout.

4.1 HABITAT

Comparisons of a subset of reach level statistics for Whatshan W3.2 and Barnes B3 in 2006, 2007, 2008, 2010, and 2012 are provided below in Table 12 and Table 13.

Table 12. Comparison of reach-level habitat characteristics of Whatshan Reach W3.2 in late summer/early fall of 2006, 2007, 2008, 2010, and 2012.

	Pre-W3.2 Habitat Enhancement			Post-W3.2 Enhancement	
Characteristic	2006	2007	2008	2010	2012
Reach Length (m)	1,380	1,380	1,380	1,380	1,380
Number of Habitat Units: Total	37	37	35	40	44
glide	13	14	14	10	15
pool	7	7	5	10	11
riffle	11	12	13	16	17
side/backchannel	6	4	3	4	1
Habitat Area (m^2): Total	22,713	22,013	23,400	22,293	20,839
glide	6,549	6,474	9,226	6,909	9,046
pool	3,553	3,466	2,201	3,250	2,669
riffle	10,768	11,186	11,317	11,484	8,633
side/backchannel	1,842	877	655	651	491
Total Spawning Gravel Area (m^2)	157	264	157	644	549
Total Cover (m^2) (excl. deep pool)	836	1,199	1,036	1,419	1,283
Large Woody Debris Cover (m^2)	179	119	104	358	382
Mean Wetted Width (m)	13.2 (SD=5.1)	12.7 (SD=5.0)	14.3	12.8 (SD=5.2)	12.6 (SD=5.2)
Mean Depth[a] (m)	0.32 (SD=.18)	0.33 (SD=.17)	0.37 (SD=.19)	0.37 (SD=.25)	0.41 (SD=.22)
Mean Maximum Pool Depth[b] (m)	0.93 (SD=.12)	0.96 (SD=.15)	1.07 (SD=.22)	1.03 (SD=.18)	1.06 (SD=.17)

[a] From habitat unit measurements at ¼, ½, and ¾ of wetted width.

[b] From individual maximum depth measurements in each pool.

Habitat enhancement in Reach W3.2 was conducted in 2009.

Table 13. Comparison of reach-level habitat characteristics of Barnes Reach B3 in late summer or early fall / 2006, 2007, 2008, 2010, and 2012.

	Pre-W3.2 Habitat Enhancement			Post-W3.2 Enhancement	
Characteristic	2006	2007	2008	2010	2012
Reach Length (m)	1,245	1,245	1,245	1,245	1,245
Number of Habitat Units: Total	74	63	64	61	72
glide	25	21	20	23	26
pool	21	14	15	9	15
riffle	24	23	23	23	24
side/backchannel	4	5	6	6	7
Habitat Area (m^2): Total	13,228	13,265	15,701	15,822	16,772
glide	4,228	4,480	5,783	5,975	7,547
pool	3,573	2,908	3,077	1,349	2,719
riffle	5,167	5,119	6,070	7,591	5,692
side/backchannel	261	757	771	908	815
Total Spawning Gravel Area (m^2)	93	288	200	127	193
Total Cover (m^2) (excl. deep pool)	1,553	1,848	1,493	1,443	1,461
Large Woody Debris Cover (m^2)	880	788	397	459	669
Mean Wetted Width (m)	7.9 (SD=3.1)	7.4 (SD=2.9)	9.2 (SD=3.2)	7.9 (SD=3.0)	7.4 (SD=2.9)
Mean Depth[a] (m)	0.44 (SD=.22)	0.38 (SD=.23)	0.39 (SD=.24)	0.36 (SD=.23)	0.35 (SD=.22)
Mean Maximum Pool Depth[b] (m)	1.04 (SD=.24)	1.06 (SD=.21)	1.07 (SD=.22)	1.07 (SD=.19)	1.05 (SD=.21)

[a] From habitat unit measurements at ¼, ½, and ¾ of wetted width.

[b] From individual maximum depth measurements in each pool.

In the enhancement reach W3.2, pool-forming structures have increased the number of pools from 5-7 pre-enhancement to 10-11 after (Table 12). The total number of habitat units has also increased, not only due to the additional pools, but also due to fragmentation of larger units by creation of new pools. Both large woody debris cover and spawning gravel area have approximately tripled. Mean depth has been steadily increasing in the enhancement reach, whereas it has been decreasing in the control reach.

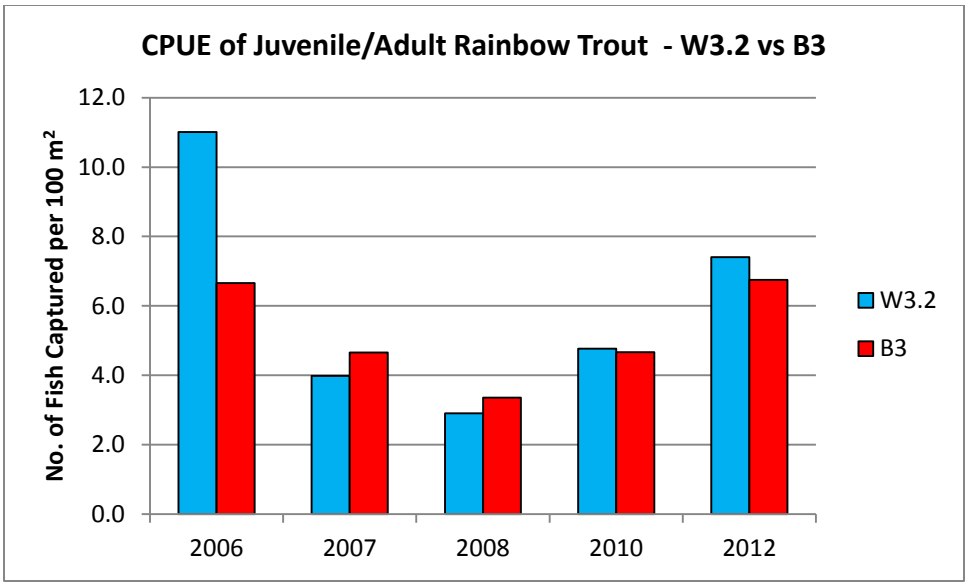
Habitat area comparisons are less instructive, as they are somewhat dependent on discharge on the survey dates, but the only clear pattern seems to an approximately 20% decrease in riffle area. Total pool area has been highly variable from year to year, primarily due to borderline pool habitats that have been classified as pools in some years and as glides in others, as can be seen by the opposite changes in glide area. However, average pool area has been in steady decline, from an initial high of 507 m^2 in 2006 to a low of 242 m^2 in 2012. A decline in side channel area is consistent with enhancement work to narrow the channel and restore natural channel processes, but side channel area had been on a steady decline even prior to enhancement.

In the control reach B3, numbers of pools, side channels, total habitat units, large woody debris cover, and spawning gravel area appear to have remained unchanged (Table 13).

4.2 CATCH PER UNIT EFFORT

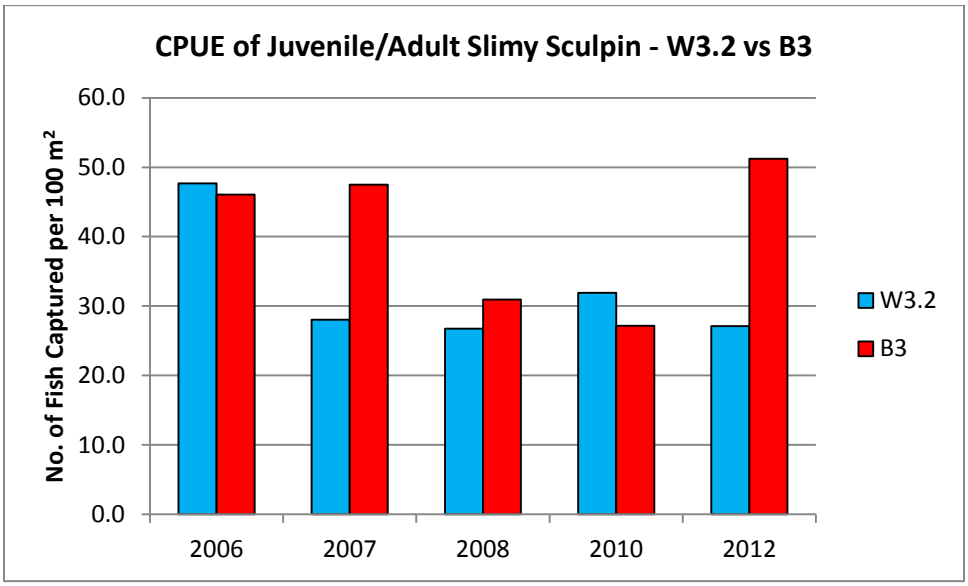
Catch per unit effort (CPUE) is a way to standardize fish catches among habitat types and reaches. A relative increase in CPUE in W3.2 compared with the control reach B3 would be an indication that habitat enhancement was having a beneficial effect. Overall CPUE (number of fish captured per unit area) of juvenile/adult Rainbow Trout was highest in 2006 and declined in 2007 and 2008 before rising again in 2010 and 2012, although CPUE in W3.2 in 2012 was still less than in 2006 (Figure 6). Rainbow trout CPUE in W3.2 was much higher than in B3 in 2006 but then has been approximately equal in subsequent years of sampling. The steady decline in Rainbow Trout CPUE during 2006, 2007, and 2008 could possibly reflect sampling mortality from intensive electrofishing and fish handling in consecutive years, with catches rising again in 2010 and 2012 due to the two-year interval between successive fish sampling episodes. The higher frequency of regenerated scale samples in 2007 (14%) and 2008 (11%), compared with only 4% in the first year of sampling (2006), indicates that a substantial number of sampled fish may have been recaptured in subsequent years.

Prior to 2012, CPUE of Slimy Sculpin was approximately equal in W3.2 and B3 in 3 out of 4 years, but almost twice as high in B3 in 2012 (Figure 7). This is not unexpected, as the habitat enhancement work in W3.2 is creating more pool and deeper habitats at the expense of the shallower glide and riffle habitat favoured by sculpins.



(2006-2008 pre-enhancement; 2010 & 2012 post-enhancement)

Figure 6. Comparison of catch per unit effort (fish per 100 m^2) of juvenile/adult Rainbow Trout in Whatshan W3.2 and Barnes B3 by year.



(2006-2008 pre-enhancement; 2010 & 2012 post-enhancement)

Figure 7. Comparison of catch per unit effort (fish per 100 m^2) of juvenile/adult Slimy Sculpin in Whatshan W3.2 and Barnes B3 by year.

4.3 RAINBOW TROUT SIZE

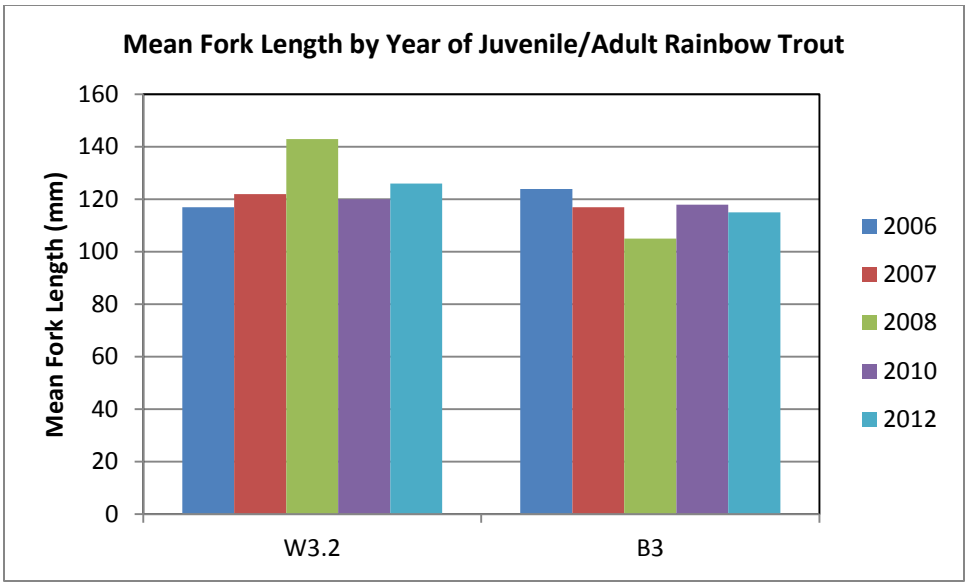
Increases in fish length, weight, and/or condition in Reach W3.2 versus the control reach B3 could indicate beneficial effects of habitat enhancement on Rainbow Trout.

4.3.1 FORK LENGTH

An increase in rainbow trout length in W3.2 relative to the control reach B3 would be a possible indication that habitat enhancement was having a beneficial effect. Overall mean fork length of juvenile/adult Rainbow Trout in the enhancement reach W3.2 has been relatively constant pre- and post-enhancement except for a jump in 2008 (Table 14). Conversely, overall mean length in Reach B3 was relatively constant pre- and post-enhancement except for a drop in 2008. There may be a slight tendency for length to be increasing in W3.2 and decreasing in B3 (Figure 8). However, fish length does not provide strong evidence that enhancement has been of benefit to Rainbow Trout.

Table 14. Mean fork length by habitat type for juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3 pre- and post-enhancement.

		Rainbow Trout Mean Fork Length (mm) by Habitat Type					
W3.2	Year	Glide	Pool	Riffle	Channel	**ALL**	n
Pre-	2006	116	115	124	128	**117**	115
Pre-	2007	110	125	127	121	**122**	94
Pre-	2008	125	137	157	120	**143**	114
Post-	2010	119	124	116	107	**120**	113
Post-	2012	122	129	119	---	**126**	214
B3	Year	Glide	Pool	Riffle	Channel	**ALL**	n
Pre-	2006	110	129	116	88	**124**	87
Pre-	2007	151	117	117	100	**117**	70
Pre-	2008	103	109	99	102	**105**	67
Post-	2010	127	116	106	119	**118**	71
Post-	2012	104	124	114	---	**115**	118



(2006-2008 pre-enhancement; 2010 & 2012 post-enhancement)

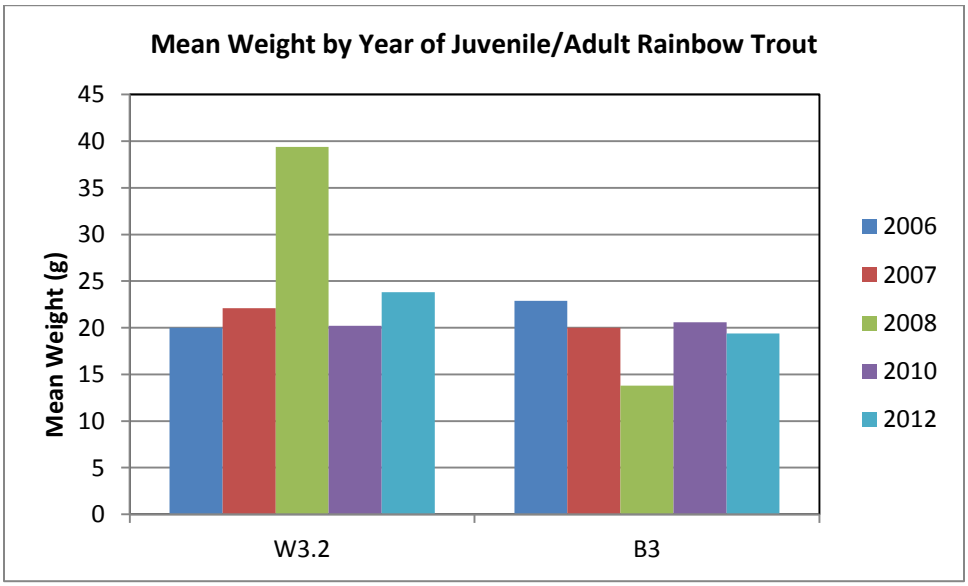
Figure 8. Trends in fork length of juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3.

4.3.2 WEIGHT

An increase in weight of rainbow trout in W3.2 relative to the control reach B3 would be a possible indication that habitat enhancement was having a beneficial effect. As with fork length, overall mean weight of juvenile/adult Rainbow Trout in the enhancement reach W3.2 has been relatively constant pre- and post-enhancement except for a jump in 2008 (Table 15). Conversely, overall mean weight in Reach B3 was relatively constant pre- and post-enhancement except for a drop in 2008. There may be a slight tendency for mean weight to be increasing in W3.2 and decreasing in B3 (Figure 9). However, fish weight does not provide strong evidence that enhancement has been of benefit to Rainbow Trout.

Table 15. Mean weight by habitat type for juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3 pre- and post-enhancement.

		Rainbow Trout Weight (g) by Habitat Type					
W3.2	Year	Glide	Pool	Riffle	Channel	**ALL**	n
Pre-	2006	19.9	18.2	25.4	22.8	**20.0**	115
Pre-	2007	15.1	23.4	24.8	19.5	**22.1**	94
Pre-	2008	27.6	34.2	51.5	19.2	**39.4**	114
Post-	2010	18.8	22.6	17.7	12.9	**20.2**	113
Post-	2012	21.1	26.1	20.6	---	**23.8**	214
B3	Year	Glide	Pool	Riffle	Channel	**ALL**	n
Pre-	2006	15.2	25.8	16.7	7.4	**22.9**	87
Pre-	2007	38.4	20.0	19.4	9.4	**20.0**	70
Pre-	2008	13.8	15.7	10.9	12.0	**13.8**	67
Post-	2010	25.2	19.4	13.2	18.4	**20.6**	71
Post-	2012	14.0	23.7	18.3	----	**19.4**	118



(2006-2008 pre-enhancement; 2010 & 2012 post-enhancement)

Figure 9. Trends in weight of juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3.

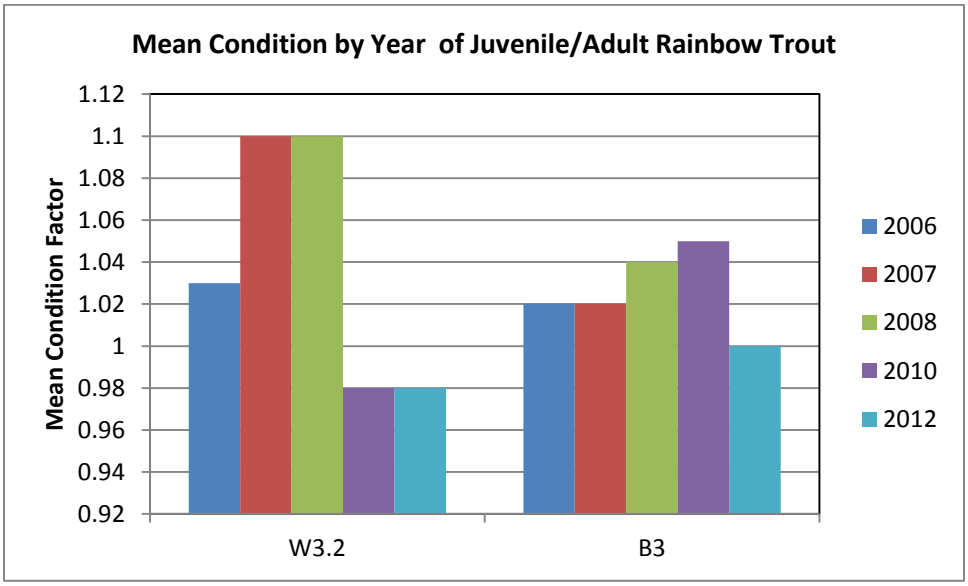
4.3.3 CONDITION

An increase in condition factor of rainbow trout in W3.2 relative to the control reach B3 would be a possible indication that habitat enhancement was having a beneficial effect. While overall condition factor for juvenile/adult Rainbow Trout has been relatively constant at 1.00-1.05 in the control reach, it appears to have fallen by about 0.10 in the enhancement reach (Table 16; Figure 10). Therefore, based on condition factor, there is no evidence that

enhancement has been of benefit to Rainbow Trout. In fact, the data suggest that enhancement may have had a negative effect on fish condition.

Table 16. Mean condition factor by habitat type for juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3 pre- and post-enhancement.

		Rainbow Trout Mean Condition by Habitat Type					
W3.2	Year	Glide	Pool	Riffle	Channel	**ALL**	n
Pre-	2006	1.03	1.03	1.04	1.09	**1.03**	115
Pre-	2007	0.99	1.01	1.02	1.06	**1.10**	94
Pre-	2008	1.02	0.96	1.21	0.96	**1.10**	114
Post-	2010	0.97	0.98	0.99	1.02	**0.98**	113
Post-	2012	0.98	0.99	0.98	0.81	**0.98**	214
B3	Year	Glide	Pool	Riffle	Channel	**ALL**	
Pre-	2006	1.01	1.02	1.02	1.03	**1.02**	87
Pre-	2007	0.99	1.03	1.02	0.92	**1.02**	70
Pre-	2008	1.09	1.06	1.01	0.97	**1.04**	67
Post-	2010	1.06	1.07	0.99	1.07	**1.05**	71
Post-	2012	1.01	0.99	1.00	----	**1.00**	118



(2006-2008 pre-enhancement; 2010 & 2012 post-enhancement)

Figure 10. Trends in condition factor of juvenile/adult Rainbow Trout in Whatshan Reach W3.2 and Barnes Reach B3.

4.4 FUTURE SAMPLING

The three years of pre-enhancement sampling in 2006-2008 indicated that the fish and fish habitat estimates and averages had poor precision because of the small number of samples (3 or 4) for each habitat type, the imprecision of the removal estimates; and the high variability among units within the same habitat type. To reduce the overall standard error (SE), it was recommended to sample more habitat units and larger areas within habitat units with the same removal methods that had been used to date.

Simulation modeling conducted by the SFU Statistical Consulting Service in 2009 found that, with the sampling methods and effort used thus far, 8 years of monitoring would be required to detect a 20% change/year in the number of juvenile/adult Rainbow Trout (Naito and Bates 2009, Appendix 3). To hopefully reduce the number of years of monitoring required to detect a change, analysis of the results to date will be used to determine the best way to improve the likelihood of answering the management questions relating to the benefits of habitat enhancement to Rainbow Trout. If more sampling effort is required, a course of action will be discussed with BC Hydro.

In Section 4.2 above, it was noted that the steady decline in Rainbow Trout CPUE during 2006, 2007, and 2008 could possibly reflect sampling mortality from intensive electrofishing and fish handling in consecutive years, with catches rising again in 2010 and 2012 due to the two-year interval between successive fish sampling episodes. Sampling in 2015 after a three-year interval may shed further light on this theory. If analysis of results to date (refer to Section 2.4.4.2) indicates that additional years of sampling are required to detect a change in Rainbow Trout abundance, it may be that the additional years cannot be consecutive to avoid the confounding effects of sampling. Even so, if sampling by electrofishing is having a negative effect on Rainbow Trout abundance, the sampling may delay or even entirely mask detection of any benefits of habitat enhancement.

4.5 FUTURE ANALYSES

Analyses to be conducted for the Year 10 (2015) report will be directed at answering the management questions of whether habitat structures have increased the availability of Rainbow Trout habitat and, if so, whether this increase benefits Rainbow Trout. However, other ancillary analyses are likely to be undertaken to help understand the primary findings. For example, is an increase in Rainbow Trout biomass associated with an equivalent reduction in biomass of other species? It is not known at this time all of the analyses that will be conducted, as some may be prompted by results of other calculations. However, the types of analyses envisioned include those described below in Table 17.

For acceptance of the hypothesis that increased habitat availability has benefitted Rainbow Trout, post-project monitoring would show that both habitat for and numbers and/or biomass of juvenile/adult rainbow trout had increased in Reach W3.2 whereas these same measures in Reach B3 had not substantially changed.

Table 17. Analyses planned for the Year 10 report and their purpose.

Analyses	Purpose
for each fish species, population size and density pre- versus post-enhancement	detect significant changes in abundance and density
habitat characteristics (e.g., velocity, depth, cover) pre- versus post-enhancement	relate habitat changes to enhancement work
effects of habitat characteristics on fish density	relate changes in abundance and/or density to changes in habitat
statistical power	determine likelihood of detecting significant changes in fish abundance/biomass and habitat; if no significant change in Rainbow Trout abundance or biomass detected but power is low, determine how to increase power (e.g., how many additional years of post-enhancement sampling, how many additional sampling units to add, etc.)

If post-enhancement monitoring with an acceptable level of statistical power indicates that the objectives have not been achieved, recommendations will be made on what actions (e.g., enhancement modification, alternative measures) might be taken to remedy the situation. The actions to be taken will depend on what the reasons appear to be for not meeting the objectives. For example, if Rainbow Trout abundance has not increased, and if analyses indicate that a certain habitat feature highly correlated with Rainbow Trout density is deficient in comparison with the control reach, then additional enhancement of this particular element can be conducted.

5 CONCLUSIONS

While habitat enhancement in Whatshan Reach W3.2 has increased the number of pools, mean depth, and amount of large woody debris and spawning gravel area, all changes that favour Rainbow Trout, the potential indicators of CPUE, length, weight, and condition of juvenile/adult Rainbow Trout thus far do not appear to indicate a benefit to the target species.

6 REFERENCES

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APPENDICES

Appendix 1. Whatshan W3.2 and Barnes B3 fish sampling photographs, September 2012.

Appendix 2. Habitat unit physical data for Whatshan W3.2 and Barnes B3, September 2012.

Appendix 3. Fish Collection Form Data and Electrofishing Specifications for Whatshan W3.2 and Barnes B3, September 10-17, 2012.

Appendix 4. Individual fish data for Whatshan W3.2 and Barnes B3, September 2012.

Appendix 5. Whatshan River and Barnes Creek Fish Aging Results, September 2012.

Appendix 6. Physical data for Whatshan W3.2 and Barnes B3 fish sample sites, September 2012.

APPENDIX 1

Whatshan W3.2 and Barnes B3 fish sampling photographs, Sept. 2012.

1. Whatshan P01 – Sta. 0+11.
2. Whatshan G02 – Sta. 0+37.
3. Whatshan R04 – Sta. 200+43.
4. Whatshan G05 – Sta. 200+62.
5. Whatshan P04 – Sta. 200+69.
6. Whatshan SC01 – Sta. 500+16.
7. Whatshan R08 – Sta. 700+21.
8. Whatshan P07 – Sta. 700+33.
9. Whatshan G08 – Sta. 700+62.
10. Whatshan R12 – Sta. 1000+12.
11. Whatshan G11 – Sta. 1000+39.
12. Whatshan R15 – Sta. 1200+69.
13. Whatshan P10 – Sta. 1200+93
14. Barnes SC4R – Sta. 100+7.
15. Barnes R08 – Sta. 300+40.
16. Barnes G08 – Sta. 300+65.
17. Barnes P09 – Sta. 400+80.
18. Barnes P13 – Sta. 700+5.
19. Barnes R20 – Sta. 900+43.
20. Barnes G22 – Sta. 1000+40.
21. Barnes P14 – Sta. 1000+95.
22. Barnes R22 – Sta. 1100+14.
23. Barnes G23 – Sta. 1200+26.
24. Whatshan – rainbow trout.
25. Whatshan – eastern brook trout.
26. Whatshan – slimy sculpin.
27. Whatshan – longnose dace.

Photo 1. Whatshan P01 – Sta. 0+11.

Photo 2. Whatshan G02 – Sta. 0+37.

Photo 3. Whatshan R04 – Sta. 200+43.

Photo 4. Whatshan G05 – Sta. 200+62.

Photo 5. Whatshan P04 – Sta. 200+69.

Photo 6. Whatshan SC01 – Sta. 500+16.

Photo 7. Whatshan R08 – Sta. 700+21.

Photo 8. Whatshan P07 – Sta. 700+33.

Photo 9. Whatshan G08 – Sta. 700+62.

Photo 10. Whatshan R12 – Sta. 1000+75.

Photo 11. Whatshan G11 – Sta. 1000+39.

Photo 12. Whatshan R15 – Sta. 1200+69.

Photo 13. Whatshan P10 – Sta. 1200+93.

Photo 14. Barnes SC4R – Sta. 100+7.

Photo 15. Barnes R08 – Sta. 300+40.

Photo 16. Barnes G08 – Sta. 300+65.

Photo 17. Barnes P09 – Sta. 400+80.

Photo 18. Barnes P13 – Sta. 700+5.

Photo 19. Barnes R20 – Sta. 900+43.

Photo 20. Barnes G22 – Sta. 1000+40.

Photo 21. Barnes P14 – Sta. 1000+95.

Photo 22. Barnes R22 – Sta. 1100+14.

Photo 23. Barnes G23 – Sta. 1200+26.

Photo 24. Whatshan – rainbow trout.

Photo 25. Whatshan – eastern brook trout.

Photo 26. Whatshan – slimy sculpin.

Photo 27. Whatshan – longnose dace.

APPENDIX 2a. Habitat unit physical data for Whatshan W3.2, September 2012.

2012 Unit	Type	Description	Stn1	Stn2	Distance	Area	Length	WidAvg	W1	W2	W3	W4	W5	W6	LWD	SWD	B	UC	OH	DP	CovTot1	CovTot2	Spawn	R	B	C	G
G01	glide	pool tailout	0	0	0	167	11.0	15.2	16.3	14.0					0	0	0	0	0	0	0	0	0	70	0	25	5
P01	pool	bedrock corner pool w/ LWD addition	0	11	11	129	10.0	12.9	10.8	13.2	14.7				12.3	2	8	0	2.5	10	24.8	34.8	0	5	25	60	5
R01	riffle	swift, relatively smooth flowing	0	21	21	156	16.0	9.8	8.2	7.8	9.1	13.9			13.3	1.5	1	0	1	0	16.8	16.8	0	0	5	91	2
G02	glide	bisected lengthwise by 0.6 m dia. Log	0	37	37	212	26.0	8.2	8.2	7.8	8.5	8.1			24.8	1	0	0.5	2	0	28.3	28.3	0	0	1	96	3
R02	riffle	channel narrowed by LWD addition on lt bank	0	63	63	528	50.0	10.6	7.0	9.3	9.0	12.5	15.0		11.8	1	0.5	0	1	0	14.3	14.3	1.5	0	5	92	3
G03	glide	pool tailout	0	97	97	199	15.0	13.3	14.6	12.9	12.3				0	0.4	5	0	0.6	0	6	6	38	0	7	92	1
P02	pool	lt bk triangular LJ	100	12	112	129	10.0	12.9	11.9	13.7	13.0				5	3	6.6	0.3	4	9	18.9	27.9	2	0	15	78	2
R03	riffle	variable; incl. lt bk triang. LJ	100	22	122	858	62.0	13.8	13.3	13.4	12.8	16.7	13.0		8.5	1	16.7	0	10	0	36.2	36.2	48	0	20	70	10
G04	glide	wide & flat; incl. lt bk tri LJ d/s of hwy bridge	100	84	184	873	50.0	17.5	16.9	15.4	18.3	18.2	18.5		6.9	3	17.7	0.8	10	7.6	38.4	46	18	0	1	54	45
P03	pool	tertiary pool rt bk	200	34	234	51	9.0	5.7	6.1	5.2					4.4	1	1.2	0.3	0.5	12	7.4	19.4	2	0	5	75	15
R04	riffle	boulder garden d/s of hwy bridge	200	43	243	269	19.0	14.2	16.8	11.9	13.8				3.1	0.5	7.5	0.3	8	0	19.4	19.4	3	0	2	67	30
G05	glide	pool tailout d/s of hwy bridge	200	62	262	125	7.0	17.8	17.8						1.4	0	1	0	0	0	2.4	2.4	1	0	0	95	5
P04	pool	under & u/s of hwy bridge	200	69	269	782	57.0	13.7	14.1	13.6	14.0	13.2			54.2	13	42	0	3	80	112.2	192.2	4	0	10	50	30
R05	riffle	incl. rt bk tri LJ + boulder garden at u/s end	300	26	326	1304	78.0	16.7	13.3	15.1	14.1	20.3	20.8		26	2.0	14	0	6	10	47.6	57.6	124	0	2	68	30
G06	glide	pool tailout	400	4	404	238	14.0	17.0	17.5	16.5					7	0	11	0.4	1	0	19.4	19.4	20	0	1	79	20
P05	pool	LWD addition along road corner	400	18	418	638	44.0	14.5	16.8	14.9	12.1	14.2			61.5	3	31	0	0	140	95.5	235.5	1	0	5	75	20
R06	riffle	incl. boulder garden ~500+00	400	62	462	1027	72.0	14.3	16.6	15.9	14.3	9.5	15.0		4	5.0	14	0	22	0	44.6	44.6	15	0	10	80	10
SC01	sc	rt bank opposite Pool 6	500	16	516	491	87.0	5.6	5.5	3.5	4.9	7.8	6.5		6.2	2	3.5	0	7	0	18.7	18.7	23	0	5	85	10
P06	pool	lt bk triangular log jam	500	34	534	102	10.0	10.2	12.2	8.1					3	2.0	4	0	1	0	9.5	9.5	3	0	10	65	25
R07	riffle	(none)	500	44	544	637	56.0	11.4	11.7	11.3	10.2	12.3			6.6	3	14	0	39	0	62.6	62.6	4	0	5	80	15
G07	glide	incl. tri LJ + single boulders + LWD addition	600	0	600	1965	121.0	16.2	23.3	18.9	11.0	16.3	11.7		27.7	2	27	0	36	15	92.7	107.7	56	0	20	70	5
R08	riffle	uniform	700	21	721	180	12.0	15.0	14.1	15.9					5.5	0	4	0	1	0	10.5	10.5	20	0	65	30	5
P07	pool	tri LJ	700	33	733	142	12.0	11.9	15.3	8.4					4.3	1	3	0	0	20	8.3	28.3	4	0	50	40	5
R09	riffle	variable	700	45	745	157	17.0	9.3	9.2	9.3					3.5	0	7	0	3	3	13.5	16.5	0	0	30	65	5
G08	glide	mainly deep glide, shallow u/s end	700	62	762	810	65.0	12.5	10.0	12.2	12.1	15.1	12.9		0	0	106	0	5	0	111	111	2	0	20	75	5
R10	riffle	classic, uniform	800	27	827	490	35.0	14.0	12.1	14.7	15.2				0	0	5	0	6	0	11	11	0	0	5	90	5
G09	glide	under Barnes FSR bridge	800	62	862	1378	92.0	15.0	16.1	15.8	16.0	13.0	14.0		0.8	0	31	0	3	0	34.8	34.8	0	0	10	80	10
R11	riffle	classic, uniform	900	54	954	162	13.0	12.5	14.1	10.8					0	0	3	0	0	0	3	3	15	0	10	80	10
G10	glide	pool tailout	900	67	967	132	13.0	10.2	9.6	10.7					0.4	0	3	0	0	0	3.4	3.4	2	0	15	80	5
P08	pool	triangular log jam	900	80	980	131	12.0	10.9	10.5	13.8	8.5				8.5	2	5	0	0	40	15.5	55.5	2	0	20	70	5
R12	riffle	incl. tri LJ and single boulders	900	92	992	589	47.0	12.5	9.7	9.1	12.8	13.8	17.3		5.8	0	8	0	7	2	20.8	22.8	13	0	30	65	5
G11	glide	pool tailout	1000	39	1039	342	22.0	15.6	19.1	12.0					4.5	2	8	0	7	8	21.5	29.5	40	0	25	70	5
P09	pool	triangular log jam	1000	61	1061	111	9.0	12.4	12.8	11.9					3.8	2	4	0.4	1	0	11.2	11.2	2	0	20	73	5
G12	glide	rt side of large island	1000	70	1070	557	58.0	9.6	11.5	8.5	9.3	10.9	7.8		8.2	4	0	0.4	2	0	14.6	14.6	1	0	1	94	5
R12A	riffle	d/s end of lt bk branch	1000	75	1075	153	25.0	6.1	5.7	4.1	6.5	8.1			0	2	0	0	22	0	24	24	30	0	1	89	10
G13L	glide	(none)	1100	0	1100	100	17.0	5.9	6.3	6.0	5.3				0	1	0	0	3	0	4	4	3.5	0	2	88	10
R13L	riffle	(none)	1100	17	1117	150	29.0	5.2	4.4	4.9	5.2	6.2			7.5	0	1.5	0.2	12	0	21.2	21.2	5	0	10	80	10
G14L	glide	u/s end of lt bk channel	1100	46	1146	230	38.0	6.1	7.1	7.4	5.0	6.1	4.7		0	0.5	0.5	0.4	3.5	0	4.9	4.9	0	0	1	94	5
R14R	riffle	variable, rt bk channel	1100	28	1128	680	61.0	11.1	7.1	5.9	8.5	13.7	20.5		5.5	1.5	7.0	0.6	20.5	0.0	35.1	35.1	5	0	10	85	5
G15	glide	overwidened channel	1100	89	1189	1718	80.0	21.5	27.4	24.1	23.1	17.1	15.7		4	6	11	0	45	0	66	66	5	0	5	90	5
R15	riffle	some boulder garden	1200	69	1269	377	24.0	15.7	12.8	17.7	16.2	16.1			0	0	14	0	2	0	16	16	7	0	20	78	2
P10	pool	triangular log jam	1200	93	1293	153	12.0	12.8	15.0	10.5					4.3	0	8	0	2	21	14.3	35.3	4	0	20	73	5
R16	riffle	overwidened channel	1300	5	1305	917	39.0	23.5	22.4	23.2	24.9				14.1	1	10	0	40	0	65.1	65.1	25	0	5	93	2
P11	pool	Barnes confluence	1300	44	1344	301	22.0	13.7	12.7	13.8	14.6				14.4	3	12	0	8	30	37.4	67.4	0	0	10	85	5
		u/s end P11	1300	66	1366																0	0					
Totals						16463																					

Notes:
OH includes instream vegetation
CovTot1 does not include deep pool.
CovTot2 includes deep pool.

APPENDIX 2a. Habitat unit physical data for Whatshan W3.2, September 2012.

2012 Unit	F	Dep1	Dep2	Dep3	DepAvg	DepMax	PoolMax	Crest	Resid	Comments	Photo	Time	
G01	0	0.42	0.28	0.27	0.32	0.42					1	14:20	u/s
P01	5	0.98	1.10	0.39	0.82	1.10	1.20	0.33	0.87	bedrock corner; LWD addition		14:20	u/s
R01	2	0.33	0.54	0.32	0.40	0.54						14:40	u/s
G02	0	0.43	0.68	0.50	0.54	0.68				bisected by 0.6 m dia. Log		14:55	u/s
R02	0	0.32	0.26	0.22	0.27	0.32				chnl narrowed by lt bk LWD addition		15:07	u/s
G03	0	0.38	0.40	0.38	0.39	0.40						15:19	u/s
P02	5	0.52	0.80	0.49	0.60	0.80	1.05	0.28	0.77			15:39	u/s
R03	0	0.26	0.35	0.35	0.32	0.35						15:40	u/s
G04	0	0.59	0.10	0.21	0.30	0.59						16:00	u/s
P03	5	0.61	0.82	0.85	0.76	0.85	0.95	0.35	0.60			16:37	u/s
R04	1	0.21	0.44	0.39	0.35	0.44						16:47	u/s
G05	0	0.23	0.25	0.26	0.25	0.26						17:10	across
P04	10	1.02	0.96	0.44	0.81	1.02	1.20	0.34	0.86			17:11	u/s
R05	0	0.08	0.25	0.32	0.22	0.32						17:42	u/s
G06	0	0.35	0.44	0.34	0.38	0.44						18:01	
P05	0	0.62	0.92	1.01	0.85	1.01	1.40	0.32	1.08			18:10	
R06	0	0.25	0.26	0.23	0.25	0.26						18:29	u/s
SC01	0	0.09	0.09	0.20	0.13	0.20						12:43	u/s
P06	0	0.50	0.72	0.33	0.52	0.72	0.90	0.33	0.57			18:44	u/s
R07	0	0.23	0.21	0.20	0.21	0.23						18:11	
G07	5	0.52	0.37	0.32	0.40	0.52						13:07	u/s
R08	0	0.29	0.25	0.27	0.27	0.29						13:23	u/s
P07	5	0.68	1.00	0.58	0.75	1.00	1.07	0.31	0.76	most of LWD out of water		13:36	
R09	0	0.31	0.43	0.50	0.41	0.50				DP~1.4M dia boulder		13:52	
G08	0	0.57	0.61	0.25	0.48	0.61						14:02	u/s
R10	0	0.16	0.18	0.16	0.17	0.18						14:17	u/s
G09	0	0.25	0.31	0.31	0.29	0.31						14:24	u/s
R11	0	0.20	0.27	0.30	0.26	0.30					2	14:33	u/s
G10	0	0.39	0.54	0.34	0.42	0.54						14:41	
P08	5	0.68	0.80	0.96	0.81	0.96	1.15	0.30	0.85			14:42	u/s
R12	0	0.31	0.42	0.27	0.33	0.42						14:54	u/s
G11	0	0.42	0.53	0.68	0.54	0.68						15:08	u/s
P09	2	0.82	0.94	0.85	0.87	0.94	0.90	0.26	0.64			15:10	
G12	0	0.34	0.42	0.39	0.38	0.42						15:26	
R12A	0	0.19	0.13	0.17	0.16	0.19				shrub willow growing in riffle (OH)		15:27	
G13L	0	0.18	0.24	0.24	0.22	0.24						15:53	u/s
R13L	0	0.10	0.15	0.22	0.16	0.22						15:54	u/s
G14L	0	0.2	0.19	0.27	0.22	0.27						16:05	
R14R	0	0.24	0.33	0.21	0.26	0.33						16:14	
G15	0	0.16	0.40	0.35	0.30	0.40					2	16:24	
R15	0	0.17	0.36	0.25	0.26	0.36						16:44	
P10	2	0.46	0.82	0.80	0.69	0.82	0.83	0.32	0.51	most LWD over dry land		16:52	u/s
R16	0	0.11	0.16	0.24	0.17	0.24					2	17:01	u/s
P11	0	0.33	0.45	0.81	0.53	0.81	1.05	0.25	0.80	Barnes-Whatshan confluence		17:05	

Totals

APPENDIX 2b. Habitat unit physical data for Barnes B3, September 2012.

						(m²)	(m)		Wetted Widths (m)						Cover Area (m²)								m²	Substrate Percentage					Depths (m)			
2012 Unit	Type	description	Stn1	Stn2	Distance	Area	Length	WidAvg	W1	W2	W3	W4	W5	W6	LWD	SWD	B	UC	OH	DP	CovTot1	CovTot2	Spawn	R	B	C	G	F	Dep1	Dep2	Dep3	DepAvg
R11L	riffle	left of 3 branches joining at Stn 0+00	0	0	0	73	13.0	5.6	5.9	4.9	6.1				2	0	6	0.1	0.5	0	8.6	8.6	1.0	0	50	49	1	0	0.29	0.23	0.18	0.23
G10L	glide	straight channel	0	13	13	94	19.0	4.9	5.9	4.8	4.5	4.5			0	0.5	2.5	0.2	0	0	3.2	3.2	0.0	0	33	65	2	0	0.34	0.46	0.44	0.41
P05L	pool	corner pool	0	32	32	42	9.0	4.7	5.0	5.1	4.0				0	0	1.5	0.5	2	12	4.0	16.0	0.0	0	20	77	2	1	0.30	0.56	0.75	0.54
G11L	glide		0	41	41	78	16.0	4.9	4.9	4.9	4.9				0	0	3	0	10	0	13.0	13.0	1.0	0	30	63	5	2	0.22	0.34	0.49	0.35
R12L	riffle	classic	0	57	57	521	76.0	6.9	5.3	7.4	7.3	7.6	6.7		0.4	4.5	13	0.8	9.5	0	28.2	28.2	0.0	0	25	73	2	0	0.15	0.23	0.35	0.24
G12L	glide	pool tailout	100	33	133	88	8.0	11.1	12.6	9.5					0	1.5	0	0	1.5	0	3.0	3.0	0.0	0	0	90	10	0	0.25	0.41	0.25	0.30
P06L	pool	uniform, deep	100	41	141	221	24.0	9.2	8.5	9.8	9.3				2	6	1	1.1	0	45	10.1	55.1	0.0	0	0	60	20	19	1.04	0.99	0.65	0.89
R13L	riffle		100	65	165	77	9.0	8.6	8.6	8.5					0.6	2	2	0	0	0	4.6	4.6	0.5	0	20	76	3	1	0.15	0.29	0.39	0.28
G13L	glide	comes from log jam at head of lt channel	100	74	174	158	22.0	7.2	7.2	7.2					70	1	2	0	1	0	74.0	74.0	0.5	0	15	80	5	0	0.30	0.41	0.34	0.35
SC3L	sc	enters G13L from left	100	79	179	59	27.0	2.2	2.4	2.7	2.0	2.4	1.4		6.6	0	1	0	2	0	9.6	9.6	5.0	0	5	55	35	5	0.09	0.09	0.06	0.08
					196																											
Middle Channel																																
R09M	riffle	short but sweet	0	0	0	90	13.0	6.9	7.8	6.0					0	0	0	0.5	2	0	2.5	2.5	1.0	0	0	85	15	0	0.12	0.09	0.20	0.14
G09M	glide	some riffle sections	0	13	13	368	51.0	7.2	8.6	7.1	8.2	6.9	5.3		1	0.5	8	0	3	0	12.5	12.5	0.0	0	35	54	10	1	0.12	0.26	0.26	0.21
R10M	riffle	classic/deep glide/shallow riffle	0	64	64	264	35.0	7.6	5.0	4.2	9.3	11.7			0	1.5	2	0.7	1	0	5.2	5.2	1.0	0	2	75	23	0	0.16	0.20	0.16	0.17
Right Channel																																
G01R	glide	rt of 3 branches	0	0	0	159	32.0	5.0	6.2	4.5	5.1	4.1			0.3	5.0	0.5	1.2	0.0	0.0	7.0	7.0	7.0	0	0	74	25	1	0.22	0.22	0.14	0.19
R01R	riffle	classic	0	32	32	218	50.0	4.4	3.5	4.0	4.1	4.6	5.6		1.5	0.0	8.0	0.2	6.0	0.0	15.7	15.7	0.0	0	5	94	1	0	0.21	0.18	0.15	0.18
G02R	glide	big, long, wide, and sometimes deep	0	82	82	649	60.0	10.8	13.4	13.8	8.1	8.8	10.0		2.1	2.0	9.0	1.1	4.0	15.0	18.2	33.2	1.0	0	10	80	5	5	0.47	0.60	0.38	0.48
SC4R	sc	enters deep glide	100	7	107	50	54.0	0.9	1.3	0.6	0.8	1.1	0.8		0.4	0.0	0.0	0.0	2.0	0.0	2.4	2.4	1.0	0	10	60	30	0	0.06	0.07	0.07	0.07
P01R	pool	previously much larger with fallen tree	100	42	142	42	9.0	4.7	5.6	4.4	4.0				0.8	0.0	1.0	0.0	0.0	8.0	1.8	9.8	0.0	0	10	80	5	5	0.45	0.72	0.77	0.65
R02R	riffle	overlaps P1R	100	44	144	194	20.0	9.7	6.2	10.3	10.9	11.4			5.9	0.0	4.0	0.0	0.0	0.0	9.9	9.9	0.0	0	15	80	5	0	0.22	0.13	0.14	0.16
G03R	glide	previously included pool	100	64	164	234	27.0	8.7	11.1	8.7	7.9	6.9			7.5	9.0	4.0	0.0	0.5	0.0	21.0	21.0	5.0	0	5	90	4	1	0.37	0.32	0.23	0.31
R03R	riffle	glide-like; diagonal boundary	100	91	191	219	21.0	10.5	13.0	10.6	9.1	9.1			0.0	0.0	4.0	0.0	4.0	0.0	8.0	8.0	1.0	0	5	85	10	0	0.16	0.22	0.25	0.21
G04R	glide	pool-like at u/s end	200	12	212	275	33.0	8.3	9.2	9.3	6.2	9.6	7.3		0.0	2.0	4.0	2.8	3.0	0.0	11.8	11.8	1.0	0	5	84	10	1	0.26	0.31	0.21	0.26
SC1M	sc	comes from log jam at head of left channel	200	29	229	65	43.0	1.5	2.4	1.9	1.2	1.3	0.8		5.7	0.0	0.0	0.0	3.0	0.0	8.7	8.7	5.0	0	0	60	30	10	0.04	0.05	0.03	0.04
R04R	riffle		200	45	245	64	10.0	6.4	6.7	6.1					0.0	4.5	1.5	0.0	1.0	0.0	7.0	7.0	0.00	0	5	94	1	0	0.22	0.20	0.22	0.21
G05R	glide	pool-like at u/s end	200	55	255	121	17.0	7.1	6.4	6.4	6.8	8.9			0.0	0.3	8.0	0.0	0.0	10.0	8.3	18.3	9.0	0	20	53	25	2	0.41	0.49	0.35	0.42
SC5R	sc	u/s end of G05R	200	65	265	111	84.0	1.3	2.5	0.5	0.8	1.1	1.3	1.7	5.4	2.0	0.0	2.0	0.0	0.0	9.4	9.4	10.0	0	0	5	75	20	0.07	0.10	0.10	0.09
SC2R	sc	relatively high gradient	200	70	270	53	24.0	2.2	2.5	1.8	1.9	2.7			0.0	0.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	0	0	80	20	0	0.08	0.08	0.08	0.08
P02M	pool	hairpin corner	200	72	272	119	19.0	6.3	6.3	6.0	6.5	7.7	4.8		50.0	0.0	3.0	0.0	0.0	41.0	53.0	94.0	0.0	0	5	83	10	2	0.58	0.79	0.90	0.76
R05M	riffle	log jam on rt bk	200	91	291	35	8.0	4.4	4.0	3.6	5.5				8.0	1.5	1.0	0.0	0.0	0.0	10.5	10.5	0.0	0	10	88	2	0	0.27	0.42	0.34	0.34
P03L	pool	u/s end of main left channel	200	97	297	163	19.0	8.6	7.6	8.7	10.6	8.0	8.0		35.0	2.0	0.5	0.0	1.0	30.0	38.5	68.5	1.0	0	5	45	5	45	0.38	0.51	0.95	0.61
G06L	glide	lt bk tributary near u/s end	300	16	316	143	30.0	4.8	8.8	5.0	3.4	3.9	2.8		4.3	0.0	0.5	0.5	7.0	0.0	12.3	12.3	16.5	0	5	5	35	55	0.37	0.34	0.33	0.35
R06L	riffle		300	46	346	40	20.0	2.0	2.2	2.3	1.5				0.4	0.0	0.0	0.0	29.0	0.0	29.4	29.4	12.0	0	0	10	90	0	0.14	0.15	0.19	0.16
R07M	riffle	diagonal boundary	300	6	306	56	9.0	6.2	4.0	5.7	8.8				0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	0.0	0	5	93	2	0	0.16	0.24	0.20	0.20
G07M	glide	pool tailout	300	15	315	74	9.0	8.2	8.5	8.6	7.6				0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	1.0	0	2	78	20	0	0.28	0.36	0.30	0.31
P04M	pool		300	24	324	116	16.0	7.2	7.6	7.6	6.6	7.1			0.0	0.0	0.0	1.0	24.0	20.0	25.0	45.0	1.5	0	5	60	25	10	0.57	0.79	0.74	0.70
R08R	riffle		300	40	340	389	25.0	15.6	15.1	11.7	17.4	17.4	16.2		1.9	0.0	3.0	0.0	0.0	0.0	4.9	4.9	12.5	0	2	88	10	0	0.18	0.16	0.20	0.18
G08	glide	pool tailout	300	65	365	103	8.0	12.9	13.8	11.9					0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0	1	69	30	0	0.24	0.31	0.36	0.30
P07M	pool	long pool	300	73	373	225	27.0	8.3	9.9	8.3	7.9	7.2			0.0	0.0	0.0	0.0	4.5	0.0	4.5	4.5	2.0	0	0	50	30	20	0.49	0.85	0.80	0.71
R14	riffle		400	0	400	122	13.0	9.4	7.4	9.8	11.0				0.0	0.0	1.0	0.0	0.5	0.0	1.5	1.5	0.0	0	1	94	5	0	0.07	0.17	0.36	0.20
G14	glide	pool tailout	400	13	413	156	13.0	12.0	12.0	11.8	12.2				0.5	0.0	0.5	0.0	20.0	0.0	21.0	21.0	1.0	0	1	64	35	0	0.22	0.25	0.33	0.27
P08	pool		400	26	426	146	12.0	12.2	12.2	12.1	12.2				4.0	0.0	0.0	0.0	1.5	30.0	5.5	35.5	0.0	0	0	75	15	10	0.30	0.48	0.72	0.50
G15	glide		400	38	438	265	33.0	8.0	12.2	8.0	7.2	6.8	5.9		3.7	1.0	0.5	0.0	7.0	0.0	12.2	12.2	2.0	0	0	90	10	0	0.26	0.39	0.54	0.40
R15	riffle	high velocity	400	71	471	52	9.0	5.8	6.0	5.9	5.4				0.0	0.2	1.0	0.0	0.0	0.0	1.2	1.2	0.0	0	5	93	2	0	0.27	0.31	0.27	0.28
P09	pool	relatively high velocity	400	80	480	129	16.0	8.1	7.9	8.0	8.4	8.0			3.3	0.5	0.5	0.0	0.0	30.0	4.3	34.3	0.0	0	1	84	10	5	0.34	0.66	0.80	0.60
R16	riffle	some glide-like sections	400	96	496	524	53.0	9.9	10.0	8.3	7.9	10.5	12.7		0.0	0.0	12.0	0.2	3.0	0.0	15.2	15.2	4.0	0	20	78	2	0	0.20	0.35	0.27	0.27
G16	glide	pool tailout	500	49	549	81	10.0	8.1	7.0	9.1					1.5	0.0	2.0	0.0	5.0	0.0	8.5	8.5	0.0	0	10	75	15	0	0.33	0.55	0.51	0.46
P10	pool	double pool	500	59	559	372	33.0	11.3	9.5	9.5	12.3	13.8			17.3	15.0	4.5	0.0	6.0	76.0	42.8	118.8	0.0	0	25	55	20	0	0.65	0.80	0.95	0.80
P11	pool	log jam	500	92	592	241	28.0	8.6	8.5	12.0	8.5	8.0	6.1		63.0	5.0	5.0	0.7	0.0	56.0	73.7	129.7	0.0	0	25	63	10	2	0.55	0.83	0.90	0.76
G17	glide	relatively high velocity	600	20	620	95	18.0	5.3	5.4	5.9	5.2	4.7			2.0	1.0	0.5	2.3	2.0	0.0	7.8	7.8	1.0	0	1	64	30	5	0.40	0.58	0.55	0.51
R17	riffle	high velocity	600	38	638	88	14.0	6.3	4.9	5.8	7.5	6.9			2.9	0.0	1.5	0.0	0.0	0.0	4.4	4.4	0.0	0	1	94	5	0	0.30	0.25	0.10	0.22
G18	glide	overlaps R18 on right bank	600	52	652	195	33.0	5.9	6.8	6.7	6.0	6.2	3.9		13.0	0.0	0.0	0.0	6.0	0.0	19.0	19.0	3.0	0	0	50	20	30	0.39	0.53	0.55	0.49
P12	pool	tertiary pool	600	85	685	49	8.0	6.2	5.9	8.0	4.6				6.8	0.0	0.1	0.0	0.0	25.0	6.9	31.9	2.0	0	1	10	19	70	0.62	1.14	0.76	0.84
R18	riffle	overlaps G18	600	68	668	163	18.0	9.1	6.1	7.6	11.1	11.4			0.0	0.0	1.0	0.0	0.5	0.0	1.5	1.5	0.0	0	1	97	2	0	0.14	0.12	0.15	0.14
G19	glide	pool tailout	600	86	686	175	19.0	8.4	9.8	8.4	7.1				0.0	2.0	1.0	0.1	1.0	0.0	4.1	4.1	0.0	0	0	95	5	0	0.19	0.39	0.40	0.33
SC6R	sc	enters at P12 (tertiary pool)	600	93	693	373	103.0	3.9	2.6	4.6	3.3	2.6	6.3		11.3	5.5	0.0	12.0	8.0	18.0	36.8	54.8	26.0	0	0	30	40	30	0.12	0.14	0.08	0.11
P13	pool	two deep pools	700	5	705	185	16.0	7.0	7.0	7.3	7.7	6.5	6.6		2.3	3.0	0.5	4.0	3.0	30.0	12.8	42.8	0.0	0	1	89	10	0	0.30	0.62	0.87	0.60
G20	glide		700	21	721	178	23.0	7.8	8.9	8.1	6.3	8.0	7.5		12.8	1.0	0.5	8.6	4.0	0.0	26.9	26.9	1.0	0	0	85	15	0	0.20	0.22	0.48	0.30

APPENDIX 2b. Habitat unit physical data for Barnes B3, September 2012.

						(m^2)	(m)		Wetted Widths (m)						Cover Area (m^2)								m^2	Substrate Percentage					Depths (m)			
2012 Unit	Type	description	Stn1	Stn2	Distance	Area	Length	WidAvg	W1	W2	W3	W4	W5	W6	LWD	SWD	B	UC	OH	DP	CovTot1	CovTot2	Spawn	R	B	C	G	F	Dep1	Dep2	Dep3	DepAvg
R19	riffle	classic	700	44	744	270	31.0	8.7	7.9	6.9	8.1	10.1	10.6		0.0	1.0	4.0	4.5	10.0	0.0	19.5	19.5	0.0	0	1	95	4	0	0.18	0.23	0.09	0.17
G21	glide	almost pool at u/s end	700	75	775	1117	168.0	6.7	9.0	6.7	5.9	5.0			2.5	0.0	3.0	0.0	4.0	5.0	9.5	14.5	0.0	0	5	93	1	1	0.45	0.58	0.34	0.46
R19A	glide	left channel	700	96	796	271	41.0	6.6	6.0	11.0	4.0	5.7	6.4		1.8	1.5	4.0	1.0	5.0	0.0	13.3	13.3	0.0	0	5	93	2	0	0.09	0.32	0.45	0.29
G21A	glide	d/s end overlaps R19A	800	9	809	1313	134.0	9.8	7.3	9.7	9.6	13.0	9.4		1.6	3.0	12.0	0.0	23.0	5.0	39.6	44.6	1.0	0	7	91	2	0	0.25	0.34	0.29	0.29
R20	riffle	deep pool is bk chnl w/ lots of algae	900	43	943	1137	97.0	11.7	8.9	15.2	12.7	11.2	10.6		48.5	8.0	19.0	4.0	11.0	36.0	90.5	126.5	6.0	0	20	75	5	0	0.30	0.27	0.23	0.27
G22	glide		1000	40	1040	620	55.0	11.3	11.3	10.8	11.7	8.8	13.8		0.0	1.0	14.0	0.0	1.0	0.0	16.0	16.0	3.0	0	25	70	5	0	0.25	0.29	0.29	0.28
SC7R	sc	joins R20 back channel	1000	40	1040	104	35.0	3.0	2.8	2.9	2.8	3.4			0.0	0.0	0.5	0.0	5.0	0.0	5.5	5.5	0.0	0	2	48	40	10	0.05	0.11	0.07	0.08
R21	riffle	former main channel from massive LJ	1000	89	1089	146	34.0	4.3	6.4	4.2	3.0	3.4	4.4		3.0	2.0	1.5	0.0	18.0	0.0	24.5	24.5	43.0	0	5	20	75	0	0.18	0.21	0.21	0.20
P14	pool	beaver habitat	1000	95	1095	172	19.0	9.1	8.5	8.6	9.5	9.6			3.6	0.0	40.0	10.0	1.0	40.0	54.6	94.6	0.0	0	25	70	5	0	0.63	0.88	0.93	0.81
R22	riffle	glide-like pool on both ends	1100	14	1114	355	42.0	8.5	10.1	7.1	7.5	9.2	8.4		10.0	3.0	27.0	6.0	2.0	15.0	48.0	63.0	0.0	0	55	40	5	0	0.26	0.29	0.39	0.31
P15	pool	massive log jam	1100	56	1156	496	36.0	10.1	10.8	8.5	10.7	12.0	8.3		220.0	0.0	25.0	0.0	0.0	100.0	245.0	345.0	2.0	0	60	35	5	0	0.73	1.15	1.03	0.97
R23	riffle	classic, uniform	1100	92	1192	312	34.0	9.2	6.8	8.2	10.9	8.3	11.7		5.0	0.0	22.0	0.0	1.0	0.0	28.0	28.0	1.0	0	23	75	2	0	0.25	0.25	0.26	0.25
G23	glide		1200	26	1226	255	28.0	9.1	11.2	10.3	8.6	7.4	8.1		0.0	1.0	10.0	0.0	8.0	0.0	19.0	19.0	0.0	0	25	70	5	0	0.22	0.28	0.35	0.28
R24	riffle		1200	54	1254	283	35.0	8.1	8.3	8.6	6.9	7.1	9.5		0.0	1.0	20.0	0.5	2.0	0.0	23.5	23.5	0.0	0	25	70	5	0	0.28	0.27	0.18	0.24
G24	glide		1200	89	1289	279	26.0	10.7	11.2	11.4	9.7	11.7	9.6		16.3	1.0	9.0	0.0	1.0	6.0	27.3	33.3	0.0	0	20	50	30	0	0.29	0.34	0.34	0.32
			1300	15	1315																0.0	0.0									#DIV/0!
					0																0.0	0.0									#DIV/0!
					0																										
Totals						16772																										

APPENDIX 2b. Habitat unit physical data for Barnes B3, September 2012.

2012 Unit	DepMax	PoolMax	Crest	Resid	Comments	Photo	Time	
R11L	0.29						8:49	
G10L	0.46				roots (SWD)		8:54	
P05L	0.75	0.84	0.32	0.52	tree roots (OH)	2	9:00	1st w/flash; 2nd w/o flash
G11L	0.49				tree roots (OH)		9:07	
R12L	0.35				roots (SWD)		9:11	
G12L	0.41						9:23	
P06L	1.04	1.20	0.30	0.90			9:24	
R13L	0.39						9:37	
G13L	0.41				log jam 14 x 5 (LWD)		9:40	
SC3L	0.09					2	9:50	1 w/flash 1 w/o flash
Middle Channel								
R09M	0.20						8:49	
G09M	0.26						8:48	
R10M	0.20						8:40	
Right Channel								
G01R	0.22						10:15	
R01R	0.21						10:21	
G02R	0.60						10:27	
SC4R	0.07				comment refers to Length (54) chk prev data;		10:36	
P01R	0.77	0.80	0.15	0.65			10:47	
R02R	0.22						10:48	
G03R	0.37				Rt Bk trib enters at U/S end photo 11:09		11:00	
R03R	0.25						11:07	
G04R	0.31						11:16	
SC1M	0.05						11:25	
R04R	0.22				fallen spruce tree (OH)		11:30	d/s
G05R	0.49						11:33	
SC5R	0.10						11:41	
SC2R	0.08						11:52	
P02M	0.90	1.40	0.30	1.10	log jam lt bk (LWD)		11:54	
R05M	0.42						12:21	u/s
P03L	0.95	0.90	0.30	0.60			12:22	u/s
G06L	0.37				has lt bk trib near u/s end		12:31	u/s
R06L	0.19						12:37	u/s
R07M	0.24						12:42	u/s
G07M	0.36						12:43	u/s
P04M	0.79	0.90	0.28	0.62			12:51	u/s
R08R	0.20						12:58	
G08	0.36						13:04	u/s
P07M	0.85	1.00	0.23	0.77			13:08	u/s
R14	0.36				~6M up fr D/S end small trib IL/S		13:15	u/s
G14	0.33						13:20	
P08	0.72	1.10	0.27	0.83	beaver habitat		13:26	
G15	0.54						13:27	
R15	0.31						13:40	u/s
P09	0.80	0.83	0.37	0.46			13:44	u/s
R16	0.35						16:11	u/s
G16	0.55						16:18	u/s
P10	0.95	1.00	0.32	0.68			16:22	
P11	0.90	1.20	0.35	0.85	Log Jam (LWD)		16:36	
G17	0.58						16:46	u/s
R17	0.30						16:51	u/s
G18	0.55						16:55	u/s
P12	1.14	1.14	0.27	0.87			17:11	u/s
R18	0.15						17:02	u/s
G19	0.40							
SC6R	0.14				isolated pools 11x3.1, 17x2.8		17:20	u/s
P13	0.87	0.90	0.25	0.65			8:33	u/s
G20	0.48				(1) 9.4 - 0.5 (2) 6.6 + 1.5		8:46	u/s

APPENDIX 2b. Habitat unit physical data for Barnes B3, September 2012.

2012 Unit	DepMax	PoolMax	Crest	Resid	Comments	Photo	Time		
R19	0.23				(1) 6.4 + 1.5		8:55		
G21	0.58						9:01	u/s	
R19A	0.45						9:08	u/s	
G21A	0.34				"short" 15 m section of riffle		9:08	u/s	9:24 u/s halfway
R20	0.30						9:32	u/s	
G22	0.29						10:01	u/s	
SC7R	0.11						9:49		
R21	0.21						10:24	u/s	
P14	0.93	1.02	0.33	0.69	re: wetted length (1) 6.9 + 1.7 = 8.6		10:42	u/s	
R22	0.39						10:45	u/s	
P15	1.15	1.50	0.27	1.23	arm of pool U/S of R21 22m L x 6.1m W Main pool runs perpendicular to channel		10:21	u/s arm	
R23	0.26						11:13	u/s	
G23	0.35						11:20	u/s	
R24	0.28						11:26	u/s	
G24	0.34								
	0.00								
	0.00								
Totals									

APPENDIX 3a. Fish Collection Form Data and Electrofishing Specifications Whatshan River Reach W3.2 - September 10-17, 2012

Fish Permit No. CB12-80432
Agency: C201 (Naito Environmental)
Crew: GN/RL/CM (Gerry Naito, Robyn Laubman, Cathy MacPherson)

Gazetted Name: **Whatshan River** Other Name: (none)
Watershed Code: 300-680400
Waterbody ID: 00000LARL
No Site Card Completed

SITE/METHOD

Site		Date	Map #	Site UTM			Method	Stream Condition		
No.	Name			Zone	Easting	Northing		Temp	Cond	Turb
1	P01	10-Sep-12	82E.090	11	419203	6E+06	EF	12.9	127	C
2	G02	11-Sep-12	82E.090	11	419182	6E+06	EF	11.8	131	C
3	R04	12-Sep-12	82E.090	11	419243	6E+06	EF	9.1	132	C
4	G05	12-Sep-12	82E.090	11	419239	6E+06	EF	9.1	132	C
5	P04	11-Sep-12	82E.090	11	419253	6E+06	EF	11.4	131	C
6	SC01	13-Sep-12	82E.090	11	419290	6E+06	EF	11.3	131	C
7	R08	12-Sep-12	82E.090	11	419209	6E+06	EF	11.1	131	C
8	P07	13-Sep-12	82E.090	11	419212	6E+06	EF	8.1	131	C
9	G08	13-Sep-12	82E.090	11	419197	6E+06	EF	11.7	138	C
10	R12	13-Sep-12	82E.100	11	419257	6E+06	EF	11.7	138	C
11	G11	14-Sep-12	82E.100	11	419251	6E+06	EF	9.7	130	C
12	R15	14-Sep-12	82E.100	11	419306	6E+06	EF	11.7	133	C
13	P10	14-Sep-12	82E.100	11	419310	6E+06	EF	11.7	133	C
								8.1	127.0	min
								12.9	138.0	max

Conductivity and water temperature measured using Hanna HI98129 Combo Tester.
UTM Coordinates measured using Garmin 60CSx GPS receiver.

FISH SUMMARY - Whatshan W3.2

Species Codes:

CCG	slimy sculpin
EB	eastern brook trout
LNC	longnose dace
RB	rainbow trout

Life Stages:

F	fry
J	juvenile
A	adult

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
1	P01	EF	1	CCG	A	adult	14	45	78
			1	LNC	J	juvenile	1	37	37
			1	LNC	A	adult	4	61	88
			1	RB	F	fry	1	53	53
			1	RB	J	juvenile	3	99	115
			1	RB	A	adult	12	122	166
1	P01	EF	2	CCG	A	adult	4	47	98
			2	LNC	J	juvenile	2	42	44
			2	LNC	A	adult	1	59	59
			2	RB	J	juvenile	1	94	94
			2	RB	A	adult	4	119	175

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
2	G02	EF	1	CCG	A	adult	18	47	80
			1	LNC	J	juvenile	2	37	43
			1	LNC	A	adult	7	61	96
			1	RB	F	fry	2	41	53
			1	RB	J	juvenile	2	76	77
			1	RB	A	adult	6	120	173
2	G02	EF	2	CCG	A	adult	11	51	77
			2	LNC	J	juvenile	1	54	54
			2	LNC	A	adult	9	65	90
			2	RB	F	fry	5	32	51
			2	RB	J	juvenile	2	70	102
			2	RB	A	adult	1	151	151
2	G02	EF	3	CCG	A	adult	15	48	86
			3	LNC	A	adult	2	73	103
			3	RB	F	fry	1	43	43
			3	RB	J	juvenile	2	86	101
			3	RB	A	adult	1	180	180
2	G02	EF	4	CCG	A	adult	3	54	68
			4	LNC	A	adult	3	61	74
			4	RB	F	fry	1	64	64
			4	RB	A	adult	4	137	153
2	G02	EF	5	CCG	A	adult	6	50	74
			5	EB	F	fry	1	76	76
3	R04	EF	1	CCG	F	fry	16	18	26
			1	CCG	A	adult	45	43	93
			1	EB	F	fry	4	63	73
			1	EB	A	adult	2	132	145
			1	LNC	F	fry	1	18	18
			1	LNC	J	juvenile	1	39	39
			1	LNC	A	adult	1	60	60
			1	RB	F	fry	12	31	62
			1	RB	J	juvenile	5	78	108
			1	RB	A	adult	5	136	193
3	R04	EF	2	CCG	F	fry	1	28	28
			2	CCG	A	adult	25	41	81
			2	EB	F	fry	3	57	58
			2	LNC	J	juvenile	1	37	37
			2	RB	F	fry	4	34	50
			2	RB	J	juvenile	2	72	85
			2	RB	A	adult	3	134	173
4	G05	EF	1	CCG	F	fry	7	20	25
			1	CCG	A	adult	46	41	87
			1	EB	F	fry	2	62	70
			1	LNC	F	fry	1	24	24
			1	RB	F	fry	3	28	44
			1	RB	J	juvenile	2	82	99
			1	RB	A	adult	1	158	158

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
4	G05	EF	2	CCG	A	adult	20	42	80
			2	EB	F	fry	2	63	71
			2	EB	A	adult	1	137	137
			2	LNC	A	adult	1	65	65
			2	RB	F	fry	3	33	49
			2	RB	J	juvenile	1	114	114
4	G05	EF	3	CCG	F	fry	1	30	30
			3	CCG	A	adult	11	42	84
			3	EB	F	fry	1	62	62
			3	LNC	A	adult	2	60	75
			3	RB	F	fry	1	51	51
5	P04	EF	1	CCG	F	fry	3	25	27
			1	CCG	A	adult	28	42	88
			1	EB	F	fry	2	65	74
			1	EB	A	adult	7	131	229
			1	LNC	J	juvenile	7	32	38
			1	LNC	A	adult	2	67	113
			1	RB	F	fry	3	30	46
			1	RB	J	juvenile	14	72	110
			1	RB	A	adult	18	125	256
5	P04	EF	2	CCG	F	fry	12	13	28
			2	CCG	A	adult	21	38	91
			2	EB	A	adult	2	140	166
			2	LNC	F	fry	4	18	27
			2	LNC	A	adult	1	80	80
			2	RB	F	fry	4	30	45
			2	RB	J	juvenile	8	74	105
			2	RB	A	adult	13	129	187
5	P04	EF	3	CCG	A	adult	4	46	75
			3	EB	A	adult	1	155	155
			3	LNC	J	juvenile	1	39	39
			3	RB	F	fry	2	40	64
			3	RB	J	juvenile	3	69	105
			3	RB	A	adult	5	128	150
6	SC01	EF	1	CCG	A	adult	12	46	77
			1	EB	F	fry	3	61	75
			1	RB	F	fry	14	42	56
			1	RB	J	juvenile	1	78	78
6	SC01	EF	2	CCG	F	fry	2	20	27
			2	CCG	A	adult	5	49	66
			2	EB	F	fry	1	68	68
			2	RB	F	fry	4	42	48
7	R08	EF	1	CCG	F	fry	2	27	30
			1	CCG	A	adult	38	41	93
			1	EB	F	fry	4	61	77
			1	LNC	A	adult	3	91	104
			1	RB	F	fry	2	49	54
			1	RB	J	juvenile	1	96	96

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
7	R08	EF	2	CCG	F	fry	1	23	23
			2	CCG	A	adult	21	42	88
			2	EB	F	fry	3	61	70
			2	LNC	A	adult	1	84	84
			2	RB	J	juvenile	1	98	98
8	P07	EF	1	CCG	F	fry	5	21	32
			1	CCG	A	adult	9	50	83
			1	EB	F	fry	3	61	68
			1	EB	A	adult	1	123	123
			1	LNC	F	fry	4	26	30
			1	LNC	J	juvenile	7	36	44
			1	LNC	A	adult	1	91	91
			1	RB	F	fry	2	35	46
			1	RB	J	juvenile	4	86	99
			1	RB	A	adult	4	128	175
8	P07	EF	2	CCG	F	fry	2	16	26
			2	CCG	A	adult	9	47	89
			2	EB	F	fry	2	62	75
			2	EB	A	adult	1	130	130
			2	LNC	F	fry	1	26	26
			2	LNC	A	adult	1	101	101
			2	RB	A	adult	3	119	145
9	G08	EF	1	CCG	F	fry	12	20	29
			1	CCG	A	adult	65	42	90
			1	EB	F	fry	4	61	81
			1	EB	A	adult	3	132	158
			1	LNC	F	fry	4	19	26
			1	LNC	J	juvenile	6	32	43
			1	RB	J	juvenile	6	87	110
			1	RB	A	adult	6	135	181
9	G08	EF	2	CCG	F	fry	7	19	34
			2	CCG	A	adult	28	46	93
			2	EB	F	fry	3	66	79
			2	EB	A	adult	1	112	112
			2	LNC	F	fry	3	17	26
			2	LNC	J	juvenile	2	33	42
			2	LNC	A	adult	2	59	70
			2	RB	F	fry	1	57	57
			2	RB	A	adult	1	128	128
10	R12	EF	1	CCG	F	fry	7	16	29
			1	CCG	A	adult	36	38	89
			1	EB	F	fry	4	62	73
			1	EB	A	adult	1	153	153
			1	LNC	A	adult	10	60	102
			1	RB	F	fry	6	41	51
			1	RB	J	juvenile	2	91	107
			1	RB	A	adult	4	121	158

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
10	R12	EF	2	CCG	F	fry	1	22	22
			2	CCG	A	adult	18	46	80
			2	EB	F	fry	1	76	76
			2	EB	A	adult	1	139	139
			2	LNC	A	adult	2	89	118
			2	RB	F	fry	2	47	48
			2	RB	J	juvenile	2	88	99
			2	RB	A	adult	3	129	173
11	G11	EF	1	CCG	F	fry	4	20	32
			1	CCG	J	juvenile	76	43	92
			1	EB	F	fry	9	55	76
			1	LNC	F	fry	9	20	29
			1	LNC	J	juvenile	10	36	49
			1	LNC	A	adult	9	57	87
			1	RB	F	fry	6	32	48
			1	RB	J	juvenile	5	89	109
			1	RB	A	adult	1	132	132
11	G11	EF	2	CCG	F	fry	1	31	31
			2	CCG	A	adult	34	48	104
			2	EB	F	fry	1	56	56
			2	LNC	F	fry	4	21	24
			2	LNC	J	juvenile	2	33	42
			2	LNC	A	adult	8	61	102
			2	RB	F	fry	4	34	54
			2	RB	J	juvenile	1	97	97
			2	RB	A	adult	3	132	160
12	R15	EF	1	CCG	F	fry	2	21	29
			1	CCG	A	adult	50	54	91
			1	EB	F	fry	3	70	88
			1	LNC	F	fry	4	20	29
			1	LNC	J	juvenile	3	36	47
			1	LNC	A	adult	4	67	84
			1	RB	F	fry	4	43	56
			1	RB	J	juvenile	6	81	107
			1	RB	A	adult	7	133	170
12	R15	EF	2	CCG	A	adult	55	46	95
			2	EB	F	fry	1	79	79
			2	LNC	F	fry	2	22	23
			2	LNC	J	juvenile	3	46	52
			2	LNC	A	adult	3	68	97
			2	RB	F	fry	1	54	54
			2	RB	J	juvenile	6	80	114
12	R15	EF	3	CCG	A	adult	23	48	91
			3	EB	F	fry	2	76	76
			3	LNC	J	juvenile	2	42	55
			3	LNC	A	adult	1	58	58
			3	RB	J	juvenile	1	107	107

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Total #	Length (mm)	
								Min	Max
13	P10	EF	1	CCG	A	adult	23	49	81
			1	EB	F	fry	1	81	81
			1	EB	A	adult	4	138	245
			1	LNC	J	juvenile	1	47	47
			1	LNC	A	adult	1	114	114
			1	RB	J	juvenile	3	91	100
			1	RB	A	adult	12	117	232
13	P10	EF	2	CCG	A	adult	8	50	74
			2	EB	F	fry	3	74	92
			2	EB	A	adult	1	116	116
			2	RB	J	juvenile	5	88	113
			2	RB	A	adult	5	137	173
13	P10	EF	3	CCG	A	adult	7	62	87
			3	EB	A	adult	1	138	138
			3	RB	J	juvenile	3	96	111
			3	RB	A	adult	1	143	143

ELECTROFISHING SPECIFICATIONS - Whatshan W3.2

Site	Pass	Time In	Out	Sec	Length	Width	Encl	Voltage	Freq	Pulse
P01	1	12:49	13:40	1823	10.0	12.9	C	400	50	8
	2	14:32	15:14	1614	10.0	12.9	C	400	50	8
G02	1	16:46	17:51	2233	26.0	8.2	C	400	50	8
	2	18:19	19:20	1715	26.0	8.2	C	400	50	8
	3	9:04	9:42	1577	26.0	8.2	C	400	50	8
	4	9:59	10:27	1314	26.0	8.2	C	400	50	8
	5	10:43	11:06	1037	26.0	8.2	C	400	50	8
R04	1	9:28	10:19	2156	19.0	14.2	C	400	50	8
	2	11:47	12:27	1588	19.0	14.2	C	400	50	8
G05	1	10:54	11:17	1002	7.0	17.8	C	400	50	8
	2	12:46	13:03	770	7.0	17.8	C	400	50	8
	3	13:38	13:54	715	7.0	17.8	C	400	50	8
P04	1	13:01	14:58	3578	57.0	13.7	C	400	50	8
	2	15:26	16:46	3566	57.0	13.7	C	400	50	8
	3	17:36	18:28	2366	57.0	13.7	C	400	50	8
SC01	1	17:31	17:50	906	18.4	3.9	C	400	50	8
	2	18:04	18:20	783	18.4	3.9	C	400	50	8
R08	1	16:06	16:43	1672	12.0	15.0	C	400	50	8
	2	17:02	17:30	1276	12.0	15.0	C	400	50	8
P07	1	8:56	9:28	1267	12.0	11.9	C	400	50	8
	2	9:47	10;12	1072	12.0	11.9	C	400	50	8
G08	1	11:29	12:12	1789	13.9	12.5	C	400	50	8
	2	12:50	13:24	1485	13.9	12.5	C	400	50	8
R12	1	15:19	15:48	1330	16.5	9.4	C	400	50	8
	2	16:13	16:38	1178	16.5	9.4	C	400	50	8
G11	1	8:58	9:53	2241	18.0	13.7	C	400	50	8
	2	10:34	11:10	1666	18.0	13.7	C	400	50	8
R15	1	13:11	13:42	1555	15.9	17.6	C	400	50	8
	2	14:13	14:46	1516	15.9	17.6	C	400	50	8
	3	15:11	15:39	1288	15.9	17.6	C	400	50	8
P10	1	16:20	16:40	899	12.0	12.8	C	400	50	8
	2	17:07	17:20	777	12.0	12.8	C	400	50	8
	3	17:36	17:50	654	12.0	12.8	C	400	50	8

APPENDIX 3b. Fish Collection Form Data and Electrofishing Specifications
Barnes Creek Reach B3 - September 15-17, 2012

Fish Permit No. CB12-80432
Agency: C201 (Naito Environmental)
Crew: GN/RL/CM (Gerry Naito, Robyn Laubman, Cathy MacPherson)

Gazetted Name: **Barnes Creek** Other Name: (none)
Watershed Code: 300-680400-08700
Waterbody ID: 00000LARL
No Site Card Completed

SITE/METHOD - Barnes B3

Site		Date	Map #	Site UTM			Method	Stream Condition		
No.	Name			Zone	Easting	Northing		Temp	Cond	Turb
14	SC4R	2012/09/15	82E.100	11	418620	5529912	EF	8.4	279	C
15	R08	2012/09/15	82E.100	11	418775	5529990	EF	10.0	124	C
16	G08	2012/09/15	82E.100	11	418781	5530018	EF	11.2	122	C
17	P09	2012/09/15	82E.100	11	418743	5530125	EF	11.0	123	C
18	P13	2012/09/15	82E.100	11	418594	5530240	EF	11.0	126	C
19	R20	2012/09/16	82E.100	11	418396	5530258	EF	10.3	113	C
20	G22	2012/09/16	82E.100	11	418315	5530206	EF	10.0	111	C
21	P14	2012/09/16	82E.100	11	418262	5530201	EF	10.6	117	C
22	R22	2012/09/16	82E.100	11	418242	5530199	EF	10.7	112	C
23	G23	2012/09/17	82E.100	11	418171	5530251	EF	8.4	111	C
Conductivity and water temperature measured using Hanna HI98129 Combo Tester.								8.4	111	min
UTM Coordinates measured using Garmin 60CSx GPS receiver.								11.2	279	max

FISH SUMMARY - Barnes B3

Species Codes:

CCG	slimy sculpin
EB	eastern brook trout
RB	rainbow trout

Life Stages:

F	fry
J	juvenile
A	adult

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Age	Total #	Length (mm)	
									Min	Max
14	SC4R	EF	1	EB	F	fry		14	52	83
			1	RB	F	fry		2	42	44
14	SC4R	EF	2	EB	F	fry		4	73	89
15	R08	EF	1	CCG	A	adult		90	43	92
			1	EB	F	fry		2	68	72
			1	RB	F	fry		3	41	48
			1	RB	J	juvenile		7	73	94
			1	RB	A	adult		6	113	166
15	R08	EF	2	CCG	A	adult		49	41	80
			2	EB	F	fry		2	66	69
			2	RB	F	fry		1	32	32
			2	RB	J	juvenile		1	71	71
			2	RB	A	adult		1	144	144
16	G08	EF	1	CCG	A	adult		58	44	93
			1	EB	F	fry		1	60	60
			1	RB	F	fry		4	35	55
			1	RB	J	juvenile		1	82	82

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Age	Total #	Length (mm)	
									Min	Max
16	G08	EF	2	CCG	A	adult		31	43	92
			2	EB	F	fry		1	64	64
			2	RB	F	fry		1	46	46
			2	RB	J	juvenile		1	80	80
17	P09	EF	1	CCG	A	adult		19	35	82
			1	EB	F	fry		3	62	73
			1	EB	A	adult		1	204	204
			1	RB	F	fry		4	38	42
			1	RB	J	juvenile		1	78	78
			1	RB	A	adult		5	103	204
17	P09	EF	2	CCG	A	adult		11	44	88
			2	EB	F	fry		1	65	65
			2	EB	A	adult		2	115	125
			2	RB	F	fry		3	43	48
			2	RB	J	juvenile		2	78	85
			2	RB	A	adult		3	123	198
17	P09	EF	3	CCG	A	adult		5	57	85
			3	EB	A	adult		3	121	137
			3	RB	F	fry		1	46	46
			3	RB	A	adult		2	121	180
17	P09	EF	4	CCG	A	adult		7	41	70
			4	RB	F	fry		2	31	48
18	P13	EF	1	CCG	A	adult		22	35	83
			1	EB	F	fry		3	57	64
			1	EB	A	adult		1	170	170
			1	RB	A	adult		6	98	169
18	P13	EF	2	CCG	A	adult		32	33	90
			2	EB	F	fry		1	69	69
			2	RB	F	fry		1	43	43
			2	RB	J	juvenile		3	82	90
			2	RB	A	adult		7	106	159
18	P13	EF	3	CCG	A	adult		16	44	83
			3	EB	F	fry		1	62	62
			3	EB	A	adult		1	113	113
			3	RB	F	fry		1	44	44
			3	RB	J	juvenile		2	65	93
			3	RB	A	adult		1	109	109
19	R20	EF	1	CCG	A	adult		65	41	88
			1	EB	F	fry		3	52	78
			1	EB	A	adult		2	111	150
			1	RB	F	fry		11	34	46
			1	RB	J	juvenile		2	84	88
			1	RB	A	adult		8	97	205
19	R20	EF	2	CCG	A	adult		58	44	86
			2	EB	F	fry		1	70	70
			2	EB	A	adult		1	157	157
			2	RB	F	fry		2	37	48
			2	RB	J	juvenile		1	86	86
19	R20	EF	3	CCG	A	adult		17	38	83
			3	RB	A	adult		1	149	149

Site #	Site Name	Method	Pass	Species	Stage	Stage Name	Age	Total #	Length (mm)	
									Min	Max
20	G22	EF	1	CCG	A	adult		97	44	89
			1	EB	F	fry		1	78	78
			1	EB	A	adult		1	116	116
			1	RB	F	fry		7	23	43
			1	RB	J	juvenile		4	81	88
			1	RB	A	adult		2	108	150
20	G22	EF	2	CCG	A	adult		47	44	87
			2	EB	F	fry		2	68	81
			2	RB	F	fry		5	28	44
			2	RB	A	adult		1	130	130
21	P14	EF	1	CCG	A	adult		19	37	75
			1	EB	F	fry		1	83	83
			1	EB	A	adult		5	103	168
			1	RB	F	fry		2	28	34
			1	RB	J	juvenile		4	70	88
			1	RB	A	adult		4	100	153
21	P14	EF	2	CCG	A	adult		3	51	66
			2	EB	F	fry		2	71	71
			2	EB	A	adult		2	106	113
			2	RB	F	fry		3	32	42
			2	RB	J	juvenile		2	80	84
			2	RB	A	adult		3	119	189
21	P14	EF	3	CCG	A	adult		2	57	59
			3	EB	F	fry		1	75	75
			3	RB	F	fry		1	38	38
			3	RB	A	adult		1	123	123
22	R22	EF	1	CCG	A	adult		58	43	90
			1	EB	F	fry		3	72	92
			1	EB	A	adult		6	120	172
			1	RB	F	fry		10	28	41
			1	RB	J	juvenile		4	77	95
			1	RB	A	adult		10	100	172
22	R22	EF	2	CCG	A	adult		27	44	75
			2	EB	A	adult		2	104	110
			2	RB	J	juvenile		3	68	83
			2	RB	A	adult		1	156	156
23	G23	EF	1	CCG	A	adult		107	37	96
			1	EB	A	adult		3	114	169
			1	RB	F	fry		11	35	48
			1	RB	J	juvenile		10	72	94
			1	RB	A	adult		8	121	168
23	G23	EF	2	CCG	A	adult		55	51	85
			2	RB	F	fry		6	24	40

ELECTROFISHING SPECIFICATIONS - Barnes B3

Site	Pass	Time In	Out	Sec	Length	Width	Area	Encl	Voltage	Freq	Pulse
SC4R	1	8:42	9:04	845	54.0	0.9	49	C	300	50	8
	2	9:15	9:33	647	54.0	0.9		C	300	50	8
R08	1	10:27	11:04	1656	25.0	15.6	390	C	300	50	8
	2	11:38	12:07	1391	25.0	15.6		C	300	50	8
G08	1	13:00	13:24	1154	8.0	12.9	103	C	400	50	8
	2	13:48	14:05	881	8.0	12.9		C	400	50	8
P09	1	15:10	15:30	986	16.0	8.1	130	C	400	50	8
	2	15:45	15:58	709	16.0	8.1		C	400	50	8
	3	16:11	16:23	610	16.0	8.1		C	400	50	8
	4	16:33	16:44	567	16.0	8.1		C	400	50	8
P13	1	17:55	18:24	979	16.0	7.0	112	C	400	50	8
	2	18:32	18:55	940	16.0	7.0		C	400	50	8
	3	18:59	19:18	806	16.0	7.0		C	400	50	8
R20	1	8:48	9:22	1436	18.4	11.9	219	C	400	50	8
	2	9:47	10:13	1246	18.4	11.9		C	400	50	8
	3	10:28	10:53	1080	18.4	11.9		C	400	50	8
G22	1	11:51	12;28	1695	15.8	10.9	172	C	400	50	8
	2	12:55	13:26	1433	15.8	10.9		C	400	50	8
P14	1	14:31	14:56	1215	19.0	8.6	163	C	400	50	8
	2	15:08	15:34	1088	19.0	8.6		C	400	50	8
	3	15:40	16:02	939	19.0	8.6		C	400	50	8
R22	1	16:29	17:08	1812	20.6	7.1	146	C	400	50	8
	2	17:37	18:11	1439	20.6	7.1		C	400	50	8
G23	1	9:05	9:59	2538	28.0	9.1	255	C	400	50	8
	2	10:32	11;19	2113	28.0	9.1		C	400	50	8

APPENDIX 4a. Whatshan River Individual Fish Data, September 2012.

W3.2

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G02	1	CCG	47	1.4	1.3484		ja		
G02	1	CCG	52	1.6	1.1379		ja		
G02	1	CCG	61	2.2	0.9692		ja		
G02	1	CCG	65	3.0	1.0924		ja		
G02	1	CCG	66	3.2	1.1131		ja		
G02	1	CCG	68	3.4	1.0813		ja		
G02	1	CCG	70	3.4	0.9913		ja		
G02	1	CCG	72	3.7	0.9913		ja		
G02	1	CCG	72	3.8	1.0181		ja		
G02	1	CCG	74	3.5	0.8637		ja		
G02	1	CCG	74	4.1	1.0118		ja		
G02	1	CCG	74	4.1	1.0118		ja		
G02	1	CCG	77	4.4	0.9638		ja		
G02	1	CCG	77	4.5	0.9857		ja		
G02	1	CCG	78	4.5	0.9483		ja		
G02	1	CCG	79	5.9	1.1967		ja		
G02	1	CCG	80	5.0	0.9766		ja		
G02	1	CCG	80	5.3	1.0352		ja		
G02	1	LNC	37	0.6	1.1845		ja		
G02	1	LNC	43	1.3	1.6351		ja		
G02	1	LNC	61	3.1	1.3658		ja		
G02	1	LNC	63	1.4	0.5599		ja		
G02	1	LNC	63	2.2	0.8798		ja		
G02	1	LNC	64	3.0	1.1444		ja		
G02	1	LNC	69	4.1	1.2481		ja		
G02	1	LNC	71	4.1	1.1455		ja		
G02	1	LNC	96	9.6	1.0851		ja		
G02	1	RB	41	0.8	1.1607		f		
G02	1	RB	53	1.5	1.0075		f		
G02	1	RB	76	4.7	1.0707		ja		
G02	1	RB	77	4.6	1.0076		ja		
G02	1	RB	120	20.5	1.1863		ja		
G02	1	RB	123	17.0	0.9136		ja		
G02	1	RB	130	22.0	1.0014		ja		
G02	1	RB	133	24.6	1.0456		ja		
G02	1	RB	173	49.2	0.9502		ja		
G02	1	RB	173	57.7	1.1144		ja		
G02	2	CCG	51	2.1	1.5831		ja		
G02	2	CCG	58	2.4	1.2301		ja		
G02	2	CCG	59	2.3	1.1199		ja		
G02	2	CCG	63	3.7	1.4797		ja		
G02	2	CCG	65	2.6	0.9467		ja		
G02	2	CCG	70	3.8	1.1079		ja		
G02	2	CCG	71	3.6	1.0058		ja		
G02	2	CCG	72	3.2	0.8573		ja		
G02	2	CCG	74	3.7	0.9131		ja		
G02	2	CCG	77	3.6	0.7886		ja		
G02	2	CCG	77	4.1	0.8981		ja		
G02	2	LNC	54	2.1	1.3336		ja		
G02	2	LNC	65	3.2	1.1652		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G02	2	LNC	67	3.4	1.1305		ja		
G02	2	LNC	68	4.1	1.3039		ja		
G02	2	LNC	70	3.8	1.1079		ja		
G02	2	LNC	70	3.9	1.1370		ja		
G02	2	LNC	70	4.1	1.1953		ja		
G02	2	LNC	72	4.3	1.1520		ja		
G02	2	LNC	79	4.5	0.9127		ja		
G02	2	LNC	90	7.7	1.0562		ja		
G02	2	RB	32	0.7	2.1362		f		
G02	2	RB	34	0.6	1.5266		f		
G02	2	RB	37	0.9	1.7768		f		
G02	2	RB	45	1.0	1.0974		f		
G02	2	RB	51	1.4	1.0554		f		
G02	2	RB	70	3.5	1.0204		ja		
G02	2	RB	102	10.4	0.9800		ja		
G02	2	RB	151	33.2	0.9643		ja		
G02	3	CCG	48	1.1	0.9946		ja		
G02	3	CCG	58	1.8	0.9225		ja		
G02	3	CCG	60	1.9	0.8796		ja		
G02	3	CCG	61	1.9	0.8371		ja		
G02	3	CCG	63	2.1	0.8398		ja		
G02	3	CCG	64	2.6	0.9918		ja		
G02	3	CCG	65	2.5	0.9103		ja		
G02	3	CCG	66	2.7	0.9391		ja		
G02	3	CCG	71	3.4	0.9500		ja		
G02	3	CCG	72	3.9	1.0449		ja		
G02	3	CCG	75	4.0	0.9481		ja		
G02	3	CCG	80	5.2	1.0156		ja		
G02	3	CCG	82	5.3	0.9612		ja		
G02	3	CCG	83	5.8	1.0144		ja		
G02	3	CCG	86	6.7	1.0534		ja		
G02	3	LNC	73	4.4	1.1311		ja		
G02	3	LNC	103	13.3	1.2171		ja		
G02	3	RB	43	0.2	0.2516		f		
G02	3	RB	86	6.0	0.9433		ja		
G02	3	RB	101	9.7	0.9415	19	ja		
G02	3	RB	180	56.3	0.9654	20	ja		
G02	4	CCG	54	1.4	0.8891		ja		
G02	4	CCG	66	2.3	0.8000		ja		
G02	4	CCG	68	2.9	0.9223		ja		
G02	4	LNC	61	2.8	1.2336		ja		
G02	4	LNC	69	3.3	1.0045		ja		
G02	4	LNC	74	4.8	1.1845		ja		
G02	4	RB	64	2.8	1.0681		f		
G02	4	RB	137	27.1	1.0539	22	ja		
G02	4	RB	138	25.0	0.9513	24	ja		
G02	4	RB	153	32.9	0.9186	21	ja		
G02	4	RB	153	38.7	1.0805	23	ja		
G02	5	CCG	50	1.5	1.2000		ja		
G02	5	CCG	60	2.4	1.1111		ja		
G02	5	CCG	62	2.8	1.1749		ja		
G02	5	CCG	65	2.9	1.0560		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G02	5	CCG	74	3.8	0.9378		ja		
G02	5	CCG	74	4.2	1.0365		ja		
G02	5	EB	76	5.2	1.1846		f		
G05	1	CCG	20	0.1	1.2500		f		
G05	1	CCG	21	0.2	2.1596		f		
G05	1	CCG	22	0.0	0.0000		f		
G05	1	CCG	23	0.0	0.0000		f		
G05	1	CCG	23	0.2	1.6438		f		
G05	1	CCG	25	0.2	1.2800		f		
G05	1	CCG	25	0.2	1.2800		f		
G05	1	CCG	41	0.5	0.7255		ja		
G05	1	CCG	42	0.8	1.0798		ja		
G05	1	CCG	43	0.7	0.8804		ja		
G05	1	CCG	44	0.7	0.8218		ja		
G05	1	CCG	44	0.7	0.8218		ja		
G05	1	CCG	44	0.7	0.8218		ja		
G05	1	CCG	44	0.8	0.9391		ja		
G05	1	CCG	45	0.9	0.9877		ja		
G05	1	CCG	45	0.9	0.9877		ja		
G05	1	CCG	46	0.8	0.8219		ja		
G05	1	CCG	46	1.0	1.0274		ja		
G05	1	CCG	47	0.8	0.7705		ja		
G05	1	CCG	47	0.9	0.8669		ja		
G05	1	CCG	47	1.8	1.7337		ja		
G05	1	CCG	48	1.0	0.9042		ja		
G05	1	CCG	48	1.0	0.9042		ja		
G05	1	CCG	48	1.1	0.9946		ja		
G05	1	CCG	50	1.2	0.9600		ja		
G05	1	CCG	51	1.3	0.9800		ja		
G05	1	CCG	53	1.3	0.8732		ja		
G05	1	CCG	53	1.6	1.0747		ja		
G05	1	CCG	54	1.3	0.8256		ja		
G05	1	CCG	56	1.4	0.7972		ja		
G05	1	CCG	56	1.6	0.9111		ja		
G05	1	CCG	57	1.6	0.8640		ja		
G05	1	CCG	57	1.6	0.8640		ja		
G05	1	CCG	57	1.7	0.9180		ja		
G05	1	CCG	57	1.8	0.9720		ja		
G05	1	CCG	57	2.1	1.1340		ja		
G05	1	CCG	57	2.8	1.5119		ja		
G05	1	CCG	58	1.5	0.7688		ja		
G05	1	CCG	58	2.0	1.0251		ja		
G05	1	CCG	63	2.1	0.8398		ja		
G05	1	CCG	64	2.9	1.1063		ja		
G05	1	CCG	65	2.0	0.7283		ja		
G05	1	CCG	69	2.5	0.7610		ja		
G05	1	CCG	72	3.4	0.9109		ja		
G05	1	CCG	74	3.4	0.8390		ja		
G05	1	CCG	74	3.5	0.8637		ja		
G05	1	CCG	75	3.7	0.8770		ja		
G05	1	CCG	77	3.8	0.8324		ja		
G05	1	CCG	78	3.8	0.8008		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G05	1	CCG	78	4.3	0.9061		ja		
G05	1	CCG	78	4.5	0.9483		ja		
G05	1	CCG	84	5.8	0.9786		ja		
G05	1	CCG	87	6.1	0.9263		ja		
G05	1	EB	62	2.1	0.8811		f		
G05	1	EB	70	5.7	1.6618		f		
G05	1	LNC	24	0.1	0.7234		f		
G05	1	RB	28	0.1	0.4555		f		
G05	1	RB	40	0.6	0.9375		f		
G05	1	RB	44	1.0	1.1739		f		
G05	1	RB	82	5.1	0.9250		ja		
G05	1	RB	99	8.4	0.8657		ja		
G05	1	RB	158	39.9	1.0116		ja		
G05	2	CCG	42	0.4	0.5399		ja		
G05	2	CCG	42	0.6	0.8098		ja		
G05	2	CCG	44	0.9	1.0565		ja		
G05	2	CCG	46	0.7	0.7192		ja		
G05	2	CCG	48	0.9	0.8138		ja		
G05	2	CCG	48	1.1	0.9946		ja		
G05	2	CCG	49	1.1	0.9350		ja		
G05	2	CCG	54	1.3	0.8256		ja		
G05	2	CCG	55	1.5	0.9016		ja		
G05	2	CCG	59	1.6	0.7790		ja		
G05	2	CCG	59	1.7	0.8277		ja		
G05	2	CCG	61	1.9	0.8371		ja		
G05	2	CCG	62	2.3	0.9651		ja		
G05	2	CCG	67	2.9	0.9642		ja		
G05	2	CCG	68	2.5	0.7951		ja		
G05	2	CCG	69	3.1	0.9437		ja		
G05	2	CCG	70	3.3	0.9621		ja		
G05	2	CCG	75	3.8	0.9007		ja		
G05	2	CCG	75	4.5	1.0667		ja		
G05	2	CCG	80	4.7	0.9180		ja		
G05	2	EB	63	3.0	1.1998		f		
G05	2	EB	71	3.5	0.9779		f		
G05	2	EB	137	24.4	0.9489		ja		
G05	2	LNC	65	3.1	1.1288		ja	13:27	Y
G05	2	RB	33	0.4	1.1131		f		
G05	2	RB	39	0.6	1.0115		f		
G05	2	RB	49	1.1	0.9350		f		
G05	2	RB	114	13.8	0.9315	35	ja		
G05	3	CCG	30	0.4	1.4815		f		
G05	3	CCG	42	0.8	1.0798		ja		
G05	3	CCG	46	1.0	1.0274		ja		
G05	3	CCG	47	0.8	0.7705		ja		
G05	3	CCG	56	1.5	0.8541		ja		
G05	3	CCG	56	1.7	0.9680		ja		
G05	3	CCG	65	2.7	0.9832		ja		
G05	3	CCG	66	2.5	0.8696		ja		
G05	3	CCG	68	2.7	0.8587		ja		
G05	3	CCG	72	2.8	0.7502		ja		
G05	3	CCG	75	4.1	0.9719		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G05	3	CCG	84	5.3	0.8942		ja		
G05	3	EB	62	2.7	1.1329		f		
G05	3	LNC	60	2.8	1.2963		ja		
G05	3	LNC	75	3.6	0.8533		ja		
G05	3	RB	51	1.4	1.0554		f		
G08	1	CCG	20	0.0	0.0000		f		
G08	1	CCG	21	0.0	0.0000		f		
G08	1	CCG	21	0.1	1.0798		f		
G08	1	CCG	24	0.2	1.4468		f		
G08	1	CCG	24	0.2	1.4468		f		
G08	1	CCG	25	0.2	1.2800		f		
G08	1	CCG	26	0.3	1.7069		f		
G08	1	CCG	26	0.4	2.2758		f		
G08	1	CCG	27	0.2	1.0161		f		
G08	1	CCG	27	0.3	1.5242		f		
G08	1	CCG	28	0.4	1.8222		f		
G08	1	CCG	29	0.3	1.2301		f		
G08	1	CCG	42	1.0	1.3497		ja		
G08	1	CCG	46	0.9	0.9246		ja		
G08	1	CCG	47	0.8	0.7705		ja		
G08	1	CCG	47	1.0	0.9632		ja		
G08	1	CCG	48	1.1	0.9946		ja		
G08	1	CCG	48	1.2	1.0851		ja		
G08	1	CCG	50	1.3	1.0400		ja		
G08	1	CCG	50	1.3	1.0400		ja		
G08	1	CCG	56	1.4	0.7972		ja		
G08	1	CCG	56	1.7	0.9680		ja		
G08	1	CCG	57	1.8	0.9720		ja		
G08	1	CCG	58	2.0	1.0251		ja		
G08	1	CCG	60	2.2	1.0185		ja		
G08	1	CCG	61	2.1	0.9252		ja		
G08	1	CCG	62	2.4	1.0070		ja		
G08	1	CCG	64	2.5	0.9537		ja		
G08	1	CCG	64	2.7	1.0300		ja		
G08	1	CCG	64	2.9	1.1063		ja		
G08	1	CCG	66	2.7	0.9391		ja		
G08	1	CCG	66	2.7	0.9391		ja		
G08	1	CCG	66	3.3	1.1478		ja		
G08	1	CCG	67	2.6	0.8645		ja		
G08	1	CCG	67	2.9	0.9642		ja		
G08	1	CCG	67	3.1	1.0307		ja		
G08	1	CCG	68	2.6	0.8269		ja		
G08	1	CCG	68	2.8	0.8905		ja		
G08	1	CCG	69	4.4	1.3394		ja		
G08	1	CCG	70	2.8	0.8163		ja		
G08	1	CCG	70	3.1	0.9038		ja		
G08	1	CCG	71	3.1	0.8661		ja		
G08	1	CCG	71	3.1	0.8661		ja		
G08	1	CCG	73	3.2	0.8226		ja		
G08	1	CCG	73	3.8	0.9768		ja		
G08	1	CCG	73	3.9	1.0025		ja		
G08	1	CCG	73	4.2	1.0796		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G08	1	CCG	74	3.0	0.7403		ja		
G08	1	CCG	74	3.6	0.8884		ja		
G08	1	CCG	74	3.6	0.8884		ja		
G08	1	CCG	74	3.6	0.8884		ja		
G08	1	CCG	74	3.8	0.9378		ja		
G08	1	CCG	75	3.9	0.9244		ja		
G08	1	CCG	76	3.6	0.8201		ja		
G08	1	CCG	76	4.2	0.9568		ja		
G08	1	CCG	76	4.2	0.9568		ja		
G08	1	CCG	76	4.3	0.9796		ja		
G08	1	CCG	77	3.4	0.7447		ja		
G08	1	CCG	77	3.8	0.8324		ja		
G08	1	CCG	77	4.2	0.9200		ja		
G08	1	CCG	77	4.5	0.9857		ja		
G08	1	CCG	78	4.5	0.9483		ja		
G08	1	CCG	78	4.5	0.9483		ja		
G08	1	CCG	78	5.1	1.0747		ja		
G08	1	CCG	79	4.1	0.8316		ja		
G08	1	CCG	80	4.2	0.8203		ja		
G08	1	CCG	80	4.6	0.8984		ja		
G08	1	CCG	80	4.9	0.9570		ja		
G08	1	CCG	81	5.3	0.9973		ja		
G08	1	CCG	82	4.4	0.7980		ja		
G08	1	CCG	82	4.8	0.8706		ja		
G08	1	CCG	84	5.0	0.8436		ja		
G08	1	CCG	84	5.8	0.9786		ja		
G08	1	CCG	85	5.7	0.9281		ja		
G08	1	CCG	87	5.3	0.8049		ja		
G08	1	CCG	88	6.1	0.8951		ja		
G08	1	CCG	90	7.0	0.9602		ja		
G08	1	EB	61	2.3	1.0133		f		
G08	1	EB	61	2.4	1.0574		f		
G08	1	EB	76	4.1	0.9340		f		
G08	1	EB	81	5.0	0.9408		f		
G08	1	EB	132	22.8	0.9913		ja		
G08	1	EB	141	25.6	0.9132		ja		
G08	1	EB	158	39.6	1.0040		ja		
G08	1	LNC	19	0.1	1.4579		f		
G08	1	LNC	22	0.2	1.8783		f		
G08	1	LNC	25	0.2	1.2800		f		
G08	1	LNC	26	0.1	0.5690		f		
G08	1	LNC	32	0.5	1.5259		ja		
G08	1	LNC	38	0.8	1.4579		ja		
G08	1	LNC	39	1.1	1.8544		ja		
G08	1	LNC	41	0.7	1.0157		ja		
G08	1	LNC	41	0.9	1.3058		ja		
G08	1	LNC	43	0.6	0.7547		ja		
G08	1	RB	87	6.2	0.9415		ja		
G08	1	RB	98	9.1	0.9669		ja		
G08	1	RB	102	10.8	1.0177		ja		
G08	1	RB	103	10.3	0.9426		ja		
G08	1	RB	107	12.8	1.0449		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G08	1	RB	110	12.7	0.9542		ja		
G08	1	RB	135	23.5	0.9551	45	ja		
G08	1	RB	138	24.0	0.9132	44	ja		
G08	1	RB	140	25.9	0.9439	47	ja		
G08	1	RB	141	24.5	0.8740	43	ja		
G08	1	RB	152	39.8	1.1333		ja		
G08	1	RB	181	58.0	0.9781	46	ja		
G08	2	CCG	19	0.1	1.4579		f		
G08	2	CCG	19	0.2	2.9159		f		
G08	2	CCG	20	0.1	1.2500		f		
G08	2	CCG	21	0.1	1.0798		f		
G08	2	CCG	24	0.1	0.7234		f		
G08	2	CCG	30	0.4	1.4815		f		
G08	2	CCG	34	0.4	1.0177		f		
G08	2	CCG	46	1.1	1.1301		ja		
G08	2	CCG	52	1.3	0.9246		ja		
G08	2	CCG	58	2.0	1.0251		ja		
G08	2	CCG	61	2.0	0.8811		ja		
G08	2	CCG	63	2.2	0.8798		ja		
G08	2	CCG	64	2.3	0.8774		ja		
G08	2	CCG	64	2.5	0.9537		ja		
G08	2	CCG	65	2.5	0.9103		ja		
G08	2	CCG	66	2.5	0.8696		ja		
G08	2	CCG	67	2.5	0.8312		ja		
G08	2	CCG	67	2.6	0.8645		ja		
G08	2	CCG	68	2.6	0.8269		ja		
G08	2	CCG	68	3.0	0.9541		ja		
G08	2	CCG	73	3.4	0.8740		ja		
G08	2	CCG	74	3.4	0.8390		ja		
G08	2	CCG	74	3.5	0.8637		ja		
G08	2	CCG	75	4.5	1.0667		ja		
G08	2	CCG	76	3.4	0.7745		ja		
G08	2	CCG	77	4.1	0.8981		ja		
G08	2	CCG	79	4.8	0.9736		ja		
G08	2	CCG	80	4.4	0.8594		ja		
G08	2	CCG	81	4.3	0.8091		ja		
G08	2	CCG	83	4.5	0.7870		ja		
G08	2	CCG	83	5.9	1.0319		ja		
G08	2	CCG	85	5.0	0.8142		ja		
G08	2	CCG	87	6.1	0.9263		ja		
G08	2	CCG	92	6.3	0.8091		ja		
G08	2	CCG	93	6.9	0.8578		ja		
G08	2	EB	66	2.8	0.9739		f		
G08	2	EB	69	3.2	0.9741		f		
G08	2	EB	79	4.9	0.9938		f		
G08	2	EB	112	13.4	0.9538		ja		
G08	2	LNC	17	0.1	2.0354		f		
G08	2	LNC	25	0.1	0.6400		f		
G08	2	LNC	26	0.1	0.5690		f		
G08	2	LNC	33	0.3	0.8348		ja		
G08	2	LNC	42	0.7	0.9448		ja		
G08	2	LNC	59	2.4	1.1686		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G08	2	LNC	70	3.7	1.0787		ja		
G08	2	RB	57	2.0	1.0800		f		
G08	2	RB	128	21.3	1.0157	48	ja		
G11	1	CCG	20	0.1	1.2500		f		
G11	1	CCG	25	0.2	1.2800		f		
G11	1	CCG	26	0.2	1.1379		f		
G11	1	CCG	32	0.3	0.9155		f		
G11	1	CCG	43	0.8	1.0062		ja		
G11	1	CCG	47	1.0	0.9632		ja		
G11	1	CCG	47	1.0	0.9632		ja		
G11	1	CCG	47	1.3	1.2521		ja		
G11	1	CCG	48	1.1	0.9946		ja		
G11	1	CCG	50	1.3	1.0400		ja		
G11	1	CCG	50	1.3	1.0400		ja		
G11	1	CCG	51	1.2	0.9046		ja		
G11	1	CCG	51	1.4	1.0554		ja		
G11	1	CCG	52	1.5	1.0668		ja		
G11	1	CCG	53	1.6	1.0747		ja		
G11	1	CCG	53	1.7	1.1419		ja		
G11	1	CCG	53	1.9	1.2762		ja		
G11	1	CCG	55	1.5	0.9016		ja		
G11	1	CCG	55	1.6	0.9617		ja		
G11	1	CCG	55	1.8	1.0819		ja		
G11	1	CCG	57	1.8	0.9720		ja		
G11	1	CCG	58	1.9	0.9738		ja		
G11	1	CCG	58	2.1	1.0763		ja		
G11	1	CCG	59	2.3	1.1199		ja		
G11	1	CCG	60	1.9	0.8796		ja		
G11	1	CCG	60	2.2	1.0185		ja		
G11	1	CCG	60	2.2	1.0185		ja		
G11	1	CCG	61	2.2	0.9692		ja		
G11	1	CCG	61	2.4	1.0574		ja		
G11	1	CCG	61	2.6	1.1455		ja		
G11	1	CCG	62	2.8	1.1749		ja		
G11	1	CCG	63	2.3	0.9198		ja		
G11	1	CCG	63	2.4	0.9598		ja		
G11	1	CCG	63	2.6	1.0398		ja		
G11	1	CCG	63	2.7	1.0798		ja		
G11	1	CCG	63	3.0	1.1998		ja		
G11	1	CCG	64	2.3	0.8774		ja		
G11	1	CCG	64	2.5	0.9537		ja		
G11	1	CCG	64	2.6	0.9918		ja		
G11	1	CCG	65	2.8	1.0196		ja		
G11	1	CCG	65	2.8	1.0196		ja		
G11	1	CCG	65	3.0	1.0924		ja		
G11	1	CCG	66	2.6	0.9044		ja		
G11	1	CCG	66	2.7	0.9391		ja		
G11	1	CCG	66	3.0	1.0435		ja		
G11	1	CCG	67	2.7	0.8977		ja		
G11	1	CCG	67	2.9	0.9642		ja		
G11	1	CCG	67	3.0	0.9975		ja		
G11	1	CCG	67	3.0	0.9975		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G11	1	CCG	67	3.0	0.9975		ja		
G11	1	CCG	67	3.1	1.0307		ja		
G11	1	CCG	67	3.3	1.0972		ja		
G11	1	CCG	68	2.6	0.8269		ja		
G11	1	CCG	69	3.1	0.9437		ja		
G11	1	CCG	69	3.5	1.0654		ja		
G11	1	CCG	70	3.7	1.0787		ja		
G11	1	CCG	71	3.3	0.9220		ja		
G11	1	CCG	71	3.5	0.9779		ja		
G11	1	CCG	71	3.7	1.0338		ja		
G11	1	CCG	71	3.9	1.0897		ja		
G11	1	CCG	72	3.3	0.8841		ja		
G11	1	CCG	72	3.7	0.9913		ja		
G11	1	CCG	75	3.8	0.9007		ja		
G11	1	CCG	76	4.0	0.9112		ja		
G11	1	CCG	76	4.5	1.0251		ja		
G11	1	CCG	77	4.3	0.9419		ja		
G11	1	CCG	77	4.3	0.9419		ja		
G11	1	CCG	77	4.6	1.0076		ja		
G11	1	CCG	77	4.6	1.0076		ja		
G11	1	CCG	78	4.5	0.9483		ja		
G11	1	CCG	78	5.2	1.0958		ja		
G11	1	CCG	80	5.0	0.9766		ja		
G11	1	CCG	81	5.0	0.9408		ja		
G11	1	CCG	82	5.1	0.9250		ja		
G11	1	CCG	82	5.5	0.9975		ja		
G11	1	CCG	84	5.2	0.8773		ja		
G11	1	CCG	84	6.2	1.0461		ja		
G11	1	CCG	88	6.9	1.0125		ja		
G11	1	CCG	88	7.1	1.0419		ja		
G11	1	CCG	92	7.2	0.9246		ja		
G11	1	EB	55	1.7	1.0218		f		
G11	1	EB	57	2.1	1.1340		f		
G11	1	EB	59	2.5	1.2173		f		
G11	1	EB	63	2.9	1.1598		f		
G11	1	EB	63	2.9	1.1598		f		
G11	1	EB	69	3.5	1.0654		f		
G11	1	EB	71	3.6	1.0058		f		
G11	1	EB	72	3.6	0.9645		f		
G11	1	EB	76	4.6	1.0479		f		
G11	1	LNC	20	0.2	2.5000		f		
G11	1	LNC	21	0.2	2.1596		f		
G11	1	LNC	21	0.2	2.1596		f		
G11	1	LNC	22	0.2	1.8783		f		
G11	1	LNC	23	0.4	3.2876		f		
G11	1	LNC	24	0.4	2.8935		f		
G11	1	LNC	26	0.2	1.1379		f		
G11	1	LNC	28	0.2	0.9111		f		
G11	1	LNC	29	0.4	1.6401		f		
G11	1	LNC	36	0.8	1.7147		ja		
G11	1	LNC	36	0.9	1.9290		ja		
G11	1	LNC	38	0.9	1.6402		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G11	1	LNC	42	1.0	1.3497		ja		
G11	1	LNC	44	1.1	1.2913		ja		
G11	1	LNC	47	1.2	1.1558		ja		
G11	1	LNC	48	0.6	0.5425		ja		
G11	1	LNC	48	1.7	1.5372		ja		
G11	1	LNC	49	1.5	1.2750		ja		
G11	1	LNC	49	2.0	1.7000		ja		
G11	1	LNC	57	2.2	1.1879		ja		
G11	1	LNC	62	2.2	0.9231		ja		
G11	1	LNC	63	3.2	1.2798		ja		
G11	1	LNC	64	3.6	1.3733		ja		
G11	1	LNC	69	3.9	1.1872		ja		
G11	1	LNC	69	4.4	1.3394		ja		
G11	1	LNC	73	4.5	1.1568		ja		
G11	1	LNC	73	5.3	1.3624		ja		
G11	1	LNC	87	5.6	0.8504		ja		
G11	1	RB	32	0.4	1.2207		f		
G11	1	RB	35	0.6	1.3994		f		
G11	1	RB	43	0.8	1.0062		f		
G11	1	RB	43	0.9	1.1320		f		
G11	1	RB	43	1.1	1.3835		f		
G11	1	RB	48	1.3	1.1755		f		
G11	1	RB	89	6.8	0.9646		ja		
G11	1	RB	90	7.2	0.9877		ja		
G11	1	RB	92	8.7	1.1173		ja		
G11	1	RB	105	10.9	0.9416		ja		
G11	1	RB	109	11.1	0.8571		ja		
G11	1	RB	132	19.7	0.8565		ja		
G11	2	CCG	31	0.8	2.6854		f		
G11	2	CCG	48	1.4	1.2659		ja		
G11	2	CCG	50	1.5	1.2000		ja		
G11	2	CCG	51	1.5	1.1308		ja		
G11	2	CCG	52	1.4	0.9957		ja		
G11	2	CCG	55	1.7	1.0218		ja		
G11	2	CCG	56	1.9	1.0819		ja		
G11	2	CCG	58	2.1	1.0763		ja		
G11	2	CCG	59	2.2	1.0712		ja		
G11	2	CCG	59	2.2	1.0712		ja		
G11	2	CCG	59	2.3	1.1199		ja		
G11	2	CCG	60	2.2	1.0185		ja		
G11	2	CCG	60	2.3	1.0648		ja		
G11	2	CCG	61	2.4	1.0574		ja		
G11	2	CCG	61	2.4	1.0574		ja		
G11	2	CCG	62	2.1	0.8811		ja		
G11	2	CCG	62	2.3	0.9651		ja		
G11	2	CCG	62	2.5	1.0490		ja		
G11	2	CCG	62	2.5	1.0490		ja		
G11	2	CCG	63	2.4	0.9598		ja		
G11	2	CCG	63	2.7	1.0798		ja		
G11	2	CCG	65	2.7	0.9832		ja		
G11	2	CCG	66	2.7	0.9391		ja		
G11	2	CCG	66	2.8	0.9739		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G11	2	CCG	71	3.0	0.8382		ja		
G11	2	CCG	72	3.5	0.9377		ja		
G11	2	CCG	73	3.2	0.8226		ja		
G11	2	CCG	73	3.8	0.9768		ja		
G11	2	CCG	77	4.1	0.8981		ja		
G11	2	CCG	78	5.0	1.0536		ja		
G11	2	CCG	81	4.3	0.8091		ja		
G11	2	CCG	81	4.5	0.8468		ja		
G11	2	CCG	82	5.5	0.9975		ja		
G11	2	CCG	94	8.9	1.0715		ja		
G11	2	CCG	104	11.7	1.0401		ja		
G11	2	EB	56	1.9	1.0819		f		
G11	2	LNC	21	0.2	2.1596		f		
G11	2	LNC	22	0.3	2.8174		f		
G11	2	LNC	23	0.5	4.1095		f		
G11	2	LNC	24	0.3	2.1701		f		
G11	2	LNC	33	0.5	1.3913		ja		
G11	2	LNC	42	1.0	1.3497		ja		
G11	2	LNC	61	2.6	1.1455		ja		
G11	2	LNC	64	3.2	1.2207		ja		
G11	2	LNC	68	3.1	0.9859		ja		
G11	2	LNC	71	4.7	1.3132		ja		
G11	2	LNC	74	4.4	1.0858		ja		
G11	2	LNC	74	4.8	1.1845		ja		
G11	2	LNC	75	4.9	1.1615		ja		
G11	2	LNC	102	14.3	1.3475		ja		
G11	2	RB	34	0.4	1.0177		f		
G11	2	RB	40	0.6	0.9375		f		
G11	2	RB	46	1.2	1.2328		f		
G11	2	RB	54	1.7	1.0796		f		
G11	2	RB	97	8.9	0.9752		ja		
G11	2	RB	132	21.0	0.9131	74	ja		
G11	2	RB	136	23.8	0.9462		ja		
G11	2	RB	160	42.4	1.0352	75	ja		
P01	1	CCG	45	1.1	1.2071		ja		
P01	1	CCG	46	1.0	1.0274		ja		
P01	1	CCG	53	1.5	1.0075		ja		
P01	1	CCG	53	1.6	1.0747		ja		
P01	1	CCG	57	2.0	1.0800		ja		
P01	1	CCG	59	1.6	0.7790		ja		
P01	1	CCG	59	1.9	0.9251		ja		
P01	1	CCG	65	2.6	0.9467		ja		
P01	1	CCG	65	2.7	0.9832		ja		
P01	1	CCG	66	2.9	1.0087		ja		
P01	1	CCG	69	2.7	0.8219		ja		
P01	1	CCG	75	4.1	0.9719		ja		
P01	1	CCG	77	4.5	0.9857		ja		
P01	1	CCG	78	5.2	1.0958		ja		
P01	1	LNC	37	0.7	1.3820		ja		
P01	1	LNC	61	2.7	1.1895		ja		
P01	1	LNC	68	3.8	1.2085		ja		
P01	1	LNC	72	3.4	0.9109		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P01	1	LNC	88	7.6	1.1152		ja		
P01	1	RB	53	1.6	1.0747		f		
P01	1	RB	99	10.0	1.0306		ja		
P01	1	RB	107	11.8	0.9632	11	ja		
P01	1	RB	115	12.9	0.8482	4	ja		
P01	1	RB	122	16.7	0.9197	5	ja		
P01	1	RB	123	17.8	0.9565	12	ja		
P01	1	RB	128	22.3	1.0633	2	ja		
P01	1	RB	132	23.4	1.0174		ja		
P01	1	RB	136	25.0	0.9939	8	ja		
P01	1	RB	140	31.9	1.1625	1	ja		
P01	1	RB	147	28.9	0.9098	6	ja		
P01	1	RB	149	30.4	0.9190	9	ja		
P01	1	RB	149	30.5	0.9220	7	ja		
P01	1	RB	151	32.9	0.9556	10	ja		
P01	1	RB	163	47.9	1.1060	3	ja		
P01	1	RB	166	43.8	0.9575	13	ja		
P01	2	CCG	47	1.5	1.4448		ja		
P01	2	CCG	57	2.2	1.1879		ja		
P01	2	CCG	60	2.2	1.0185		ja		
P01	2	CCG	98	6.9	0.7331		ja		
P01	2	LNC	42	1.1	1.4847		ja		
P01	2	LNC	44	1.3	1.5261		ja		
P01	2	LNC	59	2.3	1.1199		ja		
P01	2	RB	94	8.1	0.9752	14	ja		
P01	2	RB	119	16.3	0.9673	15	ja		
P01	2	RB	150	37.6	1.1141	18	ja		
P01	2	RB	157	34.0	0.8786	17	ja		
P01	2	RB	175	52.4	0.9777	16	ja		
P04	1	CCG	25	0.2	1.2800		f		
P04	1	CCG	27	0.2	1.0161		f		
P04	1	CCG	27	0.3	1.5242		f		
P04	1	CCG	42	0.5	0.6749		ja		
P04	1	CCG	42	0.7	0.9448		ja		
P04	1	CCG	42	0.8	1.0798		ja		
P04	1	CCG	47	1.1	1.0595		ja		
P04	1	CCG	53	1.3	0.8732		ja		
P04	1	CCG	53	1.5	1.0075		ja		
P04	1	CCG	56	1.8	1.0250		ja		
P04	1	CCG	57	1.6	0.8640		ja		
P04	1	CCG	57	2.0	1.0800		ja		
P04	1	CCG	61	1.6	0.7049		ja		
P04	1	CCG	61	2.0	0.8811		ja		
P04	1	CCG	61	2.1	0.9252		ja		
P04	1	CCG	62	1.8	0.7553		ja		
P04	1	CCG	62	2.1	0.8811		ja		
P04	1	CCG	62	2.2	0.9231		ja		
P04	1	CCG	62	2.3	0.9651		ja		
P04	1	CCG	64	2.5	0.9537		ja		
P04	1	CCG	65	2.6	0.9467		ja		
P04	1	CCG	65	2.8	1.0196		ja		
P04	1	CCG	66	2.7	0.9391		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P04	1	CCG	68	2.8	0.8905		ja		
P04	1	CCG	69	3.0	0.9132		ja		
P04	1	CCG	69	3.1	0.9437		ja		
P04	1	CCG	72	3.5	0.9377		ja		
P04	1	CCG	72	4.2	1.1253		ja		
P04	1	CCG	75	3.1	0.7348		ja		
P04	1	CCG	77	3.9	0.8543		ja		
P04	1	CCG	88	6.4	0.9391		ja		
P04	1	EB	65	2.5	0.9103		f		
P04	1	EB	74	4.9	1.2092		f		
P04	1	EB	131	21.0	0.9341		ja		
P04	1	EB	138	26.9	1.0236		ja		
P04	1	EB	138	29.3	1.1149		ja		
P04	1	EB	147	31.7	0.9979		ja		
P04	1	EB	161	37.1	0.8890		ja		
P04	1	EB	194	80.1	1.0971		ja		
P04	1	EB	229	126.9	1.0567		ja		
P04	1	LNC	32	0.5	1.5259		ja		
P04	1	LNC	33	0.6	1.6696		ja		
P04	1	LNC	34	0.6	1.5266		ja		
P04	1	LNC	34	0.8	2.0354		ja		
P04	1	LNC	36	0.6	1.2860		ja		
P04	1	LNC	36	0.7	1.5003		ja		
P04	1	LNC	38	0.8	1.4579		ja		
P04	1	LNC	67	3.1	1.0307		ja		
P04	1	LNC	113	16.6	1.1505		ja		
P04	1	RB	30	0.5	1.8519		f		
P04	1	RB	43	0.8	1.0062		f		
P04	1	RB	46	0.9	0.9246		f		
P04	1	RB	72	3.7	0.9913		ja		
P04	1	RB	79	4.9	0.9938		ja		
P04	1	RB	80	4.7	0.9180		ja		
P04	1	RB	81	6.4	1.2043		ja		
P04	1	RB	85	6.0	0.9770		ja		
P04	1	RB	86	6.0	0.9433		ja		
P04	1	RB	86	7.0	1.1005		ja		
P04	1	RB	88	6.0	0.8804		ja		
P04	1	RB	88	7.2	1.0565		ja		
P04	1	RB	91	7.2	0.9555		ja		
P04	1	RB	91	7.5	0.9953		ja		
P04	1	RB	93	9.0	1.1189		ja		
P04	1	RB	100	9.1	0.9100		ja		
P04	1	RB	110	12.4	0.9316		ja		
P04	1	RB	125	17.9	0.9165		ja		
P04	1	RB	128	19.9	0.9489		ja		
P04	1	RB	131	21.0	0.9341		ja		
P04	1	RB	134	22.1	0.9185		ja		
P04	1	RB	134	25.1	1.0432		ja		
P04	1	RB	135	23.7	0.9633		ja		
P04	1	RB	138	26.7	1.0160		ja		
P04	1	RB	139	29.3	1.0910		ja		
P04	1	RB	142	26.1	0.9115		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P04	1	RB	145	32.1	1.0529		ja		
P04	1	RB	149	22.3	0.6741		ja		
P04	1	RB	152	32.5	0.9254		ja		
P04	1	RB	152	37.1	1.0564		ja		
P04	1	RB	158	37.6	0.9533		ja		
P04	1	RB	182	58.2	0.9654	26	ja		
P04	1	RB	195	70.2	0.9467	25	ja		
P04	1	RB	218	97.4	0.9401	28	ja		
P04	1	RB	256	165.3	0.9853	27	ja		
P04	2	CCG	13	0.0	0.0000		f		
P04	2	CCG	19	0.0	0.0000		f		
P04	2	CCG	20	0.2	2.5000		f		
P04	2	CCG	22	0.2	1.8783		f		
P04	2	CCG	22	0.2	1.8783		f		
P04	2	CCG	23	0.0	0.0000		f		
P04	2	CCG	23	0.2	1.6438		f		
P04	2	CCG	24	0.2	1.4468		f		
P04	2	CCG	25	0.0	0.0000		f		
P04	2	CCG	26	0.1	0.5690		f		
P04	2	CCG	27	0.5	2.5403		f		
P04	2	CCG	28	0.5	2.2777		f		
P04	2	CCG	38	1.0	1.8224		ja		
P04	2	CCG	40	0.5	0.7813		ja		
P04	2	CCG	44	0.7	0.8218		ja		
P04	2	CCG	46	0.7	0.7192		ja		
P04	2	CCG	53	1.2	0.8060		ja		
P04	2	CCG	55	1.8	1.0819		ja		
P04	2	CCG	59	1.9	0.9251		ja		
P04	2	CCG	61	2.0	0.8811		ja		
P04	2	CCG	61	2.1	0.9252		ja		
P04	2	CCG	63	2.3	0.9198		ja		
P04	2	CCG	64	2.3	0.8774		ja		
P04	2	CCG	64	2.5	0.9537		ja		
P04	2	CCG	64	3.0	1.1444		ja		
P04	2	CCG	68	3.0	0.9541		ja		
P04	2	CCG	68	3.3	1.0495		ja		
P04	2	CCG	70	2.8	0.8163		ja		
P04	2	CCG	71	3.0	0.8382		ja		
P04	2	CCG	77	3.8	0.8324		ja		
P04	2	CCG	79	4.5	0.9127		ja		
P04	2	CCG	86	6.1	0.9590		ja		
P04	2	CCG	91	7.1	0.9422		ja		
P04	2	EB	140	23.8	0.8673		ja		
P04	2	EB	166	46.4	1.0144		ja		
P04	2	LNC	18	0.2	3.4294		f		
P04	2	LNC	21	0.1	1.0798		f		
P04	2	LNC	24	0.2	1.4468		f		
P04	2	LNC	27	0.6	3.0483		f		
P04	2	LNC	80	6.1	1.1914		ja		
P04	2	RB	30	0.4	1.4815		f		
P04	2	RB	43	0.8	1.0062		f		
P04	2	RB	43	0.8	1.0062		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P04	2	RB	45	0.9	0.9877		f		
P04	2	RB	74	4.2	1.0365		ja		
P04	2	RB	84	6.1	1.0292		ja		
P04	2	RB	86	5.9	0.9276		ja		
P04	2	RB	86	6.1	0.9590		ja		
P04	2	RB	86	6.3	0.9905		ja		
P04	2	RB	98	10.1	1.0731		ja		
P04	2	RB	102	10.0	0.9423		ja		
P04	2	RB	105	11.7	1.0107		ja		
P04	2	RB	129	21.0	0.9783		ja		
P04	2	RB	137	25.1	0.9761		ja		
P04	2	RB	138	24.5	0.9322		ja		
P04	2	RB	140	25.6	0.9329		ja		
P04	2	RB	142	25.7	0.8976		ja		
P04	2	RB	145	27.6	0.9053		ja		
P04	2	RB	149	34.2	1.0339		ja		
P04	2	RB	150	37.7	1.1170		ja		
P04	2	RB	151	33.2	0.9643		ja		
P04	2	RB	151	33.6	0.9759		ja		
P04	2	RB	164	40.5	0.9182		ja		
P04	2	RB	171	57.4	1.1480		ja		
P04	2	RB	187	61.4	0.9390		ja		
P04	3	CCG	46	0.8	0.8219		ja		
P04	3	CCG	47	1.2	1.1558		ja		
P04	3	CCG	59	1.9	0.9251		ja		
P04	3	CCG	75	3.9	0.9244		ja		
P04	3	EB	155	35.5	0.9533		ja		
P04	3	LNC	39	0.7	1.1801		ja		
P04	3	RB	40	0.6	0.9375		f		
P04	3	RB	64	3.0	1.1444		f		
P04	3	RB	69	3.7	1.1263		ja		
P04	3	RB	80	5.3	1.0352		ja		
P04	3	RB	105	10.7	0.9243		ja		
P04	3	RB	128	20.1	0.9584		ja		
P04	3	RB	137	23.8	0.9256		ja		
P04	3	RB	137	27.8	1.0811		ja		
P04	3	RB	139	28.7	1.0687		ja		
P04	3	RB	150	28.9	0.8563		ja		
P07	1	CCG	21	0.1	1.0798		f		
P07	1	CCG	25	0.2	1.2800		f		
P07	1	CCG	27	0.3	1.5242		f		
P07	1	CCG	28	0.3	1.3666		f		
P07	1	CCG	32	0.5	1.5259		f		
P07	1	CCG	50	0.8	0.6400		ja		
P07	1	CCG	62	2.0	0.8392		ja		
P07	1	CCG	64	2.1	0.8011		ja		
P07	1	CCG	64	2.2	0.8392		ja		
P07	1	CCG	66	2.4	0.8348		ja		
P07	1	CCG	70	2.9	0.8455		ja		
P07	1	CCG	71	3.0	0.8382		ja		
P07	1	CCG	79	4.5	0.9127		ja		
P07	1	CCG	83	5.1	0.8919		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P07	1	EB	61	2.2	0.9692		f		
P07	1	EB	64	2.7	1.0300		f		
P07	1	EB	68	3.6	1.1449		f		
P07	1	EB	123	18.3	0.9834		ja		
P07	1	LNC	26	0.2	1.1379		f		
P07	1	LNC	27	0.1	0.5081		f		
P07	1	LNC	29	0.6	2.4601		f		
P07	1	LNC	30	0.3	1.1111		f		
P07	1	LNC	36	0.8	1.7147		ja		
P07	1	LNC	38	0.7	1.2757		ja		
P07	1	LNC	40	0.8	1.2500		ja		
P07	1	LNC	40	1.0	1.5625		ja		
P07	1	LNC	43	0.8	1.0062		ja		
P07	1	LNC	43	1.0	1.2578		ja		
P07	1	LNC	44	0.8	0.9391		ja		
P07	1	LNC	91	10.1	1.3403		ja		
P07	1	RB	35	0.6	1.3994		f		
P07	1	RB	46	0.8	0.8219		f		
P07	1	RB	86	6.8	1.0691		ja		
P07	1	RB	97	8.6	0.9423		ja		
P07	1	RB	98	8.6	0.9137		ja		
P07	1	RB	99	8.3	0.8554		ja		
P07	1	RB	128	20.3	0.9680	37	ja		
P07	1	RB	137	24.4	0.9489	38	ja		
P07	1	RB	137	26.8	1.0423	36	ja		
P07	1	RB	175	55.3	1.0318	39	ja		
P07	2	CCG	16	0.0	0.0000		f		
P07	2	CCG	26	0.1	0.5690		f		
P07	2	CCG	47	0.8	0.7705		ja		
P07	2	CCG	50	1.0	0.8000		ja		
P07	2	CCG	58	1.7	0.8713		ja		
P07	2	CCG	60	2.1	0.9722		ja		
P07	2	CCG	68	3.2	1.0177		ja		
P07	2	CCG	76	4.6	1.0479		ja		
P07	2	CCG	77	4.0	0.8762		ja		
P07	2	CCG	87	4.9	0.7441		ja		
P07	2	CCG	89	5.7	0.8085		ja		
P07	2	EB	62	2.6	1.0909		f		
P07	2	EB	75	4.2	0.9956		f		
P07	2	EB	130	19.6	0.8921		ja		
P07	2	LNC	26	0.2	1.1379		f		
P07	2	LNC	101	13.2	1.2812		ja		
P07	2	RB	119	15.1	0.8961	41	ja		
P07	2	RB	132	22.4	0.9739	40	ja		
P07	2	RB	145	27.9	0.9152	42	ja		
P10	1	CCG	49	1.1	0.9350		ja		
P10	1	CCG	50	1.2	0.9600		ja		
P10	1	CCG	51	1.6	1.2062		ja		
P10	1	CCG	52	1.7	1.2090		ja		
P10	1	CCG	53	1.7	1.1419		ja		
P10	1	CCG	53	1.7	1.1419		ja		
P10	1	CCG	60	2.3	1.0648		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P10	1	CCG	61	2.1	0.9252		ja		
P10	1	CCG	61	2.1	0.9252		ja		
P10	1	CCG	63	2.7	1.0798		ja		
P10	1	CCG	63	2.8	1.1198		ja		
P10	1	CCG	65	2.7	0.9832		ja		
P10	1	CCG	65	2.8	1.0196		ja		
P10	1	CCG	66	2.7	0.9391		ja		
P10	1	CCG	66	3.7	1.2870		ja		
P10	1	CCG	67	2.8	0.9310		ja		
P10	1	CCG	67	2.8	0.9310		ja		
P10	1	CCG	67	3.1	1.0307		ja		
P10	1	CCG	67	3.1	1.0307		ja		
P10	1	CCG	68	3.4	1.0813		ja		
P10	1	CCG	72	3.3	0.8841		ja		
P10	1	CCG	75	4.0	0.9481		ja		
P10	1	CCG	81	5.0	0.9408		ja		
P10	1	EB	81	5.4	1.0161		f		
P10	1	EB	138	25.5	0.9703		ja		
P10	1	EB	145	32.1	1.0529		ja		
P10	1	EB	224	130.1	1.1575		ja		
P10	1	EB	245	150.5	1.0234		ja		
P10	1	LNC	47	1.1	1.0595		ja		
P10	1	LNC	114	17.7	1.1947		ja		
P10	1	RB	91	7.2	0.9555		ja		
P10	1	RB	94	10.5	1.2642		ja		
P10	1	RB	100	10.9	1.0900		ja		
P10	1	RB	117	12.3	0.7680	80	ja		
P10	1	RB	132	32.5	1.4131	82	ja		
P10	1	RB	136	25.3	1.0058		ja		
P10	1	RB	139	26.6	0.9905		ja		
P10	1	RB	145	48.2	1.5810		ja		
P10	1	RB	151	36.6	1.0630		ja		
P10	1	RB	152	33.1	0.9425		ja		
P10	1	RB	157	36.0	0.9303		ja		
P10	1	RB	168	44.0	0.9280	81	ja		
P10	1	RB	188	60.7	0.9135	79	ja		
P10	1	RB	202	76.3	0.9257	84	ja		
P10	1	RB	232	131.6	1.0539	83	ja		
P10	2	CCG	50	1.2	0.9600		ja		
P10	2	CCG	58	2.6	1.3326		ja		
P10	2	CCG	62	2.6	1.0909		ja		
P10	2	CCG	64	2.4	0.9155		ja		
P10	2	CCG	66	2.5	0.8696		ja		
P10	2	CCG	66	2.9	1.0087		ja		
P10	2	CCG	71	3.5	0.9779		ja		
P10	2	CCG	74	4.3	1.0611		ja		
P10	2	EB	74	4.4	1.0858		f		
P10	2	EB	74	4.5	1.1105		f		
P10	2	EB	92	7.1	0.9118		f		
P10	2	EB	116	15.5	0.9930		ja		
P10	2	RB	88	6.9	1.0125		ja		
P10	2	RB	93	9.0	1.1189		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P10	2	RB	96	7.2	0.8138		ja		
P10	2	RB	108	12.1	0.9605		ja		
P10	2	RB	113	16.1	1.1158		ja		
P10	2	RB	137	24.1	0.9372		ja		
P10	2	RB	144	26.0	0.8707		ja		
P10	2	RB	151	37.7	1.0950		ja		
P10	2	RB	152	29.5	0.8400		ja		
P10	2	RB	173	57.4	1.1086		ja		
P10	3	CCG	62	2.4	1.0070		ja		
P10	3	CCG	63	2.4	0.9598		ja		
P10	3	CCG	65	2.6	0.9467		ja		
P10	3	CCG	71	2.7	0.7544		ja		
P10	3	CCG	73	3.5	0.8997		ja		
P10	3	CCG	76	3.6	0.8201		ja		
P10	3	CCG	87	5.4	0.8200		ja		
P10	3	EB	138	25.0	0.9513		ja		
P10	3	RB	96	8.5	0.9607		ja		
P10	3	RB	107	11.8	0.9632		ja		
P10	3	RB	111	13.5	0.9871		ja		
P10	3	RB	143	27.4	0.9370		ja		
R04	1	CCG	18	0.0	0.0000		f		
R04	1	CCG	18	0.0	0.0000		f		
R04	1	CCG	18	0.0	0.0000		f		
R04	1	CCG	21	0.0	0.0000		f		
R04	1	CCG	21	0.1	1.0798		f		
R04	1	CCG	21	0.1	1.0798		f		
R04	1	CCG	22	0.0	0.0000		f		
R04	1	CCG	22	0.1	0.9391		f		
R04	1	CCG	22	0.1	0.9391		f		
R04	1	CCG	23	0.1	0.8219		f		
R04	1	CCG	23	0.1	0.8219		f		
R04	1	CCG	24	0.1	0.7234		f		
R04	1	CCG	24	0.2	1.4468		f		
R04	1	CCG	25	0.3	1.9200		f		
R04	1	CCG	26	0.1	0.5690		f		
R04	1	CCG	26	0.1	0.5690		f		
R04	1	CCG	43	0.8	1.0062		ja		
R04	1	CCG	43	0.8	1.0062		ja		
R04	1	CCG	44	0.9	1.0565		ja		
R04	1	CCG	46	0.4	0.4109		ja		
R04	1	CCG	46	0.8	0.8219		ja		
R04	1	CCG	46	1.0	1.0274		ja		
R04	1	CCG	46	1.0	1.0274		ja		
R04	1	CCG	47	0.9	0.8669		ja		
R04	1	CCG	47	0.9	0.8669		ja		
R04	1	CCG	47	1.0	0.9632		ja		
R04	1	CCG	47	1.0	0.9632		ja		
R04	1	CCG	48	1.0	0.9042		ja		
R04	1	CCG	48	1.1	0.9946		ja		
R04	1	CCG	48	1.1	0.9946		ja		
R04	1	CCG	49	1.0	0.8500		ja		
R04	1	CCG	49	1.1	0.9350		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R04	1	CCG	49	1.2	1.0200		ja		
R04	1	CCG	49	1.2	1.0200		ja		
R04	1	CCG	50	1.1	0.8800		ja		
R04	1	CCG	51	1.5	1.1308		ja		
R04	1	CCG	52	1.3	0.9246		ja		
R04	1	CCG	53	1.4	0.9404		ja		
R04	1	CCG	54	1.3	0.8256		ja		
R04	1	CCG	54	1.6	1.0161		ja		
R04	1	CCG	54	1.6	1.0161		ja		
R04	1	CCG	56	1.6	0.9111		ja		
R04	1	CCG	57	1.4	0.7560		ja		
R04	1	CCG	57	1.8	0.9720		ja		
R04	1	CCG	57	2.1	1.1340		ja		
R04	1	CCG	58	2.1	1.0763		ja		
R04	1	CCG	61	2.3	1.0133		ja		
R04	1	CCG	62	2.6	1.0909		ja		
R04	1	CCG	62	2.6	1.0909		ja		
R04	1	CCG	63	2.1	0.8398		ja		
R04	1	CCG	64	2.5	0.9537		ja		
R04	1	CCG	65	2.6	0.9467		ja		
R04	1	CCG	66	2.5	0.8696		ja		
R04	1	CCG	66	2.7	0.9391		ja		
R04	1	CCG	66	2.9	1.0087		ja		
R04	1	CCG	67	2.4	0.7980		ja	10:50	Y
R04	1	CCG	70	3.3	0.9621		ja		
R04	1	CCG	72	3.7	0.9913		ja		
R04	1	CCG	75	3.5	0.8296		ja		
R04	1	CCG	77	4.9	1.0733		ja		
R04	1	CCG	93	7.6	0.9449		ja		
R04	1	EB	63	2.8	1.1198		f		
R04	1	EB	64	2.5	0.9537		f		
R04	1	EB	69	3.5	1.0654		f		
R04	1	EB	73	4.2	1.0796		f		
R04	1	EB	132	25.7	1.1174		ja	10:44	Y
R04	1	EB	145	28.0	0.9184		ja		
R04	1	LNC	18	0.0	0.0000		f		
R04	1	LNC	39	0.7	1.1801		ja		
R04	1	LNC	60	2.8	1.2963		ja		
R04	1	RB	31	0.3	1.0070		f		
R04	1	RB	35	0.7	1.6327		f		
R04	1	RB	36	0.7	1.5003		f		
R04	1	RB	39	0.5	0.8429		f		
R04	1	RB	41	0.8	1.1607		f		
R04	1	RB	42	0.6	0.8098		f		
R04	1	RB	42	0.8	1.0798		f		
R04	1	RB	42	0.8	1.0798		f		
R04	1	RB	43	0.8	1.0062		f		
R04	1	RB	49	1.0	0.8500		f		
R04	1	RB	50	1.4	1.1200		f		
R04	1	RB	62	2.1	0.8811		f		
R04	1	RB	78	4.7	0.9904		ja		
R04	1	RB	78	5.8	1.2222		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R04	1	RB	82	5.0	0.9068		ja		
R04	1	RB	88	7.2	1.0565		ja		
R04	1	RB	108	12.5	0.9923		ja		
R04	1	RB	136	24.6	0.9780	32	ja		
R04	1	RB	139	25.3	0.9421		ja	10:45	Y
R04	1	RB	161	40.7	0.9753	29	ja		
R04	1	RB	189	62.7	0.9287	30	ja		
R04	1	RB	193	76.8	1.0683	31	ja		
R04	2	CCG	28	0.2	0.9111		f		
R04	2	CCG	41	0.7	1.0157		ja		
R04	2	CCG	44	0.9	1.0565		ja		
R04	2	CCG	47	0.9	0.8669		ja		
R04	2	CCG	48	1.0	0.9042		ja		
R04	2	CCG	49	0.7	0.5950		ja		
R04	2	CCG	49	0.9	0.7650		ja		
R04	2	CCG	49	1.2	1.0200		ja		
R04	2	CCG	51	1.1	0.8292		ja		
R04	2	CCG	53	1.3	0.8732		ja		
R04	2	CCG	54	1.3	0.8256		ja		
R04	2	CCG	54	1.6	1.0161		ja		
R04	2	CCG	56	1.7	0.9680		ja		
R04	2	CCG	57	1.8	0.9720		ja		
R04	2	CCG	58	1.6	0.8200		ja		
R04	2	CCG	60	1.8	0.8333		ja		
R04	2	CCG	61	1.9	0.8371		ja		
R04	2	CCG	65	2.5	0.9103		ja		
R04	2	CCG	67	3.0	0.9975		ja		
R04	2	CCG	67	3.1	1.0307		ja		
R04	2	CCG	69	3.0	0.9132		ja		
R04	2	CCG	71	3.0	0.8382		ja		
R04	2	CCG	73	3.7	0.9511		ja		
R04	2	CCG	73	4.0	1.0282		ja		
R04	2	CCG	80	4.4	0.8594		ja		
R04	2	CCG	81	4.9	0.9220		ja		
R04	2	EB	57	1.9	1.0260		f		
R04	2	EB	66	2.5	0.8696		f		
R04	2	EB	78	5.1	1.0747		f		
R04	2	LNC	37	0.6	1.1845		ja	12:45	Y
R04	2	RB	34	0.4	1.0177		f		
R04	2	RB	40	0.5	0.7813		f		
R04	2	RB	46	0.8	0.8219		f		
R04	2	RB	50	1.1	0.8800		f		
R04	2	RB	72	3.5	0.9377		ja		
R04	2	RB	85	6.7	1.0910		ja		
R04	2	RB	134	25.6	1.0640	33	ja		
R04	2	RB	153	36.8	1.0275		ja		
R04	2	RB	173	52.2	1.0082	34	ja		
R08	1	CCG	27	0.3	1.5242		f		
R08	1	CCG	30	0.4	1.4815		f		
R08	1	CCG	41	1.1	1.5960		ja		
R08	1	CCG	51	1.4	1.0554		ja		
R08	1	CCG	51	1.5	1.1308		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R08	1	CCG	54	1.4	0.8891		ja		
R08	1	CCG	57	1.8	0.9720		ja		
R08	1	CCG	58	1.8	0.9225		ja		
R08	1	CCG	58	2.2	1.1276		ja		
R08	1	CCG	60	2.1	0.9722		ja		
R08	1	CCG	60	2.8	1.2963		ja		
R08	1	CCG	62	1.9	0.7972		ja		
R08	1	CCG	62	2.7	1.1329		ja		
R08	1	CCG	63	2.3	0.9198		ja		
R08	1	CCG	63	2.3	0.9198		ja		
R08	1	CCG	63	2.5	0.9998		ja		
R08	1	CCG	63	2.5	0.9998		ja		
R08	1	CCG	64	2.0	0.7629		ja		
R08	1	CCG	64	2.1	0.8011		ja		
R08	1	CCG	65	2.3	0.8375		ja		
R08	1	CCG	66	2.6	0.9044		ja		
R08	1	CCG	68	2.7	0.8587		ja		
R08	1	CCG	68	2.8	0.8905		ja		
R08	1	CCG	68	3.4	1.0813		ja		
R08	1	CCG	69	2.9	0.8828		ja		
R08	1	CCG	70	2.9	0.8455		ja		
R08	1	CCG	70	3.0	0.8746		ja		
R08	1	CCG	70	3.4	0.9913		ja		
R08	1	CCG	72	3.1	0.8305		ja		
R08	1	CCG	72	3.4	0.9109		ja		
R08	1	CCG	73	4.0	1.0282		ja		
R08	1	CCG	75	4.1	0.9719		ja		
R08	1	CCG	76	4.1	0.9340		ja		
R08	1	CCG	78	4.4	0.9272		ja		
R08	1	CCG	81	5.4	1.0161		ja		
R08	1	CCG	82	4.5	0.8162		ja		
R08	1	CCG	87	5.7	0.8656		ja		
R08	1	CCG	89	6.6	0.9362		ja		
R08	1	CCG	92	7.9	1.0145		ja		
R08	1	CCG	93	7.9	0.9822		ja		
R08	1	EB	61	2.6	1.1455		f		
R08	1	EB	66	2.9	1.0087		f		
R08	1	EB	67	3.0	0.9975		f		
R08	1	EB	77	4.1	0.8981		f		
R08	1	LNC	91	8.7	1.1545		ja		
R08	1	LNC	98	9.3	0.9881		ja		
R08	1	LNC	104	13.1	1.1646		ja		
R08	1	RB	49	1.1	0.9350		f		
R08	1	RB	54	1.5	0.9526		f		
R08	1	RB	96	8.4	0.9494		ja		
R08	2	CCG	23	0.1	0.8219		f		
R08	2	CCG	42	0.6	0.8098		ja		
R08	2	CCG	49	1.1	0.9350		ja		
R08	2	CCG	53	1.7	1.1419		ja		
R08	2	CCG	57	1.6	0.8640		ja		
R08	2	CCG	57	1.8	0.9720		ja		
R08	2	CCG	57	1.9	1.0260		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R08	2	CCG	60	1.9	0.8796		ja		
R08	2	CCG	61	2.4	1.0574		ja		
R08	2	CCG	62	2.4	1.0070		ja		
R08	2	CCG	63	2.4	0.9598		ja		
R08	2	CCG	64	2.6	0.9918		ja		
R08	2	CCG	65	2.3	0.8375		ja		
R08	2	CCG	65	2.5	0.9103		ja		
R08	2	CCG	68	3.0	0.9541		ja		
R08	2	CCG	70	3.6	1.0496		ja		
R08	2	CCG	74	3.8	0.9378		ja		
R08	2	CCG	74	4.3	1.0611		ja		
R08	2	CCG	80	5.6	1.0938		ja		
R08	2	CCG	84	6.6	1.1135		ja		
R08	2	CCG	86	5.0	0.7861		ja		
R08	2	CCG	88	7.3	1.0712		ja		
R08	2	EB	61	2.3	1.0133		f		
R08	2	EB	62	2.3	0.9651		f		
R08	2	EB	70	3.8	1.1079		f		
R08	2	LNC	84	6.9	1.1642		ja		
R08	2	RB	98	9.1	0.9669		ja		
R12	1	CCG	16	0.0	0.0000		f		
R12	1	CCG	18	0.0	0.0000		f		
R12	1	CCG	19	0.0	0.0000		f		
R12	1	CCG	21	0.1	1.0798		f		
R12	1	CCG	22	0.6	5.6349		f		
R12	1	CCG	23	0.2	1.6438		f		
R12	1	CCG	29	0.2	0.8200		f		
R12	1	CCG	38	0.7	1.2757		ja		
R12	1	CCG	46	1.2	1.2328		ja		
R12	1	CCG	49	1.3	1.1050		ja		
R12	1	CCG	49	1.4	1.1900		ja		
R12	1	CCG	50	1.1	0.8800		ja		
R12	1	CCG	50	1.2	0.9600		ja		
R12	1	CCG	50	1.3	1.0400		ja		
R12	1	CCG	52	1.5	1.0668		ja		
R12	1	CCG	52	1.6	1.1379		ja		
R12	1	CCG	54	1.5	0.9526		ja		
R12	1	CCG	55	1.9	1.1420		ja		
R12	1	CCG	57	1.1	0.5940		ja		
R12	1	CCG	59	2.2	1.0712		ja		
R12	1	CCG	61	2.0	0.8811		ja		
R12	1	CCG	62	2.3	0.9651		ja		
R12	1	CCG	62	2.4	1.0070		ja		
R12	1	CCG	63	2.4	0.9598		ja		
R12	1	CCG	64	2.4	0.9155		ja		
R12	1	CCG	65	3.0	1.0924		ja		
R12	1	CCG	66	2.7	0.9391		ja		
R12	1	CCG	66	2.7	0.9391		ja		
R12	1	CCG	66	3.2	1.1131		ja		
R12	1	CCG	68	2.9	0.9223		ja		
R12	1	CCG	68	2.9	0.9223		ja		
R12	1	CCG	69	3.3	1.0045		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R12	1	CCG	69	3.3	1.0045		ja		
R12	1	CCG	75	4.3	1.0193		ja		
R12	1	CCG	75	4.5	1.0667		ja		
R12	1	CCG	77	4.5	0.9857		ja		
R12	1	CCG	79	4.0	0.8113		ja		
R12	1	CCG	80	4.7	0.9180		ja		
R12	1	CCG	81	4.9	0.9220		ja		
R12	1	CCG	82	5.0	0.9068		ja		
R12	1	CCG	86	4.8	0.7547		ja		
R12	1	CCG	87	5.9	0.8960		ja		
R12	1	CCG	89	6.0	0.8511		ja		
R12	1	EB	62	2.4	1.0070		f		
R12	1	EB	70	3.8	1.1079		f		
R12	1	EB	72	3.9	1.0449		f		
R12	1	EB	73	3.9	1.0025		f		
R12	1	EB	153	31.8	0.8879		ja		
R12	1	LNC	60	2.4	1.1111		ja		
R12	1	LNC	70	3.7	1.0787		ja		
R12	1	LNC	71	4.2	1.1735		ja		
R12	1	LNC	74	4.9	1.2092		ja		
R12	1	LNC	83	6.9	1.2067		ja		
R12	1	LNC	84	6.8	1.1473		ja		
R12	1	LNC	86	7.9	1.2420		ja		
R12	1	LNC	91	10.0	1.3270		ja		
R12	1	LNC	98	11.1	1.1794		ja		
R12	1	LNC	102	13.6	1.2816		ja		
R12	1	RB	41	1.2	1.7411		f		
R12	1	RB	47	1.0	0.9632		f		
R12	1	RB	47	1.2	1.1558		f		
R12	1	RB	47	1.2	1.1558		f		
R12	1	RB	48	1.4	1.2659		f		
R12	1	RB	51	1.5	1.1308		f		
R12	1	RB	91	7.9	1.0483		ja		
R12	1	RB	107	11.8	0.9632		ja		
R12	1	RB	121	15.6	0.8806	49	ja		
R12	1	RB	137	23.0	0.8945	50	ja		
R12	1	RB	143	34.8	1.1901	51	ja		
R12	1	RB	158	44.0	1.1155	52	ja		
R12	2	CCG	22	0.1	0.9391		f		
R12	2	CCG	46	1.3	1.3356		ja		
R12	2	CCG	53	1.5	1.0075		ja		
R12	2	CCG	53	1.5	1.0075		ja		
R12	2	CCG	54	1.7	1.0796		ja		
R12	2	CCG	55	1.6	0.9617		ja		
R12	2	CCG	59	2.1	1.0225		ja		
R12	2	CCG	62	2.2	0.9231		ja		
R12	2	CCG	62	2.3	0.9651		ja		
R12	2	CCG	63	2.5	0.9998		ja		
R12	2	CCG	63	2.5	0.9998		ja		
R12	2	CCG	67	2.6	0.8645		ja		
R12	2	CCG	70	3.3	0.9621		ja		
R12	2	CCG	73	4.3	1.1054		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R12	2	CCG	75	4.4	1.0430		ja		
R12	2	CCG	76	4.7	1.0707		ja		
R12	2	CCG	77	4.4	0.9638		ja		
R12	2	CCG	78	4.6	0.9693		ja		
R12	2	CCG	80	5.3	1.0352		ja		
R12	2	EB	76	5.8	1.3213		f		
R12	2	EB	139	23.8	0.8862		ja		
R12	2	LNC	89	8.3	1.1774		ja		
R12	2	LNC	118	20.5	1.2477		ja		
R12	2	RB	47	1.1	1.0595		f		
R12	2	RB	48	1.6	1.4468		f		
R12	2	RB	88	7.9	1.1593		ja		
R12	2	RB	99	9.9	1.0203		ja		
R12	2	RB	129	19.3	0.8991	53	ja		
R12	2	RB	139	26.1	0.9718	54	ja		
R12	2	RB	173	49.6	0.9580	55	ja		
R15	1	CCG	21	0.1	1.0798		f		
R15	1	CCG	29	0.2	0.8200		f		
R15	1	CCG	54	1.4	0.8891		ja		
R15	1	CCG	54	1.5	0.9526		ja		
R15	1	CCG	55	1.4	0.8415		ja		
R15	1	CCG	56	1.6	0.9111		ja		
R15	1	CCG	57	1.9	1.0260		ja		
R15	1	CCG	59	2.0	0.9738		ja		
R15	1	CCG	60	2.0	0.9259		ja		
R15	1	CCG	61	2.0	0.8811		ja		
R15	1	CCG	62	2.1	0.8811		ja		
R15	1	CCG	62	2.2	0.9231		ja		
R15	1	CCG	63	2.3	0.9198		ja		
R15	1	CCG	63	2.3	0.9198		ja		
R15	1	CCG	64	2.3	0.8774		ja		
R15	1	CCG	64	2.6	0.9918		ja		
R15	1	CCG	64	2.7	1.0300		ja		
R15	1	CCG	65	2.5	0.9103		ja		
R15	1	CCG	65	2.8	1.0196		ja		
R15	1	CCG	66	2.2	0.7652		ja		
R15	1	CCG	66	2.4	0.8348		ja		
R15	1	CCG	67	2.1	0.6982		ja		
R15	1	CCG	67	2.6	0.8645		ja		
R15	1	CCG	67	2.6	0.8645		ja		
R15	1	CCG	67	2.8	0.9310		ja		
R15	1	CCG	68	2.6	0.8269		ja		
R15	1	CCG	68	2.7	0.8587		ja		
R15	1	CCG	68	2.9	0.9223		ja		
R15	1	CCG	68	2.9	0.9223		ja		
R15	1	CCG	68	3.0	0.9541		ja		
R15	1	CCG	68	3.0	0.9541		ja		
R15	1	CCG	68	3.2	1.0177		ja		
R15	1	CCG	69	2.7	0.8219		ja		
R15	1	CCG	69	3.0	0.9132		ja		
R15	1	CCG	69	3.2	0.9741		ja		
R15	1	CCG	72	3.6	0.9645		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R15	1	CCG	72	3.6	0.9645		ja		
R15	1	CCG	72	4.0	1.0717		ja		
R15	1	CCG	73	3.2	0.8226		ja		
R15	1	CCG	74	4.0	0.9871		ja		
R15	1	CCG	75	4.3	1.0193		ja		
R15	1	CCG	76	4.1	0.9340		ja		
R15	1	CCG	79	3.5	0.7099		ja		
R15	1	CCG	79	4.8	0.9736		ja		
R15	1	CCG	80	4.3	0.8398		ja		
R15	1	CCG	81	4.8	0.9032		ja		
R15	1	CCG	81	4.9	0.9220		ja		
R15	1	CCG	84	5.9	0.9954		ja		
R15	1	CCG	85	4.4	0.7165		ja		
R15	1	CCG	89	7.2	1.0213		ja		
R15	1	CCG	91	7.1	0.9422		ja		
R15	1	CCG	91	7.3	0.9687		ja		
R15	1	EB	70	3.5	1.0204		f		
R15	1	EB	83	5.2	0.9094		f		
R15	1	EB	88	7.4	1.0859		f		
R15	1	LNC	20	0.0	0.0000		f		
R15	1	LNC	23	0.0	0.0000		f		
R15	1	LNC	27	0.1	0.5081		f		
R15	1	LNC	29	0.4	1.6401		f		
R15	1	LNC	36	0.5	1.0717		ja		
R15	1	LNC	45	0.8	0.8779		ja		
R15	1	LNC	47	1.1	1.0595		ja		
R15	1	LNC	67	2.3	0.7647		ja		
R15	1	LNC	68	4.3	1.3675		ja		
R15	1	LNC	78	5.5	1.1590		ja		
R15	1	LNC	84	5.0	0.8436		ja		
R15	1	RB	43	0.8	1.0062		f		
R15	1	RB	46	1.1	1.1301		f		
R15	1	RB	56	1.5	0.8541		f		
R15	1	RB	56	1.7	0.9680		f		
R15	1	RB	81	5.8	1.0914		ja		
R15	1	RB	87	6.8	1.0326		ja		
R15	1	RB	95	7.3	0.8514		ja		
R15	1	RB	97	7.7	0.8437		ja		
R15	1	RB	103	9.0	0.8236		ja		
R15	1	RB	107	9.9	0.8081		ja		
R15	1	RB	133	22.3	0.9479	76	ja		
R15	1	RB	141	26.9	0.9596		ja		
R15	1	RB	144	28.9	0.9679		ja		
R15	1	RB	148	28.6	0.8822		ja		
R15	1	RB	151	33.9	0.9846		ja		
R15	1	RB	152	37.1	1.0564		ja		
R15	1	RB	170	47.5	0.9668	78	ja		
R15	2	CCG	46	0.9	0.9246		ja		
R15	2	CCG	47	1.0	0.9632		ja		
R15	2	CCG	49	1.0	0.8500		ja		
R15	2	CCG	49	1.1	0.9350		ja		
R15	2	CCG	50	1.2	0.9600		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R15	2	CCG	52	1.2	0.8534		ja		
R15	2	CCG	52	1.2	0.8534		ja		
R15	2	CCG	52	1.4	0.9957		ja		
R15	2	CCG	53	1.2	0.8060		ja		
R15	2	CCG	53	1.3	0.8732		ja		
R15	2	CCG	57	1.5	0.8100		ja		
R15	2	CCG	57	2.0	1.0800		ja		
R15	2	CCG	58	1.9	0.9738		ja		
R15	2	CCG	59	1.8	0.8764		ja		
R15	2	CCG	60	2.1	0.9722		ja		
R15	2	CCG	60	3.1	1.4352		ja		
R15	2	CCG	61	2.0	0.8811		ja		
R15	2	CCG	62	2.1	0.8811		ja		
R15	2	CCG	63	2.7	1.0798		ja		
R15	2	CCG	64	2.2	0.8392		ja		
R15	2	CCG	64	2.4	0.9155		ja		
R15	2	CCG	64	2.4	0.9155		ja		
R15	2	CCG	64	2.6	0.9918		ja		
R15	2	CCG	65	2.9	1.0560		ja		
R15	2	CCG	66	2.4	0.8348		ja		
R15	2	CCG	66	2.7	0.9391		ja		
R15	2	CCG	66	2.9	1.0087		ja		
R15	2	CCG	67	2.9	0.9642		ja		
R15	2	CCG	68	2.9	0.9223		ja		
R15	2	CCG	68	3.1	0.9859		ja		
R15	2	CCG	69	2.9	0.8828		ja		
R15	2	CCG	69	3.0	0.9132		ja		
R15	2	CCG	69	3.4	1.0350		ja		
R15	2	CCG	70	2.9	0.8455		ja		
R15	2	CCG	72	3.4	0.9109		ja		
R15	2	CCG	73	3.4	0.8740		ja		
R15	2	CCG	73	3.7	0.9511		ja		
R15	2	CCG	74	3.5	0.8637		ja		
R15	2	CCG	74	3.9	0.9624		ja		
R15	2	CCG	74	4.0	0.9871		ja		
R15	2	CCG	75	3.5	0.8296		ja		
R15	2	CCG	77	4.3	0.9419		ja		
R15	2	CCG	78	3.8	0.8008		ja		
R15	2	CCG	78	3.9	0.8218		ja		
R15	2	CCG	79	3.7	0.7504		ja		
R15	2	CCG	81	4.0	0.7527		ja		
R15	2	CCG	81	4.7	0.8844		ja		
R15	2	CCG	81	5.3	0.9973		ja		
R15	2	CCG	86	6.0	0.9433		ja		
R15	2	CCG	86	7.0	1.1005		ja		
R15	2	CCG	87	6.4	0.9719		ja		
R15	2	CCG	88	5.9	0.8658		ja		
R15	2	CCG	89	6.2	0.8795		ja		
R15	2	CCG	92	6.7	0.8604		ja		
R15	2	CCG	95	7.7	0.8981		ja		
R15	2	EB	79	5.1	1.0344		f		
R15	2	LNC	22	0.1	0.9391		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R15	2	LNC	23	0.2	1.6438		f		
R15	2	LNC	46	1.1	1.1301		ja		
R15	2	LNC	48	1.2	1.0851		ja		
R15	2	LNC	52	1.8	1.2802		ja		
R15	2	LNC	68	3.8	1.2085		ja		
R15	2	LNC	96	9.4	1.0625		ja		
R15	2	LNC	97	10.0	1.0957		ja		
R15	2	RB	54	1.4	0.8891		f		
R15	2	RB	80	5.1	0.9961		ja		
R15	2	RB	84	5.6	0.9448		ja		
R15	2	RB	86	6.0	0.9433		ja		
R15	2	RB	98	9.2	0.9775		ja		
R15	2	RB	99	8.8	0.9069		ja		
R15	2	RB	114	13.5	0.9112		ja		
R15	3	CCG	48	1.1	0.9946		ja		
R15	3	CCG	52	1.2	0.8534		ja		
R15	3	CCG	53	1.5	1.0075		ja		
R15	3	CCG	54	1.5	0.9526		ja		
R15	3	CCG	57	1.6	0.8640		ja		
R15	3	CCG	60	2.0	0.9259		ja		
R15	3	CCG	61	2.4	1.0574		ja		
R15	3	CCG	63	2.3	0.9198		ja		
R15	3	CCG	63	2.4	0.9598		ja		
R15	3	CCG	65	2.6	0.9467		ja		
R15	3	CCG	66	2.4	0.8348		ja		
R15	3	CCG	67	1.6	0.5320		ja		
R15	3	CCG	69	3.1	0.9437		ja		
R15	3	CCG	71	2.9	0.8103		ja		
R15	3	CCG	71	3.0	0.8382		ja		
R15	3	CCG	72	3.3	0.8841		ja		
R15	3	CCG	72	3.6	0.9645		ja		
R15	3	CCG	73	3.5	0.8997		ja		
R15	3	CCG	75	4.0	0.9481		ja		
R15	3	CCG	78	4.0	0.8429		ja		
R15	3	CCG	83	5.7	0.9969		ja		
R15	3	CCG	88	6.5	0.9538		ja		
R15	3	CCG	91	6.8	0.9024		ja		
R15	3	EB	76	4.2	0.9568		f		
R15	3	EB	76	4.3	0.9796		f		
R15	3	LNC	42	0.8	1.0798		ja		
R15	3	LNC	55	1.6	0.9617		ja		
R15	3	LNC	58	2.1	1.0763		ja		
R15	3	RB	107	11.6	0.9469		ja		
SC1	1	CCG	46	0.6	0.6164		ja		
SC1	1	CCG	46	0.8	0.8219		ja		
SC1	1	CCG	47	0.7	0.6742		ja		
SC1	1	CCG	51	1.3	0.9800		ja		
SC1	1	CCG	52	1.4	0.9957		ja		
SC1	1	CCG	54	1.5	0.9526		ja		
SC1	1	CCG	58	1.5	0.7688		ja		
SC1	1	CCG	62	2.1	0.8811		ja		
SC1	1	CCG	66	2.3	0.8000		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
SC1	1	CCG	71	3.2	0.8941		ja		
SC1	1	CCG	73	3.7	0.9511		ja		
SC1	1	CCG	77	3.6	0.7886		ja		
SC1	1	EB	61	2.2	0.9692		f		
SC1	1	EB	65	3.7	1.3473		f		
SC1	1	EB	75	4.3	1.0193		f		
SC1	1	RB	42	0.8	1.0798		f		
SC1	1	RB	43	0.8	1.0062		f		
SC1	1	RB	43	1.1	1.3835		f		
SC1	1	RB	43	1.3	1.6351		f		
SC1	1	RB	44	1.1	1.2913		f		
SC1	1	RB	45	0.8	0.8779		f		
SC1	1	RB	46	1.2	1.2328		f		
SC1	1	RB	47	0.9	0.8669		f		
SC1	1	RB	47	1.0	0.9632		f		
SC1	1	RB	47	1.0	0.9632		f		
SC1	1	RB	47	1.4	1.3484		f		
SC1	1	RB	48	0.9	0.8138		f		
SC1	1	RB	48	1.3	1.1755		f		
SC1	1	RB	50	0.9	0.7200		f		
SC1	1	RB	56	1.7	0.9680		f		
SC1	2	CCG	20	0.1	1.2500		f		
SC1	2	CCG	27	0.2	1.0161		f		
SC1	2	CCG	49	0.9	0.7650		ja		
SC1	2	CCG	52	1.2	0.8534		ja		
SC1	2	CCG	57	1.9	1.0260		ja		
SC1	2	CCG	65	2.8	1.0196		ja		
SC1	2	CCG	66	2.4	0.8348		ja		
SC1	2	EB	68	3.5	1.1131		f		
SC1	2	RB	42	0.8	1.0798		f		
SC1	2	RB	43	0.4	0.5031		f		
SC1	2	RB	47	0.9	0.8669		f		
SC1	2	RB	48	1.2	1.0851		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G08	1	CCG	27	0.1	0.5081		f		
G08	1	CCG	44	0.7	0.8218		ja		
G08	1	CCG	45	0.8	0.8779		ja		
G08	1	CCG	46	1.1	1.1301		ja		
G08	1	CCG	48	1.0	0.9042		ja		
G08	1	CCG	50	1.3	1.0400		ja		
G08	1	CCG	51	1.0	0.7539		ja		
G08	1	CCG	51	1.1	0.8292		ja		
G08	1	CCG	52	1.3	0.9246		ja		
G08	1	CCG	53	1.5	1.0075		ja		
G08	1	CCG	54	1.4	0.8891		ja		
G08	1	CCG	54	1.4	0.8891		ja		
G08	1	CCG	55	2.0	1.2021		ja		
G08	1	CCG	56	1.5	0.8541		ja		
G08	1	CCG	56	1.5	0.8541		ja		
G08	1	CCG	56	1.9	1.0819		ja		
G08	1	CCG	57	1.5	0.8100		ja		
G08	1	CCG	57	1.6	0.8640		ja		
G08	1	CCG	57	1.8	0.9720		ja		
G08	1	CCG	58	1.9	0.9738		ja		
G08	1	CCG	59	2.0	0.9738		ja		
G08	1	CCG	59	2.1	1.0225		ja		
G08	1	CCG	60	1.9	0.8796		ja		
G08	1	CCG	60	2.0	0.9259		ja		
G08	1	CCG	60	2.0	0.9259		ja		
G08	1	CCG	61	1.9	0.8371		ja		
G08	1	CCG	61	2.2	0.9692		ja		
G08	1	CCG	62	2.4	1.0070		ja		
G08	1	CCG	63	2.0	0.7998		ja		
G08	1	CCG	64	2.3	0.8774		ja		
G08	1	CCG	65	2.2	0.8011		ja		
G08	1	CCG	65	2.6	0.9467		ja		
G08	1	CCG	65	2.7	0.9832		ja		
G08	1	CCG	66	2.2	0.7652		ja		
G08	1	CCG	66	2.3	0.8000		ja		
G08	1	CCG	68	2.5	0.7951		ja		
G08	1	CCG	69	2.8	0.8523		ja		
G08	1	CCG	69	3.4	1.0350		ja		
G08	1	CCG	72	3.1	0.8305		ja		
G08	1	CCG	72	3.3	0.8841		ja		
G08	1	CCG	72	3.3	0.8841		ja		
G08	1	CCG	73	3.6	0.9254		ja		
G08	1	CCG	73	3.6	0.9254		ja		
G08	1	CCG	73	3.7	0.9511		ja		
G08	1	CCG	73	4.1	1.0539		ja		
G08	1	CCG	74	3.5	0.8637		ja		
G08	1	CCG	74	3.8	0.9378		ja		
G08	1	CCG	75	3.6	0.8533		ja		
G08	1	CCG	75	4.2	0.9956		ja		
G08	1	CCG	77	3.6	0.7886		ja		
G08	1	CCG	77	4.0	0.8762		ja		
G08	1	CCG	77	4.9	1.0733		ja		
G08	1	CCG	78	3.9	0.8218		ja		
G08	1	CCG	80	4.3	0.8398		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G08	1	CCG	82	4.6	0.8343		ja		
G08	1	CCG	82	5.1	0.9250		ja		
G08	1	CCG	83	6.4	1.1193		ja		
G08	1	CCG	85	5.6	0.9119		ja		
G08	1	CCG	93	7.6	0.9449		ja		
G08	1	EB	60	2.3	1.0648		f		
G08	1	RB	35	0.3	0.6997		f		
G08	1	RB	36	0.6	1.2860		f		
G08	1	RB	48	1.0	0.9042		f		
G08	1	RB	55	1.7	1.0218		f		
G08	1	RB	82	5.5	0.9975		ja		
G08	2	CCG	43	0.9	1.1320		ja		
G08	2	CCG	44	1.0	1.1739		ja		
G08	2	CCG	44	1.0	1.1739		ja		
G08	2	CCG	49	1.2	1.0200		ja		
G08	2	CCG	50	1.1	0.8800		ja		
G08	2	CCG	53	1.3	0.8732		ja		
G08	2	CCG	54	1.4	0.8891		ja		
G08	2	CCG	54	1.5	0.9526		ja		
G08	2	CCG	54	1.6	1.0161		ja		
G08	2	CCG	56	1.5	0.8541		ja		
G08	2	CCG	56	1.6	0.9111		ja		
G08	2	CCG	56	1.8	1.0250		ja		
G08	2	CCG	57	1.8	0.9720		ja		
G08	2	CCG	57	1.8	0.9720		ja		
G08	2	CCG	57	2.2	1.1879		ja		
G08	2	CCG	58	1.7	0.8713		ja		
G08	2	CCG	58	1.8	0.9225		ja		
G08	2	CCG	58	2.1	1.0763		ja		
G08	2	CCG	59	1.7	0.8277		ja		
G08	2	CCG	59	2.2	1.0712		ja		
G08	2	CCG	61	2.2	0.9692		ja		
G08	2	CCG	61	2.3	1.0133		ja		
G08	2	CCG	67	2.6	0.8645		ja		
G08	2	CCG	71	3.7	1.0338		ja		
G08	2	CCG	72	3.7	0.9913		ja		
G08	2	CCG	73	3.7	0.9511		ja		
G08	2	CCG	74	3.5	0.8637		ja		
G08	2	CCG	75	4.4	1.0430		ja		
G08	2	CCG	80	5.2	1.0156		ja		
G08	2	CCG	84	6.0	1.0123		ja		
G08	2	CCG	92	7.9	1.0145		ja		
G08	2	EB	64	3.2	1.2207		f		
G08	2	RB	46	1.1	1.1301		f		
G08	2	RB	80	5.2	1.0156		ja		
G22	1	CCG	44	1.3	1.5261		ja		
G22	1	CCG	47	1.0	0.9632		ja		
G22	1	CCG	48	0.8	0.7234		ja		
G22	1	CCG	49	1.1	0.9350		ja		
G22	1	CCG	50	0.9	0.7200		ja		
G22	1	CCG	51	1.0	0.7539		ja		
G22	1	CCG	51	1.1	0.8292		ja		
G22	1	CCG	51	1.3	0.9800		ja		
G22	1	CCG	51	1.6	1.2062		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G22	1	CCG	52	1.5	1.0668		ja		
G22	1	CCG	53	0.7	0.4702		ja		
G22	1	CCG	53	1.2	0.8060		ja		
G22	1	CCG	53	1.3	0.8732		ja		
G22	1	CCG	53	1.4	0.9404		ja		
G22	1	CCG	53	1.4	0.9404		ja		
G22	1	CCG	53	1.4	0.9404		ja		
G22	1	CCG	53	1.4	0.9404		ja		
G22	1	CCG	53	1.6	1.0747		ja		
G22	1	CCG	54	1.3	0.8256		ja		
G22	1	CCG	54	1.4	0.8891		ja		
G22	1	CCG	54	1.4	0.8891		ja		
G22	1	CCG	54	1.5	0.9526		ja		
G22	1	CCG	54	1.5	0.9526		ja		
G22	1	CCG	54	1.5	0.9526		ja		
G22	1	CCG	54	1.6	1.0161		ja		
G22	1	CCG	54	1.7	1.0796		ja		
G22	1	CCG	55	1.3	0.7814		ja		
G22	1	CCG	55	1.3	0.7814		ja		
G22	1	CCG	55	1.5	0.9016		ja		
G22	1	CCG	55	1.6	0.9617		ja		
G22	1	CCG	55	1.7	1.0218		ja		
G22	1	CCG	55	1.9	1.1420		ja		
G22	1	CCG	56	1.3	0.7403		ja		
G22	1	CCG	56	1.4	0.7972		ja		
G22	1	CCG	56	1.5	0.8541		ja		
G22	1	CCG	56	1.5	0.8541		ja		
G22	1	CCG	56	1.5	0.8541		ja		
G22	1	CCG	56	1.6	0.9111		ja		
G22	1	CCG	56	1.7	0.9680		ja		
G22	1	CCG	56	1.8	1.0250		ja		
G22	1	CCG	56	1.8	1.0250		ja		
G22	1	CCG	56	1.8	1.0250		ja		
G22	1	CCG	56	1.9	1.0819		ja		
G22	1	CCG	57	1.6	0.8640		ja		
G22	1	CCG	57	1.6	0.8640		ja		
G22	1	CCG	57	1.6	0.8640		ja		
G22	1	CCG	57	1.7	0.9180		ja		
G22	1	CCG	57	1.8	0.9720		ja		
G22	1	CCG	57	1.8	0.9720		ja		
G22	1	CCG	57	1.8	0.9720		ja		
G22	1	CCG	57	2.1	1.1340		ja		
G22	1	CCG	58	1.6	0.8200		ja		
G22	1	CCG	58	1.8	0.9225		ja		
G22	1	CCG	58	2.0	1.0251		ja		
G22	1	CCG	58	2.0	1.0251		ja		
G22	1	CCG	58	2.1	1.0763		ja		
G22	1	CCG	58	2.4	1.2301		ja		
G22	1	CCG	59	1.9	0.9251		ja		
G22	1	CCG	59	1.9	0.9251		ja		
G22	1	CCG	59	2.1	1.0225		ja		
G22	1	CCG	60	1.8	0.8333		ja		
G22	1	CCG	60	1.9	0.8796		ja		
G22	1	CCG	60	1.9	0.8796		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G22	1	CCG	61	2.2	0.9692		ja		
G22	1	CCG	61	2.2	0.9692		ja		
G22	1	CCG	61	2.4	1.0574		ja		
G22	1	CCG	62	2.0	0.8392		ja		
G22	1	CCG	62	2.3	0.9651		ja		
G22	1	CCG	62	2.3	0.9651		ja		
G22	1	CCG	62	2.6	1.0909		ja		
G22	1	CCG	62	3.3	1.3846		ja		
G22	1	CCG	63	2.0	0.7998		ja		
G22	1	CCG	63	2.3	0.9198		ja		
G22	1	CCG	64	2.3	0.8774		ja		
G22	1	CCG	64	2.5	0.9537		ja		
G22	1	CCG	65	2.1	0.7647		ja		
G22	1	CCG	65	2.2	0.8011		ja		
G22	1	CCG	65	2.3	0.8375		ja		
G22	1	CCG	66	3.1	1.0783		ja		
G22	1	CCG	67	2.8	0.9310		ja		
G22	1	CCG	67	2.8	0.9310		ja		
G22	1	CCG	72	3.0	0.8038		ja		
G22	1	CCG	72	3.1	0.8305		ja		
G22	1	CCG	73	3.0	0.7712		ja		
G22	1	CCG	73	3.2	0.8226		ja		
G22	1	CCG	73	3.5	0.8997		ja		
G22	1	CCG	73	3.6	0.9254		ja		
G22	1	CCG	73	3.6	0.9254		ja		
G22	1	CCG	74	3.4	0.8390		ja		
G22	1	CCG	74	3.9	0.9624		ja		
G22	1	CCG	77	4.0	0.8762		ja		
G22	1	CCG	77	4.1	0.8981		ja		
G22	1	CCG	78	4.4	0.9272		ja		
G22	1	CCG	81	4.1	0.7715		ja		
G22	1	CCG	86	5.4	0.8490		ja		
G22	1	CCG	89	6.2	0.8795		ja		
G22	1	CCG	89	7.4	1.0497		ja		
G22	1	EB	78	4.4	0.9272		f		
G22	1	EB	116	15.5	0.9930		ja		
G22	1	RB	23	0.2	1.6438		f		
G22	1	RB	27	0.2	1.0161		f		
G22	1	RB	29	0.1	0.4100		f		
G22	1	RB	34	0.3	0.7633		f		
G22	1	RB	37	0.7	1.3820		f		
G22	1	RB	42	0.8	1.0798		f		
G22	1	RB	43	0.9	1.1320		f		
G22	1	RB	81	5.2	0.9785		ja		
G22	1	RB	84	5.9	0.9954		ja		
G22	1	RB	87	6.2	0.9415		ja		
G22	1	RB	88	6.5	0.9538		ja		
G22	1	RB	108	13.1	1.0399		ja		
G22	1	RB	150	30.6	0.9067		ja		
G22	2	CCG	44	1.1	1.2913		ja		
G22	2	CCG	45	1.0	1.0974		ja		
G22	2	CCG	47	0.8	0.7705		ja		
G22	2	CCG	49	1.0	0.8500		ja		
G22	2	CCG	50	1.3	1.0400		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G22	2	CCG	50	1.3	1.0400		ja		
G22	2	CCG	51	1.1	0.8292		ja		
G22	2	CCG	51	1.3	0.9800		ja		
G22	2	CCG	52	1.5	1.0668		ja		
G22	2	CCG	52	1.5	1.0668		ja		
G22	2	CCG	52	1.6	1.1379		ja		
G22	2	CCG	52	1.6	1.1379		ja		
G22	2	CCG	53	1.4	0.9404		ja		
G22	2	CCG	54	1.5	0.9526		ja		
G22	2	CCG	55	1.3	0.7814		ja		
G22	2	CCG	55	1.4	0.8415		ja		
G22	2	CCG	55	1.5	0.9016		ja		
G22	2	CCG	55	1.7	1.0218		ja		
G22	2	CCG	56	1.5	0.8541		ja		
G22	2	CCG	56	1.5	0.8541		ja		
G22	2	CCG	56	1.6	0.9111		ja		
G22	2	CCG	57	1.6	0.8640		ja		
G22	2	CCG	57	1.6	0.8640		ja		
G22	2	CCG	57	1.7	0.9180		ja		
G22	2	CCG	57	1.7	0.9180		ja		
G22	2	CCG	58	1.5	0.7688		ja		
G22	2	CCG	58	1.6	0.8200		ja		
G22	2	CCG	58	1.8	0.9225		ja		
G22	2	CCG	58	1.9	0.9738		ja		
G22	2	CCG	58	1.9	0.9738		ja		
G22	2	CCG	58	2.2	1.1276		ja		
G22	2	CCG	59	2.0	0.9738		ja		
G22	2	CCG	59	2.0	0.9738		ja		
G22	2	CCG	60	1.8	0.8333		ja		
G22	2	CCG	60	1.9	0.8796		ja		
G22	2	CCG	60	2.2	1.0185		ja		
G22	2	CCG	61	2.0	0.8811		ja		
G22	2	CCG	62	2.0	0.8392		ja		
G22	2	CCG	62	2.1	0.8811		ja		
G22	2	CCG	63	2.2	0.8798		ja		
G22	2	CCG	64	2.7	1.0300		ja		
G22	2	CCG	70	2.9	0.8455		ja		
G22	2	CCG	70	3.0	0.8746		ja		
G22	2	CCG	71	3.5	0.9779		ja		
G22	2	CCG	72	3.4	0.9109		ja		
G22	2	CCG	79	4.2	0.8519		ja		
G22	2	CCG	87	6.4	0.9719		ja		
G22	2	EB	68	2.8	0.8905		f		
G22	2	EB	81	6.5	1.2231		f		
G22	2	RB	28	0.2	0.9111		f		
G22	2	RB	32	0.4	1.2207		f		
G22	2	RB	35	0.5	1.1662		f		
G22	2	RB	39	0.5	0.8429		f		
G22	2	RB	44	1.0	1.1739		f		
G22	2	RB	130	21.5	0.9786		ja		
G23	1	CCG	37	0.5	0.9871		ja		
G23	1	CCG	41	0.6	0.8706		ja		
G23	1	CCG	43	0.6	0.7547		ja		
G23	1	CCG	46	0.7	0.7192		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G23	1	CCG	48	0.7	0.6330		ja		
G23	1	CCG	48	0.9	0.8138		ja		
G23	1	CCG	49	1.0	0.8500		ja		
G23	1	CCG	49	1.2	1.0200		ja		
G23	1	CCG	50	1.0	0.8000		ja		
G23	1	CCG	51	1.1	0.8292		ja		
G23	1	CCG	51	1.2	0.9046		ja		
G23	1	CCG	51	1.4	1.0554		ja		
G23	1	CCG	52	1.2	0.8534		ja		
G23	1	CCG	52	1.4	0.9957		ja		
G23	1	CCG	52	1.5	1.0668		ja		
G23	1	CCG	53	1.2	0.8060		ja		
G23	1	CCG	53	1.3	0.8732		ja		
G23	1	CCG	53	1.5	1.0075		ja		
G23	1	CCG	54	1.3	0.8256		ja		
G23	1	CCG	54	1.5	0.9526		ja		
G23	1	CCG	54	1.6	1.0161		ja		
G23	1	CCG	55	1.4	0.8415		ja		
G23	1	CCG	55	1.4	0.8415		ja		
G23	1	CCG	55	1.6	0.9617		ja		
G23	1	CCG	55	1.6	0.9617		ja		
G23	1	CCG	55	1.7	1.0218		ja		
G23	1	CCG	55	1.7	1.0218		ja		
G23	1	CCG	55	1.8	1.0819		ja		
G23	1	CCG	56	1.4	0.7972		ja		
G23	1	CCG	56	1.4	0.7972		ja		
G23	1	CCG	56	1.5	0.8541		ja		
G23	1	CCG	56	1.5	0.8541		ja		
G23	1	CCG	56	1.5	0.8541		ja		
G23	1	CCG	56	1.7	0.9680		ja		
G23	1	CCG	56	1.7	0.9680		ja		
G23	1	CCG	57	1.6	0.8640		ja		
G23	1	CCG	57	1.6	0.8640		ja		
G23	1	CCG	57	1.7	0.9180		ja		
G23	1	CCG	57	1.8	0.9720		ja		
G23	1	CCG	57	1.9	1.0260		ja		
G23	1	CCG	58	1.4	0.7175		ja		
G23	1	CCG	58	1.6	0.8200		ja		
G23	1	CCG	58	1.6	0.8200		ja		
G23	1	CCG	58	1.6	0.8200		ja		
G23	1	CCG	58	1.6	0.8200		ja		
G23	1	CCG	58	1.7	0.8713		ja		
G23	1	CCG	58	1.8	0.9225		ja		
G23	1	CCG	58	1.8	0.9225		ja		
G23	1	CCG	58	1.8	0.9225		ja		
G23	1	CCG	58	2.0	1.0251		ja		
G23	1	CCG	58	2.1	1.0763		ja		
G23	1	CCG	58	2.7	1.3838		ja		
G23	1	CCG	59	1.7	0.8277		ja		
G23	1	CCG	59	1.8	0.8764		ja		
G23	1	CCG	59	1.9	0.9251		ja		
G23	1	CCG	59	1.9	0.9251		ja		
G23	1	CCG	59	2.0	0.9738		ja		
G23	1	CCG	60	1.6	0.7407		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G23	1	CCG	60	1.7	0.7870		ja		
G23	1	CCG	60	2.3	1.0648		ja		
G23	1	CCG	61	1.9	0.8371		ja		
G23	1	CCG	61	2.0	0.8811		ja		
G23	1	CCG	61	2.1	0.9252		ja		
G23	1	CCG	61	2.2	0.9692		ja		
G23	1	CCG	62	1.9	0.7972		ja		
G23	1	CCG	62	2.0	0.8392		ja		
G23	1	CCG	62	2.2	0.9231		ja		
G23	1	CCG	62	2.2	0.9231		ja		
G23	1	CCG	63	2.1	0.8398		ja		
G23	1	CCG	63	2.6	1.0398		ja		
G23	1	CCG	64	2.1	0.8011		ja		
G23	1	CCG	64	2.1	0.8011		ja		
G23	1	CCG	64	2.2	0.8392		ja		
G23	1	CCG	64	2.3	0.8774		ja		
G23	1	CCG	64	2.3	0.8774		ja		
G23	1	CCG	65	1.5	0.5462		ja		
G23	1	CCG	65	2.3	0.8375		ja		
G23	1	CCG	65	2.5	0.9103		ja		
G23	1	CCG	65	2.8	1.0196		ja		
G23	1	CCG	66	2.4	0.8348		ja		
G23	1	CCG	66	2.5	0.8696		ja		
G23	1	CCG	67	3.0	0.9975		ja		
G23	1	CCG	67	3.0	0.9975		ja		
G23	1	CCG	68	2.6	0.8269		ja		
G23	1	CCG	69	2.7	0.8219		ja		
G23	1	CCG	70	2.8	0.8163		ja		
G23	1	CCG	70	3.1	0.9038		ja		
G23	1	CCG	71	2.8	0.7823		ja		
G23	1	CCG	71	3.1	0.8661		ja		
G23	1	CCG	71	3.1	0.8661		ja		
G23	1	CCG	72	3.4	0.9109		ja		
G23	1	CCG	72	3.5	0.9377		ja		
G23	1	CCG	72	3.6	0.9645		ja		
G23	1	CCG	73	3.1	0.7969		ja		
G23	1	CCG	73	3.3	0.8483		ja		
G23	1	CCG	73	3.4	0.8740		ja		
G23	1	CCG	73	3.7	0.9511		ja		
G23	1	CCG	74	3.3	0.8144		ja		
G23	1	CCG	74	3.5	0.8637		ja		
G23	1	CCG	75	3.3	0.7822		ja		
G23	1	CCG	78	4.1	0.8640		ja		
G23	1	CCG	79	3.4	0.6896		ja		
G23	1	CCG	79	4.8	0.9736		ja		
G23	1	CCG	83	4.8	0.8395		ja		
G23	1	CCG	90	6.1	0.8368		ja		
G23	1	CCG	91	7.1	0.9422		ja		
G23	1	CCG	96	8.0	0.9042		ja		
G23	1	EB	114	15.8	1.0665		ja		
G23	1	EB	134	25.8	1.0723		ja		
G23	1	EB	169	51.0	1.0566		ja		
G23	1	RB	35	0.6	1.3994		f		
G23	1	RB	39	0.5	0.8429		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G23	1	RB	39	0.6	1.0115		f		
G23	1	RB	40	0.5	0.7813		f		
G23	1	RB	40	0.6	0.9375		f		
G23	1	RB	40	0.7	1.0938		f		
G23	1	RB	42	0.4	0.5399		f		
G23	1	RB	43	0.6	0.7547		f		
G23	1	RB	43	0.9	1.1320		f		
G23	1	RB	45	1.0	1.0974		f		
G23	1	RB	48	0.9	0.8138		f		
G23	1	RB	72	4.2	1.1253		ja		
G23	1	RB	74	4.4	1.0858		ja		
G23	1	RB	76	4.9	1.1162		ja		
G23	1	RB	82	7.2	1.3058		ja		
G23	1	RB	83	5.3	0.9269		ja		
G23	1	RB	84	5.9	0.9954		ja		
G23	1	RB	86	7.1	1.1163		ja		
G23	1	RB	87	6.0	0.9112		ja		
G23	1	RB	94	8.1	0.9752		ja		
G23	1	RB	94	8.3	0.9993		ja		
G23	1	RB	121	15.4	0.8693		ja		
G23	1	RB	121	16.9	0.9540		ja		
G23	1	RB	123	21.4	1.1500		ja		
G23	1	RB	127	19.8	0.9666		ja		
G23	1	RB	128	19.5	0.9298		ja		
G23	1	RB	140	27.2	0.9913		ja		
G23	1	RB	165	42.6	0.9483		ja		
G23	1	RB	168	53.5	1.1283		ja		
G23	2	CCG	51	1.4	1.0554		ja		
G23	2	CCG	51	1.4	1.0554		ja		
G23	2	CCG	52	1.3	0.9246		ja		
G23	2	CCG	52	1.3	0.9246		ja		
G23	2	CCG	52	1.4	0.9957		ja		
G23	2	CCG	52	1.4	0.9957		ja		
G23	2	CCG	53	1.2	0.8060		ja		
G23	2	CCG	53	1.2	0.8060		ja		
G23	2	CCG	53	1.2	0.8060		ja		
G23	2	CCG	53	1.3	0.8732		ja		
G23	2	CCG	54	1.3	0.8256		ja		
G23	2	CCG	54	1.4	0.8891		ja		
G23	2	CCG	54	1.4	0.8891		ja		
G23	2	CCG	54	1.4	0.8891		ja		
G23	2	CCG	54	1.5	0.9526		ja		
G23	2	CCG	54	1.6	1.0161		ja		
G23	2	CCG	55	1.7	1.0218		ja		
G23	2	CCG	55	1.8	1.0819		ja		
G23	2	CCG	56	1.3	0.7403		ja		
G23	2	CCG	56	1.4	0.7972		ja		
G23	2	CCG	56	1.6	0.9111		ja		
G23	2	CCG	57	1.6	0.8640		ja		
G23	2	CCG	57	1.6	0.8640		ja		
G23	2	CCG	57	1.7	0.9180		ja		
G23	2	CCG	57	1.7	0.9180		ja		
G23	2	CCG	57	1.7	0.9180		ja		
G23	2	CCG	57	1.7	0.9180		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
G23	2	CCG	58	2.1	1.0763		ja		
G23	2	CCG	59	1.9	0.9251		ja		
G23	2	CCG	60	2.0	0.9259		ja		
G23	2	CCG	60	2.3	1.0648		ja		
G23	2	CCG	61	1.9	0.8371		ja		
G23	2	CCG	62	2.4	1.0070		ja		
G23	2	CCG	64	2.1	0.8011		ja		
G23	2	CCG	64	2.1	0.8011		ja		
G23	2	CCG	64	2.7	1.0300		ja		
G23	2	CCG	65	2.2	0.8011		ja		
G23	2	CCG	65	2.5	0.9103		ja		
G23	2	CCG	66	2.2	0.7652		ja		
G23	2	CCG	66	2.4	0.8348		ja		
G23	2	CCG	66	3.1	1.0783		ja		
G23	2	CCG	67	2.6	0.8645		ja		
G23	2	CCG	67	2.7	0.8977		ja		
G23	2	CCG	69	2.6	0.7915		ja		
G23	2	CCG	69	2.8	0.8523		ja		
G23	2	CCG	71	3.2	0.8941		ja		
G23	2	CCG	72	3.3	0.8841		ja		
G23	2	CCG	72	3.4	0.9109		ja		
G23	2	CCG	75	3.3	0.7822		ja		
G23	2	CCG	75	3.5	0.8296		ja		
G23	2	CCG	76	3.9	0.8884		ja		
G23	2	CCG	76	4.0	0.9112		ja		
G23	2	CCG	80	4.3	0.8398		ja		
G23	2	CCG	83	5.4	0.9444		ja		
G23	2	CCG	85	5.2	0.8467		ja		
G23	2	RB	24	0.3	2.1701		f		
G23	2	RB	30	0.6	2.2222		f		
G23	2	RB	32	0.5	1.5259		f		
G23	2	RB	33	0.3	0.8348		f		
G23	2	RB	40	0.7	1.0938		f		
G23	2	RB	40	0.7	1.0938		f		
P09	1	CCG	35	0.5	1.1662		ja		
P09	1	CCG	50	1.5	1.2000		ja		
P09	1	CCG	51	1.2	0.9046		ja		
P09	1	CCG	53	1.3	0.8732		ja		
P09	1	CCG	55	1.6	0.9617		ja		
P09	1	CCG	55	1.7	1.0218		ja		
P09	1	CCG	57	1.7	0.9180		ja		
P09	1	CCG	57	1.9	1.0260		ja		
P09	1	CCG	58	1.8	0.9225		ja		
P09	1	CCG	58	1.8	0.9225		ja		
P09	1	CCG	59	2.1	1.0225		ja		
P09	1	CCG	60	2.0	0.9259		ja		
P09	1	CCG	61	2.2	0.9692		ja		
P09	1	CCG	62	2.2	0.9231		ja		
P09	1	CCG	72	3.3	0.8841		ja		
P09	1	CCG	73	3.6	0.9254		ja		
P09	1	CCG	74	3.2	0.7897		ja		
P09	1	CCG	74	3.7	0.9131		ja		
P09	1	CCG	82	5.6	1.0157		ja		
P09	1	EB	62	2.1	0.8811		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P09	1	EB	68	3.7	1.1767		f		
P09	1	EB	73	3.8	0.9768		f		
P09	1	EB	204	88.7	1.0448		ja		
P09	1	RB	38	0.7	1.2757		f		
P09	1	RB	40	0.8	1.2500		f		
P09	1	RB	42	0.6	0.8098		f		
P09	1	RB	42	0.7	0.9448		f		
P09	1	RB	78	5.5	1.1590		ja		
P09	1	RB	103	9.9	0.9060		ja		
P09	1	RB	138	22.7	0.8638		ja		
P09	1	RB	185	61.6	0.9729		ja		
P09	1	RB	186	55.4	0.8609		ja		
P09	1	RB	204	77.0	0.9070		ja		
P09	2	CCG	44	0.8	0.9391		ja		
P09	2	CCG	49	1.1	0.9350		ja		
P09	2	CCG	52	1.2	0.8534		ja		
P09	2	CCG	55	1.5	0.9016		ja		
P09	2	CCG	56	1.6	0.9111		ja		
P09	2	CCG	59	1.7	0.8277		ja		
P09	2	CCG	62	2.3	0.9651		ja		
P09	2	CCG	63	2.2	0.8798		ja		
P09	2	CCG	74	3.6	0.8884		ja		
P09	2	CCG	83	5.3	0.9269		ja		
P09	2	CCG	88	6.6	0.9685		ja		
P09	2	EB	65	2.9	1.0560		f		
P09	2	EB	115	15.0	0.9863		ja		
P09	2	EB	125	20.7	1.0598		ja		
P09	2	RB	43	0.8	1.0062		f		
P09	2	RB	47	1.1	1.0595		f		
P09	2	RB	48	1.1	0.9946		f		
P09	2	RB	78	5.5	1.1590		ja		
P09	2	RB	85	6.3	1.0258		ja		
P09	2	RB	123	18.3	0.9834		ja		
P09	2	RB	155	34.7	0.9318		ja		
P09	2	RB	198	82.9	1.0680		ja		
P09	3	CCG	57	1.7	0.9180		ja		
P09	3	CCG	57	1.9	1.0260		ja		
P09	3	CCG	58	1.8	0.9225		ja		
P09	3	CCG	58	2.0	1.0251		ja		
P09	3	CCG	85	5.4	0.8793		ja		
P09	3	EB	121	17.3	0.9765		ja		
P09	3	EB	132	21.5	0.9348		ja		
P09	3	EB	137	28.1	1.0928		ja		
P09	3	RB	46	0.9	0.9246		f		
P09	3	RB	121	18.4	1.0386		ja		
P09	3	RB	180	57.9	0.9928		ja		
P09	4	CCG	41	0.7	1.0157		ja		
P09	4	CCG	46	0.8	0.8219		ja		
P09	4	CCG	51	1.1	0.8292		ja		
P09	4	CCG	63	2.1	0.8398		ja		
P09	4	CCG	64	2.5	0.9537		ja		
P09	4	CCG	67	2.7	0.8977		ja		
P09	4	CCG	70	3.1	0.9038		ja		
P09	4	RB	31	0.2	0.6713		f		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P09	4	RB	48	1.1	0.9946		f		
P13	1	CCG	35	0.6	1.3994		ja		
P13	1	CCG	54	1.3	0.8256		ja		
P13	1	CCG	54	1.6	1.0161		ja		
P13	1	CCG	54	1.7	1.0796		ja		
P13	1	CCG	57	1.5	0.8100		ja		
P13	1	CCG	59	2.2	1.0712		ja		
P13	1	CCG	60	2.3	1.0648		ja		
P13	1	CCG	61	2.0	0.8811		ja		
P13	1	CCG	64	2.2	0.8392		ja		
P13	1	CCG	64	2.4	0.9155		ja		
P13	1	CCG	64	2.8	1.0681		ja		
P13	1	CCG	66	2.4	0.8348		ja		
P13	1	CCG	66	2.7	0.9391		ja		
P13	1	CCG	67	2.5	0.8312		ja		
P13	1	CCG	67	2.9	0.9642		ja		
P13	1	CCG	70	2.7	0.7872		ja		
P13	1	CCG	71	3.0	0.8382		ja		
P13	1	CCG	72	3.4	0.9109		ja		
P13	1	CCG	72	3.5	0.9377		ja		
P13	1	CCG	73	3.1	0.7969		ja		
P13	1	CCG	83	4.6	0.8045		ja		
P13	1	CCG	83	5.4	0.9444		ja		
P13	1	EB	57	2.3	1.2419		f		
P13	1	EB	60	2.5	1.1574		f		
P13	1	EB	64	3.2	1.2207		f		
P13	1	EB	170	58.4	1.1887		ja		
P13	1	RB	98	9.8	1.0412		ja		
P13	1	RB	122	17.3	0.9527		ja		
P13	1	RB	125	17.5	0.8960		ja		
P13	1	RB	147	31.1	0.9791		ja		
P13	1	RB	156	33.5	0.8824		ja		
P13	1	RB	169	46.4	0.9613		ja		
P13	2	CCG	33	0.4	1.1131		ja		
P13	2	CCG	43	0.9	1.1320		ja		
P13	2	CCG	44	0.7	0.8218		ja		
P13	2	CCG	44	0.8	0.9391		ja		
P13	2	CCG	45	0.9	0.9877		ja		
P13	2	CCG	50	1.1	0.8800		ja		
P13	2	CCG	50	1.1	0.8800		ja		
P13	2	CCG	50	1.6	1.2800		ja		
P13	2	CCG	51	0.9	0.6785		ja		
P13	2	CCG	51	1.3	0.9800		ja		
P13	2	CCG	53	1.6	1.0747		ja		
P13	2	CCG	54	1.3	0.8256		ja		
P13	2	CCG	54	1.4	0.8891		ja		
P13	2	CCG	57	1.3	0.7020		ja		
P13	2	CCG	57	1.7	0.9180		ja		
P13	2	CCG	58	1.7	0.8713		ja		
P13	2	CCG	58	1.8	0.9225		ja		
P13	2	CCG	59	1.7	0.8277		ja		
P13	2	CCG	59	1.9	0.9251		ja		
P13	2	CCG	59	1.9	0.9251		ja		
P13	2	CCG	62	2.0	0.8392		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P13	2	CCG	65	2.7	0.9832		ja		
P13	2	CCG	68	2.9	0.9223		ja		
P13	2	CCG	70	3.2	0.9329		ja		
P13	2	CCG	74	3.8	0.9378		ja		
P13	2	CCG	78	3.7	0.7797		ja		
P13	2	CCG	78	4.0	0.8429		ja		
P13	2	CCG	78	4.5	0.9483		ja		
P13	2	CCG	80	4.1	0.8008		ja		
P13	2	CCG	80	4.6	0.8984		ja		
P13	2	CCG	84	5.4	0.9111		ja		
P13	2	CCG	90	6.5	0.8916		ja		
P13	2	EB	69	3.3	1.0045		f		
P13	2	RB	43	0.6	0.7547		f		
P13	2	RB	82	5.2	0.9431		ja		
P13	2	RB	82	5.8	1.0519		ja		
P13	2	RB	90	7.4	1.0151		ja		
P13	2	RB	106	12.4	1.0411		ja		
P13	2	RB	119	16.1	0.9554		ja		
P13	2	RB	127	19.6	0.9569		ja		
P13	2	RB	128	20.4	0.9727		ja		
P13	2	RB	133	21.5	0.9139		ja		
P13	2	RB	138	27.5	1.0464		ja		
P13	2	RB	159	45.8	1.1394		ja		
P13	3	CCG	44	0.8	0.9391		ja		
P13	3	CCG	49	1.1	0.9350		ja		
P13	3	CCG	51	1.3	0.9800		ja		
P13	3	CCG	52	1.1	0.7823		ja		
P13	3	CCG	57	1.7	0.9180		ja		
P13	3	CCG	60	1.7	0.7870		ja		
P13	3	CCG	60	1.8	0.8333		ja		
P13	3	CCG	61	2.1	0.9252		ja		
P13	3	CCG	62	1.9	0.7972		ja		
P13	3	CCG	65	3.0	1.0924		ja		
P13	3	CCG	66	2.2	0.7652		ja		
P13	3	CCG	71	2.8	0.7823		ja		
P13	3	CCG	72	2.7	0.7234		ja		
P13	3	CCG	78	3.9	0.8218		ja		
P13	3	CCG	78	3.9	0.8218		ja		
P13	3	CCG	83	4.8	0.8395		ja		
P13	3	EB	62	2.3	0.9651		f		
P13	3	EB	113	13.9	0.9633		ja		
P13	3	RB	44	1.0	1.1739		f		
P13	3	RB	65	2.8	1.0196		ja		
P13	3	RB	93	7.8	0.9697		ja		
P13	3	RB	109	12.4	0.9575		ja		
P14	1	CCG	37	0.7	1.3820		ja		
P14	1	CCG	54	1.4	0.8891		ja		
P14	1	CCG	55	1.3	0.7814		ja		
P14	1	CCG	55	1.4	0.8415		ja		
P14	1	CCG	55	2.1	1.2622		ja		
P14	1	CCG	56	0.9	0.5125		ja		
P14	1	CCG	58	0.9	0.4613		ja		
P14	1	CCG	62	1.9	0.7972		ja		
P14	1	CCG	63	1.9	0.7599		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
P14	1	CCG	63	2.1	0.8398		ja		
P14	1	CCG	63	2.5	0.9998		ja		
P14	1	CCG	66	2.3	0.8000		ja		
P14	1	CCG	66	2.5	0.8696		ja		
P14	1	CCG	69	3.2	0.9741		ja		
P14	1	CCG	71	3.6	1.0058		ja		
P14	1	CCG	72	3.0	0.8038		ja		
P14	1	CCG	73	3.9	1.0025		ja		
P14	1	CCG	74	4.3	1.0611		ja		
P14	1	CCG	75	3.5	0.8296		ja		
P14	1	EB	83	6.1	1.0668		f		
P14	1	EB	103	10.2	0.9334		ja		
P14	1	EB	112	14.2	1.0107		ja		
P14	1	EB	113	18.2	1.2614		ja		
P14	1	EB	122	18.7	1.0298		ja		
P14	1	EB	168	47.0	0.9912		ja		
P14	1	RB	28	0.1	0.4555		f		
P14	1	RB	34	0.2	0.5089		f		
P14	1	RB	70	3.9	1.1370		ja		
P14	1	RB	77	4.8	1.0514		ja		
P14	1	RB	87	6.1	0.9263		ja		
P14	1	RB	88	6.8	0.9978		ja		
P14	1	RB	100	9.1	0.9100		ja		
P14	1	RB	110	11.7	0.8790		ja		
P14	1	RB	131	18.3	0.8140		ja		
P14	1	RB	153	41.6	1.1615		ja		
P14	2	CCG	51	1.4	1.0554		ja		
P14	2	CCG	55	1.0	0.6011		ja		
P14	2	CCG	66	2.5	0.8696		ja		
P14	2	EB	71	3.7	1.0338		f		
P14	2	EB	71	4.6	1.2852		f		
P14	2	EB	106	12.8	1.0747		ja		
P14	2	EB	113	15.5	1.0742		ja		
P14	2	RB	32	0.4	1.2207		f		
P14	2	RB	41	0.6	0.8706		f		
P14	2	RB	42	0.8	1.0798		f		
P14	2	RB	80	5.6	1.0938		ja		
P14	2	RB	84	5.9	0.9954		ja		
P14	2	RB	119	18.8	1.1156		ja		
P14	2	RB	188	65.2	0.9812		ja		
P14	2	RB	189	58.3	0.8635		ja		
P14	3	CCG	57	1.9	1.0260		ja		
P14	3	CCG	59	1.7	0.8277		ja		
P14	3	EB	75	4.9	1.1615		f		
P14	3	RB	38	0.6	1.0935		f		
P14	3	RB	123	16.5	0.8867		ja		
R08	1	CCG	43	0.9	1.1320		ja		
R08	1	CCG	45	1.1	1.2071		ja		
R08	1	CCG	46	0.8	0.8219		ja		
R08	1	CCG	47	1.4	1.3484		ja		
R08	1	CCG	49	1.3	1.1050		ja		
R08	1	CCG	49	1.4	1.1900		ja		
R08	1	CCG	50	1.6	1.2800		ja		
R08	1	CCG	52	1.8	1.2802		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R08	1	CCG	53	1.2	0.8060		ja		
R08	1	CCG	53	1.4	0.9404		ja		
R08	1	CCG	53	1.6	1.0747		ja		
R08	1	CCG	54	1.5	0.9526		ja		
R08	1	CCG	54	1.6	1.0161		ja		
R08	1	CCG	55	1.6	0.9617		ja		
R08	1	CCG	55	1.7	1.0218		ja		
R08	1	CCG	55	1.9	1.1420		ja		
R08	1	CCG	55	2.1	1.2622		ja		
R08	1	CCG	56	1.7	0.9680		ja		
R08	1	CCG	56	1.8	1.0250		ja		
R08	1	CCG	56	1.8	1.0250		ja		
R08	1	CCG	56	2.2	1.2527		ja		
R08	1	CCG	56	2.3	1.3097		ja		
R08	1	CCG	57	1.5	0.8100		ja		
R08	1	CCG	57	1.8	0.9720		ja		
R08	1	CCG	57	1.8	0.9720		ja		
R08	1	CCG	57	2.2	1.1879		ja		
R08	1	CCG	58	1.6	0.8200		ja		
R08	1	CCG	58	1.8	0.9225		ja		
R08	1	CCG	58	2.3	1.1788		ja		
R08	1	CCG	59	2.0	0.9738		ja		
R08	1	CCG	59	2.1	1.0225		ja		
R08	1	CCG	59	2.6	1.2660		ja		
R08	1	CCG	60	2.2	1.0185		ja		
R08	1	CCG	61	2.1	0.9252		ja		
R08	1	CCG	61	2.1	0.9252		ja		
R08	1	CCG	61	2.4	1.0574		ja		
R08	1	CCG	62	2.0	0.8392		ja		
R08	1	CCG	62	2.4	1.0070		ja		
R08	1	CCG	62	2.4	1.0070		ja		
R08	1	CCG	62	2.5	1.0490		ja		
R08	1	CCG	62	2.8	1.1749		ja		
R08	1	CCG	62	2.8	1.1749		ja		
R08	1	CCG	63	2.7	1.0798		ja		
R08	1	CCG	64	2.8	1.0681		ja		
R08	1	CCG	66	2.4	0.8348		ja		
R08	1	CCG	66	2.5	0.8696		ja		
R08	1	CCG	66	2.6	0.9044		ja		
R08	1	CCG	66	3.0	1.0435		ja		
R08	1	CCG	66	3.1	1.0783		ja		
R08	1	CCG	67	2.6	0.8645		ja		
R08	1	CCG	67	3.7	1.2302		ja		
R08	1	CCG	68	2.6	0.8269		ja		
R08	1	CCG	68	3.4	1.0813		ja		
R08	1	CCG	68	3.4	1.0813		ja		
R08	1	CCG	68	3.4	1.0813		ja		
R08	1	CCG	68	4.0	1.2721		ja		
R08	1	CCG	69	2.7	0.8219		ja		
R08	1	CCG	69	3.3	1.0045		ja		
R08	1	CCG	69	3.4	1.0350		ja		
R08	1	CCG	69	3.8	1.1567		ja		
R08	1	CCG	70	3.9	1.1370		ja		
R08	1	CCG	71	3.3	0.9220		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R08	1	CCG	72	3.6	0.9645		ja		
R08	1	CCG	73	3.3	0.8483		ja		
R08	1	CCG	73	3.7	0.9511		ja		
R08	1	CCG	73	3.8	0.9768		ja		
R08	1	CCG	73	4.0	1.0282		ja		
R08	1	CCG	73	4.1	1.0539		ja		
R08	1	CCG	74	3.6	0.8884		ja		
R08	1	CCG	74	4.0	0.9871		ja		
R08	1	CCG	74	4.0	0.9871		ja		
R08	1	CCG	75	4.1	0.9719		ja		
R08	1	CCG	76	3.8	0.8657		ja		
R08	1	CCG	76	4.8	1.0935		ja		
R08	1	CCG	77	3.9	0.8543		ja		
R08	1	CCG	77	4.1	0.8981		ja		
R08	1	CCG	78	4.1	0.8640		ja		
R08	1	CCG	79	4.3	0.8721		ja		
R08	1	CCG	79	4.6	0.9330		ja		
R08	1	CCG	80	5.6	1.0938		ja		
R08	1	CCG	81	4.2	0.7903		ja		
R08	1	CCG	81	4.3	0.8091		ja		
R08	1	CCG	81	4.7	0.8844		ja		
R08	1	CCG	82	5.0	0.9068		ja		
R08	1	CCG	82	5.2	0.9431		ja		
R08	1	CCG	83	6.3	1.1018		ja		
R08	1	CCG	84	5.7	0.9617		ja		
R08	1	CCG	85	5.3	0.8630		ja		
R08	1	CCG	86	5.9	0.9276		ja		
R08	1	CCG	92	8.4	1.0787		ja		
R08	1	EB	68	3.2	1.0177		f		
R08	1	EB	72	3.5	0.9377		f		
R08	1	EB	112	14.1	1.0036		ja		
R08	1	EB	120	16.3	0.9433		ja		
R08	1	EB	128	20.2	0.9632		ja		
R08	1	EB	151	33.9	0.9846		ja		
R08	1	EB	166	44.5	0.9728		ja		
R08	1	EB	195	66.3	0.8941		ja		
R08	1	RB	41	0.7	1.0157		f		
R08	1	RB	43	1.1	1.3835		f		
R08	1	RB	48	1.0	0.9042		f		
R08	1	RB	73	3.7	0.9511		ja		
R08	1	RB	78	4.9	1.0326		ja		
R08	1	RB	87	6.5	0.9871		ja		
R08	1	RB	90	7.1	0.9739		ja		
R08	1	RB	92	9.1	1.1686		ja		
R08	1	RB	93	8.3	1.0319		ja		
R08	1	RB	94	7.8	0.9391		ja		
R08	1	RB	113	12.8	0.8871		ja		
R08	1	RB	125	18.3	0.9370		ja		
R08	1	RB	131	21.8	0.9697		ja		
R08	1	RB	141	25.9	0.9239		ja		
R08	1	RB	156	36.2	0.9535		ja		
R08	1	RB	166	49.9	1.0909		ja		
R08	2	CCG	41	0.9	1.3058		ja		
R08	2	CCG	47	0.9	0.8669		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R08	2	CCG	47	1.0	0.9632		ja		
R08	2	CCG	47	1.1	1.0595		ja		
R08	2	CCG	49	1.0	0.8500		ja		
R08	2	CCG	50	1.0	0.8000		ja		
R08	2	CCG	51	1.3	0.9800		ja		
R08	2	CCG	51	1.3	0.9800		ja		
R08	2	CCG	52	1.2	0.8534		ja		
R08	2	CCG	52	1.6	1.1379		ja		
R08	2	CCG	53	1.4	0.9404		ja		
R08	2	CCG	53	1.5	1.0075		ja		
R08	2	CCG	54	1.4	0.8891		ja		
R08	2	CCG	54	1.6	1.0161		ja		
R08	2	CCG	55	1.5	0.9016		ja		
R08	2	CCG	55	1.7	1.0218		ja		
R08	2	CCG	55	1.9	1.1420		ja		
R08	2	CCG	56	1.6	0.9111		ja		
R08	2	CCG	56	1.7	0.9680		ja		
R08	2	CCG	56	2.0	1.1388		ja		
R08	2	CCG	58	1.7	0.8713		ja		
R08	2	CCG	58	1.7	0.8713		ja		
R08	2	CCG	59	1.7	0.8277		ja		
R08	2	CCG	59	1.8	0.8764		ja		
R08	2	CCG	60	1.9	0.8796		ja		
R08	2	CCG	61	1.9	0.8371		ja		
R08	2	CCG	63	2.0	0.7998		ja		
R08	2	CCG	63	2.3	0.9198		ja		
R08	2	CCG	63	2.5	0.9998		ja		
R08	2	CCG	64	2.3	0.8774		ja		
R08	2	CCG	65	2.4	0.8739		ja		
R08	2	CCG	65	2.4	0.8739		ja		
R08	2	CCG	65	2.6	0.9467		ja		
R08	2	CCG	66	2.5	0.8696		ja		
R08	2	CCG	66	2.5	0.8696		ja		
R08	2	CCG	66	2.6	0.9044		ja		
R08	2	CCG	66	3.0	1.0435		ja		
R08	2	CCG	67	2.3	0.7647		ja		
R08	2	CCG	67	2.8	0.9310		ja		
R08	2	CCG	67	2.8	0.9310		ja		
R08	2	CCG	68	2.7	0.8587		ja		
R08	2	CCG	70	3.2	0.9329		ja		
R08	2	CCG	71	3.5	0.9779		ja		
R08	2	CCG	75	3.8	0.9007		ja		
R08	2	CCG	76	4.2	0.9568		ja		
R08	2	CCG	76	4.8	1.0935		ja		
R08	2	CCG	78	4.2	0.8850		ja		
R08	2	CCG	79	4.1	0.8316		ja		
R08	2	CCG	80	5.4	1.0547		ja		
R08	2	EB	66	2.8	0.9739		f		
R08	2	EB	69	3.4	1.0350		f		
R08	2	RB	32	0.2	0.6104		f		
R08	2	RB	71	3.3	0.9220		ja		
R08	2	RB	144	28.7	0.9612		ja		
R20	1	CCG	41	0.7	1.0157		ja		
R20	1	CCG	44	0.7	0.8218		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R20	1	CCG	44	0.8	0.9391		ja		
R20	1	CCG	44	1.0	1.1739		ja		
R20	1	CCG	45	1.0	1.0974		ja		
R20	1	CCG	47	0.8	0.7705		ja		
R20	1	CCG	48	1.0	0.9042		ja		
R20	1	CCG	50	1.0	0.8000		ja		
R20	1	CCG	50	1.1	0.8800		ja		
R20	1	CCG	51	1.6	1.2062		ja		
R20	1	CCG	52	1.3	0.9246		ja		
R20	1	CCG	52	1.5	1.0668		ja		
R20	1	CCG	52	1.5	1.0668		ja		
R20	1	CCG	53	1.4	0.9404		ja		
R20	1	CCG	53	1.4	0.9404		ja		
R20	1	CCG	53	1.5	1.0075		ja		
R20	1	CCG	54	1.4	0.8891		ja		
R20	1	CCG	54	1.5	0.9526		ja		
R20	1	CCG	54	1.6	1.0161		ja		
R20	1	CCG	54	1.6	1.0161		ja		
R20	1	CCG	54	1.6	1.0161		ja		
R20	1	CCG	55	1.5	0.9016		ja		
R20	1	CCG	56	1.4	0.7972		ja		
R20	1	CCG	56	1.6	0.9111		ja		
R20	1	CCG	57	1.6	0.8640		ja		
R20	1	CCG	57	1.6	0.8640		ja		
R20	1	CCG	57	1.8	0.9720		ja		
R20	1	CCG	57	1.9	1.0260		ja		
R20	1	CCG	57	2.0	1.0800		ja		
R20	1	CCG	57	2.0	1.0800		ja		
R20	1	CCG	57	2.0	1.0800		ja		
R20	1	CCG	58	2.0	1.0251		ja		
R20	1	CCG	58	2.0	1.0251		ja		
R20	1	CCG	59	1.7	0.8277		ja		
R20	1	CCG	59	1.9	0.9251		ja		
R20	1	CCG	59	1.9	0.9251		ja		
R20	1	CCG	59	2.0	0.9738		ja		
R20	1	CCG	59	2.0	0.9738		ja		
R20	1	CCG	60	1.9	0.8796		ja		
R20	1	CCG	61	2.1	0.9252		ja		
R20	1	CCG	61	2.2	0.9692		ja		
R20	1	CCG	61	2.4	1.0574		ja		
R20	1	CCG	62	2.1	0.8811		ja		
R20	1	CCG	62	2.2	0.9231		ja		
R20	1	CCG	62	2.2	0.9231		ja		
R20	1	CCG	63	2.4	0.9598		ja		
R20	1	CCG	63	2.6	1.0398		ja		
R20	1	CCG	63	2.7	1.0798		ja		
R20	1	CCG	64	2.6	0.9918		ja		
R20	1	CCG	64	2.6	0.9918		ja		
R20	1	CCG	64	2.7	1.0300		ja		
R20	1	CCG	66	2.7	0.9391		ja		
R20	1	CCG	68	2.7	0.8587		ja		
R20	1	CCG	69	2.9	0.8828		ja		
R20	1	CCG	70	3.0	0.8746		ja		
R20	1	CCG	72	3.2	0.8573		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R20	1	CCG	73	4.6	1.1825		ja		
R20	1	CCG	75	3.4	0.8059		ja		
R20	1	CCG	75	4.0	0.9481		ja		
R20	1	CCG	76	4.8	1.0935		ja		
R20	1	CCG	77	4.0	0.8762		ja		
R20	1	CCG	79	4.2	0.8519		ja		
R20	1	CCG	83	5.1	0.8919		ja		
R20	1	CCG	86	6.4	1.0062		ja		
R20	1	CCG	88	6.9	1.0125		ja		
R20	1	EB	62	2.9	1.2168		f		
R20	1	EB	78	4.7	0.9904		f		
R20	1	EB	78	5.0	1.0536		f		
R20	1	EB	111	15.9	1.1626		ja		
R20	1	EB	150	32.9	0.9748		ja		
R20	1	RB	34	0.4	1.0177		f		
R20	1	RB	35	0.5	1.1662		f		
R20	1	RB	36	0.5	1.0717		f		
R20	1	RB	37	0.4	0.7897		f		
R20	1	RB	38	0.5	0.9112		f		
R20	1	RB	38	0.6	1.0935		f		
R20	1	RB	38	0.6	1.0935		f		
R20	1	RB	41	0.6	0.8706		f		
R20	1	RB	42	0.9	1.2148		f		
R20	1	RB	43	0.8	1.0062		f		
R20	1	RB	46	1.0	1.0274		f		
R20	1	RB	84	5.9	0.9954		ja		
R20	1	RB	88	7.8	1.1446		ja		
R20	1	RB	97	9.4	1.0299		ja		
R20	1	RB	100	11.4	1.1400		ja		
R20	1	RB	112	13.7	0.9751		ja		
R20	1	RB	113	14.1	0.9772		ja		
R20	1	RB	131	22.6	1.0053		ja		
R20	1	RB	150	35.1	1.0400		ja		
R20	1	RB	164	43.4	0.9839		ja		
R20	1	RB	205	85.9	0.9971		ja		
R20	2	CCG	44	0.6	0.7044		ja		
R20	2	CCG	44	0.8	0.9391		ja		
R20	2	CCG	46	0.9	0.9246		ja		
R20	2	CCG	47	1.0	0.9632		ja		
R20	2	CCG	49	1.1	0.9350		ja		
R20	2	CCG	51	1.1	0.8292		ja		
R20	2	CCG	52	1.2	0.8534		ja		
R20	2	CCG	52	1.3	0.9246		ja		
R20	2	CCG	52	1.4	0.9957		ja		
R20	2	CCG	53	1.1	0.7389		ja		
R20	2	CCG	53	1.2	0.8060		ja		
R20	2	CCG	53	1.4	0.9404		ja		
R20	2	CCG	53	1.4	0.9404		ja		
R20	2	CCG	54	1.3	0.8256		ja		
R20	2	CCG	54	1.4	0.8891		ja		
R20	2	CCG	54	1.4	0.8891		ja		
R20	2	CCG	54	1.4	0.8891		ja		
R20	2	CCG	54	1.5	0.9526		ja		
R20	2	CCG	54	1.6	1.0161		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R20	2	CCG	55	1.5	0.9016		ja		
R20	2	CCG	55	1.5	0.9016		ja		
R20	2	CCG	55	1.6	0.9617		ja		
R20	2	CCG	55	1.6	0.9617		ja		
R20	2	CCG	56	1.6	0.9111		ja		
R20	2	CCG	57	1.4	0.7560		ja		
R20	2	CCG	57	1.5	0.8100		ja		
R20	2	CCG	57	1.6	0.8640		ja		
R20	2	CCG	57	1.7	0.9180		ja		
R20	2	CCG	57	1.8	0.9720		ja		
R20	2	CCG	57	1.8	0.9720		ja		
R20	2	CCG	57	1.8	0.9720		ja		
R20	2	CCG	57	1.9	1.0260		ja		
R20	2	CCG	57	1.9	1.0260		ja		
R20	2	CCG	58	1.6	0.8200		ja		
R20	2	CCG	58	1.9	0.9738		ja		
R20	2	CCG	58	1.9	0.9738		ja		
R20	2	CCG	59	1.8	0.8764		ja		
R20	2	CCG	59	1.9	0.9251		ja		
R20	2	CCG	60	2.1	0.9722		ja		
R20	2	CCG	61	1.9	0.8371		ja		
R20	2	CCG	61	2.1	0.9252		ja		
R20	2	CCG	62	2.1	0.8811		ja		
R20	2	CCG	62	2.1	0.8811		ja		
R20	2	CCG	63	2.2	0.8798		ja		
R20	2	CCG	64	2.4	0.9155		ja		
R20	2	CCG	64	2.6	0.9918		ja		
R20	2	CCG	65	2.3	0.8375		ja		
R20	2	CCG	65	2.8	1.0196		ja		
R20	2	CCG	66	2.5	0.8696		ja		
R20	2	CCG	66	2.7	0.9391		ja		
R20	2	CCG	67	2.4	0.7980		ja		
R20	2	CCG	67	2.5	0.8312		ja		
R20	2	CCG	68	2.6	0.8269		ja		
R20	2	CCG	72	3.1	0.8305		ja		
R20	2	CCG	75	4.2	0.9956		ja		
R20	2	CCG	76	3.6	0.8201		ja		
R20	2	CCG	82	3.2	0.5804		ja		
R20	2	CCG	86	5.7	0.8961		ja		
R20	2	EB	70	3.2	0.9329		f		
R20	2	EB	157	41.0	1.0595		ja		
R20	2	RB	37	0.5	0.9871		f		
R20	2	RB	48	0.7	0.6330		f		
R20	2	RB	86	6.7	1.0534		ja		
R20	3	CCG	38	0.5	0.9112		ja		
R20	3	CCG	42	0.7	0.9448		ja		
R20	3	CCG	49	1.3	1.1050		ja		
R20	3	CCG	50	1.3	1.0400		ja		
R20	3	CCG	52	1.4	0.9957		ja		
R20	3	CCG	53	1.4	0.9404		ja		
R20	3	CCG	55	1.4	0.8415		ja		
R20	3	CCG	56	1.7	0.9680		ja		
R20	3	CCG	56	1.8	1.0250		ja		
R20	3	CCG	59	2.0	0.9738		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R20	3	CCG	60	2.0	0.9259		ja		
R20	3	CCG	60	2.1	0.9722		ja		
R20	3	CCG	67	3.0	0.9975		ja		
R20	3	CCG	70	3.5	1.0204		ja		
R20	3	CCG	78	3.7	0.7797		ja		
R20	3	CCG	78	5.6	1.1801		ja		
R20	3	CCG	83	5.5	0.9619		ja		
R20	3	RB	149	30.6	0.9250		ja		
R22	1	CCG	43	0.9	1.1320		ja		
R22	1	CCG	45	1.2	1.3169		ja		
R22	1	CCG	49	1.2	1.0200		ja		
R22	1	CCG	52	1.4	0.9957		ja		
R22	1	CCG	53	1.4	0.9404		ja		
R22	1	CCG	53	1.4	0.9404		ja		
R22	1	CCG	53	1.7	1.1419		ja		
R22	1	CCG	54	1.3	0.8256		ja		
R22	1	CCG	54	1.6	1.0161		ja		
R22	1	CCG	54	1.7	1.0796		ja		
R22	1	CCG	55	1.6	0.9617		ja		
R22	1	CCG	55	1.7	1.0218		ja		
R22	1	CCG	56	1.6	0.9111		ja		
R22	1	CCG	56	1.7	0.9680		ja		
R22	1	CCG	56	1.9	1.0819		ja		
R22	1	CCG	56	2.1	1.1958		ja		
R22	1	CCG	57	1.7	0.9180		ja		
R22	1	CCG	57	1.8	0.9720		ja		
R22	1	CCG	57	2.0	1.0800		ja		
R22	1	CCG	58	1.7	0.8713		ja		
R22	1	CCG	58	1.9	0.9738		ja		
R22	1	CCG	58	2.0	1.0251		ja		
R22	1	CCG	58	2.3	1.1788		ja		
R22	1	CCG	59	1.9	0.9251		ja		
R22	1	CCG	59	2.1	1.0225		ja		
R22	1	CCG	60	2.4	1.1111		ja		
R22	1	CCG	61	1.6	0.7049		ja		
R22	1	CCG	62	2.2	0.9231		ja		
R22	1	CCG	62	2.2	0.9231		ja		
R22	1	CCG	62	2.3	0.9651		ja		
R22	1	CCG	62	2.4	1.0070		ja		
R22	1	CCG	63	1.7	0.6799		ja		
R22	1	CCG	63	2.2	0.8798		ja		
R22	1	CCG	63	2.4	0.9598		ja		
R22	1	CCG	63	2.6	1.0398		ja		
R22	1	CCG	64	2.4	0.9155		ja		
R22	1	CCG	65	2.2	0.8011		ja		
R22	1	CCG	65	2.5	0.9103		ja		
R22	1	CCG	66	2.6	0.9044		ja		
R22	1	CCG	68	2.6	0.8269		ja		
R22	1	CCG	68	2.7	0.8587		ja		
R22	1	CCG	68	3.0	0.9541		ja		
R22	1	CCG	68	3.0	0.9541		ja		
R22	1	CCG	68	3.3	1.0495		ja		
R22	1	CCG	70	2.6	0.7580		ja		
R22	1	CCG	71	2.7	0.7544		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R22	1	CCG	71	2.8	0.7823		ja		
R22	1	CCG	71	3.4	0.9500		ja		
R22	1	CCG	72	3.3	0.8841		ja		
R22	1	CCG	72	3.4	0.9109		ja		
R22	1	CCG	74	3.5	0.8637		ja		
R22	1	CCG	75	4.1	0.9719		ja		
R22	1	CCG	78	4.6	0.9693		ja		
R22	1	CCG	78	4.8	1.0115		ja		
R22	1	CCG	81	5.5	1.0349		ja		
R22	1	CCG	82	5.2	0.9431		ja		
R22	1	CCG	85	5.3	0.8630		ja		
R22	1	CCG	90	7.7	1.0562		ja		
R22	1	EB	72	3.3	0.8841		f		
R22	1	EB	84	5.2	0.8773		f		
R22	1	EB	92	6.7	0.8604		f		
R22	1	EB	120	19.0	1.0995		ja		
R22	1	EB	131	21.6	0.9608		ja		
R22	1	EB	135	25.0	1.0161		ja		
R22	1	EB	144	33.5	1.1219		ja		
R22	1	EB	167	49.5	1.0628		ja		
R22	1	EB	172	61.8	1.2145		ja		
R22	1	RB	28	0.2	0.9111		f		
R22	1	RB	30	0.2	0.7407		f		
R22	1	RB	30	0.3	1.1111		f		
R22	1	RB	32	0.3	0.9155		f		
R22	1	RB	35	0.5	1.1662		f		
R22	1	RB	36	0.3	0.6430		f		
R22	1	RB	36	0.4	0.8573		f		
R22	1	RB	39	0.6	1.0115		f		
R22	1	RB	39	0.6	1.0115		f		
R22	1	RB	41	0.6	0.8706		f		
R22	1	RB	77	4.8	1.0514		ja		
R22	1	RB	80	5.8	1.1328		ja		
R22	1	RB	88	6.9	1.0125		ja		
R22	1	RB	95	8.7	1.0147		ja		
R22	1	RB	100	9.1	0.9100		ja		
R22	1	RB	112	13.7	0.9751		ja		
R22	1	RB	113	13.1	0.9079		ja		
R22	1	RB	114	14.3	0.9652		ja		
R22	1	RB	117	15.5	0.9678		ja		
R22	1	RB	126	17.5	0.8748		ja		
R22	1	RB	136	22.8	0.9064		ja		
R22	1	RB	136	24.1	0.9581		ja		
R22	1	RB	136	27.4	1.0893		ja		
R22	1	RB	172	54.3	1.0671		ja		
R22	2	CCG	44	1.0	1.1739		ja		
R22	2	CCG	45	1.0	1.0974		ja		
R22	2	CCG	51	1.1	0.8292		ja		
R22	2	CCG	51	1.1	0.8292		ja		
R22	2	CCG	51	1.4	1.0554		ja		
R22	2	CCG	53	1.4	0.9404		ja		
R22	2	CCG	54	1.7	1.0796		ja		
R22	2	CCG	55	1.5	0.9016		ja		
R22	2	CCG	55	1.7	1.0218		ja		

SITE	Pass	Spec	Length	Weight	Condition	Sample	Stage	Comments	Photo
R22	2	CCG	56	1.6	0.9111		ja		
R22	2	CCG	56	1.7	0.9680		ja		
R22	2	CCG	58	1.7	0.8713		ja		
R22	2	CCG	59	1.6	0.7790		ja		
R22	2	CCG	59	1.9	0.9251		ja		
R22	2	CCG	59	2.0	0.9738		ja		
R22	2	CCG	60	2.2	1.0185		ja		
R22	2	CCG	62	1.7	0.7133		ja		
R22	2	CCG	63	1.8	0.7199		ja		
R22	2	CCG	65	2.4	0.8739		ja		
R22	2	CCG	66	2.4	0.8348		ja		
R22	2	CCG	66	2.7	0.9391		ja		
R22	2	CCG	67	2.9	0.9642		ja		
R22	2	CCG	69	3.2	0.9741		ja		
R22	2	CCG	71	3.1	0.8661		ja		
R22	2	CCG	74	3.8	0.9378		ja		
R22	2	CCG	75	3.8	0.9007		ja		
R22	2	CCG	75	4.1	0.9719		ja		
R22	2	EB	104	10.8	0.9601		ja		
R22	2	EB	110	13.6	1.0218		ja		
R22	2	RB	68	3.3	1.0495		ja		
R22	2	RB	82	6.2	1.1245		ja		
R22	2	RB	83	6.1	1.0668		ja		
R22	2	RB	156	40.6	1.0694		ja		
SCR4	1	EB	52	1.3	0.9246		f		
SCR4	1	EB	59	1.8	0.8764		f		
SCR4	1	EB	62	2.8	1.1749		f		
SCR4	1	EB	64	3.0	1.1444		f		
SCR4	1	EB	65	2.5	0.9103		f		
SCR4	1	EB	65	2.5	0.9103		f		
SCR4	1	EB	65	2.7	0.9832		f		
SCR4	1	EB	66	3.3	1.1478		f		
SCR4	1	EB	71	4.1	1.1455		f		
SCR4	1	EB	73	3.6	0.9254		f		
SCR4	1	EB	73	4.2	1.0796		f		
SCR4	1	EB	75	5.7	1.3511		f		
SCR4	1	EB	79	4.9	0.9938		f		
SCR4	1	EB	83	5.5	0.9619		f		
SCR4	1	RB	42	0.6	0.8098		f		
SCR4	1	RB	44	1.0	1.1739		f		
SCR4	2	EB	73	3.5	0.8997		f		
SCR4	2	EB	77	4.4	0.9638		f		
SCR4	2	EB	82	5.7	1.0338		f		
SCR4	2	EB	89	6.5	0.9220		f		

APPENDIX 5. Whatshan River Fish Aging Results From Scale Samples, September 10-17, 2012.

Stream	Site	Date	Sample	Species	Length (mm)	Weight (g)	Age	Comments
Whatshan	P01	10-Sep-12	1	RB	140	36.9	1	only 4 scales
Whatshan	P01	10-Sep-12	2	RB	128	22.3	1	
Whatshan	P01	10-Sep-12	3	RB	163	47.9	1	
Whatshan	P01	10-Sep-12	4	RB	115	12.9	1	
Whatshan	P01	10-Sep-12	5	RB	122	16.7	1	
Whatshan	P01	10-Sep-12	6	RB	147	28.9	2	
Whatshan	P01	10-Sep-12	7	RB	149	30.5	2	
Whatshan	P01	10-Sep-12	8	RB	136	25.0	?	all scales regenerated
Whatshan	P01	10-Sep-12	9	RB	149	30.4	1	
Whatshan	P01	10-Sep-12	10	RB	151	32.9	2	
Whatshan	P01	10-Sep-12	11	RB	107	11.8	1	
Whatshan	P01	10-Sep-12	12	RB	123	17.8	1	
Whatshan	P01	10-Sep-12	13	RB	166	43.8	2	
Whatshan	P01	10-Sep-12	14	RB	94	8.1	1	
Whatshan	P01	10-Sep-12	15	RB	119	16.3	1	
Whatshan	P01	10-Sep-12	16	RB	175	52.4	2	
Whatshan	P01	10-Sep-12	17	RB	157	34.0	2	
Whatshan	P01	10-Sep-12	18	RB	150	37.6	2	
Whatshan	G02	11-Sep-12	19	RB	101	9.7	1	
Whatshan	G02	11-Sep-12	20	RB	180	56.3	?	all scales regenerated
Whatshan	G02	11-Sep-12	21	RB	153	32.9	2	
Whatshan	G02	11-Sep-12	22	RB	137	27.1	1	
Whatshan	G02	11-Sep-12	23	RB	153	38.7	2	
Whatshan	G02	11-Sep-12	24	RB	138	25.0	2	
Whatshan	P04	11-Sep-12	25	RB	195	70.2	3	
Whatshan	P04	11-Sep-12	26	RB	182	58.2	2	
Whatshan	P04	11-Sep-12	27	RB	256	165.3	3	
Whatshan	P04	11-Sep-12	28	RB	218	97.4	3	
Whatshan	R04	12-Sep-12	29	RB	161	40.7	2	
Whatshan	R04	12-Sep-12	30	RB	189	62.7	3	
Whatshan	R04	12-Sep-12	31	RB	193	76.8	2	
Whatshan	R04	12-Sep-12	32	RB	136	24.6	1	
Whatshan	R04	12-Sep-12	33	RB	134	25.6	2	
Whatshan	R04	12-Sep-12	34	RB	173	52.2	2	
Whatshan	G05	12-Sep-12	35	RB	114	13.8	1	
Whatshan	P07	13-Sep-12	36	RB	137	26.8	1	
Whatshan	P07	13-Sep-12	37	RB	128	20.3	1	
Whatshan	P07	13-Sep-12	38	RB	137	24.4	1	
Whatshan	P07	13-Sep-12	39	RB	175	55.3	2	
Whatshan	P07	13-Sep-12	40	RB	132	22.4	1	
Whatshan	P07	13-Sep-12	41	RB	119	15.1	1	
Whatshan	P07	13-Sep-12	42	RB	145	27.9	2	
Whatshan	G08	13-Sep-12	43	RB	141	24.5	2	
Whatshan	G08	13-Sep-12	44	RB	138	24.0	1	
Whatshan	G08	13-Sep-12	45	RB	135	23.5	2	
Whatshan	G08	13-Sep-12	46	RB	181	58.0	2	
Whatshan	G08	13-Sep-12	47	RB	140	25.9	2	
Whatshan	G08	13-Sep-12	48	RB	128	21.3	?	all scales regenerated
Whatshan	R12	13-Sep-12	49	RB	121	12.6	1	

Stream	Site	Date	Sample	Species	Length (mm)	Weight (g)	Age	Comments
Whatshan	R12	13-Sep-12	50	RB	137	23.0	1	
Whatshan	R12	13-Sep-12	51	RB	143	34.8	2	
Whatshan	R12	13-Sep-12	52	RB	158	44.0	?	all scales regenerated
Whatshan	R12	13-Sep-12	53	RB	129	19.3	1	
Whatshan	R12	13-Sep-12	54	RB	139	26.1	1	
Whatshan	R12	13-Sep-12	55	RB	173	49.6	?	all scales regenerated
Whatshan	G11	14-Sep-12	74	RB	132	21.0	1	
Whatshan	G11	14-Sep-12	75	RB	160	42.4	2	
Whatshan	R15	14-Sep-12	76	RB	133	22.3	1	
Whatshan	R15	14-Sep-12	78	RB	170	47.5	2	
Whatshan	P10	14-Sep-12	79	RB	188	60.7	2	
Whatshan	P10	14-Sep-12	80	RB	117	12.3	1	
Whatshan	P10	14-Sep-12	81	RB	168	44.0	2	
Whatshan	P10	14-Sep-12	82	RB	132	32.5	2	
Whatshan	P10	14-Sep-12	83	RB	232	131.6	?	all scales regenerated
Whatshan	P10	14-Sep-12	84	RB	202	76.3	2	
Whatshan	P10	14-Sep-12	85	RB	173	57.4	2	

APPENDIX 6. Physical and fish catch data for Whatshan W3.2 and Barnes B3 Fish Sample Sites, September 2012.

Reach	Name	Type	Length	Width	Area	W1	W2	W3	W4	W5	W6	MaxDep	R	B	C	G	F	LWD	SWD	Bldr	UCB
W3.2	P01	pool	10.0	12.9	129	10.8	13.2	14.7				1.08	5	25	60	5	5	12.3	2.0	8.0	0.0
W3.2	G02	glide	26.0	8.2	212	8.2	7.8	8.5	8.1			0.90	0	1	96	3	0	24.8	1.0	0.0	0.5
W3.2	R04	riffle	19.0	14.2	269	16.8	11.9	13.8				0.60	0	2	67	30	1	3.1	0.5	7.5	0.3
W3.2	G05	glide	7.0	17.8	125	17.8						0.59	0	0	95	5	0	1.4	0.0	1.0	0.0
W3.2	P04	pool	57.0	13.7	782	14.1	13.6	14.0	13.2			1.20	0	10	50	30	10	54.2	13.0	42.0	0.0
W3.2	SC01	channel	18.4	3.9	71	4.7	4.7	3.1	3.8	3.1		0.20	0	7	83	10	0	0.0	0.1	2.0	0.0
W3.2	R08	riffle	12.0	15.0	180	14.1	15.9					0.45	0	65	30	5	0	5.5	0.0	4.0	0.0
W3.2	P07	pool	12.0	11.9	142	15.3	8.4					1.07	0	50	40	5	5	4.3	1.0	3.0	0.0
W3.2	G08	glide	13.9	11.4	159	13.5	10.1	11.0	11.1			0.87	0	25	70	5	0	0.1	0.4	26.0	0.0
W3.2	R12	riffle	16.5	9.4	155	8.8	9.5	9.9				0.75	0	40	50	10	0	0.0	0.5	9.0	0.0
W3.2	G11	glide	18.0	13.7	247	13.5	15.5	12.1				0.60	0	25	70	5	0	4.5	0.7	5.0	0.0
W3.2	R15	riffle	15.9	17.6	280	18.0	17.6	16.4	18.4			0.60	0	40	55	5	0	0.0	0.0	20.0	0.0
W3.2	P10	pool	12.0	12.8	153	15.0	10.5					0.83	0	20	73	5	2	4.3	0.0	8.0	0.0
B3	SC4R	channel	54.0	0.9	50	1.3	0.6	0.8	1.1	0.8		0.25	0	10	60	10	20	0.4	0.0	0.0	0.0
B3	R08	riffle	25.0	15.6	389	15.1	11.7	17.4	17.4	16.2		0.51	0	2	88	10	0	1.9	0.0	3.0	0.0
B3	G08	glide	8.0	12.9	103	13.8	11.9					0.50	0	1	69	30	0	0.0	0.0	0.5	0.0
B3	P09	pool	16.0	8.1	129	7.9	8.0	8.4	8.0			0.83	0	1	84	10	5	3.3	0.5	0.5	0.0
B3	P13	pool	16.0	7.0	112	7.0	7.3	7.7	6.5	6.6		0.90	0	1	89	10	0	2.3	3.0	0.5	4.0
B3	R20	riffle	18.4	11.9	219	8.8	13.3	14.0	11.6			0.41	0	10	80	10	0	19.6	0.5	9.0	0.6
B3	G22	glide	15.8	10.9	173	11.0	11.4	10.8	10.5			0.44	0	10	88	2	0	0.0	0.0	8.0	0.0
B3	P14	pool	19.0	9.1	172	8.5	8.6	9.5	9.6			1.02	0	25	70	5	0	3.6	0.0	40.0	10.0
B3	R22	riffle	20.6	7.1	146	6.7	10.3	6.1	5.2			0.56	0	65	33	2	0	1.0	1.5	16.0	0.5
B3	G23	glide	28.0	9.1	255	11.2	10.3	8.6	7.4	8.1		0.50	0	25	70	5	0	0.0	1.0	10.0	0.0

APPENDIX 6. Physical and fish catch data for Whatshan W3.2 and Barnes B3 Fish Sample Sites, September 2012.

Reach	Name	OH	DP	CovTo	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
W3.2	P01	2.5	10.0	34.8	0.16	0.25	0.23	0.36	0.46	0.44	0.83	1.08	1.05	0.87	0.78	0.63								
W3.2	G02	2.0	0.0	28.3	0.16	0.4	0.57	0.69	0.72	0.51	0.45	0.06												
W3.2	R04	8.0	0.0	19.4	0.19	0.01	0.01	0.11	0.21	0.18	0.20	0.10	0.35	0.38	0.41	0.46	0.53	0.43	0.15					
W3.2	G05	0.0	0.0	2.4	0.04	0.18	0.28	0.20	0.12	0.30	0.55	0.54	0.59	0.49	0.29	0.28	0.21	0.35	0.19	0.07				
W3.2	P04	3.0	80.0	192	0.15	0.25	0.35	0.44	0.56	0.70	0.85	1.07	1.05	0.93	0.70	0.58	0.40	0.08						
W3.2	SC01	1.0	0.0	3.1	0.05	0.14	0.06																	
W3.2	R08	1.0	0.0	10.5	0.15	0.05	0.12	0.13	0.17	0.20	0.24	0.38	0.22	0.26	0.20	0.08			0.22	0.08	0.10			
W3.2	P07	0.0	20.0	28.3	0.3	0.5	0.66	0.68	0.83	0.82	0.48	0.32	0.33	0.26	0.25	0.20	0.13							
W3.2	G08	3.0	15.0	44.5	0.07	0.1	0.11	0.24	0.24	0.32	0.45	0.54	0.59	0.55	0.46	0.21	0.13							
W3.2	R12	0.0	1.0	10.5	0.14	0.14	0.30	0.35	0.32	0.31	0.30	0.13												
W3.2	G11	6.5	8.0	24.7	0.12	0.16	0.20	4.29	0.38	0.43	0.41	0.39	0.39	0.33	0.35	0.30	0.15							
W3.2	R15	1.0	1.0	22	0.1	0.15	0.16	0.24	0.18	0.17	0.26	0.23	0.15	0.20										
W3.2	P10	2.0	21.0	35.3	0.09	0.2	0.17	0.07	0.10	0.18	0.28	0.47	0.63	0.76	0.77	0.44	0.20	0.01						
B3	SC4R	2.0	0.0	2.4	0.06	0.07	0.07																	
B3	R08	0.0	0.0	4.9	0.13	0.20	0.35	0.40	0.36	0.26	0.15	0.06	0.05	0.10	0.11	0.09	0.16	0.10	0.06	0.12	0.19	0.07		
B3	G08	0.0	0.0	0.5	0.05	0.11	0.17	0.20	0.23	0.26	0.30	0.36	0.35	0.38	0.28	0.16								
B3	P09	0.0	30.0	34.3	0.07	0.21	0.21	0.37	0.45	0.76	0.82	0.54												
B3	P13	3.0	30.0	42.8	0.12	0.26	0.41	0.63	0.80	0.79	0.80													
B3	R20	0.5	0.0	30.2	0.05	0.02	0.05	0.12	0.10	0.12	0.14	0.25	0.21	0.26	0.08									
B3	G22	0.0	0.0	8	0.10	0.16	0.18	0.30	0.34	0.27	0.21	0.21	0.20	0.14										
B3	P14	1.0	40.0	94.6	0.16	0.40	0.56	0.75	0.94	0.97	0.80													
B3	R22	1.0	2.0	22	0.15	0.31	0.30	0.07	0.31	0.29														
B3	G23	8.0	0.0	19	0.02	0.06	0.10	0.20	0.26	0.35	0.28	0.18												

APPENDIX 6. Physical and fish catch data for Whatshan W3.2 and Barnes B3 Fish Sample Sites, September 2012.

Reach	Name	Davg	Dmax	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	Vavg	Vmax
W3.2	P01	0.60	1.08	0.16	0.17	0.29	0.32	0.24	0.41	0.20	0.01	0.01	0.06	0.02	0.01								0.16	0.41
W3.2	G02	0.45	0.72	0.27	0.31	0.53	0.43	0.29	0.36	0.24	0.19												0.33	0.53
W3.2	R04	0.25	0.53	0.31	0.00	0.00	0.00	0.00	0.01	0.00	0.50	0.26	0.26	0.49	0.43	0.49	0.45	0.02					0.21	0.50
W3.2	G05	0.29	0.59	0.12	0.02	0.08	0.07	0.09	0.21	0.17	0.25	0.30	0.38	0.48	0.41	0.39	0.24	0.20	0.07				0.22	0.48
W3.2	P04	0.58	1.07	0.13	0.15	0.18	0.19	0.18	0.17	0.18	0.10	0.16	0.11	0.08	0.00	0.01	0.01						0.12	0.19
W3.2	SC01	0.08	0.14	0.02	0.15	0.00																	0.06	0.15
W3.2	R08	0.17	0.38	0.19	0.09	0.06	0.53	0.23	0.03	0.64	0.93	0.33	0.89	0.41	0.05			0.42	0.04	0.01			0.32	0.93
W3.2	P07	0.44	0.83	0.03	0.03	0.00	0.31	0.58	0.36	0.10	0.10	0.16	0.18	0.16	0.02	0.00							0.16	0.58
W3.2	G08	0.31	0.59	0.00	0.00	0.00	0.23	0.30	0.40	0.35	0.13	0.33	0.22	1.00	0.14	0.00							0.24	1.00
W3.2	R12	0.25	0.35	0.11	0.16	0.54	0.64	0.59	0.08	0.51	0.68												0.41	0.68
W3.2	G11	0.61	4.29	0.21	0.11	0.27	0.18	0.26	0.26	0.28	0.31	0.35	0.17	0.27	0.19	0.15							0.23	0.35
W3.2	R15	0.18	0.26	0.37	0.25	0.06	0.38	0.51	0.08	0.45	0.26	0.14	0.60	0.37	0.42	0.02	0.15	0.09	0.16	0.02			0.25	0.60
W3.2	P10	0.31	0.77	0.12	0.12	0.08	0.40	0.12	0.21	0.14	0.57	0.05	0.39	0.33	0.07	0.02	0.00						0.19	0.57
B3	SC4R	0.07	0.07	0.05																			0.05	0.05
B3	R08	0.16	0.40	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.12	0.29	0.41	0.27	0.60	0.99	0.07	0.36	0.03	1.10	0.34		0.26	1.10
B3	G08	0.24	0.38	0.03	0.15	0.12	0.25	0.20	0.26	0.29	0.21	0.20	0.17	0.14	0.06								0.17	0.29
B3	P09	0.43	0.82	0.02	0.03	0.06	0.06	0.22	0.29	0.28	0.02												0.12	0.29
B3	P13	0.54	0.80	0.03	0.09	0.12	0.22	0.17	0.17	0.01													0.12	0.22
B3	R20	0.13	0.26	0.17	0.17	0.18	0.40	0.78	0.86	0.14	0.51	0.96	0.65	0.37									0.47	0.96
B3	G22	0.21	0.34	0.04	0.08	0.32	0.39	0.28	0.43	0.42	0.15	0.12	0.14										0.24	0.43
B3	P14	0.65	0.97	0.10	0.10	0.11	0.08	0.01	0.12	0.06													0.08	0.12
B3	R22	0.24	0.31	0.26	0.29	0.38	0.78	0.12	0.06														0.32	0.78
B3	G23	0.18	0.35	0.00	0.07	0.15	0.38	0.25	0.63	0.59	0.19												0.28	0.63

APPENDIX 6. Physical and fish catch data for Whatshan W3.2 and Barnes B3 Fish Sample Sites, September 2012.

		Fish Catch									
Reach	Name	CCGf	CCGa	EBf	EBa	LNCf	LNCj	LNCa	RBf	RBj	RBa
W3.2	P01		53	1			3	21	9	6	12
W3.2	G02	8	77	5	1	1		3	7	3	1
W3.2	R04	19	93	7	4	7	8	2	1	6	7
W3.2	G05	5	110	10		13	12	17	10	6	4
W3.2	P04		18				3	5	1	4	16
W3.2	SC01	15	53	2	10	4	8	3	9	25	36
W3.2	R08	7	18	5	2	5	7	2	2	4	7
W3.2	P07		38	4	6		1	1		11	18
W3.2	G08	17	70	7	2	1	2	1	16	7	8
W3.2	R12	3	59	7				4	2	2	
W3.2	G11	8	54	5	2			12	8	4	7
W3.2	R15	2	128	6		6	8	8	5	13	7
W3.2	P10	2	17	4					18	1	
B3	SC4R	1	89	2					5	2	
B3	R08		144	3	1				12	4	3
B3	G08		162		3				17	10	8
B3	P09		42	4	6				10	3	10
B3	P13		70	5	2				2	5	14
B3	R20		24	4	7				6	6	8
B3	G22		139	4	6				4	8	7
B3	P14		140	4	3				13	3	9
B3	R22		85	3	8				10	7	11
B3	G23			18					2		