Gitxaala Nation Environmental Monitoring Archaeological Survey Lithic Report

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Figure 1.0 Photo of GEMS research team members (from left to right): Project Director, Dr. C.R. Menzies, Katrina Leslie Captain Teddy Gamble, Kenzie Jessome, Naomi Smetherhurst, Phil Gamble, Russ Gamble, Iain McKecknie, Rich Hutchins, and Marina La Salle.

1.0 INTRODUCTION:

This report presents preliminary stone tool/lithic data from WS-1 and WS-2 Sites (see Map 1.0). Cultural materials, including the lithic sample upon which report is based, were collected by researchers of the Gitxaala Environmental Monitoring Archaeological Survey (GEMS, hereafter). The team members of GEMS included, from the University of British Columbia's Anthropology Department; project director, Dr. Charles R. Menzies, doctoral candidates, Iain McKecknie, Richard Hutchings, and Marina LaSalle, Master's students Naomie Smetherhust, and myself (Kenzie Jessome), as well as Gitxaala community member Mr. Phillip Gamble. The lithics were collected during intensive surface survey of intertidal zones and exposed beach. Beach and intertidal zones adjacent to where ancient villages were thought to been located (typically identified through the presence/absence of shell midden) were targeted (Fladmark 1979). Representative samples of lithic technology were collected from both WS-1 and WS-2 Sites. These samples will provide a preliminary understanding of chronology, pre-entanglement economy, stone tool typology, material, technology, and other human activity at the aforementioned archaeological sites (WS-1 and WS-2) (Andrefsky 1994; Drennan 1996; Kooyman 2004). Most lithics collected were also geo-rectified using either a hand held Garmin GPS unit (GEMS lithics 65-66) or using Total Station Transit technology (GEMS lithics 1-64), and sometimes photographed *in situ*.

Figure 2.0 map of survey zone or of WS-2 and WS-1 only

The next section (*2.0 Methodology*) of this report describes the methodologies employed to create the GEMS Lithic Database. All the steps taken to produce both the raw quantitative data (see sub-section 2.1) as well as the GEMS Master Lithic Database (see sub-section 2.2) are described in detail. The next section (*3.0 Results*) of this report presents the preliminary findings reached through basic statistical manipulation of raw data. This section also includes a brief discussion of the number of lithics; range of raw materials exploited, type of stone tools collected, and concludes by suggesting a potential chronology alluded to by the material analyses (largely based on stone tool typology tradition). The concluding section (*4.0 Future Research*), suggests some avenues and lose ends to be conducted during future analyses and/or research. Considered in its entirety, the primary goal of this report is to attain a preliminary understanding of the range of human activities occurring at WS-1 and WS-2 Sites. Detailed material studies allows us to extrapolate important socio-economic information (within and between archaeological sites); That being said, however, the results of this report should only be considered in conjunction with other mediums of archaeological data collected simultaneously from the aforementioned sites (i.e. paleo-geological data, faunal [including shellfish], spatial maps, radio-carbon dates, etc.).

Figure 3.0 Photo of GEMS researchers and the intertidal zone of WS-2 Site (during low tide).

2.0 METHODOLOGY:

The entire sample collected from the first phase of the GEMS archaeological field research was 114 comprised of only 114 lithics. Compiling the GEMS Lithic Database relied heavily on previous training using primarily Andrefsky [1998] and Kooyman [2002]; however, publications concerning related archaeological stone tool technologies (associated either geographically and/or chronologically) were also reviewed (see Chatters 2010; Hobler 1982: 29-54; Mateson et al. 2003; Mateson 1976: 108-152). In August, regional stone tool specialist and PhD candidate at UBC, Jesse Morin, was asked to provide an objective, sometimes alternate perspective of the lithic analyse and associated classification of lithics. On September 7th 2010 J. Morin and Dr. RG Mateson, and Dr. David Pokotylo, also of UBC's Anthropology Department, reviewed lithic collection to provide a further objective perspective on the GEMS lithic collection.

Discrepancies (and some notable congruencies) between researches are noted in the "Notes" column in the *GEMS Lithic Database* (see end of report).

The GEMS Lithic Database is not chronologically organized (according to date of collection). Instead a systematic, intuitive model for recording lithics into GEMS Lithic Database was created. Lithics numbers 1-64 in the GEMS Master Lithic Database were randomly surface collected from WS-2 and were assigned this specific number to avoid confusion- each lithic has been geo-rectified by UBC's Total Station technology (collected on June 5th 2010). Simply stated, the GEMS Lithic Database number (assigned during the construction of this report, see database attached to end) and its associated geographical data recorded on the *Total Station* (at UBC) are the exact same numbers (N=64). Two bi-facially worked stone points (GEMS lithics 65 and 66) were collected prior (June 3rd 2010), but not geo-rectified using *Total Station* but a handheld *Garmin* GPS unit instead (see CRM WP 38 and CRM WP 37) (N=2). GEMS Lithics 67-88 were collected from WS-1 Site on June 4th 2010 (N=22). The remainder of the collected lithics from WS-2 were not geo-rectified using Total Station technology, and were numbered in the GEMS Master Database as lithics 89-114 (N=26) (see GEMS Database below). Other materials (historic artefacts, etc.) are tentatively assigned an alphabetic symbol in the GEMS database.

2.1 Processing GEMS Lithics: All lithics collected required a wash in a room temperature tub of water due to the presence of lipids, red and other species of algae, and barnacle colonies. Neither soap nor other cleaning agents were used during the wash. The lithics were lightly scrubbed with a sponge and barnacles as well as other shell fish (typically lipids) were removed manually (using fingernail or, with carful precision to avoid damage, a geological pick, if necessary). The only lithics that were not exposed to the water rinse treatment were the previously identified bifacially worked tools (aka the Old Cordillera Stone Tool Tradition bi-facially worked point). This was done in order to preserve the material evidence on the tools for future trace elemental or micro-use wear analyses.[1] Lithics were open air dried in the "Dirty Lab" at the Museum of Anthropology. Once thoroughly dry, the lithics were "bagged and

[1] The likelihood of recovering trace elements of organic remains associated with cultural processes is very small due to the fact that all stone tools were collected in the Intertidal zone, meaning they may have been subjected to considerable post-depositional activity.

tagged", meaning assigned a number (or letter) in the GEMS Lithic Database. Labels were placed directly on the lithics in order to ensure archaeological context is preserved. This was done by placing clear nail polish on the surface of the lithic, followed by a layer of *Stevenson Acrylic Gesso*. Once Gesso dried, labels were placed on space provided. A final coat of nail polish was placed on label to increase the integrity of label as well as to ensure easy removal of label. Labels were placed on thought to be un-diagnostic regions of the lithics (avoided labelling bulbs of percussion, blade edge, striking platforms, etc., and the label was normally placed on cortex of rock fragment, if available). The lithics are currently and temporarily being supervised by the *Laboratory of Archaeology* (LOA) at the *Museum of Anthropology* (MOA) at UBC. After the termination of the GEMS project the lithics analyzed, along with other forms of material culture collected, have a pre-arranged repository at the *Northern British Columbia Museum* in Prince Rupert, BC.

2.2 Creation of Raw Data: The Gitxaala Environmental Monitoring Archaeological Lithic Database was created in a *Microsoft Excel* database. A brief description of its intended purpose and subsequent design is warranted. All lithics were examined numerous times for diagnostic tool-type features, use-wear, re-touch, post-depositional activity, etc (Andrefsky 1998). Each lithic also had its technological attributes measured (see Andrefsky 1998; Kooyman 2003). Each attribute that was examined for on the lithics was also given a column in the GEMS Master Lithic Database in order to record pertinent data in a manner that can be readily comparable. For example, as all culturally modified lithics were weighed and subjected to technological measurements, the columns 'length', 'width', 'thickness', and 'weight' were created. Some columns of data, however, required more than numerical information; for example, if use-wear was identified, appropriate notes taken on what type of use-wear, what it may be indicative of, etc. were placed in the "notes" column. Other forms of data simply required a yes or no; for example, 'evidence of heat alteration' and 'complete or not', but further explanation was also offered in the notes section of database.

Some lines of data can be useful to record in a quantitive manner in order to render the data easily comprehendible to useful statistical programs such as *SPSS*. For example, striking platforms and flake termination scars were classified according to Andrefsky (1998) (what type of platform [complex, cortical, flat, or crushed], or what type of termination [feather, hinge, stepped, or *outrépassé*]. These lines of data can be numerically coded, so that SPSS can look from complex patterns. Raw material type was recorded to the best of this analyst's ability (based on albeit limited experience with local lithic materials) and could also be coded numerically. Some raw data was recorded in a quantitative manner. The presence of 'cortex' (original surface of stone, typically heavily weathered and a different colour than the interior), for example, was systematically recorded according to what percentage of the cortical lithic was cortex; In instances where less than 25% of the lithic was 'cortical', a numerical value of '1' was assigned, for between 25% and 50% a '2' assigned and so on. This system was also employed for, what I will call herein "barnacle scars"- white organic debris leftover from base of barnacle after stones were washed and processed.

When a diagnostic tool, or fragment thereof, was encountered in the collection a more meticulous method of technological measurements were preformed and depended on what tool was concerned and how much of it was left over to analyze (see Andrefsky 1998 for detailed description of methodology). Other mediums of quantitative and qualitative data collected, when applicable, included: raw material type, material color, type of use-wear, type of re-touch, tool type, post depositional weathering, and any other information that this analyst felt would be useful to future analyses was recorded in the notes column (i.e. exemplary samples that should be examined further using a Scanning Electron Microscope [SEM] or other micro or bio-chemical trace element analysis).

3.0 RESULTS:

All lithics that comprise of the GEMS lithic database were collected on a variety of dates during the first phase of fieldwork, which spanned from June 3th 2010 to June 21th 2010. A total of 114 lithics were collected, washed and quantified. Of the entire collection 76 (67%) of the lithics were identified as either potential stone tools, tool performs, and/or utilized flakes (as tools and fragments of them are often reused). Only two lithics collected were thought not to have evidence of human alteration, it was measured as a lithic but noted in notes section as "probably non-cultural". Much of the collection is comprised of "informal tools"[2], although some show evidence of extensive manufacture and investment of time.

3.1 WS-1 Site:

Twenty-two lithics were collected from WS-1 Site (see GEMS Lithic No.s 67-88). Of the 22 lithics collected from WS-1, only 6 (27%) display evidence of retouch or use-wear. Only one multi-directional core was collected and 68% of the lithics showed no evidence of secondary processing (i.e. un-utilized flakes and cortical or angular shatter).

Figure 6.0: Photo displaying range of materials utilized by ancient residents of WS-2 Site; lithics featured in photo were collected within 5m x 5m area.

Further inspection is necessary, but this preliminary exploration suggests that WS-1 Site may fit into the regional cultural chronology scheme during a relatively more recent time period than WS-2 Site, discussed below. Concerning raw material sources, results are preliminary at best, but it seems 45% of lithics from WS-1 are quartzite, while 36% of the collection is basalt/andesite, the remaining 19% are chert or unidentified. No definitive evidence for bi-face stone tool technology at WS-1 Site; however, GEMS lithics 67 and 81 are both potentially fragments of bifacially worked tools.

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[2] As defined by Milne (2009:43), "positive percussion features with evidence of retouch as indicated by patterned negative flake scars along the margins of the artefact".

WS-1 Site Calculated Averages (N=22)			
Weight	length	width	thickness
31.1g	42.6cm	30cm	14.6cm

3.2 WS-2 Site

From WS-2 site lithics were collected on two separate occasions, on June 2nd 2010 surface survey by IM and RH yielded 26 lithics from intertidal zone, then on June 5th 2010, as previously mentioned, collections were conducted by entire GEMS team using *Total Station* mapping technology. Of the eighty lithics collected from WS-2 site, ten are stone tools that have been bifacially modified: see GEMS Lithics 13, 17,22,27,34,42,48,57,61 and 2. There are seven multidirectional core: GEMS Lithics 3, 26,36,44,47,55 and 5. Of these cores 71% of which are quartzite; one basalt and one possible andesite. Fifty one percent of the stone tool collection was comprised of either unidirectional cores and/or utilized flakes (47/80). The other interesting thing noted it that quartzite is used for all tool types, while andesite and basalt seem to be primarily comprised of cores, utilized flakes, and bifacically worked tools. All chert tools were either scrapper, blades or utilized flakes.

Bifacially Worked Stone Tools at WS-2 Site: Nearly all the bifacially worked tools collected during surface survey seem to been created from a large cortical flake; while the small 'bi-face' is probably not made from a cortical flake (see Figure 4.0, below).

Figure 4.0 GEMS Lithic No. 57, a bifacially worked projectile point or blade discovered at WS-2 Site

Two of the bi-facial points were made of quartzite and were very different sizes (see GEMS Lithics 57 and 66). One sample (GEMS # 65) is a dark grey/black basalt[3] and has extensive evidence of careful and systematic manufacture, possibly distal end of large spearhead. Lithic 48 in the GEMS database is made of andesite/basaltic material and is likely fractured. According to Dr. Jim Chatters (2010, personal communication) of Washington State University this stone tool tradition reflects an intimate and long-standing comprehension of certain "principles of engineering". Each bi-facially modified stone point is specifically designed to be thick and lenticular in order to account for the specific "bending forces" induced on material during use. Further the intention, systematic serration of the blade edge also reduces stress levels of bending forces. Seven other lithics, with less extensive modification, were also collected from WS-2 and show evidence of having been bifacially worked. The total biface to non ratio is 11:80 for WS-2 Site. Thirteen point eight percent of a randomly collected intertidal lithic scatter suggests to me this site is between 6,000 and 10,000 years old.

Figure 5.0 Left photo, GEMS Lithic No. 66, a bifacially worked quartzite point; In the photo on the right, GEMS Lithic No. 65, a bifacially worked basalt point. Both projectiles were collected from WS-2's intertidal zone.

It should be noted that due to the fact all lithic materials collected were done so in the intertidal zone of sites, (and not in excavation units with tightly controlled and understood contextual data), interpretations of raw data is limited. Examining these lines of evidence, however, has

[3] This material is often confused with the locally available material known as *trachy dacite* due to the presence of pheno-crysts, a white crystal that forms during cooling in its geological environment present in both. Dacite is also a possibility of raw material for these specimens as it was also procured by pre-entanglement polities on the NW Coast (J. Morin, personal communication, Aug. 2010).

provided concrete evidence to suggest the lithics collected belong to the "Old Cordillera Stone Tool Tradition" dating to roughly between 6,000 and 10,000 years old (RG Mateson, 2010, personal communication), at WS-2 site.

WS-2 Site Calculated Averages (N=80)

weight	length	width	thickness
97.7g	64.2cm	47.3cm	24cm

3.2 Summary

Clearly the samples from WS-1 and WS-2 Sites are reflective of different types of activities as the natures of the collections are quite different. A brief examination of the calculated averages of various technological dimensions of the samples indicates that the character of the samples is different; whether or not this difference can be accounted by cultural variation (different activity, different inter-site activity, different chronology) or by collection methods (i.e. insufficient representative sample), remains to be seen. Comparing raw material source choices, we seem to have similar ratios of andesite, basalt, chert, quartzite and others, at both sites; however, a striking difference remains in the bi-facially worked technology between WS-1 and WS-2, the latter having a higher concentration. The sample from WS-2 is 300% more heavy, on average 2.2 cm longer, 1.7 cm wider, and 9.4 mm thicker. Considering these samples were randomly collected, this may be indicative of differences between sites regarding; resources extracted and processed there, site area tested (different activity), chronology, etc. Bottom line is that we need more inter-site comparisons between WS-1 and WS-2.

5.0 FUTURE RESEARCH

Some potential avenues for future research should include experimental statistical analyses of the GEMS Comparing the length, width, and thickness, and size (cm^3), among other attributes, of each lithic allows one to test for socio-cultural, technological variation. By dividing the raw data into specific categories, known statistically as "batches"; a batch of measurements, for example, to test for cultural patterns (Drennan 1996:12). All 'raw' data was compiled into the GEMS Lithic Database preliminary statistical analyses were conducted in order to gain an understanding of the human activity that occurred during the occupation of the sites WS-1 and WS-2. By creating various groups of lithics (i.e. width of andesite lithics or size of greyish utilized flakes, inter and intra-site comparisons, etc.) we can create batches of numbers to test for patterns. The resulting “batch” of measurements, when placed in a “stem-and-leaf plot”, will visually display if a certain size (or range of sizes) of lithic tools were preferred by ancient inhabitants of the sites in question (Drennan 1996:12). A “Back-to-back stem-and-leaf plot” (see Drennan 1996:10) was created test for variability between sites (see results, below). Because we have excellent geographical/spatial data at WS-2, we can argue for different activities at different areas, even considering the intertidal activity. Hopefully a better understanding of human activity at WS-2 will allow for speculation/comparative perspective of site activity at WS-1 Site.

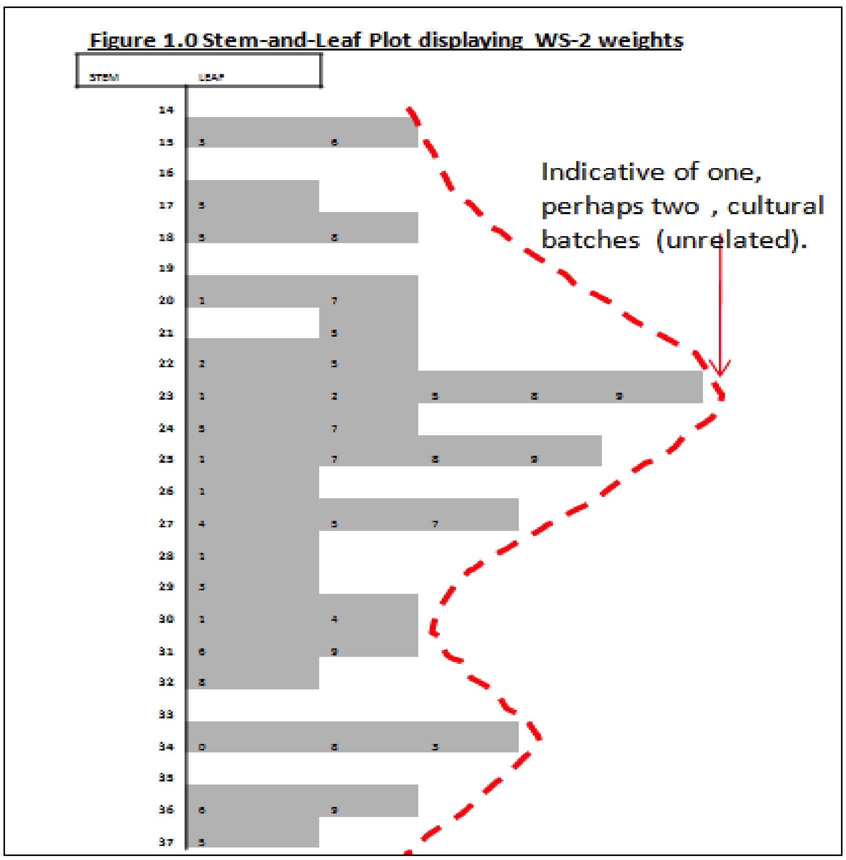

Figure 7.0 Stem and Leaf Plot of WS-2’s lithic weight

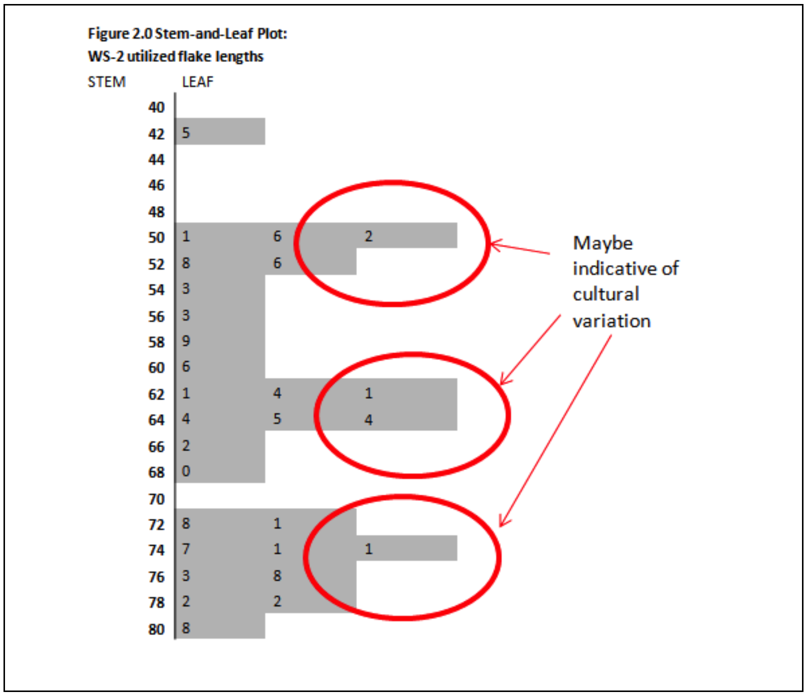

Figure 8.0 Stem and Leaf Plot of WS-2's utilized flake length

Example of experimental stem and leaf plots below (see Figures 1.0 and 2.0). Figure 1.0 plots weights of utilized flakes, blades, and scrappers identified in the GEMS lithic collection. The presence of a single "peak" and liberal distribution of lithic weights suggests nothing really useful. Figure 2.0, on the other hand, displays potentially three peaks (clumping around 50, 62 and 74 cm), when lengths of utilized flakes are placed in a stem-and-leaf plot. Considering Drennan's (1996: 14) comment that presence of multiple "peaks" in a stem-and-leaf plot, "is always an indication that two or more fundamentally different kinds of things have been thrown together and measured", we may have evidence to suggest that these batches of flakes were used for different activity at site (need to consider sample size as well). This statistical exploration of data should be done to look for inter and intra site variation in material culture.

Of the most important variables to incorporate into this research is spatial data. We should also create a GEMS Raw Lithic Material Typology in order to be able to readily identify patterns and variation (both temporal and spatial) in raw material exploited by ancient peoples. I began a preliminary typology system, meaning that material type was identified by analyst, employing admittedly limited experience with local geology, into basic categories, such as andesite, quartzite, basalt, chert, chalcedony, etc. Next, the matrix, colour, and inclusions of each lithic was described and groups thereof formed sun-categories. For example if the raw material quartzite is given the term "GEMS lithic typology I"; then different variations of quartzite (i.e. brown/grey minor inclusions versus translucent whitish material of high quality [no inclusions visible to naked eye]) would be given a sub-category typology Ia and Ib. This system was, however, abandoned in recognition of Dr. Jing spectrometer laser machine that can quickly and accurately identify raw material types using empirical data. I hope to gain an understanding of this technology and associated software, if deemed necessary/helpful to future research by project director.

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Site	lithic No.	Excavator	Date (coll	RawMat	RawMat Colour	Tool Type	Tool Cond	Barnacle	Cortex	Weight (g)	surements	Width	Thickness	Notes
WS-2	1	surface co	June 5th 2	grey volcanic rc	dark grey/black	???	-	0	2	183.6	98.6	56.6	33.4	poor-medium qua
WS-2	2	surface co	June 5th 2	basalt/trachy da	tan/yellow	bi-face scrapper	complete	0	1	50.8	53.2	33.5	27.5	exhuasted core or
WS-2	3	surface co	June 5th 2	andesite	anslucent brow	multi-directional core	complete	0	0	169.9	76.4	48.5	34.3	
WS-2	4	surface co	June 5th 2	basalt	green	flake	complete	0	0	184.1	76.5	54.8	26.5	heavily rounded b
WS-2	5	surface co	June 5th 2	basalt	black	potential multi-directional core		1	2	133.8	62.8	44.5	36.9	possibly non-cultu
WS-2	6	surface co	June 5th 2	quartzite	grey	utilized flake	complete	0	0	92.6	97.4	42.8	23.1	
WS-2	7	surface co	June 5th 2	andesite	black	scrapper/unidirectional	complete	1	1	148	55.3	53	28.1	
WS-2	8	surface co	June 5th 2	andesite	lark green/blac	scrapper/ core		0	0	60.4	67.2	42	26.1	translucent
WS-2	9	surface co	June 5th 2	basalt	black	utilized flake	complete	0	0	20.1	49.1	52.5	10.2	feather terminati
WS-2	10	surface co	June 5th 2	crystal quartz	white and red	potential exhusted core		0	0	293.6	75.7	55.1	54.6	heavily patienate
WS-2	11	surface co	June 5th 2	andesite	bluish	scrapper/utilized flake		0	1	73.8	77.2	43.2	21.5	visible retouch/us
WS-2	12	surface co	June 5th 2	basalt/andesite	white	scapper/core	complete	0	0	88.4	58.9	46.4	25.7	possibly/likely no
WS-2	13	surface co	June 5th 2	andesite	grey	bifacially worked core/scrapper		1	2	116.4	62.4	51.8	32.8	
WS-2	14	surface co	June 5th 2	quartzite	grey	unidirectional core	complete	0	1	150.8	66.4	54.9	36.6	
WS-2	15	surface co	June 5th 2	andesite	dark grey	cortical flake	incomplet	1	0	55.9	64.1	35	20.6	
WS-2	16	surface co	June 5th 2	andesite or bas	dark grey	flake	complete	0	1	5.7	41	23.4	4.8	
WS-2	17	surface co	June 5th 2	andesite/basalt		bifacially worked flake		0	1	84.3	65.8	53.3	25.9	
WS-2	18	surface co	June 5th 2	andesite	dakr grey	retouched flake, possible bipolar		0	0	26.3	54.8	34.2	12.1	
WS-2	19	surface co	June 5th 2	quartzite	tan/blue	core/ blocky angular sha	??	1	0	129.8	68	56.7	25.1	heavily worn by ir
WS-2	20	surface co	June 5th 2	quartzite	light grey	flake	complete	0	0	16.6	48.3	35.6	7.8	edge damage, Mo
WS-2	21	surface co	June 5th 2	basalt	black	utilized flake	complete	2	1	39.5	90.6	33.6	15.6	possible usewear
WS-2	22	surface co	June 5th 2	andesite	dark green	bifacial core/scapper	complete	0	0	37.1	54.1	38.2	18.5	
WS-2	23	surface co	June 5th 2	quartzite	blue grey	blacky angular shatter	complete	0	0	41.9	44.1	38.6	27.7	
WS-2	24	surface co	June 5th 2	quartzite	tan	core/scrapper	complete	1	1	275.7	92.9	75.2	41.1	retouch visible
WS-2	25	surface co	June 5th 2	quartzite	tan/grey	uni-directional core/scra	complete	1	1	73.2	59.6	46.1	25.8	"turtleback scrapp
WS-2	26	surface co	June 5th 2	crystal quartz	hite/transluce	multi-directional core		0	0	50.8	42.2	32.9	30.1	
WS-2	27	surface co	June 5th 2	andesite	tan/green	medial biface tool?	incomplet	0	0	78.1	56.3	46.1	23.9	
WS-2	28	surface co	June 5th 2	quartzite	grey	utilized flake	complete	0	0	41.7	51.6	59.1	13.7	usewear/retouch
WS-2	29	surface co	June 5th 2	basalt	black	uitilized flake	complete	0	1	45.2	56.3	45.2	20.7	retouch
WS-2	30	surface co	June 5th 2	quartzite	green/grey	multi-directional core	complete	0	1	111.9	63.1	52.5	34	red algae, not hig
WS-2	31	surface co	June 5th 2	quartzite	white/grey	flake or blade	complete	0	0	17.8	42.5	41.8	15.3	patienation speck
WS-2	32	surface co	June 5th 2	quartzite	tan	flake	complete	0	2	35.9	67.3	37.2	13.4	low quality mater
WS-2	33	surface co	June 5th 2	quartzite	blue	flake?	complete	0	1	80.4	83.5	65	14.8	medium quality m
WS-2	34	surface co	June 5th 2	quartzite mayb	grey	distal end of flake or bla	incomplet	0	0	20.5	56.7	30.8	18.8	split flake
WS-2	35	surface co	June 5th 2	quartzite	grey/green	utilized flake/core	complete	0	1	82.8	66.5	46.1	20.1	bulb or percussion
WS-2	36	surface co	June 5th 2	quartzite	light blue	multi-directional core/scrapper		0	1	80.8	58.8	44.5	24.7	potential retouch
WS-2	37	surface co	June 5th 2	quartzite	blue grey	uni-directional core/sca	complete	0	1	146.3	79.2	50.6	29.3	"turtleback scrapp
WS-2	38	surface co	June 5th 2	crystal quartz	white	RG :possibly angular blo	??	0	1	105	65.8	46.1	34.9	possibly a core, fla
WS-2	39	surface co	June 5th 2	quartzite	blue grey	flake/core	incomplet	0.5	1	588.2	121.1	104	55.9	heavily worn by ir
WS-2	40	surface co	June 5th 2	chert	blue/green	scrapper? Fragment of b	incomplet	1	0	65.8	74.1	28.8	27.4	high quality mate
WS-2	41	surface co	June 5th 2	andesite	ranslucent grey	core scrapper	complete	0	0	143.1	73.8	65.1	23.8	???
WS-2	42	surface co	June 5th 2	andesite	ranslucent grey	bifacial core/scrapper		0	0	144.7	81.2	56.4	31.6	David "core rejuve
WS-2	43	surface co	June 5th 2	quartzite	ranslucent grey	unifacially worked tool?	complete	0	1	49.8	53.6	47.1	23.2	
WS-2	44	surface co	June 5th 2	quartzite	greyish green	multi-directional core	complete	0	2	306.1	91.9	58.4	54.1	possibly re-juvier
WS-2	45	surface co	June 5th 2	?? Balsalt??	dark grey/black	non-cultural? FCR		0	2	221.5	71.4	67.4	33.4	possibly non-cultu
WS-2	46	surface co	June 5th 2	quartzite	nslucent grey/	flake	complete	0	0	7.7	64.9	32.2	2.8	probably knocked
WS-2	47	surface co	June 5th 2	quartzite	grey	multi-direction core	complete	1	0	431.4	70.7	70.3	62.3	not exhausted
WS-2	48	surface co	June 5th 2	andesite	blue	bi-face point (Olcott) ak	incomplet	1	0	46.5	60.1	48.3	11.9	slightly translucer
WS-2	49	surface co	June 5th 2	crystal quartz	hite/transluce	chipped stone (angular s	complete	0	0	14.1	29.9	17.3	16.9	some red algae st
WS-2	50	surface co	June 5th 2	quartzite	tan/grey	left handed scrapper	complete	0	0	91	89.6	45.4	22.5	usewear/retouch,

WS-2	51	surface co	June 5th 2	quartzite	tan/red (algae)	uni-core	exhautsec	0	0	109.6	80.8	59.2	24.5	lots of patination
WS-2	52	surface co	June 5th 2	quartzite	grey	angular shatter		0	0	102.1	60.8	49.7	23.4	possibly fragment
WS-2	53	surface co	June 5th 2	chalchedoney c	e and green (al	potential fragment of sc	incomplet	0	0	102.6	77.3	49.8	31.9	heavily patienate
WS-2	54	surface co	June 5th 2	andesite	tanish brown	Uni-directional core	exhaustec	0	2	70.7	62.4	32.3	23.5	"fine grained, cou
WS-2	55	surface co	June 5th 2	quartzite	light grey	multi-direction core	exhaustec	1	0	249.8	73.2	65.9	48.2	medium quality n
WS-2	56	surface co	June 5th 2	quartzite	//calcified whit	??	??	1	1	123.5	51.6	50.6	37.1	potentially heavy
WS-2	57	surface co	June 5th 2	quartzite	grey/green	bi-face point (small)	complete	0	0	15.7	53.5	25.6	10.2	heavily weathere
WS-2	58	surface co	June 5th 2	basalt	dark grey/black	utilized flake	complete	0	0	45.7	64.5	64.6	17.5	hard percussion fl
WS-2	59	surface co	June 5th 2	quartzite	//calcified whit	utilized flake	incomplet	0	0	31.2	51.2	47.7	9.6	crushed platform
WS-2	60	surface co	June 5th 2	andesite	greyish green	??scrapper??	??	1	2	221.7	95.2	57.1	37.5	Long, lenticular fl
WS-2	61	surface co	June 5th 2	andesite	brown grey	bifacially worked scrapp	complete	1	0	119.2	76.2	59.3	30.4	some moderate p
WS-2	62	surface co	June 5th 2	andesite	grey	unidirectional core/scra	complete	1	0	203.2	73.1	67.3	34.8	white "speckles" i
WS-2	63	surface co	June 5th 2	quarttzite	blue/grey	angular shatter		1	0	60.8	44.1	37.7	27.5	not great quality r
WS-2	64	surface co	June 5th 2	quartzite	tan and grey	scapper/core	complete	0	3	174.4	76.8	52.8	22.2	lots of cortex and
WS-2	65	surface co	June 3rd 2	basalt	dark grey/black	bi-face point	incomplet	0	0	34.3	56.8	37.9	12.2	possibly the dista
WS-2	66	surface co	June 3rd 2	quartzite	tan green	biface point? (narrow)	incomplet	0	0	42.8	73.6	34.2	15.1	distal end of bifac
WS-1	67	RH and IM	June 4th 2	andesite	grey brown	shatter or frag of bi face	incomplet	0	0	2	22.2	12.9	5.3	frag of small flake
WS-1	68	RH and IM	June 4th 2	quartzite	light tan grey	flake	complete	0	0	2	20.4	17.4	4.4	flat; stepped
WS-1	69	RH and IM	June 4th 2	quartzite	anslucent brow	flake	complete	0	0	1.3	13.2	12.5	4.9	high quality quart
WS-1	70	RH and IM	June 4th 2	andesite	slucent dark br	utilized flake	???	0	1	1.8	27.3	17.8	5.1	possibly a small p
WS-1	71	RH and IM	June 4th 2	quartzite	grey/brown	flake/ angular shatter	n/a	0	0	5.2	32.7	16.2	11.1	not high quality m
WS-1	72	RH and IM	June 4th 2	quartzite	blue tan	blocky angualr shatter	n/a	0	0	1.9	20.6	10.7	4.2	
WS-1	73	RH and IM	June 4th 2	quartzite	blue tan	flake	complete	0	0	5.3	28.1	16.2	9.3	
WS-1	74	RH and IM	June 4th 2	basalt	lue/light purpl	flake	complete	0	1	17.1	52	28.8	9.9	cortical platform;
WS-1	75	RH and IM	June 4th 2	quartzite	grey	uni-core or utilized flake	complete	0	0	32.8	49.05	35.01	22.33	
WS-1	76	RH and IM	June 4th 2	basalt pos ande	ark blue purplis	flake	complete	0	1	30.2	49.49	44.72	15.31	
WS-1	77	RH and IM	June 4th 2	basalt	light purple	possible non-cultural	n/a	0	2	15.8	37.59	27.9	10.19	
WS-1	78	RH and IM	June 4th 2	andesite/basalt	dark purple	flake	complete	0	0	13.9	35.83	26.48	11.47	some potential ev
WS-1	79	RH and IM	June 4th 2	quartzite	light grey	flake	incomplet	0	0	15	39.68	26.1	12.65	
WS-1	80	RH and IM	June 4th 2	basalt/andesite	grey	flake (maybe blade)	incomplet	0	0	10.1	52.26	26.54	5.74	stepped platform
WS-1	81	RH and IM	June 4th 2	andesite	dark	fragment of bi face	??	0	2	19.3	39.81	32.02	12.75	heavily weathere
WS-1	82	RH and IM	June 4th 2	chalcedoney	reyish light blu	utilized flake	complete	0	0	7.9	41.5	24.84	7.12	crushed platforon
WS-1	83	RH and IM	June 4th 2	patineated basa	t covered in ye	flake	complete	0	0	40.5	65.91	53.77	15.52	heavily weather b
WS-1	84	RH and IM	June 4th 2	quartzite mayb	tan grey	uni-core or uni-scrapper	complete	0	0	123.8	65.17	59.2	26.85	"turtleback scrapp
WS-1	85	RH and IM	June 4th 2	chalcedoney m	grey	multi directional-core	complete	0	0	118.1	54.77	49.83	44.22	exhausted?
WS-1	86	RH and IM	June 4th 2	quartzite mayb	grey	uni-core or uni-scrapper	complete	0	1	110	65.05	48.99	32.57	exhausted core
WS-1	87	RH and IM	June 4th 2	chalcedoney m	white/brown	cortical, angular shatter	n/a	0	3	53.4	60.28	36.49	26.15	no flakes taken of
WS-1	88	RH and IM	June 4th 2	chert	dark green	core or scrapper	???	0	3	57.5	66.16	36.63	24.49	looks very similar
WS-2	89	IM, CRM, I	June 2nd 2	medium quality	grey brown	distal end of flake (benc	incomplet	0	0	4	38.86	17.23	6.28	feather
WS-2	90	IM, CRM, I	June 2nd 2	quartzite or bas	n w/ dark red p	flake	complete	1	0	10.4	34.91	42.26	7.87	some red algae pa
WS-2	91	IM, CRM, I	June 2nd 2	phenocrysts su	grey green	flake	???	0	1	8.2	31.05	27.19	11.44	perhaps cortex or
WS-2	92	IM, CRM, I	June 2nd 2	medium quality	brown	flake or angualar shatter	??	0	1	4.9	25.6	23.89	5.45	pocking on edge c
WS-2	93	IM, CRM, I	June 2nd 2	basalt	dark grey	flake	complete	0	3	10.6	32.43	24.55	8.69	cortical flake
WS-2	94	IM, CRM, I	June 2nd 2	andesite	blue grey	flake	complete	0	1	7.4	31.69	24.73	10.71	cortical; feather
WS-2	95	IM, CRM, I	June 2nd 2	quartzite	blue, green grey	flake	complete	0	1	13	40.8	34.38	9.72	large bulb of perc
WS-2	96	IM, CRM, I	June 2nd 2	andesite	blue dark grey	medial or distal flake	incomplet	0	0	10.2	32.32	35.99	8.98	one side appears
WS-2	97	IM, CRM, I	June 2nd 2	andesite (pheny	blue transluc	angular shatter	incomplet	1	0	16	40.34	37.81	10.84	possibly rejuvena
WS-2	98	IM, CRM, I	June 2nd 2	low-med qualit	tan brown	flake	complete	0	2	88.1	87.37	41.7	22.71	some evidence of
WS-2	99	IM, CRM, I	June 2nd 2	andesite/basalt	green grey	utilized flake (possibly u	complete	0	0	39.6	72.27	44.47	13.86	flat, prepared but
WS-2	100	IM, CRM, I	June 2nd 2	med-high quali	green tan	scrapper/utilized flake	complete	0	1	50.3	93.26	38.46	14.6	retouch? Modifie
WS-2	101	IM, CRM, I	June 2nd 2	medium quality	blue grey	scrapper?	complete	0	0	62.1	68.91	48.02	19.23	use-wear possibly
WS-2	102	IM, CRM, I	June 2nd 2	basalt	grey green	utilized flake?	complete	0	1	48.5	60.87	58.69	11.94	retouch (3-4 syste
WS-2	103	IM, CRM, I	June 2nd 2	medium quality	blue grey	flake	complete	0	1	24.7	46.64	40.95	12.82	rounded from inte
WS-2	104	IM, CRM, I	June 2nd 2	quartzite or bas	blue grey	flake (utilized?)	complete	1	0	50.1	66.47	34.67	22.49	nice working edge
WS-2	105	IM, CRM, I	June 2nd 2	high quality che	grey and green	potential tool!	incomplet	1	3	76.1	59.44	42.25	24.48	Jesse M- Bipolar c
WS-2	106	IM, CRM, I	June 2nd 2	high quality bas	tan grey	unidirectional scrapper	complete	1	0	101	71.04	59.06	27.54	beautiful waxy ma
WS-2	107	IM, CRM, I	June 2nd 2	basalt	green dark grey	flake	complete	0	0	34.4	54.26	47.74	15.17	flat, prepared plat
WS-2	108	IM, CRM, I	June 2nd 2	medium quality	blue grey	utilized flake	complete	0	1	61.3	62.68	52.88	15.84	systematic retouc
WS-2	109	IM, CRM, I	June 2nd 2	medium quality	blue grey	potential utilized flake	complete	0	0	35.3	49.67	49.45	13.33	David "marginal re
WS-2	110	IM, CRM, I	June 2nd 2	chalcedoney m	grey/white	core	incomplet	0	2	139.1	95.64	68.91	17.79	evidence of flakes
WS-2	111	IM, CRM, I	June 2nd 2	wazy material	dark brown	multi directional-core	complete	0	3	343.4	83.82	78.31	57.88	heavily weathere
WS-2	112	IM, CRM, I	June 2nd 2	Chalcedoney/ c	purple grey	multi-directional core o	complete	0	1	124.6	62.53	56.5	41.33	black patineation
WS-2	113	IM, CRM, I	June 2nd 2	basalt	ed with large p	utilized flake or scrappe	no	0	1	123.7	77.32	55.31	28.65	very different raw
WS-2	114	IM, CRM, I	June 2nd 2	quartzite	luish light grey	flake	complete	0	0	14.3	42.63	31.16	11.24	possibly a medial
Mink Trap	A1	NS	May 31st 2	lead	lead colour	historical fishing net we	complete	-	-	196.7	27.39	27.75	7.96	WP 448254 and 59
WS-2	n/a	surface co	June 5th 2	andesite	variable, dark	cobble raw mat. Source?	fractured		4	1060.1	-	-	-	high quality cobbl