CHAPTER 1

Lower Fraser River Region Landscapes

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Introduction

In Bruce Hutchinson's (1950:5) book on the Fraser River, he begins with:

> "No man stands beside the Fraser River without sensing the precarious hold of his species upon the earth. This fact is disclosed, perhaps, by all of nature's larger spectacles, but here it is thrust upon you with a special clarity. In this grisly trench, bored out of solid rock through unimaginable time by the scour of brown water, the long history of lifeless matter, the pitifully brief record of life, the mere moment of man's existence, are suddenly legible. And here, in this prodigal waste of energy, nature's war on all living creatures is naked, brutal and ceaseless.
>
> Of all America's great rivers, the Fraser is probably the most unfriendly to mammalian life. The fish it tolerates and breeds in countless swarm. The vegetable growth it burrows out and sweeps away wherever its tides can reach. The animal touches these waters in peril. Among the animals, the river has seen man for a fragment of time hardly worth recording in the ages of its experience and it holds him in contempt. It crushes his vessels. It tugs and chews forever at his bridges. It heaves its avalanches against his fragile railways. It gnaws his little plots of habitable land, overwhelms his dikes, silts up his harbors, and awaits the day of his going.
>
> In this lash and spill of water, in the slow grinding of rock and cliff, in the perpetual slide of mountain and forest, in the erosion of mountain and gumbo rangeland, in the impact of whirlpool and winter ice, the river is forever mad, ravenous and lonely.
>
> Like many other species which have lived beside it and disappeared, man, though he may build a few dams and tunnels, is a helpless spectator of this process. He cannot look upon it without knowing that he, too, will disappear in due time, he and all his kind, leaving only a few scratches on the shore. These the river will erase at leisure."

While his overall perspective of the Fraser River is decidedly bleak and perhaps a bit maligned, it certainly does become readily evident to even today's experienced outdoor enthusiasts that pedestrian passage through the Lower Fraser River Region does indeed demand respect and careful attention when dodging its numerous potential physical dangers. Despite its many formidable obstacles, barriers and ubiquitous high-energy waters, the Lower Fraser River region is also a place of awesome rugged natural beauty that supports bountiful and diverse food and textile resources (Pojar and MacKinnon 1994; Lepofsky and Lyons 2003; Turner 1995, 1998) (Chapter 28). These natural resources permitted transient and permanent human settlement of the region for at 10,500 years, and perhaps longer (Borden 1968, 1970, 1975; Matson and Coupland 1995; Mitchell 1971, 1990; Schaepe 2001:12-19) (Chapter 18).

The Lower Fraser River Region is located in the southwest corner of British Columbia in the central aspect of the Pacific Northwest (Figure 1). By 13,000 years ago the region was ice-free, but establishment of early pioneering vegetation capable of supporting stable populations of animals was likely a slow process. Early landscapes were barren, windswept, and cold, offering very little comfort or support for early peoples. Heavy stagnating glacial ice remained over most of British Columbia to the north, depressing the land and causing marine tidal waters to extend well up the Fraser Valley to the present town of Hope. Large glacial outwash rivers and streams also formed extensive valley-bottom gravel deposits subsequently carved away over the following millennia to create numerous high terraces along mountain sides and valley floor/wall junctures (Armstrong 1981; Clague 1989; Clague et al. 1991; James et al. 2002 Lochner 2006; Saunder 1985; Schaepe 2001:12-14).

About 10,000 years ago, most glacial ice had melted, and the entire Pacific Northwest rose several metres due to isostatic rebound. This caused early marine shorelines levels in the Fraser Valley to steadily recede westward. By this time forests and understory vegetation communities expanded and became fairly well established, creating niches for numerous mammal, bird and fish species. By 9000 years ago the river level in the Lower Fraser River Canyon was several metres higher than today. Anadromous salmonid runs were becoming established in the Fraser drainage, and salmon *may* have exploited by early inhabitants of the Milliken site near Yale (Borden 1960; Mitchell and Pokotylo 1996). Sturgeon may have also been taken during the early Holocene (Chapter 14). Large game such as bear, mule deer, elk, mountain and goats were also available and regularly hunted, as were some small animals and birds.

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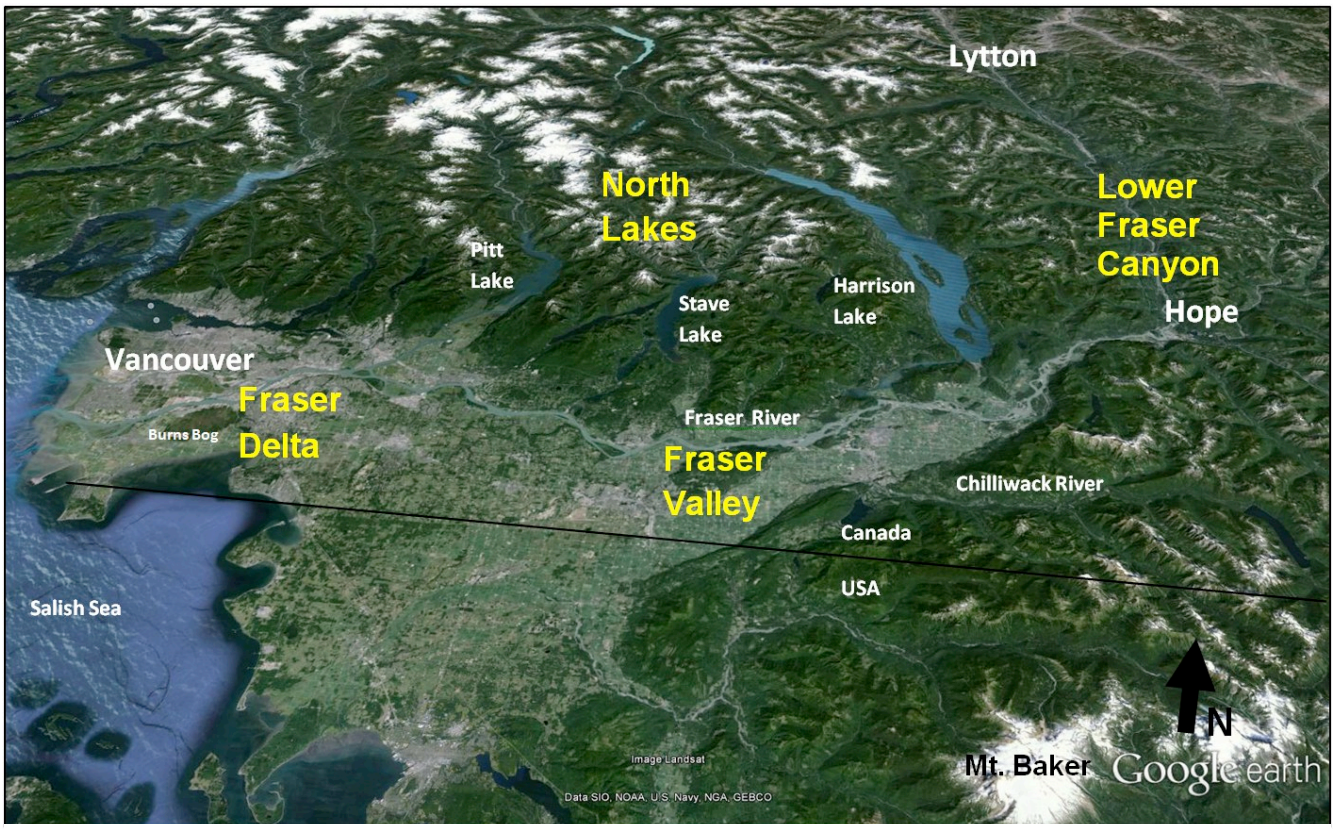

Figure 1. An oblique aerial view of the Lower Fraser River Region in the Pacific Northwest, and its four sub-regions defined in this volume. Map adapted from Google Earth image 2016.

Marine shoreline stabilization at present levels occurred sometime around 5500/5000 BP, coinciding with the onset of more-or-less modern climatic conditions. This is coeval with the emergence and persistence of large regional salmon runs, expansion of mature cedar and maple forests (Hebda and Mathewes 1984), a proliferation of floral and faunal species, and initial establishment of permanent and seasonal winter village settlements. Valley-bottom river and stream down-cutting, terracing, channel braiding and meandering continued to dynamically shape and transform local terrains, creating unique habitats that supported diverse and rich biological communities. Most present-day valley bottom base levels were likely attained by about 3500 years ago.

The northern and eastern aspects of the region are situated on large granitic and gneissic bedrock formations that include the Cascade Mountains to the east, and Coast Mountain range in the north. These mountains are very, high, steep, rugged and densely forested, and were formed by glacial and/or fluvial processes. Intervening narrow V-shaped valleys cut by small high-energy rivers and streams are common (Figures 2 to 4 and 6 to 8).

The region lies predominantly within the Coastal Western Hemlock biogeoclimatic zone (Meidinger and Pojar 1991; Ministry of Forests 1999), characterized by densely vegetated temperate rainforests supporting western hemlock, western redcedar, fir, yellow-cedar, western white pine, bigleaf maple, red alder, and black cottonwood. Average annual precipitation throughout most of the region is relatively high (1.5 m), although there is significant variation (+/- 50 cm/year) between some localities, with more in the north and less in the south. This is due to the formidable rain-shadow barrier presented by the Coast Mountains in the north, causing northward-driven moisture-saturated clouds to gather and then deploy their burden.

Over the last 5000 years, First Nations people have thrived quite well in the region, adapting by pursuing a greater understanding their world, by devising tools and behaviours that worked rather well and made the best of a challenging environment (Chapter 29), and by taking advantage of all foods, textiles, medicines and lithic (toolstone) resources available to them. The human occupational history of the Lower Fraser River region is long and complex, and in this chapter I have chosen not to present or discuss any matters related to pre-contact period First Nation group identity, territorial occupancy, genetic affiliation, or ethnic/linguistic diversity. Much of this detailed information has already been thoroughly researched, compiled and eloquently presented in Carlson (2001), and several chapters in this book include discussions and/or data that relate to some of these more complex cultural considerations.

I have isolated and summarily defined four "sub-regions" based on collective assessment of geography and terrain, aquatic features, altitude, climate, flora, fauna, and other unique natural features, resources or attributes. These sub-

regions include: **(1)** the **Lower Fraser Canyon** lying in the northeast aspect of the region extending along the Fraser River downstream (south) from the small community of Boston Bar to the town of Hope (Figures 2 to 4 and 6 to 8); **(2)** the **Fraser Valley** in the southeast encompassing large flat fertile river lowlands and lower tributaries of rivers and streams from the town of Hope to the confluence of the Pitt and Fraser Rivers (Figures 9 to 17); **(3)** the **North Lakes** sub-region nestled in the southern extent of the Coast Mountains with its extremely rugged terrain, large lakes, and numerous high-energy rivers, creeks and streams (Figures 10 and 18 to 20); and **(4)** the expansive and flat **Fraser River Delta** in the west that includes the city of Vancouver and its neighboring communities lying west of the confluence of the Fraser and Pitt Rivers and city of White Rock near the Canada/US border (Figure 1). The brief descriptions below provide general impressions of local natural landscapes and life-supporting resources available within each of the sub-regions. Some noteworthy archaeological and historic sites, and a few of the more interesting aspects of human behaviour associated with them, are also mentioned. Where considered germane, specific chapters included in this volume are referenced by number to provide you with greater details.

Lower Fraser Canyon Sub-Region

The Lower Fraser Canyon sub-region includes the steep-sided, terrace-flanked, narrow, deep, V-shaped Fraser River channel and all its tributaries lying between Boston Bar and Hope (Figures 2 to 4 and 6 to 8). Significant drainages on the west side of the Fraser River include American, Emory, Yale, Gordon, Sawmill, Spuzzum, and Skuzzy creeks, which are typically larger in discharge volume and more dynamic than those on the east side. This is due to greater precipitation catchment on the east slopes of the Coast Mountain range, whose highest peaks have significant snow packs that feed valley-bottom creeks well into the late summer, and provide alpine food and textile resources. Significant merging drainages on the east side of the Fraser River are fewer, smaller and a bit less dynamic, and include Anderson River, Siwash Creek, Qualark Creek, Suka Creek and the Coquihalla River at Hope. Uncountable lesser cascading ephemeral meltwater streams and springs are everywhere, and also contribute their fair share to the river.

The Lower Fraser Canyon receives approximately 200 cm of precipitation annually. However, Boston Bar receives slightly less precipitation than Hope, and north of Boston Bar the environment is drier and gradually gives way to more xeric plant species typical of the Interior Douglas Fir biogeoclimatic zone (Meidinger and Pojar 1991; Ministry of Forests 1999).

All this water maintains lush forests and dense riparian environments capable of supporting many floral and faunal species and their communities. Forests are dominated by moderate to dense stands of Douglas fir, maple, hemlock, alder, poplar and yellow-cedar, and understories abound with a variety of edible plant foods, notably berries (Chapters 11 and 28). Dominant game species include bear, deer, coyote, hare, porcupine, grouse, anadromous salmon, white sturgeon, a variety of other resident fish, marmots and several other species of rodents, and freshwater mussels are present in some creeks.

Figure 2. A view of the Boston Bar locality at the north end of the Lower Fraser Canyon sub-region, looking southwest. Extensive river terraces in this locality, and others like it to the south, have been continuously occupied by people for many millennia.

A prevalent and very culturally significant natural aspect of the Lower Fraser Canyon is the very warm, dry, forceful and consistently relentless wind that blows from early Summer through to early Fall. It quickly dries prepared salmon sides hung on drying racks constructed alongside the River on top of well-exposed bedrock outcrops and on open terrace edges exposed to the wind (Figure 5). The strong wind also assists in keeping flies from lighting on the exposed flesh during the drying process.

Figure 3. A view of the Fraser upstream from Hells Gate (center photo), looking south.

The bottom of the predominantly V-shaped canyon holds the restless Fraser River, which has carved well into bedrock to create many narrow deep channel sections, such as the regionally famous “Hells Gate” (Figure 3). These narrows present themselves as formidable challenges to upstream migrating salmon and watercraft travel. Many large bedrock outcrops extend well into the river, creating back-eddies

where migrating salmon congregate and rest during their upstream quest, making them vulnerable to the skills of expert dip-netters. These bedrock protrusions also provide ideal windswept locations for construction of salmon drying racks.

Figure 4. A view of the Fraser River a few kilometres downstream from Hells Gate the north aspect of the Lower Fraser Canyon sub-region, looking south.

Large loose boulder and rubble talus slopes are numerous, and landslides of varying magnitudes have also occurred in this section of the Fraser (Chapter 4). Some of the latter may have periodically interrupted salmon runs, and also caused some re-routing or re-establishing of some sections of pedestrian trails buried by slides. Ubiquitous moveable angular boulders and cobbles were often used by occupants of the canyon to construct various petroforms serving a multitude of purposes (Schaepe 2000, 2001, 2006) (Chapter 2).

While we can pass through the southern section of the Lower Fraser Canyon in about one hour and enjoy its magnificent, powerful and humbling natural beauty from the comfort and safety of our vehicles, this experience is in great contrast to that faced by pre-contact and contact period pedestrian travellers, who routinely risked threat of serious injury or even death while passing through this treacherous terrain. In his early journal documenting passage of his exploration party through the Lower Fraser Canyon in 1808, Simon Fraser relates that:

> "Here we were obliged to carry among loose stones in the face of a steep hill between two precipices. Near the top, where the ascent was perfectly perpendicular, one of the Indians climbed up to the summit and by means of a long rope drew us up one after the other. This work took three hours, and then we continued our course up and down the hills and along the steep declivities of mountains where hanging rocks and projecting cliffs, at the edge of the bank of the river, made the passage so small as to render it, at times, difficult even for one person sideways. Many of the natives from the last camp who accompanied us were of the greatest use on this intricate occasion. They went on boldly with heavy loads in places where we were obliged to hand our guns from one to another, and where the greatest precaution was required in order to pass even singly and free from encumbrance. …
>
> I have been for a long period in the Rocky Mountains, but have never seen anything like this country. It is so wild that I cannot find words to describe our situation at times. We had to pass where no human beings should venture; yet in those places there is a regular footpath impressed, or rather indented upon the very rocks by frequent travelling. Besides this, steps which are formed like a ladder and crossed at certain distances with twigs, the whole suspended from the top to the foot of the deep precipices and fastened at both extremities to stones and trees, furnish a safe and convenient passage to the natives; but we, who had not the advantage of their education and experience, were often in imminent danger when obliged to follow their example." (Lamb 1960).

Hutchison (1950:10-11) offers slightly more negative and dramatic assertions about the Lower Fraser Canyon,

> "This is the black canyon of the Fraser, where even the salmon is often hurled bodily from the current, where the first explorers crawled on hands and knees along the edges of the precipice, where the Indians travelled on dangling ladders, where the gold rush hauled its freight by a road built on stilts, where the engineers blasted their railway grades out of the naked cliffs.
>
> The canyon has been called beautiful. If this be beauty, it is the beauty of nightmare. It has been called magnificent, but this is the magnificence of destruction. It has been called sublime, and so it is, with the sublimity of blind and senseless force.
>
> From the road, high up the mountains, the river appears as a twisted line of brown, solid and motionless, no wider than a clothesline. The Coast Range around it, unlike the more orderly defiles of the Rockies, sprawls in chaos as if its builders had mislaid their plans – a jumble of ragged peaks, dim gorges, smears of green forest, shadows miles wide in ceaseless shift of pattern.
>
> Hour by hour this jumble of rock, earth, timber and water changes its aspect and almost seems to change its substance in men's sight. …
>
> To observe the dimensions and power of this larger life [the Fraser River] you must crawl down the rock slides to the riverbank. There the smooth line of water as seen from the mountains turns into a paroxysm of dirty foam, rising and falling in steady pulse. The perpetual mist has coated the canyon walls with slime and the water has worn them smooth, squared them off like old masonry so that in places they might have been built by human hands. A few islands still stand in the channel, whittled down to narrow splinters and already doomed. The final product of this erosion, the white sand pulverized out of the mountainsides, is laid in glistening bars by every back eddy. The dust of gold lies in these bars from the undiscovered mother lode."

These early written accounts very concisely capture the natural rawness of this dynamic and sometimes unforgiving landscape, but there are also numerous, isolated to fairly large, level to slightly inclined landforms spread along the canyon sides and bottoms. These include the more easily travelled glacial kame and outwash terraces in mid-altitude canyon-side contexts, and hundreds of stepped lower river terraces carved out over the last 10,000 years (Figures 2, 4, 7 and 8). These terraced localities provided many ideal opportunities for pre-contact period human settlement and use, and past intensive archaeological investigations conducted in the canyon demonstrate that site densities are high, and some larger sites in choice locations have long and intensive occupational histories. Some upper terraces are quite extensive and habitable, and it can assumed with some certainty that many contain occupations predating 7500 BP.

Figure 5. The Hope family salmon drying rack south of Yale. Direct exposure to warm, dry, persistently forceful wind is key for rapid and proper drying. Racks constructed on bedrock outcrops and open terrace edges afford the best drying conditions, and rising air heated by adjacent rocks exposed to the sun is also beneficial.

Many sections of the well-established and centuries-old First Nations foot trail were assumed by the Fur Brigades in the mid-1800s, and it was not until construction of the Cariboo gold rush trail/wagon road in 1860-1865 that the route was upgraded to allow effective movement of people, wagons and cargo up until around 1885 (Downs 1987; Lyons 1950). The Cariboo Highway (now the Trans-Canada Hwy 1) was constructed in the 1920s. Many overgrown remnant sections of the early wagon road and old highway are still readily visible along the highway today.

Along the sides of the Fraser River, small isolated gravel bars and river channel sides become exposed in late Fall to early Spring, providing access to a variety of flakable silicate toolstones carried great distances by the river from a multitude of local and upstream parent source locations. Local outcrops of shale and slate are also very common, and these materials were sometimes used to make simple edge-ground knives.

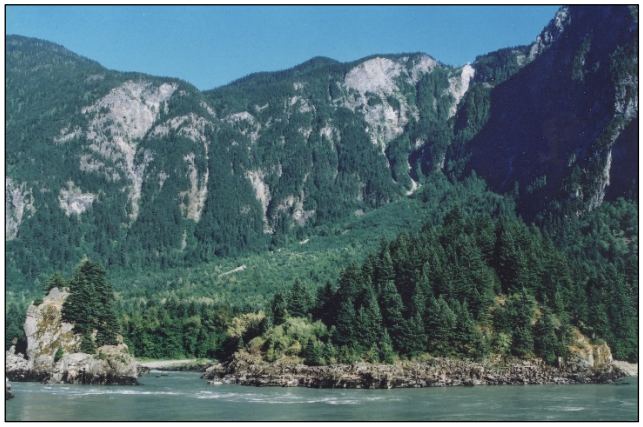

Figure 6. A view of Lady Franklin Rock (lower left) near the Esilao/Milliken locality in the mid-Lower Fraser Canyon near Yale, looking east.

In many valley-bottom localities there are a fair number of large depressions that have been created naturally by growth-expansion and post-mortem rotting of very large cedar and fir tree roots. Some of these circular and oval depressions measure up to 6 m across and are 1 m deep. In well-drained contexts they present themselves as ready-made foundations for small temporary dwellings erected at field camps, as wind-protected and hidden places to rest or spend a few nights, and as hunting blinds for ambushing game. It seems logical to me that regular opportunistic use of these natural root-rot depressions during the mid-Holocene may have provided some inspiration for construction of early semi-subterranean houses in the region, with perhaps both natural depressions and artificial (hand-dug) foundations being used (Chapters 9 and 25).

Figure 7. A view of the Yale locality in the mid-Lower Fraser Canyon sub-region, looking south over the well-known South Yale site (center), looking southwest.

The closely associated Yale and Milliken localities lie on a significant "S"-bend in the Fraser River in the center of the Lower Fraser Canyon (Figures 6 and 7). These localities were the focus of multi-year intensive pioneering archaeo-logical investigations conducted in the 1960s and early 1970s (Chapter 5). The famous early-period Milliken site

(DjRi 3) (Borden 1960; Mitchell and Pokotylo 1996), Esilao pithouse village (DjRi 5), *Xelhalh* (DjRi14) and the large South Yale site DjRi 7 (Haley 1987, 1996; Irvine 1973; Antiquus 2008), are all located here, as is the "historic" gold-rush era town of Yale. In 1846 the Hudson Bay Trading Company established "Fort Yale" on the west bank of the Fraser (Paterson 1985). A short distance downstream is Hills Bar, where the discovery of gold in 1858 started the Cariboo Gold Rush (Carlson 2001:92-93; Downs 1987). Yale marks the southern end of the most rugged and dangerous section of the Lower Canyon, and is considered by some to be the "gateway" or "true" beginning of the Fraser Canyon.

Downstream from Yale, the valley bottom flattens and broadens considerably, and the river is flanked with many stepped terraces that extend well up and along valley sides (Figure 8). During the pre-contact period, these terraces provided ideal locations for establishing field camps and permanent villages (Chapters 5 and 6).

Between Yale and Hope, the valley bottom terraces are littered with thousands of large boulders that have either dislodged and rolled down from the steep valley sides, or were exposed as "lag" during early and mid-Holocene river down-cutting (Chapter 4). Many of these large boulders have protective overhangs that attracted people for short-term stays while engaged in fishing and hunting, or travelling. Low to high density cultural deposits are commonly found beside them (Chapter 5).

The southern section of the Lower Fraser Canyon below Yale has very high archaeological site density, with numerous large multi-component sites containing lithic scatters that extend hundreds of metres along terraces at all elevations.

Figure 8. A view of the southern Lower Fraser Canyon sub-region a few km upstream (north) of the town of Hope, looking northwest.

The town of Hope marks the southern end of the Lower Fraser Canyon sub-region. Here, the fast-moving Coquihalla River joins with the Fraser River, and the former has created a large fluvial deltaic plain that contains a large pre-contact period permanent settlement known as *Ts'qóls* (site DiRi 1) (Chapter 6). Hope was also selected for establishing a Hudson Bay Company trading fort in 1848-1849. The Coquihalla River gravel bars contain a wide variety of flakable toolstones, including silicate meta-sediments, meta-morphosed cherts, quartzite and good quality basalt. They also contain serpentine and nephrite cobbles and boulders of mediocre to good quality that have been transported downriver from Sowaqua Creek Valley (Chapter 27).

With exception of the towns of Boston Bar and Hope, the Lower Fraser Canyon sub-region remains relatively undeveloped, and there is still a vast wealth of intact archaeological information contained in extensive terraces along and overlooking the river. It may also contain some of the earliest and most intact occupations in the Lower Fraser River Region, and there are many interesting archaeological and historic research interests that remain to be explored.

Fraser Valley Sub-Region

This classic "riverine" realm extends south (downstream) from the town of Hope, then westward at Chilliwack, and ends at the confluence of the Pitt and Fraser Rivers and city of White Rock in the west (Figures 9 to 17). Its northern boundary corresponds with the southern ends of the large lakes in the North Lakes sub-region, and the southern boundary is the Canada/US border. Annual precipitation averages 150 cm, with most of it falling along the northern edge of the valley bottom just south of the Coast Mountains.

Figure 9. A general view of the Johnson Slough locality (foreground) in the northeastern aspect of the Fraser Valley sub-region, looking northeast toward the town of Hope.

The primary aquatic feature in the Fraser Valley is the Fraser River, which has braided and meandered relentlessly and completely across the valley bottom for many thousands of years, leaving the land extensively scarred with extinct river channels, banks, sloughs, ponds, and low river terraces. Multiple braided channels are quite common and extensive in the eastern half of this sub-region, and less so in the west. Downstream from the town of Agassiz, the flow of the Fraser River decreases, channels are much wider than those to the northeast, and the valley broadens considerably (Figures 9 to 16). Significant tributaries flowing into the Fraser include Ruby Creek, Silver Creek, Sumas River, Chilliwack (Vedder) River, Chehalis River, Harrison River, Lower Stave River, Kanaka Creek, Alouette River, and Pitt River. All these drainages support salmon runs, as do many of their lesser tributaries.

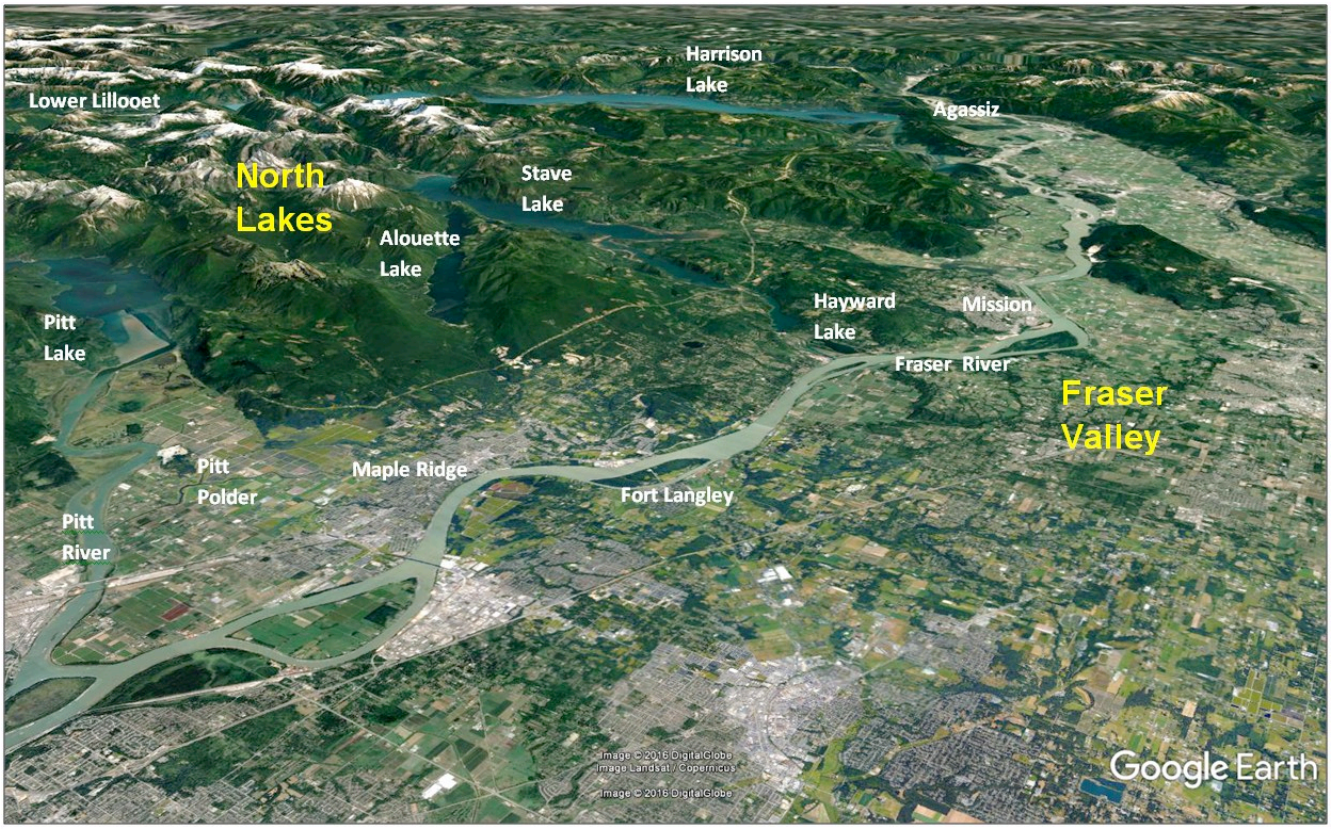

Figure 10. An oblique aerial view of the Fraser Valley and North Lakes sub-regions, looking northeast. Map adapted from Google Earth image 2016.

Figure 11. A view of extensive exposed cobble/gravel bars containing an abundance of flakable toolstone cobbles (inset photo) in the Johnson Slough locality upstream from Agassiz, looking northeast.

During low water in the late Fall and Winter, extensive gravel/cobble bars become exposed between Hope and Mission. They contain an abundance and variety of toolstones, including nephrite and other nephrite-like rocks from the Coquihalla River (Chapter 27), a wide variety of microcrystalline silicate metasediments, microcrystalline quartzites, a surprising variety of good to high quality cryptocrystalline cherts and chalcedonies, and varying grades of basalt/dacite. Many of these rounded clasts were transported down the Fraser from parent locations far to the north on the Canadian Plateau. Gravel bars on the Chilliwack River near Sardis contain a relatively abundant, visually distinctive, fair to good quality, red to reddish-brown metamorphosed cherty stone that appears in many local and regional archaeological lithic assemblages. A very similar red siliceous flakable stone is also found on gravel

bars near the confluence of Johnson Slough and the Fraser River (Figure 11).

Most of the central and western aspects of this sub-region are typified by an expansive, relatively flat, fertile, silt-blanketed valley bottom that broadens progressively in a westward (downstream) direction (Figures 10 to 13, 15 and 16). Large early-Holocene glacial outwash terraces flank the main valley sides and floor-wall junctures, and tributaries of the Fraser have also incised stepped terraces in many of their valley-bottom and lower side-slope locations.

Several prominent bedrock protrusions and larger "hay-stack" mountains rise from the valley floor (i.e., Chilliwack Mountain, Sumas Mountain, Sheridan Hill, Snake Rock and Codd Island); most have great traditional and spiritual importance and ethnic significance to their respective First Nation peoples. Other prime localities well-suited for pre-contact period occupation include the low to mid-altitude, undulating, incised, rounded and forested hills now lying within and near the cities of Mission, Abbotsford, Maple Ridge, Fort Langley, Langley, Surrey and Cloverdale.

Figure 12. A view of Mount Cheam and the eastern Fraser Valley lowlands in the Agassiz locality, looking east.

Figure 13. Channel-scarred lowlands and low hills in the prairie-like central aspect of the Fraser Valley with Mt. Baker in the background, looking southeast.

During the pre-contact period, terrestrial pedestrian travel throughout the Fraser Valley would have been a bit difficult due to formidable physical barriers that included widespread dense jungle-like forests, very thick impenetrable understory vegetation, accumulations of deadfall, large fast-moving rivers and creeks, seasonal flooding of vast areas, large shallow lakes (e.g., Sumas Lake which was drained in 1924 [Woods 2001:104]), and marshes of varying extent and depth. Nevertheless, there was an impressive network of formal trails established and regularly used by First Nations people at the time of Euro-Canadian contact (Schaepe 2001:60). Presumably many of the main valley bottom trails were established thousands of years ago, and were regularly used and maintained over many centuries.

Figure 14. A placid section of upper Nicomen Slough near Lake Errock, looking east.

There are several significant river slough channels and ponds throughout the valley bottom; most of them hold very slow-moving or near-standing water (Figure 14). The most substantial of these are Nicomen, Sumas, and Seabird Island sloughs. Some are directly linked with the Fraser River or its larger tributaries. Sloughs provided easy and safe travel by canoe, calm-water places to moor canoes, and they were sometimes directly or closely associated with large frequently occupied field camps and permanent winter villages.

Large marshlands were also common and of considerable importance during the pre-contact period. The large Pitt Polder marshland near Maple Ridge, which prior to its diking and draining in the late 1800s and again in the early 1950s (Collins 1975), flooded annually, providing ideal habitat for migratory game birds and perfect conditions for sustained proliferation of several important edible plant species (Chapters 11, 16 and 28). Prior to being drained and diked in 1924, former Sumas Lake near Sardis provided a similar habitat during the pre-contact period, but unlike Pitt Polder which is closer to the Salish Sea, it was not affected by tidal fluctuations. These, and other similar marshlands were routinely visited by Stó:lō people to exploit aquatic food resources (Duffield and McHalsie 2001:63).

Figure 15. The west-central aspect of the Fraser Valley sub-region near the confluence of the Fraser and Harrison Rivers, looking southwest.

Figure 16. A view of the Fraser River in the western aspect of the Fraser Valley sub-region looking east from the Golden Ears Bridge toward the city of Maple Ridge (left).

Pre-contact period flora and fauna in the Fraser Valley were abundant and varied. Game was plentiful, and included mule deer, elk, hare, grouse, beaver, and a variety of small rodents and birds. The valley is also host to many thousands of migratory and resident water-fowl, including swans, geese, ducks, and other game species that were hunted in marshlands with slings (Chapter 17). From early spring to late fall, salmon were (and still are) available in many drainages, and were routinely and intensively targeted as a major source of both immediately consumable (fresh) and stored (dried) protein. Sturgeon were also present year-round in the Fraser River and its larger tributary rivers such as the Harrison, Stave and Pitt Rivers (Chapter 14). Many lesser fish species (e.g., rainbow trout, char, whitefish, suckers, etc.) were also regularly exploited when available.

Figure 17. A view of the Harrison River upstream from its confluence with the Fraser River, looking north.

A wide range of trees and plants were available and used as textiles. The most culturally important trees were the western redcedar and yellow-cedar, which were used to construct houses (Chapter 25), and to make clothing, tools, and basketry (Chapters 8 and 23). Large cedar and cottonwood trees were also used to make dug-out canoes. Important food plants include a plethora of berries, water/swamp parsnip, and marshland wapato (Hoffmann et al. 2016; Spurgeon 2001) (Chapters 16, 17 and 28).

In 1827, Fort Langley was constructed by the Hudson Bay Company (Chapter 15). In the 1860s, small-scale Euro-Canadian farming and settlement of the Fraser Valley began, and large tracts of land were cleared, drained, tilled and farmed over the next 70 years. As a result, many pre-contact period natural landscapes throughout the Fraser Valley have either been erased or dramatically transformed, but some isolated and undeveloped localities remain in pristine natural states, and at some, archaeological sites associated with them are still intact.

Over the last 120 years or so in the Fraser Valley, archaeological sites of all sizes, types and ages have been subjected to detailed archaeological investigations involving major excavation programs. Some of these are discussed and/or referenced in the chapters that follow, and in reports and publications cited in the bibliography. Since this sub-region is currently being subjected to the greatest intensity of land-altering development compared to the other three sub-regions, we can expect that it will continue to receive the most archaeological management attention in the future. This will eventually lead to an even greater and more complete understanding of past human occupational history and behaviours that transpired in the Fraser Valley.

North Lakes Sub-Region

This rugged sub-region comprises the northern aspect of the Lower Fraser River region, and is so named for its several large N-S trending lakes contained in prominent steep-sided glacially-scoured valleys (Figures 1, 10 and 18 to 20). From west to east they include Coquitlam Lake, Pitt Lake, Alouette Lake, Stave Lake, Hayward Lake, Hatzic Lake, Chehalis Lake, and Harrison Lake. All existed during the pre-contact period, but dams were constructed on Stave and Alouette Lakes in the early 1900s, raising their levels and expanded their size. The shores of Harrison Lake and the Lillooet River Valley to the north (Figure 18) have the most biologically productive, easily travelled, and habitable terrain in this sub-region.

Figure 18. The north end of Harrison Lake and south end of the Lillooet River Valley, looking northeast.

In many localities along the east and west sides of these large lakes there are numerous creek deltas and glacial kame and outwash terraces very well-suited for pre-contact period human occupation and pedestrian travel. The north ends of these lakes are also linked with significant river and stream valleys that were, and still are, regularly travelled by animals and people. Also included in this sub-region are a few secondary E-W trending drainage valleys containing lesser high-energy rivers, countless creeks and streams, small lakes, marshes and ponds.

Figure 19. A view of the Upper Stave River Valley in the North Lakes sub-region, looking northwest.

The North Lakes sub-region receives approximately 100 cm of precipitation annually, which is less than the Fraser Canyon to the east and Fraser Valley to the south. This is due to high, steep-sided, glacially-sculpted Coast Mountains that rise abruptly from valley floors and create a rain-shadow (Figures 10 and 18 to 20). High snow packs feed small streams and creeks well into the summer months. Large talus slopes flank mountain bases. Most U- or V-shaped valley bottoms have extremely rugged undulating rocky terrain strewn with boulders of all size, with some stepped glacial and fluvial terracing, high-energy stream and river floodplains and channel scarring. Since there is little or no public vehicle access into many of the upper reaches of the valleys in this sub-region, a fair number of remote valley-bottom localities still remain naturally pristine.

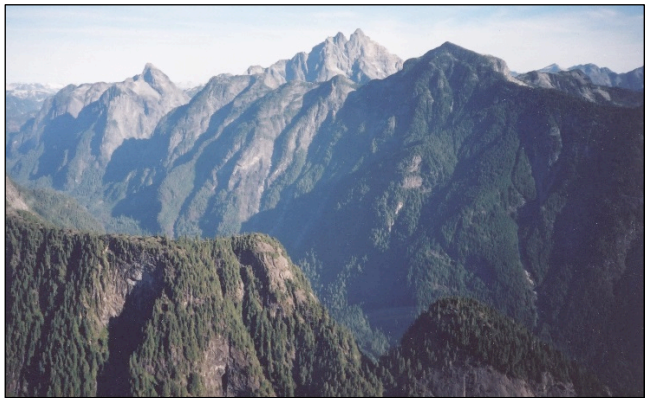

Figure 20. Extremely rugged and steep terrain of the southern Coast Mountain range dominates most of the North Lakes sub-region.

Many localities along the shores of the large lakes, and bottoms of their tributary valleys, support an abundance of floral and faunal resources that were used by pre-contact period peoples. Salmon spawning in rivers and streams provided the main impetus for establishing and maintaining occupation of large field camps and permanent villages near productive salmon fisheries, especially in the Stave, Lower Lillooet and Harrison River drainages (Chapters 14, 18, 20 and 21). A significant number of smaller rivers and creeks egressing into these large lakes sustained salmon runs as well. Once-prolific salmon runs were completely extirpated by dam construction at the south ends of Stave and Alouette Lakes in the early and mid-1900s.

Past archaeological investigations in the North Lakes sub-region have been much less common compared to other adjacent sub-regions due to its rugged terrain, poor or restricted road access, and relative absence of any land-altering developments requiring archaeological impact assessments. However, several recent studies have reveal that these lakes and their associated valleys were of great importance to pre-contact period people as early as 10,500 BP (Chapter 18). A large number of sites in this sub-region still contain significant, data-rich, intact archaeological deposits.

Fraser River Delta

This sub-region is defined as all Fraser River deltaic lowlands and associated hilly localities, small mountains, and marine inlets lying west of the confluence of the Pitt and Fraser Rivers to the Salish Sea, and extending south from North Coquitlam and North Vancouver to Boundary Bay, Tsawwassen and English Bluff (Figure 1). Annual precipitation is about 110 cm, which is about half of what falls in the Fraser Valley and Lower Fraser Canyon to the east. The delta also experiences slightly higher temperatures and more sunshine compared to the rest of the region since its climate is moderated by the Salish Sea and Pacific Ocean to the west, and clouds tend to accumulate and release their moisture primarily along the southern slopes of the Coast Mountains to the north.

The Fraser River Delta is large and predominantly flat, but it also contains many raised areas and low gently rolling hills and ridges on the valley floor, particularly in its southern aspect. Prominent raised features include Burnaby Mountain, Point Grey, Stanley Park, city of Vancouver, the Sunshine Hills escarpment in South Surrey east of Burns Bog, and English Bluff in Tsawwassen.

Once again the Fraser River is the dominant aquatic feature, receiving flows from the Coquitlam, Seymour, Nicomekl, Serpentine and Campbell Rivers. The Fraser moves at a slow to moderate pace through the delta, and diverges into two main channel arms at the city of New Westminster (Figure 1). Unlike the far more rapid and turbulent sections of the Fraser upstream from the city of Mission, these calmer waters were easily and safely navigated by small watercraft (canoes) during the pre-contact period. Braided channeling has also created a number of islands in the main river arms (Figure 1); some have been occupied, farmed or used for commercial enterprises since the late 1800s (Chapter 24).

Prior to extensive diking programs undertaken in the late 1800s and early 1900s, many lowland areas were subjected to widespread inundation during Spring freshets. Large lowland marshes throughout the delta provided ideal habitat for migratory water fowl, and some may have supported isolated patches of the important wapato food plant (Chapters 17 and 28).

Marine inlets north of the delta include False Creek and Indian Arm, which provide abundant and varied marine resources typically found elsewhere on the Northwest Coast. These inlets, Vancouver harbor, the western shore of the delta, English Buff, and Boundary Bay provided direct and ready access to salmon, a wide variety of other fish species, marine mammals, shellfish and crabs.

Burns Bog, a very large peat marsh located south of the Fraser River, is a unique feature on the Delta landscape (Figure 1) that supports many unique plants and game animals including deer, hare, grouse, waterfowl, and many small rodents. The famous St. Mungo (DgRr 2) and Glenrose Cannery (DgRr 6) sites are located a short distance away to the northeast on the Fraser River (Ham 1984; Ham et al. 1982; Matson 1996) (Chapter 23), where extinct marine shorelines stabilized and people congregated around 5500/5000 years ago.

There have been many other large-scale archaeological projects undertaken at major village sites in this sub-region over the last century, but they are far too numerous to begin to mention or recount here. However, of great and direct importance to the Fraser River realm is the famous Marpole site (DhRs 1), which was once a very large village located on the north arm of the Fraser River in south Vancouver (Burley 1980) (Chapter 22). It served as a major residential, economic and cultural hub and "gateway" to the Fraser River realm from about 2500 to 1500 years ago.

Since marine shoreline stabilization in the mid-Holocene, and concomitant emergence and development of regional expressions of definitively "Northwest Coast" cultural patterns, people occupying the Fraser Delta sub-region regularly interacted socially and economically with Salish groups residing to the west in the Gulf Islands and east coast of Vancouver Island in the Salish Sea (Chapter 29). Thus the Fraser Delta is easily seen as a zone of environmental and cultural transition lying between markedly different marine and riverine worlds, and their respective differing peoples, cultures and lifeways. This environmental and cultural duality is well-reflected in the observed "mixed" nature of material cultural remains recovered at some sites where assemblages containing both classic "Northwest Coast" and upstream "riverine" artifact types and traits. Access to abundant marine resources (and other desired commodities), both directly and through formal exchange with groups living in the Salish Sea to the west, also greatly influenced subsistence and settlement behaviours adopted and practiced by occupants of the Fraser Delta sub-region, especially during the last 3500 years.

The Fraser Delta is the most intensively developed sub-region (Figure 1), and as a consequence many large pre-contact period field camps and permanent village sites have been either completely destroyed, greatly disturbed, and/or have residential or commercial structures sitting on top of them. Despite all past destruction, there are still undisturbed portions of some of these important larger sites that remain. These valuable vestiges are now being closely monitored, and will be properly managed when threatened by future proposed development impacts.

Concluding Remarks

Most of the chapters that follow present and discuss a very wide range of topics, temporal periods, methodological and theoretical perspectives and approaches, and interesting and surprising research results that all pertain to further understanding, clarification and reconstruction of human occupancy of the Lower Fraser River Region from 10,500 years ago to the present. This myriad range of subjects, viewpoints, approaches and results reveal and attest to the complexity and great temporal depth of human presence in the region, and that local landscapes with their associated plentiful seasonal resources played a large role in the *in situ* emergence, evolution, adoption and spread of exclusively "riverine" cultural material traits and adaptive behavioural patterns throughout the region and beyond.

A great deal of archaeological research remains to be conducted in the Lower Fraser River Region. Specific research topics that could be pursued, and heritage resource management recommendations that should be considered in the future, are presented at the conclusions of several chapters. Although many significant archaeological sites remain intact, others are continually being destroyed and/or disturbed with escalating regularity by residential, commercial and industrial development, timber harvesting, continued agriculture, and fluvial erosion. While it is very fortunate that some of the more obvious and larger threatened sites have received the proper management attention they deserve by becoming the focus of intensive

"heritage resource impact assessment" inspections and ensuing detailed mitigation excavation programs, it is unfortunate that many other lesser sites are not identified or properly managed. Once they are impacted by land-altering activities, detailed and unique information is lost forever. This is especially true for sites in the Fraser Valley, where intensive agriculture and expanding residential development are most prevalent, and little concern or attention is directed toward ensuring proper management or investigation of threatened sites in these impact contexts. This unfortunate situation could be substantially mitigated if more municipal governments, farmers, developers and contractors would acknowledge the existence and importance of archaeological sites, and routinely participate in the already well-established heritage resource management process.

Another important issue I noted during my course of editing is that there is an inconsistency in the adoption, geographic application, and referencing of culture-history sequences previously propounded for the Gulf of Georgia/ Salish Sea, and for the Lower Fraser Canyon and Fraser Valley sub-regions. I submit that for the two latter sub-regions, Borden's (1960, 1968, 1970, 1975) initially defined sequence should be applied to these exclusively "riverine" environments, and to the people who lived and thrived in them. Admittedly, Borden's early culture-history framework is in dire need of a critical review and several revisions; a fact made clear by the wealth of data secured during archaeological investigations conducted in the Lower Fraser Canyon and Fraser Valley over the last 50 years. However, with relatively few changes and additions, I think Borden's model could be easily transformed into a closer reflection of reality, and would be very useful for proper temporal ordering and description of future data, and also help to isolate and identify specific periods of rapid and/or significant cultural and behavioural change(s) and long periods of intervening stability.

From my perspective, current culture-historical sequences defined for the Gulf of Georgia/Salish Sea (e.g., Fladmark 1982; Matson and Coupland 1995; Mitchell 1971, 1990) are more environmentally and culturally relevant to occupants of the Fraser River Delta and its associated marine inlets and shorelines, and of course to groups inhabiting the Salish Sea to the immediate west. Since there is no present widely-held consensus as to where a clear line of geographic separation should be drawn between these riverine and marine realms – and the culture-histories defined for them – I submit that it would be prudent for archaeologists to make a formal attempt to do so. This environmental and cultural boundary, however rigidly or loosely defined, would allow us to more effectively isolate, compare and contrast salient and subtle intra- and inter-regional differences expressed in material culture artifact types and traits, and in subsistence and settlement practices adopted by people living in these two markedly different environments over many thousands of years.

At the end of this book there is a very comprehensive ethnographic and archaeological bibliography including references for most studies carried out in the Lower Fraser River Region, but it should be kept in mind that there are many other unpublished reports and documents relating to large-scale studies that are on file with local First Nations governing agencies, museums, educational institutions, heritage consultants, and the Archaeology Branch. These many investigations have contributed greatly to our current knowledge of the lengthy human occupation of the region, but there are still many intriguing problems and questions that remain to be rigorously explored, revealed and explained. I hope the contents of this book will inspire and motivate you to pursue and solve some of these remaining mysteries.