"THE MINER'S CANARY"

WHAT THE MARITIME HERITAGE CRISIS SAYS ABOUT ARCHAEOLOGY, CULTURAL RESOURCE MANAGEMENT,

AND GLOBAL ECOLOGICAL BREAKDOWN

by

RICHARD M. HUTCHINGS

M.A., Western Washington University, 2004 B.A., University of Idaho, 2000

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ABSTRACT

This dissertation investigates the maritime heritage crisis as it exists on the Pacific Northwest Coast of North America, emphasizing the Salish Sea region of Washington State, USA, and British Columbia, Canada. Worldwide, maritime landscapes are undergoing unprecedented change resulting in physical, biological, and cultural problems of "wicked" proportions. To focus conversation, the maritime heritage crisis is defined here as heritage site loss resulting from amenity migration and sea level rise. Rapid, unsustainable population growth (coastal sprawl) and anthropogenic climate change (global warming) are key drivers of contemporary coastal change, thus, arguably, heritage destruction. In Northern America, the response to coastal change has been resource management, elevating the concepts of "resourcism" and "management" as central elements of coastal change discourse.

In this dissertation, I examine the response of archaeology/cultural resource management (CRM) to coastal change. I survey coastal change threats and impacts, focusing on Indigenous maritime heritage landscapes because they are especially sensitive to coastal change and the primary context for Northern American archaeology/CRM. To assess heritage conservation and the success of CRM in the Pacific Northwest, I present a case study of the *shíshálh* (Sechelt) First Nation's traditional territory in British Columbia's amenity-rich Sunshine Coast. I discuss the *shíshálh* Nation's heritage stewardship approach and detail coastal change impacts in three areas within the Nation's territory. In addition to future sea level rise, the impact of amenity migration or "sea change" on Indigenous heritage is demonstrated to be significant.

Indigenous maritime heritage landscapes are highly threatened, contested and politicized places, tied up in issues of nationalism, colonialism, sovereignty and, increasingly, cultural survival. By focusing on social power and domination, a critical heritage studies approach exposes resource management as a technology of government promoting and permitting the ideology of growth, development and progress. Archaeology/CRM is therefore implicated in both the destruction of Indigenous heritage landscapes and the psychosocial consequences of that destruction, and is thus part of the problem, not the solution. An example of the "miner's canary," the *shíshálh* Coast study offers important lessons about heritage stewardship in the late modern era of consumer capitalism.

PREFACE

This dissertation is original, unpublished, independent work by the author, Richard M. Hutchings. The author is solely responsible for any errors and/or omissions. This document has been prepared and presented without prejudice to issues of Aboriginal Rights or Title and does not attempt to define or limit Title and/or Rights of any Aboriginal community within or without the study area, nor does it represent the views or opinions of the *shíshálh* First Nation, nor any individual therein. This project was carried out under *shíshálh* Nation Heritage Investigation Permit #2011-019 (see Appendix A) and under UBC Ethics Certificate H11-01649.

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Chapter 1: Introducing the Maritime Heritage Crisis

The human history of coastal regions around the world has been under assault for decades, from forces that include dam building, coastal modifications, the destruction of wetlands, marine erosion, population growth and rampant development, looting, and other processes. Global warming will exacerbate the destruction of cultural resources in coastal zones through accelerated sea level rise, intensified storm cycles, and related coastal erosion. – Jon Erlandson, 2012:137

Heritage sites are a vital part of our First Nations communities. – Union of BC Indian Chiefs, 2013:12

Globally, the coastal zone is under pressure from industrial-scale resource extraction and development. These practices, typical of late modern capitalism, have resulted in the planetary-scale destruction of maritime heritage landscapes. To further complicate matters, rising seas over the coming centuries will drown most of the world's coastal heritage sites. As expressed by the Union of BC Indian Chiefs above, these heritage sites are a "vital part" of culture, integral to the preservation of cultural knowledge (Buggey 1999:2), and recognized by the United Nations (2008) as essential to cultural survival. Thus, the threat to maritime heritage is a threat to living coastal cultures.

This study explores archaeology and cultural resource management's response to anthropogenic or human-induced coastal change, specifically climate change-induced sea level rise (SLR) and development-driven population growth/change. Perforce, the primary areas of concern are (*a*) the impacts of such change on coastal or maritime heritage, which includes both tangible (physical) and intangible (mental) heritage, and (*b*) the responses of the heritage profession to "the problem." Taking a critical heritage studies approach, this exploration is undertaken with the goal of defining, critiquing and improving future coastal change discourse as it pertains to heritage, in particular Indigenous cultural heritage landscapes.

This exploration, grounded in a West Coast case study, looks at the impact of coastal change on heritage landscapes in British Columbia, Canada, specifically within the traditional territory of the *shíshálh* First Nation. In particular, I consider the effectiveness of cultural resource management (CRM) in protecting *shíshálh* heritage sites in light of sea level rise and amenity migration. As the primary government technology responsible for cultural heritage defined as "archaeological," CRM represents the mainstream response to coastal change.

There are two main reasons for giving primacy to the heritage industry's response. The first is that the heritage industry's response represents the public's adaptive strategy. Broadly speaking, adaptation is a "response to social-environmental change, whether anticipatory or reactive, that enables humans to cope by altering social, ecological, or economic variables" (Armitage, Berkes, and Doubleday

2007a:328). The heritage industry's strategy *is* the public's strategy because the state has taken and in part redistributed control over heritage to selected institutions, agencies, organizations and corporations. In turn, society looks to these specialists, specifically archaeologists and cultural resource managers, to solve their problems. As James Acheson notes, "There are many people in the United States—especially professional managers and the conservation community—who assume resources can be managed *only* by the government" (2006:123, emphasis added). Everyone, therefore, should be concerned with understanding better the world (and worldview) that is "cultural resource management." In part, this is because "government can also fail in the resource area—sometimes massively" (2006:123).

Specifically, my focus here is on mainstream responses. As Harry Dahms' points out, *mainstream approaches* "do not provide truly probing analyses of modern society...which might (or would) engender qualitative transformations of modern society—but instead, present analyses of modern society, without making the effort to 'think the unthinkable'" (2011:294). As a consequence, mainstream approaches reflect modern societies insofar as "they provide a *mirror of* modern society, rather than a *mirror for* society."

In contrast, the purpose and goal of a *critical* response is to "direct research efforts at providing representations of modern society that reveal to its members and to social scientists their problematic features as integral components of its concrete sociohistorical form, and thus, its very possibility" (2011:294). For Dahms, "identifying the perimeter of 'mainstream' approaches is both a necessary precondition for effective and pertinent social research, and a possible avenue for illuminating the functioning and constitutional logic of modern societies" (2011:295). In one regard, mainstream approaches are "an impediment to analyzing society as far as today's most important issues"; in another, they "provide access to the problematic features of particular contexts" (2011:295). What constitutes "mainstream" archaeology/cultural resource management response to coastal change is a central question here; indeed, it constitutes much of the discussion in Part One.

The second reason for focusing on adaptation is because its study demands consideration of uncertainty (Moser 1997). As discussed in Part One, the physical dimensions of coastal change impacts on archaeological heritage are generally well understood. Where uncertainty lies is in the human dimension, what Moser terms "human-dimension uncertainties" (Moser 2005:354). Technically speaking, uncertainty is the "extent to which actors are unable to understand, predict or control how system components, relationships, and processes will interact, and what outcomes will result" (Armitage et al. 2007a:331). Put another way, uncertainty represents the "unknowns" and "potential surprises" in an impact assessment or policy response (Moser 2005:353). Given that so little published material exists concerning the human aspect of modern coastal change and Pacific Northwest Coast cultural resource management, I operate from the position that both the physical *and* human dimensions of coastal change

impacts on archaeological heritage remain generally unexplored. In this sense, there currently exists significant uncertainty.

Archaeology is of primary concern here because it is the academic discipline that has historically provided the theoretical and methodological framework for cultural resource management. It also trains the vast majority of the professionals/experts/specialists who work in CRM. These individuals, in turn, help shape society's understanding of and interaction with heritage. Unlike academic archaeology, CRM has core economic and legal components. It is *economic* in the sense that it is today a highly commercialized endeavour tied primarily to the service of economic development (La Salle and Hutchings 2012). It is *legal* in that it exists primarily in relation to federal/state/provincial law (King 1998, 2009). As a practice, its main function is to facilitate state-sponsored permitting regimes that concern heritage. While some view archaeology and CRM as fundamentally different projects (e.g., Dunnell 1984:67-70), others see them as intrinsically interrelated (Kottak, White, Furlough, and Rice 1997). One explanation for the latter view is that academic archaeology. This academic–applied relationship has always been, is, and will likely continue to be tenuous, at best (Hutchings and La Salle 2014a, 2014b).

Coastal change discourse is highly specialized, thus diverse and fragmented, encompassing a wide array of issues and perspectives (e.g., Ommer et al. 2007; Schwartz 2005; Valiela 2006). Focus is placed here on sea level rise and population growth/change because they arguably pose the greatest threats to coastal heritage, today and in the foreseeable future (Erlandson 2012; Gurran, Blakely, and Squires 2007). Additionally, and equally important, is that one cannot consider SLR without also considering the human dimension. As Heimann and Mahlkow point out, the assessment of risks and appropriate coping strategies "differ depending on cultural backgrounds. Thus to identify suitable local governance strategies coping with perceived risks, cultural characteristics need to be taken into account. Actors who want to implement solutions have to consider differences in local knowledge" (2012:1). Moser's point, as well as Heimann and Mahlkow's, is that "coastal change" is a social construction, and therefore must be treated as such. A key question that emerges, then, is this: "How is knowledge constructed and which roles do space and culture play?" (Heimann and Mahlkow 2012:1).

An important byproduct of the human dimension is that the term "coastal change" in many ways defies definition, at least in a grand sense. The reality is that perceptions of "coastal change," indeed even its component parts, "coastal" and "change," vary between individuals, places, and times. Rather than getting tangled up in a definitional trap, it is perhaps more appropriate to understand why the issue is important, and Rosemary Ommer, along with the Coasts Under Stress Research Project Team, provide a concise explanation in their book *Coasts Under Stress* (2007:3):

Changes in natural environments have interacted with political, industrial, and social change to adversely affect the health of the people who live there, their communities, and the natural environments in which they are embedded. [...] We do not have enough resources left, even if we stop degrading ecosystems now, because already almost two-thirds of our resources are used up. We need to understand what has happened, what is going on and why ... and then focus on recovery. In short, Canada and the wider world need to make urgent choices. Our accustomed patterns drove us into this mess, and we need new ideas, new ways of thinking, to get us out.

Toward this, in my research, I sought to evaluate the past, present and future impacts of coastal change on archaeological sites / heritage landscapes, assess the success of cultural resource management in mitigating these impacts, and consider the social dimensions of the crisis. My approach to "method" in this dissertation is guided by the Rapid Coastal Zone Assessment Survey (English Heritage 2007). The RCZAS involves two phases: a desk-top phase, in which background information about the landscape and heritage is collected and collated, which informs a field phase, whereby heritage sites are (re)located and characterized, and their vulnerability to erosion is assessed. My approach diverged from the RCZAS in phase two (see below).

The desktop phase involved conducting background research on (*a*) local coastal change studies and impacts, which provides a baseline for understanding local physical and cultural conditions; (*b*) *shíshálh* land and marine use studies and plans, which fundamentally shaped the direction and scope of the field component; and (*c*) provincial archaeological site data, to establish site and landscape histories and locational information. Particular attention was paid to previous impacts to known heritage landscapes, with a view to quantifying and qualifying site disturbance history and anticipated future based on sea level rise and population growth predictions.

The RCZAS field component involves detailed field survey and measurement. For this research, I operated under the assumption that these data largely already exist. As such, my focus was instead on contextualizing the results of my quantities analysis. As demonstrated in Part Two of this dissertation, I consider this approach to have been successful in understanding the larger processes contributing to landscape degradation and destruction. In this regard, this study was greatly enhanced by the use of GoogleEarth to illustrate various aspects of the maritime heritage crisis.

The field phase of this research therefore involved a holistic landscape survey, involving field visits of *shíshálh* heritage landscapes, to understand and assess existing and potential impacts. The study area was broken into smaller study units and many were visited on multiple occasions over several seasons between 2008 and 2013. Sites were accessed by various methods including driving, walking, hiking and kayaking, and all visits coincided with periods of low-tide in order to better understand local environmental conditions. Site visits were documented through various means, primarily photography and satellite imagery; these form the basis for Part Two.

The remainder of this chapter provides a general theoretical introduction to the subjects of maritime heritage, coastal change, and resource management. I then discuss my approach to this research, introducing the concept of critical heritage studies. I end by describing the organization of the dissertation.

The Confluence of Coastal Change, Maritime Heritage and Resource Management

This inquiry concerns the unprecedented destruction and degradation of maritime heritage. That maritime heritage is in "crisis" is not really up for debate, but how best to define and attend to that crisis is. Given the complexity of such matters (e.g., Acheson 2006; Armitage et al. 2007a), both crisis and response defy singular definition. Indeed, it is a primary goal of this inquiry to define the perimeter of the "problem." For the time being, then, only the broader fields that comprise the crisis will be considered.

My objective in this section is to introduce the three core fields that constitute the matter at hand, those being: maritime heritage, coastal change, and resource management (these are described in greater detail in Part One of this dissertation). While "maritime heritage" is the *subject* of this inquiry, "coastal change" and "resource management" are *processes* that affect maritime heritage. Under this formulation, resource management is a specific type of coastal change; this is because responses can cause heritage destruction, directly or indirectly.

As highlighted below, a complicating factor is that there exists little agreement on what these three fields actually represent, and even less on how they intersect. For example, besides being a process, resource management is also an institution and an ideology. How does this fact influence our understanding of the process that is resource management? Another example exists within resource management as it pertains to cultural heritage. Is cultural resource management the domain of management, whose focus is typically on policy and governance in the present–future? Or is it the domain of archaeology, which emphasizes scientific interpretation of the past? One way around these and similar issues might be to recognize that all represent forms of power.

In the next section (Critical Heritage), I consider how the convergence of the three fields in the maritime heritage crisis is best understood as social, not mechanical, and therefore requires a social science approach in order to full grasp the nature, history and scale of the problem. This formulation provides the basis for Part Three of this dissertation, where I consider the social, political and economic context for the maritime heritage crisis.

Maritime Heritage

I developed the term *maritime heritage crisis* to describe the current situation, globally and locally. Two concepts, "maritime" and "heritage," are brought to bear here, and I will begin with the least controversial. *Maritime* is an adjective that means "of or pertaining to the sea" (Casteel and Quimby 1975:1). This focus is necessary because coastal communities and landscapes are uniquely different from land-locked ones in such key areas as culture, geography, governance, resources, resource management, and, in many instances, values (e.g., Corbin 1994; Mack 2011, Raban 1992; Steinberg 2001; Westerdahl 2005). As such, treating interior and coastal landscapes as identical is problematic, if for no other reason than variability in cultural geography, what some describe as "maritimity" (Tuddenham 2010; Westerdahl 1998, 2008). Treating them as discrete areas is equally problematic, however, for inherently continuous regions can all too easily and unnecessarily be divided or fragmented (e.g., Cunliffe 2008). Recognition of these issues has led some to call for a "seamless" approach to coastal archaeology (Fulford, Champion, and Long 1997).

Maritime heritage, then, is the heritage of cultures, societies and subcultures that are *of* the sea or *pertaining to* the sea, and maritimity is their *relationship* with the coastal landscape, both physical and cultural. This leads to the more challenging issue of defining that which is, by all outward appearances, indefinable. *Heritage* is used variously to refer to: "natural" heritage, "cultural" heritage, "tangible" heritage, "national" heritage, "local" heritage, "archaeological" heritage, "colonial" heritage, "built" heritage, "prehistoric" heritage, "Indigenous" heritage, "maritime" heritage, "submerged" heritage, etc. While historically the term heritage has been used to denote that which is inherited on a personal level, its use to refer to cultural property is more recent, derived from a shift in the 1960s towards viewing all heritage as state property (Eldon Yellowhorn pers. comm. 2014), discussed further in Chapter 8 in the context of authorized heritage discourse. This has led to a wide range of applications of the term heritage. For example, while the Washington, D.C.-based "Heritage Foundation" is a highly-conservative, globally-influential political think-tank, the "Lummi Island Heritage Trust," located in semirural coastal Washington State, is a community-based non-profit organization aimed at local environmental preservation. Beyond being some thing or idea that is "inherited," there simply is no definition of heritage capable of encompassing such diversity in usage.

In this regard, the only useful approaches are those which recognize heritage as spectrums or continuums of thought. I offer here, then, as a point of departure, what I see as the most useful heritage continuum, one which importantly integrates "nature" and "culture," thus accommodating the social construction of reality (Berger and Luckman 1966). Heritage is a spectrum that ranges from a "canonical list of places and objects" to "community practices and social action" (Harrison 2010:38). From his

questioning of the "unwritten suggestion within most contemporary western societies that heritage is 'good,'" Rodney Harrison (2010a:1) concludes that we should, on the one hand, be concerned with (*a*) "officially sanctioned discourses and the relationships of power they facilitate" (e.g., canonical lists of heritage sites), and on the other hand, (*b*) "with the ways in which heritage operates at the local level in community and identity building" (e.g., community heritage practices) (2010:2). The former are commonly referred to as "top-down" approaches, and the latter "bottom-up." These represent *asymmetrical power relations* (Acheson 2006; Sinclair and Ommer 2006). As Laurajane Smith puts it, "the issue is control" (2006:276-308).

There exists a crucial link between place and identity, and "many of our experiences and engagement with memory and identity are located within our broader surroundings—with our 'environment'" (Cheape, Garden, and McLean 2009:104).

Whilst, at first glance, suggesting a reliance on the material elements of 'the past,' the notion of 'heritage' and heritage construction is...much more nuanced. 'Heritage,' says Laurajane Smith [2006:44], 'is not a 'thing,' it is not a 'site,' building or any other material object'; rather...it is a social construction; heritage itself is a cultural process of engaging and experiencing. For researchers like Smith, it is not so much the physical place (although she does acknowledge its role) but rather what individuals *do* with the site, the place or the landscape that is most important. (2009:104)

Similar to the inherent problem of splitting nature from culture, defining heritage as a "thing" negates the important concept that is *intangible heritage*. The United Nations, in their Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO 2003, Article 2:2), explain this formulation of heritage as follows:

The practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith—that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environments, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

As such, intangible heritage includes oral traditions and expressions, language, performing arts, social practices, rituals, festive events and traditional craftsmanship (Ahmad 2006:299). Such practices and knowledge cannot, by definition, be accounted for under the rubric of physical or tangible heritage. For these reasons, heritage is life-sustaining; in many ways it is synonymous with culture, especially insofar as culture is shared and learned. As illustrated in this research, intangible heritage does not fall under the rubric of archaeology/CRM. The maritime heritage crisis is a crisis over the loss of culture, in particular Indigenous culture, as discussed in Chapter 9.

Coastal Change

Coastal change is a natural process insofar as coasts and coastlines have always been changing. Sea levels have risen and fallen since the beginning of human time, cyclically drowning and exposing land masses according to the laws of celestial physics. Bluffs, beaches and coastlines have always been in flux, following those same laws. However, coastal change has increasingly become a cultural process, wherein humans are the driving force behind change, not "nature."

Coasts Under Stress illustrates best how the issue of coastal change extends far beyond physical landscape change to include a complex web of factors and processes (Ommer et al. 2007). It also highlights the human toll of such changes. The "problem," as it were, is no longer external (nature), but internal (cultural). In this sense, it seems *we* are the ultimate limiting factor, both in terms of *causes* and *solutions*.

For the purposes of constraining this inquiry, the term "coastal change" is used narrowly to refer to just two spheres: (*a*) climate-change induced sea level rise and increased storminess, and (*b*) population growth and change, which includes such diverse considerations as affluence, development, and migration. I will begin by introducing the latter first.

Population growth and change

The "twin forces" of *rising affluence* and *population* are changing coastal communities "around the world" (Gurran et al. 2007:445). Erlandson and Rick (2008:1) provide this environmental snapshot: "As human populations have grown exponentially over the past century, and with 60 percent of the world's population living within 100 km of the coast, many have looked to the oceans as a source of hope and protein to feed the masses." However, pollution, habitat loss, and global warming take an increasing toll on coastal ecosystems. For marine ecologists, the consequences of such impacts include "the wholesale collapse of many coral reef, kelp forest, estuarine, arctic, benthic, and other ecosystems." While these and other impacts are now global in scale, humans have had the heaviest impact on nearshore and coastal areas (2008:1).

Very little quantitative data exists about the impacts of population growth and change on Pacific Northwest Coast archaeological heritage, especially when compared to natural heritage. Indeed, in my research I have come across only a handful of studies that have attempted to quantify archaeological site loss across large Pacific Northwest coastal areas (e.g., Acheson and Riley 1979; Moss and Erlandson 2008). It seems that only highly contentious cases of site destruction tend to get any real coverage, either in the media or through professional publications. These cases include what Stapp and Longenecker

(2009) term "archaeological disasters." Prominent recent examples include the Tse-whit-zen and Marpole village sites, located in Washington State and British Columbia, respectively (see Part One). What typically goes undocumented, however, is the daily degradation, permitted or unpermitted, of coastal heritage. Indeed, Welch and colleagues (2011) recently noted that in British Columbia there currently exists no publicly available list of archaeological permit violations. In general, the quantification of coastal site destruction and degradation appears to be a low priority.

One exception is Moss and Erlandson (2008), who quantified cultural and environmental impacts on archaeological sites located in coastal Oregon State Park lands. Their study shows that "very few sites" are "not actively eroding through the sometimes combined effects of seacliff retreat, riverine erosion, slopewash, trampling, and wind erosion" (2008:34). Many sites were damaged and remain threatened by the construction of roads, parking areas, restrooms, picnic areas and other park facilities, as well as by coastal erosion, weathering, sedimentation, dredging, clam digging, shipping, logging, oyster farming, and other ground-disturbing activities and processes. Littoral sites are considered especially vulnerable to looting because of their high visibility and accessibility. Their survey of 126 coastal sites on State Park lands identified 87 damaged by slopewash, 85 impacted by trampling, 70 damaged by seacliff retreat, 43 impacted by construction, 27 cases of looting, 25 cases of riverbank erosion, and 10 cases of tidal inundation.

As Moss and Erlandson emphasize, concern for the "rapid destruction" of Oregon coast archaeological sites goes back more than 70 years (2008:34). In 1935, for example, one individual noted that "erosion, agriculture, construction, and looting were heavily impacting coastal sites" (2008:34). Nearly sixty years ago, Collins (1953:55, in Moss and Erlandson 2008:34) observed that "I haven't presented a bright picture of the situation, but one that spells doom for the prehistory of the coastal region of Oregon. ... In a few years the site count and excavatable sites will drop 50 percent. ... I recommend that excavation procedures be instituted immediately." Writing about Western Canada in 1986, Brain Spurling had this ominous message about site loss:

The next generation of Western Canadian archaeologists...could be the last to have access to a reasonably intact [i.e., physically intact] archaeological record... To them will be the responsibility of maximizing returns from the remaining archaeological resource base. They will have the privilege of studying the few drainage systems not yet impounded for export, energy or irrigation. And they will exercise considerable influence over choices to excavate or preserve the rare, intact, multi-component sites not yet destroyed by urban and rural developments, transportation systems, or coastal erosion. (1986:465)

In 2005 in Washington State, the Seattle/King County Task Force on Maritime Heritage was convened to "Create a vision and chart a course for a sustainable maritime heritage presence in Seattle, King County and Puget Sound." They had this to say about the issue: The rich maritime story of Seattle and King County, past and present, is endangered. Visible indicators are the decline of contemporary maritime culture, the loss of historic ships, low visibility, and lack of broad-based community support. Without remedial action, our maritime legacy will be lost to future generations. ... With them goes a common understanding of how we are tied to the sea. (Task Force 2005:3, 5)

By all appearances, the situation at hand, and as it pertains to physical heritage, has long been recognized as serious, if not a "crisis." I have so far, however, only considered the physical dimension of "the problem." What about the human dimensions of coastal change?

As most coastal communities are in some way resource dependent, they are particularly vulnerable to environmental degradation and associated political (e.g., managerial) responses, as well as to the pressures of globalization (Dolan and Ommer 2008:27). In Canada, for example, both East and West Coast communities "have been under considerable stress from the impacts of interacting environmental, industrial, political, and social changes" (Dolan and Ommer 2008:27). The situation has been far worse along Canada's North Coast (Forbes 2011:iii), where "[r]apid environmental, social, economic, political and institutional changes are defining characteristics of the past decade in the Arctic basin.

In the face of unprecedented and jarring changes in the local environment on which traditional livelihoods and cultures depend, Arctic coastal communities are coping with rapid population growth, technological change, economic transformation, confounding social and health challenges and, in much of the Arctic, rapid political and institutional change.

One outstanding question, then, is this: How does heritage destruction relate to these different aspects of coastal change? And vice-versa?

Sea level rise

Put generically, anthropogenic or human-induced sea level rise, an outcome of climate change (IPCC 2007a), "may result in more frequent flooding and salt contamination of low lying areas, as well as storm damage to areas and structures previously above high water" (British Columbia 2007:95). Landry (2011:259) provides this overview for the United States' eastern seaboard:

The coastal zone is one of the most dynamic natural systems on earth, with unremitting wind and waves, occasional storms, and sea level change playing key roles in process and evolution. [...] Climate change threatens to increase the intensity of coastal storms (Hoyos et al. 2006) and accelerate sea level rise (IPCC 2007). Analysis conducted by the Heinz Center (2000) suggests that one in four homes within 500 feet of the U.S. east coast could be directly or indirectly lost to erosion in the next 60 years, at a potential cost of \$530 million each year.

Not surprisingly, impacts on archaeological heritage are expected to be catastrophic. As Erlandson puts it, while "discussion of the threat posed to millions of archaeological, historical, and paleontological sites located along island and continental coastlines around the world has been very limited," if left unchecked, "rising seas, accelerated coastal erosion, and larger and more frequent megastorms will destroy many of the world's most important coastal archaeological sites" (2012:138-9). Additionally, "[t]he destruction of archaeological sites and historical landmarks caused by global warming, rising seas, and coastal erosion is already a major problem, but sea level rise of one or two meters in the decades to come will increase these problems by an order of magnitude" (2012:139). Compounding the problem is that while coastlines are dynamic, archaeological sites are "fixed" (Murphy, Thackray, and Wilson 2009:9; see also English Heritage 2008; however, see Holtorf 2005:132, 148).

The view from England is cause for even greater concern. There, the coastline is "already being affected by climate change and this can only get worse" (Murphy et al. 2009:15). Of concern is this:

Protection of some assets—especially those on developed coasts¹—will be possible, but elsewhere mitigation rather than conservation will be needed. This obviously goes against the grain for heritage conservation bodies. Nevertheless, difficult decisions will have to be made on prioritization and funding allocation, and in the end we will simply have to let some assets go" (2009:15).

In England, the "preferred" response to coastal erosion "will depend on risk management, on the value of assets to be protected (from houses to nuclear power stations) relative to costs of [coastal] defenses, and on the requirement to comply with nature conservation legislation and biodiversity obligations" (2009:12).

Considering the human dimension, it is projected that adverse environmental changes (IPCC 2007a, b; Munn 2002; Schwartz 2005) will "likely challenge the health and wellbeing of coastal communities already under considerable stress. Researchers anticipate multiple direct and indirect community and population health consequences from climate change" (Dolan and Ommer 2008:27). While climate change has emerged as the "primary global challenge in the 21st century," (Nelson 2010:283), the problems are already occurring, and have been for some time (Reid and Trexler 1991; Myers 1997; Cutting, Cahoon, and Hall 2011; Forbes 2011). An example of this is the rapidly growing environmental refugees could become one of the foremost human crises of our times" (1997:181). This issue is of great concern in coastal zones as they "may feature as many as five billion people, or two-thirds of all people in the world, making them specially susceptible to sea level rise and associated problems" (1997:173), an observation that has borne out over the intervening years (Creel 2003; Forbes

¹ An excellent example of this is the Cape Hatteras Lighthouse case described by Erlandson (2012:137).

2011). Climate change has been linked with increased violence, and governments around the world are actively preparing, including the United States and Canada.

Resource Management

Today, willingly or not, coastal communities look to government leaders, public policy-makers, coastal management experts, coastal resource managers and archaeologists to solve these problems. As a consequence, mainstream discourse surrounding the crisis is largely centered on and anchored in the language, ideology and bureaucracy of "resource management." Historically, coastal resource management strategies have been guided by the overarching fields/processes that are coastal zone management (CZM), a 1970s-era framework later reformulated as *integrated* coastal zone management (ICZM), the latter which shares many commonalities with the even newer process that is adaptive comanagement (Armitage et al. 2007). These processes, along with their concomitant "responses," however, have been less than successful, so much so that resource management itself has been implicated as *the* "problem."

Acheson describes it this way: "Over the past 50 years it has become increasingly apparent the world is facing a resource management crisis" (2006:118). For him, our current predicament is the product of "institutional failure" (2006:117). In a similar vein, Rogers observes that the "history of comprehensive attempts to regulate the exploitation of nature in the name of conservation is brief and dismal" (1995:3). Noting that "[m]any of the world's natural resources are in a state of crisis," Lertzman concludes that "[i]f avoiding population declines, species loss, erosion of ecosystem services, and degradation of environmental quality in general are the criteria for a successful management system, then modern resource management systems cannot be considered successful" (2009:344). In his analysis of "our unprotected heritage," King (2009:7) considers the management process to be "pretty much a sham." Focusing on cultural resource management, Smith (2004:174) refers to "the death of archaeology." Demonstrations of how the "resource crisis" is now global in scale make the scene all the more dismal (IPCC 2007a, b; Munn 2002; Schwartz 2005; Timmerman 2002; Tolba 2002). The general consensus among those who study the resource management problem is that (*a*) the system is fundamentally broken and (*b*) by most accounts things are getting *much* worse, not better.

So, what do experts think we should do about the failure of coastal management? While the concomitant issues of rising human population, growing consumption and increasing resource exploitation—collectively the major historic drivers of coastal change—have been intensively studied for over 25 years (Bird 1985; Goudie 1990; Schwartz 2005; Titus 1988), there is little agreement on how to actually enact positive change. For many reasons, there has been and continues to be conflict at every

turn. There is disagreement as to what actually constitutes the "coast" (Bird 2005; Graber 2005; Oertel 2005; Lewis 2009), assertions that more and better science is the solution (McFadden 2007), counterassertions that that science is *not* the "limiting factor" (Billé 2008), and many calls for more "integrated" approaches (Lertzman 2009; Ng'ang'a 2006). While some view the issue through an economic lens (Cutting et al. 2011; Landry 2011), others take a legal perspective (Cutting et al. 2011) or call for more humanistic approaches (Thorburne 2000). While some look to "bottom-up" or local/community-based solutions (McGinnis and McGinnis 2011; Thorburne 2000), others promote "top-down" management models (Ng'ang'a 2006; Pilkey and Young 2009). Some heritage experts call for a shift in focus from "resources" to "heritage" (Smith 2006), and some have begun considered removing archaeology from "heritage" (Waterton and Smith 2009). With few exceptions, disagreement exists at every turn.

Looking to the future, biologists Sumaila and Pauly (2011) predict that, "unless behavior changes, humankind will continue on the 'march of folly'" (Jackson, Alexander, and Sala 2011:9). Is coastal cultural resource management, because of its seeming counterproductivity and the availability of other options, on a march of folly? If the answer is yes, then the public should certainly be made aware of such a fact, as King (2009) has tried to do. This is because the public has come to depend on government "for a huge variety of services and goods"; in the past few decades many have come to see the government as "our primary bulwark" against heritage destruction and degradation (Acheson 2006:123). If they are indeed being misled, they should be so informed.

Acheson elaborates on two aspects of government failure that are central to the present study; those are problems with science and problems with top-down management. As he puts it, one issue is that government agencies concerned with resource management are often staffed with "well-educated engineers and scientists from urban areas who tend to have an interest only in scientific and technical aspects of their job and have little interest in the local culture"—many cannot communicate with rural peoples and "others have contempt for local-level knowledge based on decades of experience" (2006:125). This issue fits into the broader problem that is top-down management:

Centralized, hierarchical government units have a number of traits that in the long run work against effective resource management. Government agencies have a strong penchant for regulatory uniformity. As a result, central governments are apt to promulgate one set of rules for large areas that do not take into account variations in the local ecology [or culture]. Agencies are invested with a good deal of power, which they often use to ride roughshod over the wishes of local government units. (2006:125)

As I demonstrate in Part Three, bureaucracy has been shown to be extremely hazardous to human wellbeing. As government policies "all too often result in the concentration of the resource in the hands of local elites or corporations" (Acheson 2006:126), corruption is a major concern. Governments generally attempt to preserve resources in two ways: "First they buy large amounts of land and resources to create

parks, national forests, and biosphere reserves; second, they pass laws and regulations designed to protect resources" (2006:123).

A Critical Heritage Studies Approach

The fundamental concept in social science is Power, in the same sense in which Energy is the fundamental concept in physics. - Bertrand Russell, 1938:10

The maritime heritage crisis—indeed all environmental and cultural concerns—can initially be approached from two very different directions, Energy and Power. In focusing on Energy, thus matter, the maritime heritage crisis becomes a *physical* problem, wherein naturalized forces such as "the sea" or "development" become the destructive agents and archaeological sites become the "victims." One benefit of this approach is that heritage is made measurable or quantifiable, thus more "manageable." This approach, however, has been roundly and repeatedly criticized for obscuring and erasing the issue's human dimension, a central focus of Part Three.

Alternatively, a focus on Power, specifically social power, reveals a much more complicated but arguably more realistic field of play. Under this view, humans are recognized as the drivers of coastal change, and *responses* may be considered threats, with real consequences for heritage, as well the communities that heritage represents. In this sense, a focus on power gives primacy to the human dimension of the maritime heritage crisis. This includes consideration of heritage destruction and degradation in terms of human health and wellbeing.

This study initially (and naively) set out in 2007 to "solve" the maritime heritage crisis for the Pacific Northwest Coast by focusing on Energy. The crisis, as I had originally framed it, is that sea level rise over the next century will destroy a vast number of the region's coastal archaeological sites. At the time, my primary concern was for the loss of these sites as records or storehouses—in some cases the only record—of Holocene maritime adaptive strategies, and thus our only opportunity to learn about and from those who came before us. As a geoarchaeologist specializing in ancient coastal change, and with my experience in coastal cultural resource management, I felt I was well-situated to quantify and explicate this problem. Indeed, a mainstream "solution" to the crisis was rather easy to come by. Since the 1990s, heritage specialists working in Europe have developed and authorized a meticulously researched, seemingly rock-solid response.

Buttressed by the methods of scientific archaeology, humanized through maritime cultural landscape theory, and organized under the logic of cultural resource management, I quickly concluded

that the solution had been found. My research program was, for all intents and purposes, set to military precision: (*a*) phase one: Desk-top survey, (*b*) phase two: Field survey, (*c*) phase three: Valuation... Then, soon after, a great unease set about me.

That unease emerged from the seeming normalcy and simplicity of the European model, which has since, and not to my surprise, been imported for use in North America (Westley et al. 2011). At the time I did not have a good grasp of why I felt it to be problematic; however, I did know that it ran counter to what I was reading and thinking (and still read and think). Here is but one example from Fathali Moghaddam (2010:1):

Hard time times bring hard questions. Calamitous wars, international terrorism, environmental degradation and global warming, interconnected global economic depression—the twenty-first century has given birth to hard times, and we now labor under hard questions. How will we manage a world severely challenged by shrinking resources, ballooning population, huge and increasing income inequalities, terrorism, torture, and environmental collapse?

Against this, the European response (and most others) seems trite. There is simply no allowance for "hard questions" about the true scope, scale and interconnectedness of "the problem."

Then the proverbial "lightning bolt" struck, setting off an irreversible chain reaction. In 2010, I acquired a copy of Raymond Rogers' (1998) *Solving History: The Challenge of Environmental Activism*, and at once my mental imbroglio began to wane. "It is very clear to me," writes Rogers, "that environmental problems are not about 'resolving issues'; they are about coming to terms with particular histories associated with modern economic development, which in turn, require a challenge directed at specific interests which have been the beneficiaries of that development" (1998:x, emphasis added). This comment raised many questions for me: What *is* the history of resource management? What are "resources?" And who or what, exactly, are those resources being managed for? Who are "the beneficiaries?" What do we mean by "management?" By "development?" What role do archaeologists and other heritage specialists play in all this? Ultimately, what is "the problem?"

My fruitful engagement with *Solving History* induced me to dust off and reread my copy of Rogers' (1995) *The Oceans are Emptying: Fish Wars and Sustainability*. There I made the second key connection, this one directly illuminating my aforementioned unease. Rogers (1995:153) identifies two different ways of thinking about heritage problems. The first is what he calls the "strategic, instrumental, and technical approach," what I refer to here as "SIT." This approach is typically science and planning oriented and "does not call the modern human project related to science, technology and capitalism into question. Instead, it focuses on monitoring activities and reforming certain practices which are deemed to have negative consequences for the environment" (1995:153). Known alternatively as the "problem-solving approach," the SIT approach appears to represent the vast majority of proposed "solutions" to heritage "problems." It also seems to represents the heritage industry response to sea level rise.

Additionally, and perhaps related, is that archaeology and cultural resource management's approach to sea level rise, indeed all coastal change, is *reactive*—not proactive. The true function and utility of these approaches, therefore, should be questioned.

Rogers' observations about the implications of SIT (and wait) approaches reinforced for me a previously encountered concept. Although controversial, at least within (archaeological) science and resource management circles, it was becoming increasingly clear to me that science itself was a key part of the equation—and not in a good way. What I had previously encountered was Raphaël Billé's (2008) critical essay on Integrated Coastal Zone Management's "four entrenched illusions." One of those is the "positivist illusion," wherein scientific knowledge is viewed as a "necessary and sufficient condition to well-managed coastal zones" (2008:8). For Billé, "the positivist illusion, very present in coastal zone management, is to be challenged…because the abundance of scientific knowledge does not guarantee better management, and conversely, because the incomplete and controversial nature of scientific knowledge is seldom the real limiting factor to action" (2008:10).

While Billé suggests that scientific knowledge is "seldom" a limiting factor in the resolution of coastal issues, I was prepared to go one step further. The basis for this move emerged from my reading of Moghaddam's (1997) analysis of specialization, a concept closely allied with science in general and SIT approaches in particular. The reality is that heritage matters are not public matters; for the most part they are the concern of university-trained specialists—in the present case, archaeologists and cultural resource managers, or "heritage specialists." The question to emerge from my engagement with Moghaddam was this: What *are* the implications of "specialization" for heritage? For Moghaddam, the present course of "trying to find technical solutions to moral problems is misguided" (1997:8), and, problematically, "educators—the very people who should be able to lead us out of this path of increasing specialization—have themselves fallen victim" (2010:7).

Another point of orientation for the present study relates to Rogers' second way of approaching heritage problems. Situated in opposition to the SIT approach is one based on social and cultural analysis. This alternative, what we might call a "sociohistorical approach," begins with the recognition that "the structures of everyday life and the structures that cause [heritage²] problems are one and the same."

Therefore, it is all but impossible to separate what is causing [heritage] problems from the texture of a whole society. Discussions from this perspective relate to the hegemonic domination of current realities and reject the concept that, since [heritage] problems are connected with the fabric of everyday life, it is possible to develop and maintain a regulatory perspective which can mitigate problems, since regulation itself can be part of the problem. In other words, dealing with [heritage] issues may require more than solving problems, it may be necessary to solve history by making everyday life problematic in order to deal with [heritage] problems. (Rogers 1995:153)

² I have replaced here Rogers' term "environmental" with the more general "heritage."

If the two perspectives that are solving problems (the SIT approach) and solving history (the sociohistorical approach) are seen as poles on a continuum, there exists an inverse relationship between "the extent to which current modern realities are universalized and strategized on the one end, and how much moral, ethical, or political economy considerations are taken into account in the analysis of [heritage] problems on the other" (1995:153).

While my internal conflict had for the most part passed, a new course needed to be quickly set. It is along this new course I adopted a much stronger interdisciplinary and critical approach, recognizing that the only real constant at the intersection of maritime heritage, coastal change and resource management is Power. My interest in this inquiry, then, goes beyond the physical aspects, or Energy, of coastal erosion and concomitant site degradation/loss, processes that are well understood, as discussed in Part One. However, the impacts of heritage destruction and degradation for coastal communities around the world—especially Indigenous communities—extend well beyond physical loss to include social and psychological consequences of such losses.

As such, the second goal of this inquiry is to identify those sources of social power that influence the maritime heritage crisis. Towards this, I began using critical theory, with its emphasis on power, as a frame to better understand the history of the "problem." *Critical theory* is knowledge that aims at reducing domination (Biro 2011:3), an undertaking that requires "the redemption of the hopes of the past" (Horkheimer and Adorno 1987:xv). As I have suggested elsewhere, this conceptualization places history and heritage at the center of the conversation (Hutchings 2014a).

Within this paradigm, critical heritage studies is concerned with exploring what constitutes heritage, a spectrum that ranges from a "canonical list of places and objects" to "community practices and social action" (Harrison 2010:38). Specifically, the discipline is most concerned with the processes involved in the construction of each of these two types of heritage and how they are related. Drawing on the important work of Laurajane Smith (2004, 2006), Rodney Harrison (2010:38-39) points out that the first of these processes "concerns the ways in which official heritage, or AHD [Authorized Heritage Discourse], are involved in the production of a 'heritage industry' which grants the power to control heritage and, by extension, its messages, to 'experts' and the state."

As a cohesive framework, critical heritage studies only spans the last decade (Benton 2010; Fairclough et al. 2008; Harrison 2010; Holtorf 2005, 2007; Smith 2004, 2006; Smith and Waterton 2009; West 2010), however well-known precursors in archaeology include Leone (1981:13) and Hodder (1984:30), who viewed archaeology as ideology and part of the present, and Shanks and Tilley (1987:14), who saw archaeology as "a practice in contemporary capitalism." For the latter, the work done by archaeologists is "not neutral, self-contained or objective," and interpretation of the past is "affected by present ideology—a point of view related to present interests" (1987:14).

Indeed, since its invention, archaeology has "furthered colonialist agendas in settler countries" (McNiven and Russell 2005:vii), and been used to justify settler occupation and expropriation of Indigenous lands (Deloria 1997:112). Thus, central to the present study is an understanding of colonialism as the "process of establishing settlements in a conquered territory with the administration of such settlements fully or partially subject to control by the conquering state" (Hale 1990: 561). Because it is rooted in social power, colonialism, capitalism and imperialism are closely related concepts (Smith 1999).

A critical heritage studies approach is therefore useful here because it takes as a central theme the ways in which the past is used in the present, because it focuses on how heritage is constructed, delivered, practiced and consumed, and works to uncover the ways in which heritage embodies relationships of power and subjugation, inclusion and exclusion, and remembering and forgetting (Harrison 2010:1). The Association of Critical Heritage Studies identifies as a point of departure the view that heritage, as much as anything, is a political act (ACHS 2011). As such,

we need to ask serious questions about the power relations that 'heritage' has all too often been invoked to sustain. Nationalism, imperialism, colonialism, cultural elitism, Western triumphalism, social exclusion based on class and ethnicity, and the fetishising of expert knowledge have all exerted strong influences on how heritage is used, defined and managed. ... The study of heritage has historically been dominated by Western, predominantly European, experts in archaeology, history, architecture and art history. ... The old way of looking at heritage—the Authorised Heritage Discourse—privileges old, grand, prestigious, expert approved sites, buildings and artefacts that sustain Western narratives of nation, class and science.

This critical new tack led me directly to the harbor that is "resource management." I have remained moored there ever since. It is a dark and stormy place. Out of this stay emerged the following four premises:

- Assessments of sea level rise impacts must not only address but centre and foreground the dominant mode of response that is resource management, as well as attendant physical and social issues related to population growth and change.
- Environmental issues (e.g., natural heritage) and cultural issues (e.g., cultural heritage) cannot be considered in isolation from each other, for they are intrinsically related.
- A lack of archaeological or other data may not be a limiting factor in problem-solving; indeed, because of its positivist values, science may be considered part of the problem.
- The maritime heritage crisis may be a moral problem that is related to everyday life and for which there may be no scientific or technical solutions.

The present project, then, is not about solving the problem that is the maritime heritage crisis; it is instead about "solving history," in this case critically exploring resource management's association with modernity and capitalist "development."

Document Organization

At the highest level, this document is organized around the "shifting baselines" concept. In 1995, marine biologist Daniel Pauly used the term shifting baseline syndrome (SBS) to describe a "phenomenon of lowered expectations, in which each generation regards a progressively poorer natural world as normal" (Island Press 2011). SBS is "a cautionary tale" referring to changing human perceptions of systems due to the "loss of experience about past conditions" (Papworth, Rist, Coad, and Milner-Gulland 2009:93).

SBS is recognized as having two forms: (*a*) generational amnesia, wherein knowledge extinction occurs because younger generations are not aware of past conditions, and (*b*) personal amnesia, wherein knowledge extinction occurs as individuals forget their own experience (Papworth et al. 2009:93). More specifically,

Generational amnesia describes individuals setting their perceptions from their own experience, and failing to pass their experience on to future generations. Thus, as observers leave a system, the population's perception of normality updates and past conditions are forgotten.

Personal amnesia describes individuals updating their own perception of normality; so that even those who experienced different previous conditions believe that current conditions are the same as past conditions. This could lead to all individuals having the same 'current' view.

While SBS is typically used in discussions about the management of "natural" heritage, specifically marine fisheries, it has strong implications for all aspects of resource management, including the management of cultural heritage. Importantly, SBS should be explicitly used to refer to shifts in social phenomenon (Papworth et al. 2009:94). In this sense, the concept could be applied to changing (or unchanging) attitudes toward maritime heritage and coastal change, in this case, the phenomenon of increasing site destruction. In this context, we might ask: What were people's views, historically? What are people's views, today? What has been "forgotten"? What is "normal," or "mainstream"? What, if anything, has changed?

Part One, then, is titled "Setting the Baseline." Therein, I focus on the Energy of coastal change, surveying the variety of threats, impacts and responses, with the goal of identifying the boundaries of contemporary coastal change discourse. In Chapter 2, I specifically discuss Pacific Northwest Coast sea level rise with an emphasis on British Columbia, Canada, Washington State, and the transboundary Salish Sea region. While globally the heritage industry response to SLR is cultural resource management, locally there has been virtually no discussion whatsoever.

In Chapter 3, I address the twin problem of population growth and development, framed as "amenity migration." In this context, CRM is the response to heritage destruction on the Pacific Northwest Coast. As such, I provide in Chapter 4 a detailed historical examination of British Columbia

resource management as the mainstream response to coastal change. The problematic relationship between CRM and development is highlighted.

Part Two encompasses my coastal change case study of the coastal change problem as it pertains to the *shíshálh* (Sechelt) First Nation, whose traditional territory encompasses much of the "Sunshine Coast," southwestern British Columbia. There, the baseline is tested, and the impact of amenity migration or "sea change" on Indigenous heritage is considered. In Chapter 5, I provide background information on the *shíshálh* Nation and their approach to heritage stewardship.

Chapter 6 represents the core of my case study. This involves detailed examination of coastal change impacts on three specific areas within the *shíshálh* (Sechelt) First Nation's territory: Sechelt, Halfmoon Bay, and Pender Harbour. Past, present and future impacts are considered, and the extent of heritage sites destruction is quantified for each of the three study units. These data are complied and summarized in Chapter 7.

Part Three, "Shifting the Baseline," introduces and applies a critical heritage framework for interpreting Power in the domain that is coastal change discourse. The baseline is shifted insofar as power and scale are given primacy, which in turn demands a critical consideration of the true nature of modern coastal "problems" and "solutions."

In Chapter 8, I return to the subject of social power, using the power-elite dynamic to explicate heritage destruction. In this light, resource management is reframed as a form of ideology aimed at facilitating growth, development and progress. Ironically, these are the driving forces that necessitate or prompt the destruction of coastal heritage in the first place. Cultural resource management is a technology of government and a form of authorized heritage discourse. The outcome of such top-down governance and discourses is the breakdown of local control over heritage. This is important because archaeology / CRM is directly implicated in the destruction of Indigenous heritage landscapes.

In Chapter 9, the result of continuing the status quo of CRM as the response to coastal change is inevitably the further destruction of natural heritage, thus culture. Within the larger unfolding paradigm of colonialism, Indigenous communities are especially vulnerable to such capitalist exploitation, explicated in the metaphor of the miner's canary. I end by taking a holistic approach to the maritime heritage crisis in the context of a "problematique" that can help reorient "the problem" as a social one that emerges from the core. Chapter 10 concludes the dissertation.

PART ONE: SETTING THE BASELINE—THREATS, IMPACTS, AND RESPONSES

baseline — noun
1. *in surveying*: a measured line through a survey area from which triangulations are made.
2. an imaginary line, standard of value, etc, by which things are measured or compared.¹

The goal of Part One is to establish a baseline for thinking and talking about the Energy coastal change and the maritime heritage crisis. In Chapter 2, I take account of the sea level rise threat. I do the same for coastal sprawl in Chapter 3. With a Pacific Northwest Coast focus, these two chapters provide the theoretical basis for the *shíshálh* Coast case study, presented in Part Two. Part One culminates with Chapter 4, where I put British Columbia resource management in historical context. Regarding cultural heritage, I identify archaeology/CRM as the mainstream response to coastal change.

Chapter 2: Sea Level Rise

Twenty-first century sea level rise (SLR) is a byproduct of anthropogenic (human-induced) climate change², triggered by the burning of fossil fuels during the industrial revolution—a revolution western society is still fully engaged with³, despite ongoing efforts to rebrand it as something different (e.g., 'Post-industrial,' 'Anthropocene'). Climate change is expected to have an enormous impact on heritage, and sea level rise is a major factor. In this chapter, sea level rise threats and impacts are considered with the goal of characterizing a "mainstream" heritage response. Before proceeding to that, however, I consider the broader implications of the climate change threat, for both "natural" and "cultural" heritage.

The reality is that a range of socioenvironmental processes collectively impact maritime heritage, and it is often impossible to isolate single causes or "drivers" of coastal change. Put in slightly different

¹ baseline. *Collins English Dictionary – Complete & Unabridged 10th Edition*. HarperCollins, 2009. Retrieved 20 February 2012, http://dictionary.reference.com/browse/baseline

² By "climate change" I mean a change of climate that is attributable, directly or indirectly, to "human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (United Nations Framework Convention on Climate Change, Article 1 [UN 2010]). See IPCC (2013) for a recent, comprehensive account of climate change and SLR. In this light, sea level rise is not a "natural" threat but a "cultural" one.

³ In Northern America, the negative consequences of the fossil-fueled Industrial Revolution (1800-present) have largely been externalized thus hidden from society at-large, despite their now global scale (Bodley 2008a).

frame, sea level rise is but one threat among many when it comes to climate change⁴, and multiple processes typically operate in concert, rather than individually, at a given location. Consider, for example, the case for wetlands. Wetlands are, for a variety of reasons,⁵ a central component of archaeological discourse (Bernick 1998, 2012; Lepofsky and Caldwell 2013; Moss 2012; Nicholas 2007a, 2007b). This, in addition to the vital ecological and cultural importance of wetlands worldwide (Millennium Ecosystem Assessment 2005a, b), makes the example all the more apt.

Recent studies chronicle the rapid decline and disappearance of coastal wetlands in the eastern United States, with dramatic results. During the four-year period between 2004 and 2009, America's eastern seaboard lost more than 360,000 acres (145,687 ha) of freshwater and saltwater wetlands to storms, sea level rise and coastal development (Stedman and Dahl 2013). The 2004-09 results represent a 25 percent increase in the rate of loss in the same areas from the previous survey , which covered the sixvear period between 1998 and 2004 (Stedman and Dahl 2008).⁶ As reported by Fears (2013),

Storms and wetlands have waged an epic struggle on the coasts for eons. What's relatively new, and detrimental to the wetlands, is an explosion of coastal residential and business development, along with coastal farming, that drain water from the wetlands or fill them with dirt for agriculture, parking lots, housing and retail stores. As a result, sizeable chunks of wetlands die. Surviving wetlands are battered by rainwater runoff pouring from newly built surfaces such as driveways and roads, and much of that water is polluted with garbage, toxins and fine particle sediment. Wetlands can't handle the added deluge. ... 'The plumbing of the whole system is altered,' said [Tom] Dahl, a senior scientist for wetlands status and trends for the U.S. Fish and Wildlife Service.

The impacts of coastal wetland loss are alone staggering, without considering sea level rise.

The logic for this chapter is embedded within the concept of the watershed—in particular, the idea that *shishalh* coastlines cannot be separated from the Salish Sea basin within which those maritime landscapes are situated. This is an holistic approach that recognizes the fluid nature of landscapes, both physical and cultural. I begin by discussing the sea level rise threat with particular attention to the physical impacts of inundation. Considered in this review are data from (*a*) Washington State and British Columbia and (*b*) Puget Sound and the Strait of Georgia (the Salish Sea). For each, I specifically look at cultural heritage impacts and responses to those impacts.

⁴ Inundation is only one effect of climate change (Reid and Trexler 1991:2).

⁵ In particular, see Turner, Davidson-Hunt, and O'Flaherty (2003).

⁶ For summaries of these studies, see NOAA (2013), Fears (2013) and Baliga (2013).

General Threats

Because sea level rise and other climate-related coastal changes are so often characterized as "threats," they can all too easily become misconstrued as *future* problems. Rather, climate change is actively impacting North American coasts. Harford and colleagues (2010:4) are clear that "[o]ur climate is changing and the impacts are already being felt across Canada." They identify seven categories of climate change threats (2010:4), all with relevance to coastal communities, thus maritime heritage. Those categories are:

- 1. Increased severity and frequency of heat events
- 2. Severe storms, including extreme wind, rain, ice, and/or snowfall
- 3. Wildfires
- 4. Water shortages and drought
- 5. Changes in the cryosphere melting permafrost, sea ice, lake ice, and snow
- 6. Shifting ranges and altered ecosystems, including disease, pest and invasive species migration
- 7. Sea level rise, storm surges, coastal and shoreline erosion.

Climate change impacts on "natural" heritage have been considered for far longer and in greater depth than for "cultural" heritage (see below). Focusing on sea level rise, biodiversity and U.S. coastlines, Reid and Trexler (1991:1) began their 1991 study *Drowning the National Heritage* with this bold pronouncement: "The world's ecosystems may undergo more profound changes over the next century than during any comparable span of human history. Global warming of the magnitude expected in coming decades, accompanied by changes in sea level, rainfall, and wind and ocean currents, will significantly affect species composition, community structure, and the function of ecosystems." According to the same assessment (1991:2), climate change may impact "natural" heritage in the following ways:

As sea levels rise, coastal erosion and the severity of coastal flooding will increase, and coastlines will recede unless stabilized by dikes or through sand nourishment. Salt-water intrusion into groundwater, rivers, bays, and estuaries will increase. Changes in rainfall patterns and temperature will modify salinity gradients in estuaries and alter rates of river delta sedimentation, and coastal currents and upwelling patterns are likely to shift geographically and change in intensity. All of these 'sea changes' will affect biodiversity in the nation's coastal zones.

A 2013 Center for Biological Diversity study shows sea level rise threatening one out of every six (17%) threatened and endangered species in the United States. That study shows (2013:1-2) rising seas driven by anthropogenic climate change—potentially as much as 6.5 feet (2m) by 2100—threatening 233 federally protected species in 23 coastal states.⁷ Heritage, it turns out, is on the losing end of "coastal squeeze."

⁷ The 23 states with endangered species threatened by sea level rise are Alabama, Alaska, California, Connecticut, Delaware, Florida, Georgia, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, Texas, Virginia and Washington.

The impacts of climate change on "cultural" heritage, as identified in the World Heritage Centre Expert Report (Cassar et al. 2006) and summarized by Shearing (2007:9-10), include: impacts upon the level of survival of archaeological evidence due to changes to the hydrological, chemical and biological processes of soil; damage resulting from increases in soil moisture and salt which are absorbed through the porous structure of historic buildings leading to crystallisation on surfaces through drying; increased infestation of timber and other organic building materials by pests migrating from other altitudes and latitudes; damage resulting from flooding, increased intensity and frequency of storms and wind gusts.; desertification, salt weathering and erosion threats to cultural heritage in desert areas; and risks to movable cultural heritage through higher levels of humidity, temperatures and ultra violet light.

In 2009, the European Joint Programming Institute examined European and global challenges related to climate change, cultural heritage, and security (JPI 2009). That theme was considered a "key European challenge" (2009:1) for the following reasons:

- Most European citizens live in or around cultural heritage with which they identify closely because of the uniqueness and irreplaceable value of historic buildings, collections and sites for their tangible and intangible values.
- Climate change impacts severely on cultural heritage leading to irreversible damage and losses because of its age and fragility which we owe present and future generations to protect and conserve as symbols of their culture and history.
- Security risks threaten in catastrophic ways the physical nature of cultural heritage assets as symbols and icons of European cities and towns that are widely reported by the Media thus demonstrating the central role that cultural heritage has in the lives of communities.
- The combined effects of climate change and security threaten the existence of the cultural environment of Europe that has developed and shown resilience over millennia.

Before these combined risks become irreversible threats, the authors of the report conclude, "concerted action is needed to protect, strengthen and transform the unique historic environment of Europe" (JPI 2009:1)

Recent reviews of climate change threats to heritage in coastal Northern America can be found in Blankholm (2009) and Goetz (2010:6-21). Blankholm specifically considers the impacts of human responses, which can work to exacerbate the threats and impacts described here (2009:19-22; see also Goetz 2010:19-21).

Sea level rise is a serious concern on the Pacific Northwest Coast. Since the late 1980s, significant energy has been put into predicting future SLR rates and characterizing its potential impacts on Pacific Northwest coastlines. In Washington State, major contributions include Glick, Clough, and Nunley (2007), Huppert, Moore, and Dyson (2009), Littell, McGuire Elsner, Whitely Binder, and Snover (2009), Morgan and Siemann (2009), Moser (1997), Mote, Petersen, Reeder, Shipman, and Whitley Binder (2008), Peterson (2007), and Peterson, Canning, Leschine, and Miles (2008) and Shipman (n.d.). Key Canadian studies include Ausenco Sandwell (2011a, 2011b, 2011c), Bornhold (2008), Hartford (2008), Kerr Wood Leidal (2011), NRTEE (2011), Shaw, Taylor, Forbes, Ruz, and Solomon (1998) and Thomson, Borhold, and Mazzotti (2008). While local vertical land movement data is still relevant, all but the most recent Canadian studies (e.g., BC 2013) are now largely out of date in terms of SLR predictions.

Washington State

The climate change threat for coastal Washington State has been recently assessed by Huppert and colleagues (2009:285). They note that climate change will trigger significant physical and chemical stressors, including: (*a*) inundation of low-lying areas by high tides as sea level rises; (*b*) flooding of coasts during major storm events, especially near river mouths; (*c*) accelerated erosion of coastal bluffs; (*d*) shifting of beach profiles, moving the position of the Mean High Water line landward; (*e*) saltwater intrusion into coastal freshwater aquifers; and (*f*) increased ocean temperature and acidity. While similar forces will be operating everywhere, "shore areas will respond differently depending upon substrate (sand versus bedrock), slope (shallow versus steep cliffs), and the surrounding conditions (exposed versus sheltered from storms)" (Huppert et al. 2009:285). As beaches respond rising seas, coastal property lines and intertidal aquaculture leases will need to be (re)defined through modified property laws.

A recent peer-reviewed summary of sea level rise data for Washington State has been produced by Huppert et al. (2009). Their estimates, shown here as Table 2.1, are adapted from work done by Mote et al. (2008:10, Figure 3). Huppert et al. (2009:288) summarize the situation as follows:

Locally, *relative* SLR—the combined effect of global SLR and local rates of vertical land movement—drives many coastal impacts. Mote et al. (2008) explain that Western Washington is located on the edge of the North American continental plate with the Juan de Fuca oceanic plate subducting underneath, which produces gradual uplift in the northwestern part of the region. The northwestern Olympic peninsula has been rising at about 2 mm/yr. On the other hand, South Puget Sound has been subsiding at a rate of 2 mm/yr. Vertical land movement on most of Washington's coast and the rest of Puget Sound has been found to be less than 1 mm/yr. If these trends continue, relative SLR will be greatest in south Puget Sound and least on the northwest tip of the Olympic Peninsula.⁸

Mote et al. (2008:10) point out that the four factors they use to estimate future SLR rates (thermal expansion, cryospheric contribution, local atmospheric circulation, local tectonic movement) are "are not well quantified." In addition, future contributions to SLR from Greenland and Antarctica are "very

⁸ According to Huppert et al. (2009:288), "Substantial and reliable scientific models do not back up these trends, which is a major reason for the wide range of projected SLR. As noted by Mote *et al.* [2008:10], (1) they have not formally quantified the probabilities, (2) SLR cannot be estimated accurately at specific locations, and (3) these SLR projections are for advisory purposes and are not actual predictions."

uncertain" and the rates of vertical land movement (VLM) at specific locations "are generally poorly understood and it is impossible to estimate the uncertainty associated with using measurements of VLM in the recent past to predict changes over the next century. Based on the current science, Mote and colleagues' "medium" estimate of twenty-first century SLR in Washington is that in Puget Sound, local SLR will closely match global SLR (2008:3). On the northwest Olympic Peninsula, however, very little relative SLR will be apparent due to rates of local tectonic uplift that currently exceed projected rates of global SLR. Since 2009, however, global SLR estimate have changed upwards significantly (BC 2013).

Table 2.1 Relative sea level rise projections for major geographic areas of Washington State. *Source:* Huppert et al. (2009:288, Figure 2). More recent studies suggest that the "very high" SLR estimates below are likely the most accurate (compare with Figure 2.1 and Table 2.3).

SLR	By the year				By the year	
Estimate	2050				2100	
	NW Olympic	Central &	Puget	NW Olympic	Central &	Puget
	Peninsula	Southern Coast	Sound	Peninsula	Southern Coast	Sound
Very Low	-12 cm (-5")	3 cm (1")	8 cm (3")	-24 cm (-9")	6 cm (2")	16 cm (6")
Medium	0 cm (0")	12.5 cm (5")	15 cm (6")	4 cm (2")	29 cm (11")	34 cm (13")
Very High	35 cm (14")	45 cm (18")	55 cm (22")	88 cm (35")	108 cm (43")	128 cm (50")

Puget Sound's shoreline, estimated at 2,411 km (1,477 mi) in length (Huppert et al. 2009:290), has many facilities and residential developments that will be impacted by SLR (PSP 2011; Shipman 2004; Taylor et al. 2005). As rising seas push shorelines and tides closer to homes and infrastructure, coastal development will be threatened. Approximately 90 percent of Puget Sound's shorelines have single-family residences or are available for residential development (Taylor et al. 2005 *in* Huppert et al. 2009:290). SLR will also impact major Washington ports and harbors including the Ports of Seattle, Tacoma, Everett, Olympia, Grays Harbor, and Port Angeles, as well as the many smaller ports and marinas. (2009:296). SLR will also impact the Washington commercial shellfish industry, estimated to be approximately US \$75 million a year (2009:299).

Sea level rise—and responses to it, notably increased armoring (Shipman et al. 2010)—will have a tremendous impact on already degraded coastal biological systems (Dethier 2010; GBPSEI 2002, 2006; Gelfenbaum et al. 2006; Glick et al. 2007; PSP 2011). In their study of the potential effects of SLR of Pacific Northwest coastal habitats, Glick et al. (2007) applied the Sea Level Affecting Marshes Model (SLAMM), which simulates the dominant processes involved in wetland conversions and shoreline
modifications during long-term SLR. The model was applied to 11 different sites in Puget Sound and along the Pacific Coast in southwestern Washington and northwestern Oregon. While model results varied considerably by site, "overall the region is likely to face a dramatic shift in the extent and diversity of its coastal marshes, swamps, beaches, and other habitats due to sea level rise" (2007:iii).

The Program on Climate Economics⁹, in their report *An Overview of Potential Economic Costs to Washington of a Business-As-Usual Approach to Climate Change*, shows how, under the current trajectory, potential costs of climate change in Washington would total US \$12.9 billion per year in 2080 (Niemi 2009:5, Figure 1). This works out to US \$2,750.00 per household per year. The above total includes US \$352 million per year for costs related to increased coastal and storm damage. These numbers, however, do not indicate the net economic effect of climate change, as they do not represent a forecast of how the economy will respond to the different effects of climate change.

British Columbia

In 2011, the Flood Safety Section of the B.C. Ministry of Forests, Lands and Natural Resource Operations published technical guidelines for the design of sea dikes and coastal land use (Ausenco Sandwell 2011a; see also Ausenco Sandwell 2011b, 2011c; Kerr Wood Leidal Associates Ltd. 2011). Those technical guidelines, which make provision for a sea level rise of 0.5 metres by the year 2050, 1.0 metre by 2100, and 2.0 metres by the year 2200, have been adopted as the baseline for policy-making in British Columbia (BC 2013), as illustrated in Figure 2.1.

Shaw et al. (1998) have considered the sensitivity of Canadian coasts to a sea level rise of 0.65 metres. Their "coastal vulnerability index" (CVI) combined data on seven variables: (*a*) relief and (*b*) vertical land movement, which were considered indicators of inundation risk; (*c*) lithology and (*d*) coastal landforms, which were associated with resistance to erosion; (*e*) rates of erosion, which were considered indicators of sensitivity to coastal processes; (*f*) wave energy, which was related to capacity for erosion; and (*g*) tidal range, which was linked to both inundation and erosion hazards. Emphasis was placed on unconsolidated glacial deposits and low-lying shores. A coast with a *high sensitivity* would be in a region of low relief and unconsolidated sediments, high tidal range, high wave-energy, and where sea level is already rapidly rising. Alternatively, a coast with *low sensitivity index* would have high relief, a rocky shore with resistant non-eroding bedrock, falling sea level, low tidal range, and low wave energy.

⁹ Climate Leadership Initiative (CLI), Institute for a Sustainable Environment, University of Oregon, Eugene.



Figure 2.1 British Columbia sea level rise at 2100 (1m), 2220 (2m) and 2300 (3m). Solid red line depicts SLR curve to be used for policy purposes. *Source:* BC (2013:6, Fig.2)

Overall, the British Columbia has *low sensitivity* to change, primarily due to a preponderance of high, rocky fjords and skerry shorelines. Pacific Coast areas identified by Shaw et al. (1998:1) as high risk include the Fraser Delta (Ausenco Sandwell 2011a, 2011b, 2011c) and northeast Graham Island (NRC 2008; Walker et al. 2007). Low-elevation fjord-head delta settings, which are often sites of industrial and residential development, are also of concern. A prominent example of this in the Strait of Georgia is the community of Squamish, located at the head of Howe Sound (Shaw et al. 1998:39). In addition to fjord-head delta landscapes, which form where streams draining large watersheds meet the fjord coastline, smaller but innumerable side-entry deltas are also vulnerable.

Also of concern in the Strait of Georgia (or Georgia Depression) region is the Nanaimo Lowland, located on the leeward side of Vancouver Island. Characterized by coastal bluffs comprised of unconsolidated Pleistocene sediment, they are susceptible to more severe erosion (Shaw et al. 1998:39). This area also has two large deltas, at Comox and Nanaimo. Similarly vulnerable bluff formations occur across the Strait of Georgia from the Nanaimo Lowland in the narrower Georgia Lowland area, which encompasses the entirety of the Sunshine Coast (Clague and Bornhold 1980; Turner and Clague 1999). Landward of this narrow belt, which ranges in width from 5 to 20 km, is the Coast Mountains area, which includes Howe Sound in the south. This area is cut through by numerous massive fjords which extend up to 70 km from the coast. This fjord zone contains many small but vulnerable deltaic landforms (Clague and Bornhold 1980:350, Figure 24.11).

Thomson et al. (2008:48-9) have estimated the local implications of a 1 m global SLR for selected British Columbia areas. Some are shown in Table 2.3, with Strait of Georgia localities highlighted*. The range of mean RSL heights shown for the Strait of Georgia is from 0.8m (Nanaimo) to 1.2m (Fraser River Delta).

Harford (2008:10) estimates that a one-metre sea level rise would inundate more than 4,600 ha (11,367 acres) of farmland and more than 15,000 ha (37,066 acres) of industrial and residential urban areas in British Columbia. Approximately 220,000 people live near or below sea level. Sea level rise is "an important B.C. issue, potentially threatening billions of dollars in infrastructure such as highways, sewer systems, waste treatment facilities, residential housing in areas like Richmond, shipping and ferry terminals, and the Vancouver International Airport" (2008:10).

A recent National Roundtable study shows climate change costs for Canada could escalate from roughly CN \$5 billion per year in 2020—less than a decade away—to between \$21 billion and \$43 billion per year by the 2050s (NRTEE 2011:15; see also Stanton et al. 2010). Under conditions of rapid population growth and high climate change, in 2075 the average annual cost is estimated to be CN \$221 billion per year, with is a 5 percent chance the total cost could exceed \$546 billion per year, and a 1 percent chance of exceeding \$820 billion per year (see Table 2.2).

The study also considers costs related to coastal erosion (NRTEE 2011:67). By the 2050s, in a given year, between 33,000 and 38,000 square kilometers of land will be at risk of flooding, with between 2,000 and 7,000 square kilometers of this area at risk due to climate change, "about 25% larger than Prince Edward Island, or roughly the size of the Greater Toronto Area" (2011:67).

The area of land at risk of ocean flooding in British Columbia is small relative to the other provinces and territories, a result of the Province's steep coastal topography (see Figure 2.2); however, the majority of dwellings at risk are in British Columbia — about 8,900 to 18,700 by the 2050s, this due to the B.C.'s high coastal population density (2011:69) (see Chapter 3). This estimate may, however, be an order of magnitude low. Nationally, the annual cost of flooding of dwellings could be CN \$4 billion to \$17 billion by the 2050s (2011:71). For British Columbia, the range could be from \$0.84 billion to \$13 billion dollars by the 2050s. Per capita costs of dwelling damages by the 2050s in British Columbia are expected to range from \$565 to \$2146 per person per year.

	— Low Climate Change		+ High Climate Change	
	Slow Growth	Rapid Growth	Slow Growth	Rapid Growth
Average				
Annual	\$51B	\$149B	\$80B	\$221B
Cost				
5% Chance of				
Annual Costs	\$119B	\$350B	\$198B	\$546B
Reaching At Least				
1% Chance of				
Annual Costs	\$180B	\$525B	\$300B	\$820B
Reaching At Least				

Table 2.2 Annual Costs of Climate Change in Canada, 2075. Source: NRTEE, 2011:43, Fig. 1.

Stanton, Davis and Fencl (2010:8) note that there are significant distributional differences in such estimates. In terms of land area alone, Canada's flood exposure due to climate change is not substantial—just 0.14 percent of the nation's total land. However, what magnifies the economic impacts dramatically is that Canada's population and economic activity are concentrated in coastal areas.

The more pronounced this concentration is in a province or territory, the greater the impact it will feel—which is why British Columbia, with more than half its population concentrated in the coastal Vancouver and Victoria metropolitan areas, is particularly exposed, with up to \$1.9 billion in annual damages from climate change-related flooding by the 2020s and up to \$25.1 billion by the 2080s, depending on the scenarios used. That means 91 to 97 percent of total annual damages due to climate change would occur in British Columbia, even though it has only 0.8 to 1.4 percent of the land exposed to inundation due to climate change. (2010:8)

Moreover, visible minorities and the aboriginal population are over-represented among those exposed to inundation.

In British Columbia, they account for more than 90 percent of the people living in areas exposed to inundation. Visible minorities make up 80 to 94 percent of the people exposed to climate-induced inundation overall; the vast majority of that population is in British Columbia, where they now make up 39 percent of the provincial population, and by the 2080s, this share is expected to grow to 49 percent. Aboriginal people make up 5 to 6 percent of the population exposed due to climate-induced inundation, with the greatest exposure in the 2020s in all scenarios. (2010:8)

Low-income people are also disproportionately affected. The average household income for the residents of areas exposed to inundation is lower than for the general population in all provinces and scenarios, ranging from 55 to 59 percent of the average for Canada as a whole. In British Columbia, the average income in areas exposed to inundation is 64 to 71 percent of the general-population average (2010:8).

Salish Sea

This dissertation uses as a baseline the global SLR rates of 0.5 m for 2050, 1 m for 2100, 2 m for 2200, and 3 m for 2300. Thomson et al. (2008:48) have applied this methodology to three Washington State localities. When viewed together, as shown in Table 2.3, they provide a useful baseline for thinking and talking about sea level rise in the Salish Sea region. The range in mean RSL height by 2100 remains unchanged from that described above for the Strait of Georgia (i.e., 0.8-1.2 m). Salish Sea landscapes most threatened by sea level rise include developed areas, bluffs and cliffs, and all low-lying areas, including shores, estuaries, and wetlands. Responses to SLR, especially armoring, may have a greater negative impact on coastal landscapes than the effects of SLR alone, i.e., than "doing nothing." Regionally, sea level rise will cost hundreds of billions of dollars, and the socioeconomic toll will not be equally shared across society. Visible minorities and aboriginal and low-income populations will be hardest hit.

Location	Mean RSL height by 2100 (m)	
Puget Sound		
Tacoma	1.01-1.03	
Seattle	1.03-1.08	
Port Angeles	.82	
Strait of Georgia		
Vancouver	0.89-1.03	
Fraser River Delta	1.2	
Victoria	0.89-0.94	
Nanaimo	0.8	
Patricia Bay, North Saanich	0.9	

Table 2.3 RSL Scenarios for the Salish Sea Region Based on 1 metre global SLR by 2100. After Thomson et al., 2008:48, Table A2.

Cultural Heritage Impacts (Archaeological)

The physical impacts of sea level rise on archaeological heritage are generally well understood. Such study falls under the purview of environmental archaeology broadly (Dincauze 2000:227-250) and coastal geoarchaeology specifically (Waters 1992:249-290; Wells 2001:149-182). The crucial lesson from geoarchaeology concerns that which keeps archaeological sites "whole"—that is, sediment. Sediment is the most common matrix, fabric, or "glue" that keeps sites together, or "intact"; it maintains site "integrity" and is what makes sites "in situ" (Stein 2001; Wells 2001). From this perspective, sediment loss *is* site loss. To reiterate from earlier, as goes the coastal sediment (and soil), so goes the coastal archaeological site—this rule applies equally to ancient Aboriginal campsites (Rick, Erlandson, and Vellanoweth 2006), medieval European churches (Murphy et al. 2009:14) and historic American lighthouses (Erlandson 2012:137).

Globally, and since the late 1990s, there has been a steady increase in the number and frequency of such discussions (e.g., Australian National University 2009; Cassar 2005; Cassar et al. 2006; Chapman 2002; Fulford et al. 1997; ICOMOS 2006, 2006-07; Jones, Hinkel, Arp, and Eisner 2008; Mitchell 2008; Perry 2011; Shearing 2007; The National Trust 2005; UNESCO 2007a, 2007b, 2008, 2010). Despite about a ten-year time lag (however, see Easton 1990), this trend is now playing out in North America (Blankholm 2009; Erlandson 2008, 2012; Goetz 2010; Jones et al. 2008; Reeder et al. 2010; Rick et al. 2006; Westley, Bell, Renouf, and Lev 2011; see also *Journal of Coastal Conservation*, Vol. 16, No. 2 [2012]). Westley and colleagues (2011:352) provide this introduction:

Erosion by waves and tides is a constant threat facing coastal archaeological resources, capable of destroying or damaging cultural sites and landscapes, and resulting in the loss of invaluable and unrecoverable information. Although coastal erosion is a natural phenomenon with actively eroding archaeological sites documented from across the world (e.g., Carrasco et al. 2007; Fitzpatrick et al. 2006; Jones et al. 2008), it is predicted that erosion rates will accelerate over the next century due to rising sea-levels and increased storm activity... This will potentially result in a range of destructive coastal responses, for example cliff retreat or collapse, coastal flooding, beach and barrier retreat, and saltmarsh erosion (Murphy et al. 2009). Intensified erosion in turn implies an increase in the number of threatened archaeological sites.

Accounts from regions where such problems are already underway—the Arctic in particular (Blankholm 2009; Goetz 2010)—highlight the many complexities of the situation. This includes the speed at which erosion can occur, the extent of land that can be impacted in those time spans, and the potential for global and near-complete loss of low-elevation heritage landscapes. As Goetz (2010:12) describes it, "Coastal erosion can sweep entire buried and built archaeological sites into the sea. It can also damage and weaken soil beds so that sites can collapse in upon themselves. In northern regions erosion thaws the permafrost causing slumping and the decay of organic artifacts. In the last decades

various coastal areas are already seeing dramatic losses. In some cases, such as Barrow, Alaska, up to 30 metres of land is being swept away through erosion annually (Barr 2009:146)."

There are two immediate factors that seriously complicate what appears to already be a troublesome outlook, as described in the previous section. The first is that even a modest rise in sea level would be "problematic"—this because of the "current trend towards the aggressive development of coastlines" (Blankholm 2009:148; see next chapter). The second complicating factor involves a classic example of "uncertainty," in this instance about the melting rates of polar ice sheets:

Model simulations indicate that local warming over Greenland is likely to exceed 3°C by 2100 in the A1B 'middle of the road' scenario. Current ice-sheet models indicate that such a warming could lead to the eventual irreversible melting of the Greenland ice sheet, resulting in roughly 5-6 m of global sea level rise. Melting of the most unstable part of the Antarctic ice sheet...could add an additional 5 m. The models suggest that the completion of this melting could take a number of centuries. (Mann and Kump 2009:98)

In more accessible terms, "it is the world's ice sheets in Greenland and Antarctica that are truly the 800pound gorillas in the room of global climate change and sea level rise" (Pilkey and Young 2009:65). IPCC modeling projects a rise of up to 6 m by 2100 as a result of their partial melting (2007:15), and Tol et al. (2006) have considered adaptation to 5 m for densely populated European coastal areas. Based upon their understanding of the "gorilla," Pilkey and Young conclude that a 2 m (7 ft) sea level rise by the year 2100 "should be assumed," but this is "a cautious and conservative approach" (2009:79). To be clear: Such increases will have catastrophic outcomes for physical heritage, "effectively devastating any lowlying archaeological sites around the globe" (Goetz 2010:12).

To understand sea level rise impacts on (*a*) different kinds of archaeological heritage (*b*) located in different kinds of environmental settings, it useful to turn to the study of site-formation processes (Schiffer 1987). The logic here, simply put, is that if we want to know how archaeological sites "come undone," we should begin by understanding how they are "put together." Of specific concern here are *natural transformations*, or "N-Transforms," that operate to *change* an archaeological site's context.

Understanding natural processes of site formation (and deformation) is considered to be one of geoarchaeology's major research objectives. As Waters describes it, analysis of natural site-formation processes is concerned with "understanding the physical, chemical, and biological factors responsible for the burial, alteration, and destruction" of archaeological sites (1992:11). Importantly, such considerations have been made for the coastal zone, considered to be "one of the most dynamic landscape elements, with relative sea level, wave and tide energy, and sediment flux varying on time scales from seconds to millennia" (Wells 2001:149).

While it is beyond the scope of the present inquiry to detail all aspects of coastal site formation processes, an overview of key issues is certainly needed. To achieve this, I provide three different

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perspectives below that I think encapsulate the primary areas of concern. These perspectives, presented in order of general-to-specific, relate to (a) the factors that control the nature and transformation of the coastal zone, (b) the processes that impact coastal archaeological sites (Table 2.4, below), and (c) the factors that determine site survival through inundation (Table 2.5, below).

Three primary factors control the nature and transformation of the coastal zone: relative sea level change, energy flux (waves, tides, currents), and sediment flux (Wells 2001:149). In general terms, sea level rise impacts will be greatest on open coasts, low-lying coasts, and subsiding coasts. *Open coasts* are those exposed to the full impact short-period, wind-driven waves; these coasts are commonly high-energy environments, typified by beaches or rocky shorelines (2001:149). Sediments that accumulate along open coasts are relatively coarse grained, and open coasts "are more likely to be erosive in nature than are protected coastline" (2001:149). By contrast, *protected coastlines* are found in environments "where wind waves are highly attenuated by refraction and tidal energy dominates both sedimentation and landform development. These coasts are commonly low-energy environments typified by estuaries and tidal marshes. The sediments that accumulate along protected coasts are relatively fine grained, and peat is common" (2001:149).

Low-lying coasts are at higher risk for more severe sea level rise impacts. The term "low-lying" can be confusing as it is variously used to refer to two different scales, a regional scale, described first below, and a local scale. According to the IPCC, low-lying coasts are those less than 100 m above sea level, where, in addition, nearly one-quarter of the world's population lives (Nicholls, Wong, Burkett, Codignotto, Hay, McLean, Ragoonaden, and Woodroffe 2007:319). Coastal plains, which may include large, broad delta platforms, are at greater risk because of the way rising water interacts with different shorelines profiles. As illustrated in Figure 2.2, sea level rise will impact a much greater area on low coasts than on mountainous ones. Erlandson (2012:141) describes the land-loss situation as follows: "In decades to come, especially where cliffed coasts are present, the general principles outlined in Bruun's (1962, 1983) rule suggest that many shorelines will see horizontal erosion of 50 to 200 times any vertical rise, depending on the local geology, wave energy, and other factors."

Within the 100 m elevation zone, and as a general rule, the lower one moves in elevation the greater the risk becomes, with the most immediately threatened (thus "at-risk") areas being those located at the contemporary coastline. That being said, sites located atop (or in) unconsolidated coastal bluffs are also at great risk. As a consequence, elevation data must be used with caution. These same low areas are also at greater risk to the effects of storm surges, which occur when strong onshore winds build up coastal water to an unusually high level over a period of hours or days (Bird 2008:31). Strong onshore winds also produce large waves accompanying the temporarily raised sea level, "over-washing beaches, flooding low-lying coastal areas and causing extensive changes in a short period" (2008:31). In terms of

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archaeological heritage, storm surges are likely to have the same effect as global sea level rise, "i.e. inexorable" (Cassar 2005:23).



Figure 2.2 Impact of sea level rise (shoreline shift) on flat, low-lying coasts (left) and steep coasts (right).

Subsiding coasts are at higher risk for more severe sea level rise impacts than static or emerging coasts. Subsiding coasts are those that are actively losing elevation, relative to fixed sea level, as a result of regional or local tectonic activity or other forces. As these coasts are already subsiding into the sea, or "submerging," the effects of sea level rise increases will be compounded. Characteristic features of subsiding coasts, independent of global sea level rise, include: initiation or acceleration of beach erosion and more rapid erosion of cliffs, with increased sediment loss generally; higher water levels (higher high tides) in estuaries, lagoons, and deltas, with increased salinity and associated ecological changes; higher water tables, contributing to more frequent flooding; and inundation (Bird 2008:59). Major regions around the world that are actively subsiding include the U.S.'s eastern and southern coasts, Alaska's north coast, England's southeastern coast, and much of Europe's continental coast along the southern margins of the North and Baltic Seas (2008:65, Figure 3.12). Most deltas, which are already at greater risk due to their low elevation and profile, are undergoing natural subsidence, a process that is exacerbated by human water extraction and diversion (Nicholls et al. 2007:327, Box 6.3).

Looking at Figure 2.2, and putting together some of the key concepts addressed so far, a sense of how to comprehend the scale of sea level rise impacts begins to form. Using a sea level rise rate of 2 m by 2100 (Pilkey and Young 2009), and applying Bruun's rule (1983), low coasts could see horizontal erosion on the scale of 100 to 400 m over the next century. In the extreme, then, we might see heritage sites located as far as 0.5 km inland affected by sea level rise. This effect will be exacerbated by subsidence, for example on deltas.

The second area of concern relates to the processes that impact coastal archaeological sites under "normal" (i.e., non-SLR) conditions. This is important because sea level rise and population growth/impacts will be operating in concert alongside and in addition to these processes. These "normal" processes are outlined in Table 2.4, which links non-human processes with specific archaeological impacts. While this summary was created specifically for California's Channel Islands, the processes described are applicable to most coasts. The "human processes" section in Table 2.4, specifically the "modern human activities" entry, will be the subject of the next chapter. Of significance here is how "marine processes" fit into the broader array of processes (left-hand column) and impacts (right-hand column).

By focusing on "marine processes," in this case inundation, the complex nature of the sea level rise problem begins to take form, at least in terms of physical impacts on archaeological heritage. The specific issue of inundation has recently been taken up by Nutley, who summarizes the "determinants of site survival" (2005:104-6). As illustrated in Table 2.5, consideration must be made for a variety of environmental as well as archaeological factors. In addition to destroying archaeological sites, erosion processes also reveal new archaeological sites (Chapman 2002; Fulford et al. 1997).

Table 2.4 Major taphonomic and formation processes on California's Channel Islands. *Source:* Rick, Erlandson, and Vellanoweth 2006:571, Table 1.

Process	Description	Impact on Archaeology
[Non-human]	processes	
Animal transporters	Deposition or removal of materials in a site by animals	Introduce noncultural materials, remove some cultural materials
Argilliturbation	Shrinking and swelling of clay soils	Mixing of constituents
Eolian processes	Erosion and deposition of materials by wind, abrasion, and production of ventifacts	Deflation/destruction of sites, deposition of "new" sites
Faunalturbation	Burrowing and mixing of deposits by animals	Mixing, fragmentation, erosion
Floralturbation	Disturbance and mixing of deposits by plants	Mixing, fragmentation, erosion
Fluvial processes	Erosion and deposition of archaeological deposits by stream, creek, or other freshwater runoff	Destruction of sites, introduction of materials from other areas
Marine processes	Erosion and deposition of archaeological deposits by tidal surges and wave action	Destruction of sites, scouring of light fraction, introduce materials
Mass wasting/gravity	Landslides, cliffing, etc.	Erosion, redeposition, and burial of archaeological record
[Human] prod	cesses	
[Premodern] human activities	Construction, cleaning, trampling, cooking, etc.; excavation of houses, storage areas, burial pits, etc.	Mixing, fragmentation, and destruction of archaeological record
[Modern] human activities	Building or road construction, agriculture, bombing, looting, etc.	Movement, fragmentation, and destruction of archaeological record
Introduction of exotic animals	Overgrazing, stripping of vegetation and soils, trampling, burrowing, rooting, etc.	Fragmentation, mixing, deflation/ erosion

Determinants of Site Survival through Inundation Environmental factors Speed of water level Rapid inundation minimises the opportunity for mechanical, chemical and biological attack. Slow or repeated inundation and exposure maximises the degradation of sites and rise individual artefacts. A short fetch minimises wave height and consequently minimises wave-induced erosion. Fetch over water to land-water interface Dominant wind Sites facing the dominant wind direction are far more susceptible to wave action and direction destabilisation from wind, rain and falling trees. Dominant wave A direct response to the dominant wind direction and producing the most destructive of the on-shore forces influencing site survival. direction Strength of water flow Largely related to a riverine environment but also an aspect of estuaries and long-shore coastal currents. A strong flow of water will not only undermine sites but also result in greater dispersal of the component parts. Tidal and non-tidal Non-tidal water-bodies will result in less damage from frequent wetting and drying as well as minimising the strength of water flow over the site. This may however be offset by the extreme changes between a saturated environment and a 'baked earth' environment during drought as well as the impact of grazing animals on the exposed sediment flats during periods of low water. Frequency and duration See 'tidal and non-tidal' above. of inundation and exposure episodes Slope A steep slope is accompanied by a marked increase in the gravitational factor. Earth, vegetation, rocks and any associated deposits of cultural material are more likely to be destabilised and result in the loss of integrity of the original site formation. Geological composition Sites protected by coastal barriers, whether igneous rock, sandstone or sand dunes, but with a healthy budget of sand or silt are much more likely to already be below sea level by the time that the coastal barrier is broken down and to therefore be spared the worst of the erosive forces of wave action. Prograding/aggrading Prograding/aggrading shorelines that provide habitation sites and artefact deposits with a shorelines protective depth of overburden may provide a sufficient buffer to ensure long term survival during subsequent and relatively rapid inundation. Artefactual composition (a) Chemical impacts – susceptibility to permanent inundation in saline/fresh water Shell/bone Shell and bone can survive extended periods in fresh and saline water. Wood Can survive extended periods in fresh and saline water. Fibre (e.g., woven from Can survive extended periods in anaerobic freshwater and saline environments. In a leaf, grass, reeds) marine environment, this is most likely to occur only in concretion formed through a combination of corroded iron and calcite from marine organisms. Charcoal Can survive almost indefinitely in marine and saline environments. Can survive almost indefinitely in marine and saline environments. Stone (b) Mechanical impacts (i) Susceptibility to abrasion Shell/bone Highly susceptible to mechanical abrasion. Highly susceptible to mechanical abrasion. Wood Fibre Highly susceptible to mechanical abrasion. Charcoal Highly susceptible to mechanical abrasion. Moderately susceptible to mechanical abrasion, with greater resistance from Stone (flaked or ground stone artefacts and stone metamorphic rock and some igneous rock and less resistance from sedimentary rock. structures)

Table 2.5 Determinants of site survival through inundation. Source: Nutley, 2005:104-6.

Determinants of Site Survival (cont.)				
(ii) Susceptibility to dislocation				
Shell/bone	Highly susceptible to dislocation.			
Wood	Highly susceptible to dislocation.			
Fibre	Highly susceptible to dislocation.			
Charcoal	Highly susceptible to dislocation.			
Stone (flaked or ground	Susceptibility to dislocation is proportional to size; small flaked stone artefacts moving			
stone artefacts and stone	sooner/easier than larger items.			
structures)				
(iii) Susceptibility to biological attack				
Shell/bone	Mildly susceptible to biological attack.			
Wood	Highly susceptible to biological attack unless buried.			
Fibre	Highly susceptible to biological attack unless buried.			
Charcoal	Minimally susceptible to biological attack.			
Stone (flaked or ground	Mildly susceptible to biological attack through abrasion from grazing fish and sea			
stone artefacts and stone	urchins and other colonising fauna and flora.			
structures)				

Responses

It was in the context of the irrevocable and dramatic loss of coastal sites that one particular conservation theme...arose: 'We'll never save everything, so hard decisions are needed as to which to "let go." Coastal loss also raised the issue of heritage input into broader planning: '...I presume that major sea level rises will be a non-heritage issue (i.e. of such wider concern that it will be dealt with by other authorities).'

- May Cassar, 2005:3

Having gained a general understanding of sea level rise and its impacts on tangible heritage, I now turn attention to how people are responding to that situation. The goals here are to (*a*) briefly survey the *variety* of responses and (*b*) identify the perimeter of response discourse as it stands today. Later on, in Chapter 4, I analyze these responses with the goal of characterizing a "mainstream" response. Here, responses from Europe and Northern America are considered.

As referred to by Cassar above, the stark reality for coastal archaeologists is that "in a situation where hundreds of historic assets are threatened, full mitigation is financially unrealistic"—"Heritage groups and agencies will need to prioritize their resources for sites and buildings of special interest" (Murphy et al. 2009:11). Put another way: "As all sites cannot be protected, it is essential that heritage managers know which sites and landscapes are most at risk so they can prioritize resources and decision-making most effectively" (Westley et al. 2011:351).

Cassar's comments above concerning which sites to "let go" and "broader planning" raises the twin issues that frame sea level rise responses as they pertain to archaeological heritage. These are (*a*)

prioritization: what "values" inform decision-making (e.g., what to "save"), and (*b*) mitigation: the attendant "approaches" that are pursued (e.g., "generic policy options"). Together, these elements comprise the key points of departure for a "response."

One way to catch a glimpse of the perimeter delineating sea level rise discourse is by looking at the core values that underpin, inform and guide responses. Such values appear frequently in the stated objectives and rationale for most responses. Below are a few examples with emphasis added:

"Because many countries lack sufficient laws to protect archaeological sites, particularly in coastal areas where development is extremely desirable, <u>archaeologists are working quickly to</u> <u>survey and record the wide array of prehistoric settlements in these regions before they are</u> <u>disturbed or destroyed</u>." (Rick and Fitzpatrick 2012:135)

"Few, if any, other disciplines can so successfully marshal the evidence of human activity and that of palaeoenvironmental change or, as a matter of course, join forces with geographers, climatologists and other environmental scientists to understand humanity within a framework that is at once historical and ecological, and thus able to critique Western narratives of environmental change. Without doubt, then, archaeologists can usefully contribute to academic, popular and political debates on the prediction and the management of climate change (*cf* CBA 2007)." (Mitchell 2008:1096)

"[W]e highlight the significance of coastal archaeological sites for helping better understand contemporary environmental and cultural issues, <u>underscoring the need to preserve or salvage these sites for their significant research value</u>." (Reeder et al. 2012:187)

"[Global warming] presents potentially large problems for the future of site and landscape management. However, there are a number of ways that may be considered advantageous for addressing this threat. Primarily, <u>monitoring needs to be conducted</u> with regard to archaeological sites." (Chapman 2002:244).

"We need a concerted, collaborative, and global effort to <u>bring the problem to the attention of</u> government leaders and the general public." (Erlandson 2012:141)

"The conclusion is that although research and policy is moving ahead, much more needs to be done in order to <u>understand and preserve these sites before it is too late</u>." (Milner 2012:223)

A core value expressed here is that heritage is important for its "research value" to produce scientific knowledge. A basic assumption is that the loss of knowledge about the past (i.e., the tangible record) is the most pressing issue when it comes to the maritime heritage crisis. Recognizing that not all sites can be conserved, the approach suggested is to learn as much about the sites as possible before they are destroyed, and focus efforts on those deemed most "significant." Alongside a call for public education, the response from archaeologists is that more archaeological research is needed. This presumes that science is the limiting factor in the heritage crisis. The central role of government and cultural resource management in overseeing the response is also taken for granted. Above, Cassar raises the notion of "major sea level rise" being a "non-heritage" issue. Here, Cassar highlights what I think is a fundamental concern, one that I have brought attention to already. That is, what defines the perimeter of the mainstream response? When heritage specialists talk about sea level rise impacts and responses, which issues are "in" and which are "out"? As Mitchell (2008:1093) asks, "What, then, is the responsibility of the archaeological community and of the individual archaeologist to these challenges? Do either, in fact, even have a particular responsibility *qua* archaeologists, above and beyond those that they may have as concerned citizens and inhabitants of the planet? And, faced with the harsh realities that global heating will bring, is archaeology anything more than a dilettantish luxury?"

Sea level rise responses are typically framed within, thus constrained by, a set of "generic policy options." This limits responses to between three and five options, which include (*a*) *action* (intervention) and *inaction* (no intervention) and (*b*) *advance*, *hold*, and *retreat*:

- 1. Inaction, or no active intervention, leading to inundation;
- 2. Managed retreat, or managed realignment, wherein a new landward line of defense is set;
- 3. Hold the line, wherein coastal defenses (seawalls) are built/modified to hold back the sea; and,
- 4. Advance the line, or move seawards, whereby defenses are built seaward of current ones.

Often included is a fifth strategy, *accommodation* (or limited intervention). However, as this response includes aspects of action, inaction and managed retreat, it does not qualify as a discrete category. Nicholls et al. (2007:342) illustrate the historic transformation of these various responses, providing examples for each. The most basic set includes only three options: protect, accommodate, and retreat.

Application of this "generic policy option" to archaeological matters is described by Murphy et al. (2009:12) for English coasts: "The aim is to 'manage risk...to people, and the developed, historic and natural environment' in a sustainable way... For each Coastal Policy Unit—a discrete definable length of coast—one of four options is selected." The "preferred option" will depend, among various other factors, "on risk management, on the value of assets to be protected (from houses to nuclear power stations) relative to costs of defences, and on the requirement to comply with nature conservation legislation and biodiversity obligations" (2009:12).

In England, the agency charged with overseeing the management the country's historic built environment, English Heritage, has developed a comprehensive guidance program—the Rapid Coastal Zone Assessment Surveys (RCZAS) —to "enhance the coastal National Monuments Record (NMR) and county Historic Environment Records (HER)" (2009:12)." The RCZAS process is laid out in 'A Brief for English Heritage Rapid Coastal Zone Assessment Surveys' (English Heritage 2007; see also 1999). That document provides an outline methodology for "rapid baseline coastal surveys" commissioned by English Heritage. In sum, the archaeological response to threats of sea level rise and impacts on coastal heritage sites has been the government's response, which is cultural resource management. The RCZAS provides an excellent example of a comprehensive coastal change response and, as exemplified by Westley et al. (2011), this can be modified to focus in particular on sea level rise, or broadened to take into account more coastal change variables.

However, sea level rise and other climate-induced changes cannot be fully understood without considering the built landscape, including future development and community values. While climate-induced heritage site destruction is a hot topic, the past, present, and future impact on *cultural* heritage from population growth and development has received less focused attention. Instead, the impact of urbanization on *natural* heritage has been given more attention, as I discuss in the following chapter.

Chapter 3: Coastal Population Growth and Change

Our coasts are among the most rapidly growing and developed areas in the nation. – Kristen M. Crossett et al., 2004:3

While waves are the most consistent natural force causing coastal erosion (Rampino 2005:432), most of the problems affecting communities today are the product of human interventions in the coastal zone, what are termed "anthropogenic factors" (Scott 2005:254). On its own, the effects of sea level rise on archaeological heritage will be tremendous; yet, those impacts will be compounded by, and responses to those impacts complicated by, human factors. As populations grew exponentially over the past century, along with levels of consumption, the fate of many heritage landscapes has generally been either destruction or degradation. As human populations continue to grow, the remaining physical connections people have to past maritime lifeways will become increasingly important. As with sea level rise, the concern here is global in scale. It turns out that western society's desire to grow, develop and progress has now affected *every* coastline on Earth, with no exceptions.

While "development" is widely recognized as a general threat to both tangible and intangible heritage, the concept itself is rarely a clear focus for cultural heritage specialists. Rather, the byproducts of development (i.e., heritage site loss) and issues of policy and management are typically given centre stage, in the process shrouding, marginalizing or ignoring more basic problems. This is surprising, given that CRM is fundamentally about development, as I discuss further in Part Three.

In this chapter, I focus on the broad threats and impacts of population growth and change on coastal landscapes, and consider the responses to such change, specifically in the context of cultural resource management. As with the previous chapter, particular attention is paid to Washington State, British Columbia, and the Salish Sea region. This raises the issue of amenity migration and how that process can change communities' views towards and thus valuing of heritage. While focus here is placed on *growth* or "development," specifically coastal development, population *decline* has its own set of implications for heritage (Ommer et al. 2007).

General Threats

Our findings show that, regardless of which coast, regardless of major environmental differences, coastal communities suffer remarkably similar ills. These, we repeat, cannot be merely the product of geography, location, the particular provincial (or subprovincial) culture, or the particular sector ailments—they are the result of our own systems, institutional, economic, and social.

- Rosemary E. Ommer with the Coasts Under Stress Research Project Team, 2007:437.

Nearly a quarter of the world's population lives within 100 km of the coast and <100 m above sea level, resulting in population densities that are about three times higher than the global average (Nicholls et al. 2007:319):

The attractiveness of the coast has resulted in disproportionately rapid expansion of economic activity, settlements, urban centres and tourist resorts. Migration of people to coastal regions is common in both developed and developing nations. Sixty percent of the world's 39 metropolises with a population of over 5 million are located within 100 km of the coast, including 12 of the world's 16 cities with populations greater than 10 million. Rapid urbanisation has many consequences: for example, enlargement of natural coastal inlets and dredging of waterways for navigation, port facilities, and pipelines exacerbate saltwater intrusion into surface and ground waters. (2007:319).

Coastal areas are major destinations for tourism, which represents the fastest growing sector of the global economy (Creel 2003:1). Migration into rural coastal communities by former urbanites escaping "city life"¹ adds additional pressure (Gurran et al. 2007).

In the United States, the coastal population has grown steadily in recent decades, increasing from 47 million people in 1960 to 87 million people in 2008 (Wilson and Fischetti 2010). During this period, the Pacific coastline region gained the largest number of people (17 million). The Pacific region is the second most populated coastal region in the United States, and all five states that comprise it have the majority of their populations in coastal counties. In 2003, the Pacific region population reached 39.4 million people, or 26 percent of the nation's total coastal population. Since 1960, the national coastal population has consistently added between 5 million and 10 million people each decade. Manson (2005:10) summarizes the Canadian situation as follows:

- In 2001, 38.3 percent of Canadians lived within 20 km of a marine or Great Lakes shoreline.
- The majority of the coastal population lived within 5 km of a shoreline, and on most coasts, population decreased exponentially away from the shoreline.
- Of the 38.3 percent of the total Canadian population living within 20 km of a Great Lakes or marine shoreline, 23 percent lived on the Pacific coast (i.e., in British Columbia), where, due to geologic factors, population exhibits a high exponential fall-off away from the coast.

¹ That is, escaping the negative effects of modernity.

- Between 1986 and 2001, growth of the Canadian coastal population closely followed the trend of the total Canadian population, towards increasing population but at a decreasing rate.
- By 2015, the trend toward decreasing rate of population growth is expected to reverse, and growth of the Canadian coastal population is expected to occur faster than previously, and the percentage of Canadians living within 20 km of the coast is expected to increase to 50.7 percent.

Three core themes emerge from this summary: (a) capacity, (b) home construction, and (c) amenity migration. These are expanded on below.

(*a*) *Capacity*. While the concept of "capacity" has received significant attention as a result of "increasing anthropogenic pressure in certain natural environments" (MacLeod and Cooper 2005:226), emphasis is increasingly being placed upon the issue of coastal population growth, "with the implication that the carrying capacity of the world's coast is finite and such considerations form part of several coastal management initiatives" (e.g., UNEP 1996). MacLeod and Cooper (2005:226) distinguish between four kinds of capacities: physical, ecological, social, and economic. In addition to these "single discipline assessments," there are available a number of *composite measures* such as "recreational and tourist carrying capacity which attempt to define the threshold of an area for tourism or recreation" (2005:226).

There is, of course, no such thing as heritage carrying capacity. How much pressure can cultural heritage take before it is deemed "too much?" Indeed, in archaeology there has been little discussion about the kinds of indicators that might work as proxy measures for site destruction. Archaeology permits issued through time is one (La Salle and Hutchings 2012), and home construction is another.

(*b*) *Home construction*. In 2000, coastal counties in the United States contained over half of the nation's total housing supply (Crossett, Culliton, Wiley, and Goodspeed 2004). There were also approximately 2.1 million seasonal homes in coastal counties (just over half of the nation's total). Construction of family homes can act as an indicator of increased coastal sprawl: in U.S. coastal counties from 1999 to 2003, 2.8 million building permits were issued for the construction of single-family housing units and 1 million building permits were issued for the construction of multi-family housing units. More than 1,540 single-family housing units are permitted for construction every day in coastal counties.

Within the United States, some 23 million people (8% of the total population²) live in the highly sensitive low-elevation coastal area, defined and as the contiguous zone along the coast less than 10 m above sea level (Curtis and Schneider 2011:29).

(c) Amenity migration. In their discussion of governance responses to rapid population growth, Gurran et al. (2007:445) conclude that the "[t]he twin forces of rising affluence and population are

² This estimate would be significantly higher if the population of the 20 major metropolitan areas at risk for inundation is considered (Curtis and Schneider 2011).

altering coastal communities around the world. High amenity, environmentally sensitive areas particularly attractive, non-metropolitan coastal environments—are witnessing a tidal wave of in migration from former urbanites. As a result, these communities are struggling to accommodate growing numbers of people with urban tastes and rural dreams in areas with governance structures and physical infrastructure designed for occasional tourists."

"Sea change" is Australia's expression for what is generally termed *amenity migration*: "the movement of people from large urban areas in search of a better lifestyle in attractive settings characterized by high natural amenity, particularly along the coast" (2007:445-6). As a result, such communities are struggling to accommodate growing numbers of people in areas with governance structures and physical infrastructure designed for occasional tourists.

Places likely to attract amenity migrants commonly have high natural and rural scenery values, recreational amenities, a mild climate, and affordable residential land... For some migrants, particularly those who need to retain job connections to a major center, proximity to metropolitan areas remains an important criteria... Many migration decisions represent a culmination of a process starting with frequent holidays to a specific place, followed by acquisition of a second home, and finally permanent settlement. Smaller holiday towns are increasingly affected by amenity migration. (2007:446)

The likelihood of rapid growth appears greatest when these communities are situated within a few hours' drive of a metropolitan area; however, some amenity migrants seek more remote locations. As a consequence, "a wide variety of coastal settings are prime targets for rapid growth and urbanization associated with the amenity migration phenomenon" (2007:447). Coastal urbanization, "particularly in areas of undeveloped, nonmetropolitan contexts, is one of the most significant challenges for [...] coastal management" (2007:446).

The effects of population growth and development are not limited to physical landscape degradation. Those processes also transform how communities see and engage with those landscapes, including heritage landscapes. As Gurran et al. (2007:446) point out, traditional migration theories hold that economic considerations—primarily the search for better jobs—underpin many migration decisions. However, "the growing population migrating from their place of residence mainly for 'lifestyle' reasons rather than to improve their financial circumstances has begun to challenge this model, particularly in advanced, industrialized nations, such as the United States, Canada, Europe, and parts of the United Kingdom" (2007:446).

The "sea change" movement is therefore underpinned by basic economic and cultural changes. First, "changing social values, especially a belief in leisure, mean that people are willing to trade higher incomes for a better lifestyle" (2007:446). Second, "the growing population of 'young elderly' retirees and pre retirees, expecting long, active post work lives, represent a 'footloose' group³ not tied to a specific location for their work" (2007:446). Third, "the global economic shift from 'Fordist' (or manufacturing based economies) to less location-dependent information, service, and consumption-based industries is generating new opportunities for accessible regional areas characterized by high amenity" (2007:446).

The environmental and socioeconomic repercussions of amenity-driven migration into coastal areas are "significant," and the social impacts are "profound" (Gurran et al. 2007:451). Unlike other high growth contexts, usually in major urban centers, "population growth in undeveloped coastal areas occurs in extremely fragile environmental and cultural landscapes.

Many local authorities in the sea change contexts, particularly the smaller coastal hamlets, have been unprepared for the sudden increases in demand for new housing and tourist developments in their localities and have inadequate controls in place. [...] It is often the case that historical planning decisions mean that environmentally sensitive or culturally significant land has already been zoned for urban development, and it can be difficult to remove an expectation of development entitlement once land has been allocated for urban purposes. (2007:451)

Rapid population growth impacts the physical character of a community (2007:452). In response to these changes, many coastal communities report "a loss of 'sense of place,' particularly when new residential, tourism, and commercial developments are of a scale and appearance that is radically out of step with local vernacular design" (2007:452). Residents of high growth coastal areas can also experience "a loss of sense of community or connection to social networks, because of the influx of new residents and visitors" (2007:452). Gurran et al. (2007:454) also note that, despite the perception that "population and tourism growth is good for local economies," their study found that "overall economic outcomes in high growth coastal settings are often disappointing."

In their study of demographic change and shifting views in Downeast Maine, Safford and Hamilton (2012) highlight some key issues related to coastal change broadly and amenity migration specifically. They begin by noting that "[c]onnections to the sea often define the character of coastal towns. However, as migrants arrive and economic diversification occurs, views about the use of marine resources and the ocean environment can change" (2012:285). Using survey data from Maine, Safford and Hamilton examine whether shifting demographics affect public perceptions of marine resource uses and coastal environmental concerns. The results of Safford and Hamilton's study indicate (*a*) that the level of education and the county of residence predict Mainers' views about different marine resource uses and ocean-related environmental issues; (*b*) that political party affiliation strongly influences

³ This groups "geographic freedom" is supported by the "expansion of non earnings forms of income, such as superannuation and investment payments" (Gurran et al 2007:446).

environmental concern but not views about the use of marine resources; and (c) that migration history has "little effect" (2012:284).

Gurran et al. have developed a useful matrix of environmental, social, economic, infrastructure, and governance issues affecting sea change communities (2007:453-454, Table 1). In that matrix, the five issues are characterized in light of a five-part typology of coastal settings, which ranges from "coastal commuter" cities to "coastal hamlets." Coastal commuter settings are suburbanized satellite communities in peri or exurban metropolitan locations adjoining capital cities. On the other end of the spectrum are coastal hamlets, which are remote local government areas (more than three hours from a capital city) with populations of less than 15,000. The isolation of coastal hamlets, which usually exist as a small town, or grouping of villages, surrounded by a rural and/or protected natural hinterland, has meant that these places have escaped major development pressures to date. The complete typology includes: coastal commuter, coastal city, coastal getaway, coastal lifestyle, and coastal hamlet.

Issues ranked as problems in four out of five or five out of five coastal settings are mentioned here. In the category of *environment*, pan-coastal (i.e., 5/5) or nearly pan-coastal (i.e., 4/5) issues include water quality (5/5), loss of rural land (4/5), urban encroachment on world/national heritage areas (4/5), and loss of cultural heritage (5/5). In the category of *social*, high-ranked issues include high seasonal populations (4/5) and loss of local character (4/5). In the category of *governance*, major issues include competing coastal management, natural resource, conservation, and planning legislation (5/5) and overlapping State/local jurisdictions (5/5). In the category of *infrastructure*, seasonal infrastructure demands (4/5) were the only issue to affect four out of five of the coastal settings. No *economic* issue affected more than three coastal types.

While the complexities of amenity migration are only beginning to be fully understood (e.g., *GeoJournal* Vol. 76, No. 4, 2010⁴), the impacts of "sea change" on coastal landscapes are broad and significant (e.g., Boucquey, Campbell, Cumming, Meletis, Norwood and Stoll 2010; Gurran et al. 2007; Ommer et al. 2011; Safford and Hamilton 2012). As demonstrated in Part Two, amenity migration is directly relevant to understanding coastal heritage destruction and degradation in *shíshálh* territory.

Washington State

In 2003, approximately 153 million people in the United States (53 percent of the nation's population) lived in the 673 coastal counties, an increase of 33 million people since 1980. Ten of the fifteen most populous cities in the U.S. are located in coastal counties (Crossett et al. 2004:1).

⁴ Special Issue: "Amenity Migration, Exurbia, and Emerging Rural Landscapes"

Since 1980, U.S. coastal population growth has generally reflected the same rate of growth as the entire nation, but in the limited space of coastal counties. This increasing density, coupled with the fast-growing economy of coastal areas [...], will make the task of managing coastal resources increasingly difficult, especially with the nation's coastal population expected to increase by 12 million by 2015 (2004:1).

During peak vacation periods, coastal areas are also subject to major population influxes; and with more people "comes the need for increased infrastructure, which may lead to even more negative effects on…resources" (2004:1). Crossett et al. predict that in the next few decades, coastal areas will also see "a growing proportion of older Americans and an unprecedented number of Americans reaching retirement age. This also has the potential to place demands on coastal resources as there will be more time for people to enjoy the many coastal amenities (2004:1)." Median household income for coastal counties is approximately 17 percent higher than non-coastal counties. (2004:12).

Most of the nation's most densely populated areas are located along the coast, with 23 of the 25 most densely populated U.S. counties being coastal (Crossett et al. 2004:7). Coastal counties average 300 persons per square mile, which is much higher than the national average of 98 persons per square mile (excluding Alaska). Since 1980, population density has increased in coastal counties by 65 persons per square mile, or by 28 percent. By 2008, it will increase by 13 persons per square mile, or 4 percent (2004:7).

In 2000, coastal counties contained 52 percent of the nation's total housing supply (Crossett et al. 2004:9). One component of total housing units is seasonal or vacation homes. The location and growth in the number of seasonal housing units "indicate areas where people congregate seasonally or for short periods." In these areas, "commercial, hotel, and recreational construction is an important component of the coastal economy and contributes significantly to overall development" (2004:9). Further, construction of single-family and multi-family homes can also act as an indicator of both economic growth as well as increased 'sprawl' along the coastline. In 2004, it was estimated that more than 1,540 single-family housing units are permitted for construction every day in coastal counties (2004:9).

The Pacific region, which includes the coastlines of California, Oregon, Washington, Alaska, and the entire state of Hawaii, is the second most populated coastal region in the United States. In 2003, the population reached 39.4 million people, or 26 percent of the nation's total coastal population (2004:20). All five states that comprise the Pacific region have the majority of their populations in coastal counties.

Population growth and concomitant development pose serious problems for already stressed maritime landscapes. In the Salish Sea Basin in particular, current consumption rates⁵ and land-use practices far exceed locally sustainable levels, and forecasted growth rates for the next few decades will

⁵ Current high levels of consumption are supported through the externalization of costs, primarily to Asia, Mexico and the Southern hemisphere, as well as rural North American communities (e.g., Sachs 19XX, 2001).

only exacerbate what are arguably already insurmountable problems – all of this without factoring in future sea level rise. Here, the link made in the previous chapter between population growth, development and environmental degradation is reinforced and expanded upon:

[T]he future of Puget Sound remains at risk. The Sound's overall trajectory...continues to be one of decline, with continuing harms to the clean water, abundant habitat and intact natural processes that are the foundations of a healthy environment. The pace of growth in the region, coupled with associated increases in impervious surfaces, alteration and loss of habitat, and pollutants in the air and water, continue to drive a silent crisis. (Puget Sound Action Team 2007:88)

Further, "[w]hile the Sound appears beautiful, its web of life is at risk. To continue our current path will mean further losses."

Washington State has over 5000 km (3085 miles) of highly diverse coastline (Huppert et al. 2009:285), most of which occurs in Puget Sound (Shipman 2004:81). Washington's coastal region can be considered as two distinct areas, the outer coast and inner coast. The much less populated thus developed outer coast, which stretches from the Columbia River estuary in the south to the Olympic Peninsula in the north, is exposed to the full force of the Pacific Ocean and its storms. As a consequence of the latter, the outer coast experiences extremely high shoreline erosion rates (Barnard et al. 2011).

The inner coast, situated on the eastern and leeward side of the mountainous Olympic Peninsula, is defined by the drowned estuary that is Puget Sound, which defines the southern extent of the Salish Sea. While general shore types include rocky coasts, coastal bluffs, bluff-backed beaches, depositional beaches, deltaic shores, and spits associated with protected lagoons and salt marshes, the most prevalent is the bluff-backed beach, i.e., coastal bluffs fronted by narrow mixed sand and gravel beaches (Johannessen and MacLennan 2007:v). The Puget Basin contains the City of Seattle, the economic center of Washington State, and the City of Olympia, the State Capital. In 2010, the population of the City of Seattle was 608,660, making it the twenty-third largest American city. King County, in which Seattle is located, had a 2010 population of 1,931,249, an 11.2 percent growth since 2000. As Shipman (2004:81) points out, rapid population growth in the region "has greatly increased development along the shoreline."

Washington State's population grew by 830,419—to 6,724,540—between 2000 and 2010. This 14.1 percent increase was the slowest rate of growth the state has experienced in five decades (State of Washington Office of Financial Management 2011). However, Washington still grew at a faster rate than the nation as a whole, and is now the thirteenth most-populous U.S. State, up from fifteenth in 2000. Washington was the eighth fastest growing state between 2000 and 2010 in terms of numeric increase and the thirteenth fastest growing state in terms of percentage increase in resident population. Population distribution between coastal Western Washington and landlocked Eastern Washington remained unchanged with the same 78/22 percent split in place in 2000. Put another way, nearly 80 percent of Washington's population resides in coastal watersheds, most within the Puget Basin.

Washington's population doubled over the last 40 years and is expected to reach 8.4 million by 2030, an increase of approximately 1.6 million persons from 2010. Net migration is expected to contribute 932,200 persons, or 57 percent, to the population increase (State of Washington Office of Financial Management 2010; see also U.S. Census Bureau 2005).

In 2006, the population of Puget Sound was 3,991,911. This the U.S. Census count for the Seattle-Tacoma-Olympia, WA CSA, or Combined Statistical Area, which includes the following counties, listed clockwise around the Sound: Island, Skagit, Snohomish, King, Pierce, Thurston, Mason, and Kitsap (U.S. Census). Excluded from this measure are San Juan and Whatcom Counties in the far north, which are technically not part of Puget Sound, and Jefferson and Clallam Counties in the west.

Arguably the single greatest source of transformation in the Puget Basin "is the conversion of lowland forests to a mosaic of residential, commercial and industrial lands created for human use" (PSP 2011:449). As the Puget Sound Partnership (PSP) recently reported (PSP 2011:449), "[c]hanges in the landscape are driven by expanding human populations associated with growing businesses... Increasing population growth results in more roads, more industry, more houses, more transportation, and more businesses." In Puget Basin terrestrial systems, "forests, wetlands, prairies and agricultural lands are converted to residential, commercial and industrial uses.

The rates of conversion have increased significantly in the late 20th century and are projected to continue to increase (Alig et al. 2004; Alberti 2005; Robinson et al. 2005; White et al. 2009). The region most heavily impacted by the human footprint in Puget Sound is in the central Sound: the amount of developed lands increased from 16 percent to 23 percent of the total area between 2002 and 2007 (Alberti et al. 2004; Hepinstall et al. 2008), an increase of approximately 1.4 percent per year. Continued development at this rate will result in developed lands extending well into the Cascade Mountain foothills by 2027 (Hepinstall et al. 2008). (PSP 2011:449)

Shoreline and nearshore landscapes have been – and will continue to be – severely impacted by population growth and development. The high level of human activity in the Puget basin "both partly springs from and leads to extensive use of nearshore ecosystems. Access to shipping, fishing and other commercial and recreational endeavors makes the region an attractive location for human settlement" (PSP 2011:462). Coastal zone modification results in a wide range of changes in nearshore ecosystems, and these changes impact the shoreline, adjacent upland and freshwater systems, and the Puget Sound estuary.

Collectively, nearshore modification has resulted in shortening and simplification of shoreline over the past 150 years, from both direct (e.g., artificial structures) and indirect (e.g., disruption of shoreform sediment transport processes) modifications; the Sound has experienced a loss of over 1000 km of natural shoreline and the introduction of almost 400 km of artificial shoreline... This loss of convoluted shoreline has resulted in an overall loss of nearshore area, leading to disruption or loss of important ecosystem functions such as sediment, detritus and nutrient transport, loss of habitat and changes in species composition. (2011:463)

Approximately 1/3 of the total Puget Sound shoreline contains bulkheads and other hard coastal structures (Huppert et al. 2009:303). Shoreline modification, in particular armoring and filling, has had significant impact on Puget Sound wetlands. Approximately 53 percent, or 273 km2 out of 514 km2, of historical wetland extent has been lost (PSP 2011:471). The Puget Basin also contains a total of 436 dams, impounding approximately 13,000 km2, or 37 percent, of the total sub-basin drainage area (2011:471).

Residential development of coastal bluffs is also a serious problem (Shipman 2004). Extensive bluff development "sets the stage for serious long-term management problems." According to their study, "[1]arge numbers of homes have been constructed in locations that if not hazardous now, will be in several decades. In addition, engineering measures intended to address bluff erosion pose serious implications for the long-term health of the region's beaches" (2004:92). Pressure to develop bluffs is "rising rapidly with the increasing population growth and urbanization of the Puget Sound region" (2004:89). According to Shipman (2004:89), the demand for waterfront and bluff property is "driven primarily by access to the water and unimpeded views of the Sound and nearby mountains.

The physical impacts of development (especially armoring and residential development) on Puget Sound coastlines (notably shores, bluffs and sea cliffs) are well understood (Barnard 2010; Johannessen and MacLennan 2007; Huppert et al. 2009; Myers 2010; Quinn 2010; Shipman 2004, 2008, 2010; Shipman et al. 2010a, b). Despite such knowledge, a "chronic problem is society's tendency to ignore the fact that beaches and bluffs are not static systems, and that interfering with their dynamic processes may have undesirable consequences" (Johannessen and MacLennan 2007:1). In sum,

Human use of beaches and bluffs can jeopardize habitats and reduce the sustainability of the features. The construction of waterfront homes puts them in areas prone to natural hazards. Building houses on spits and beaches poses serious hazards from coastal flooding and storm damage and may cause increased erosion. Erosion control and diking associated with building near beaches can cause the destruction of salt marshes and backshore habitat. Constructing access roads to developments at beaches often restricts water flow into estuaries, altering habitats and aesthetic qualities. Building on bluffs can exacerbate landslide hazards due to loss of stabilizing vegetation and alteration of drainage patterns. Attempts to stabilize bluffs and reduce erosion through the construction of bulkheads and seawalls ultimately decreases the supply of sediment to nearby beaches, altering habitats and possibly shifting erosion problems to other shorelines. The cumulative impact of human modifications to the shoreline (currently one-third of Puget Sound's shoreline has been armored) may be far-reaching in terms of both habitat and existing human activities, particularly in the face of anticipated increases in the rate of sea level rise.

British Columbia

Manson (2005) provides a useful baseline for Canada. Between 1986 and 2001, the Canadian population increased from 25.3 million to 30.0 million people at a rate of 1.24 percent per year (2005:4). Similarly, the population within 20 km of a coast increased from 9.6 million to 11.5 million people at a

rate of 1.32 percent per year. Projection of the total Canadian and Canadian coastal populations to 2015 indicates continued growth of the total population to 33.0 million people and accelerated growth of the coastal population to 16.75 million people⁶. A plot of the percentage of the number of Canadians living within 20 km of the coast (2005:5, Fig. 4) shows a substantial increase into 2015 suggesting increased densification of the coastal population. While the density of the total Canadian and Canadian coastal populations increase linearly to 2015, that of the population within 20 km of a coast begins to accelerate after 2001 (2005:4).

In 2001, 38.3 percent of the total Canadian population (30.01 million) lived within 20 km of a Great Lakes or marine shoreline (Manson 2005:6). Of this, 56 percent lived on the Great lakes coast, 23 percent on the Pacific coast (i.e., British Columbia), 20 percent on the Atlantic coast and <1 percent lived on the Arctic coast. The inhabited coastal area represents 2.6 percent of Canada's total land area. Population tends to exhibit an exponential fall-off away from the coast. This is illustrated most dramatically on the Pacific coast, where steep mountain ranges are "constraining population to a narrow, low-elevation band, as well as a strongly coastal-dependent economy" (2005:6).

Relative to the rest of the world, Canada shows similar trends in increasing total population count and density and increasing 20 km coastal population count and density (2005:8). Canada has a higher percentage of its population living within 20 km of the coast than globally, and this is increasing at a rate faster than that of the global coastal population. However, the number of people added annually to the global coastal population far exceeds that added to the Canadian coastal population (88.8 million globally between 1995 and 2000 versus 0.44 million in Canada between 1996 and 2001) (2005:8).

Additionally, the percentage of Canadians living in the coastal zone is higher, and growth is occurring at a higher rate, though mean population density is much lower (2005:10). The Canadian coastal population is very small compared to the global coastal population, thus the contribution of Canada's coastal population growth to that of the global coastal population is "negligible" (2005:10). Manson (2005:10) concludes that through increasing population and densification, "the vulnerability of Canada's coastal population to hazards and climate change is increasing, a trend that is expected to accelerate into 2015."

Over the next 20 years, the coastal population is projected to increase by a million people, increasing pressure on the environment through land-use changes and water demand, discharge of sewage and other waste, and emissions of pollutants. Industries such as forestry, fishing, and tourism depend on healthy ecosystems, yet most economic activities have some kind of impact on those ecosystems, either temporary or permanent. (BC 2006:vii)

⁶ This may be an underestimate (Manson 2005:4).

British Columbia's population stood at 4.5 million in 2010, up from 4 million in 2000. In contrast, estimates of the pre-European population of British Columbia range from 60,000 to 200,000 (BC 2007:2). European diseases and other changes brought by early explorers decimated Aboriginal communities, and by the 1850s their population had dropped drastically. As the Aboriginal population "declined," European settlement along the coast continued to grow. As illustrated in Figure 3.1, in 1851 the population of British Columbia was 55,000; in 1951 it was more than one million, and today it is over 4.5 million. In 2001, the Aboriginal population was 170,025 and accounted for 4.4 percent of the total Province. As shown in Figure 3.2, future growth will be concentrated around already densely populated areas, specifically in the southern Strait of Georgia, around Vancouver, Victoria and Nanaimo (see also Figure 3.3). In contrast, some regions of the coast are expected to see "negative growth," including the Powell River area in the extreme northeast Strait of Georgia.

In 2001, 76 percent of British Columbia's population, or just over 3 million people, lived in coastal regions, primarily in the Lower Mainland area around the City of Vancouver, the Province's economic center, and in the southern and eastern parts of Vancouver Island, including the City of Victoria, the Province's Capital (BC 2007:2). Since the 1800s, about 20 percent of B.C.'s coastal land area has been disturbed by natural events and human activity (e.g., logging, agriculture, urbanization) (BC 2006:viii). British Columbia's coast is 7,022 km long, measured linearly from the Strait of Juan de Fuca in the south to Alaska in the north. Total shoreline length, including islands, is estimated to be 22,200 km (Francis 2000:137).

By 2036, British Columbia's population is forecast to exceed 1.6 million, an increase of about 36 percent since 2010 (StatsCan 2011a:2; 2011b:1). The major factor driving population growth over this period will be migration: international migration will account for 77.4 percent of the population gain, followed by interprovincial migration at 17.3 percent, and natural increase (births minus deaths) at about 5.3 percent (StatsCan 2011a:2). As shown in Figure 3.2, population density (people/km2) in coastal British Columbia has changed significantly in the past, and is expected to continue growing over the next few decades. In the future, the most significant growth will occur in Greater Vancouver, the Fraser and Cowichan Valleys, and the Sunshine Coast.



British Columbia Population, 1866-2036

Figure 3.1 British Columbia population, 1866-2036. Source: Statistics British Columbia

By 2036, British Columbia's population is forecast to exceed 1.6 million, an increase of about 36 percent since 2010 (StatsCan 2011a:2; 2011b:1). The major factor driving population growth over this period will be migration: international migration will account for 77.4 percent of the population gain, followed by interprovincial migration at 17.3 percent, and natural increase (births minus deaths) at about 5.3 percent (StatsCan 2011a:2). As shown in Figure 3.3, population density (people/km2) in coastal British Columbia has changed significantly in the past, and is expected to continue growing over the next few decades. In the future, the most significant growth will occur in Greater Vancouver, the Fraser and Cowichan Valleys, and the Sunshine Coast.

While all regions of the Province will see growth, only the Mainland/Southwest region around Vancouver will experience higher growth than B.C. as a whole (StatsCan 2011b:3). As the most populous region of the Province, this area receives the bulk of international migrants to B.C., as well as a significant share of migrants from other parts of Canada. Over the last five years, approximately 44 percent of interprovincial inmigrants and 92 percent of international inmigrants to B.C. chose to initially

settle in this region. This area is also home to over 80 percent of the non-permanent residents in the Province. Over 85 percent of the Mainland/Southwest population lives in the Greater Vancouver area, and over 10 percent reside in the Fraser Valley; the remainder lives in the Squamish-Lilloett area (1.5 percent) and in the Sunshine Coast area (1 percent). By 2036, the Mainland/Southwest population is expected to grow by more than 40 percent.



Figure 3.2 Regional district population growth, 2010 to 2036. Dark blue signifies areas of greatest growth (i.e., >35%) Source: BCStats 2011a:6, Figure 13.



Figure 3.3 Population density (people/km2) in the coastal Regional Districts of British Columbia for 1941, 1976, and 2003, with projected population for 2025. *Source:* BC 2006:4, Figure 2.

The Vancouver Island/Coast region, which includes the western and northwestern portions of the Georgia Basin, will likely see "healthy gains from migration as it continues the expansion of its urban areas (i.e. Nanaimo and Greater Victoria)" (StatsCan 2011b:4). This is in part due to the fact that overall retirement age (65+) population count and its share of total population will continue to increase significantly over the projection period (from 15.0 percent in 2010 to 23.7 per cent in 2036) (StatsCan 2011a:5). According to Statistics Canada (2011b:4), the retiring baby boom cohort is "is expected to lead to larger net inflows." This will result in population growth in amenity-rich areas, "particularly those

outside of large urban cores." By 2036, "the Vancouver Island/Coast region is projected to have almost five elderly dependents for every 10 people of working age." (StatsCan 2011b:4)

Intertidal and upper shore zones in the Georgia Basin are "particularly vulnerable to development because people are attracted by the views and easy access to beaches and the ocean" (BC 2006:20). In 2001, an estimated 23 percent (60 km) of the estuarine and other nearshore habitat in the Georgia Basin had been urbanized and the shorelines altered by dykes, seawalls, docks, and other uses. In 2000, the Capital Regional District (CRD), located in the Vancouver Island/Coast region, analyzed data on the length of natural shoreline and the length of developed shoreline.

More than 375 km of shoreline exist in the CRD's study area (which excluded the Gulf Islands). In total, 68 percent of upper shore zones had some type of development, and 8 percent of intertidal zones had been developed [see Figure 3.4]. The more urbanized core of the CRD study area had the highest proportion of shoreline development (98 percent upper shore, 24 percent intertidal). Along the Saanich Peninsula, 87 percent of upper shore lands were developed and 5 percent of the intertidal, and in the Western Communities, 48 percent of upper shore lands were developed and swere developed and only 3 percent of the intertidal (BC 2006:21; see also CRD 2000).

As illustrated in Figure 3.4, which shows the proportion of shoreline developed on southeastern Vancouver Island, dense populations are associated with high levels of shoreline modification. The most apparent impact on the environment from the growing coastal population "is the permanent loss of habitat to industrial and residential development, especially in the Georgia Basin" (BC 2006:5).





With coastal sprawl, land becomes more highly erodible due to rapid surface runoff resulting from impervious surfaces. Recalling from Chapter 2, as goes the land, so goes the archaeological heritage.

Salish Sea

The growing population in this binational area, currently at seven million and therefore one of the large metropolitan centers of North America, is a major factor in generating environmental stress. — Georgia Basin Puget Sound Ecosystem Indicators, 2002:2

The Salish Sea was home to 4.1 million people in 1976; the region grew to 7 million people by 2001 and it is projected to grow to 9.4 million people by 2025 (GBPSEI 2006⁷), as illustrated in Figure 3.5. Population growth in the transboundary watershed has outpaced the average global growth rate, a pattern that is expected to continue over the next several decades. Life expectancy is highest in the Greater Vancouver Regional District (81 years) in BC and San Juan County (82 years) in Washington. The average family income in the Salish Sea Basin is higher than the North American average.

Once anchored in resource extraction industries such as forestry and fishing, the region's economy has diversified into more service and value-added manufacturing including aerospace, biotechnology, film, tourism and software development, yet continues to be export oriented, particularly with Pacific Rim nations. Immigration is expected to account for over half of the population growth in the next two decades. (GBPSEI 2006:n.p)

Salish Sea population growth "is a major underlying force contributing to the cumulative stresses on the land, air, water and other ecosystem resources. This growth presents significant environmental, economic and social challenges both locally and across the basin ecosystem" (GBPSEI 2002:1). The impacts of this growing population, its "affluent lifestyles" and concomitant land use practices are reflected in various measures (for example, see GBPSEI 2002, 2006) that offer different perspectives on regional landscape quality and stresses (GBPSEI 2002:1). As these indicators are tracked over time, "they should provide a sense of how we as individuals and a society are affecting our basin ecosystem" (2002:1).

In 2000, the major population areas immediately around Vancouver (Greater Vancouver Regional District) and Seattle (King County) had 29 percent and 25 percent of the overall basin population, respectively, so that over half the Salish Sea population was living in those areas (GBPSEI 2002:2) (see Figure 3.6). As pointed out earlier, even higher concentrations can be noted (especially in the Seattle area) when taken in conjunction with neighboring jurisdictions.

Population expansion and the migration of people to suburban areas exert development pressure on terrestrial landscapes. The area of forest land in the Salish Sea Basin "continues to decrease as land is used to expand airports, railways, ports, roads and housing to accommodate the region's increasing population" (GBPSEI 2006:n.p.).

⁷ Georgia Basin-Puget Sound Ecosystem Indicators, or GBPSEI



Figure 3.5 Salish Sea population growth, 1976-2025. Source: GBPSEI 2006:n.p.

People are attracted to the Salish Sea region "for its spectacular natural amenities and quality of life, as well as its economic opportunities" (GBPSEI 2002:2). As a consequence, a major contributor of population growth is migration from outside the basin: in British Columbia, the net immigration rate during the mid 1990s was about three-quarters of the total population growth rate; in Puget Sound Counties, almost two thirds of the growth over the 1990s was due to net immigration. The sub-regional differences in growth rates, shown in Figure 3.6, "suggest that the population distribution is shifting somewhat from the large urban areas to outlying areas.

This may be due to considerations such as perceived quality of life differences, economic and demographic changes, housing affordability and transportation issues. In Jefferson County, for example, the high growth rate can be attributed, in part, to an expanding retirement population, proximity to significant natural areas and less than average rainfall⁸. (2002:2)

Ultimately, population growth in the Salish Sea basin affects all aspects of sustainability (environmental, social and economic) at various scales (locally, regionally and globally):

Additional people generally require more jobs, goods and services, land for housing, businesses and transportation facilities, recreational space and associated environmental resources. Unless these activities are significantly modified to reduce their current impacts, they will continue to increase the stresses on the land, biota and other natural resources, as well as the human systems that support modern life. (2002:2-3).

⁸ An example of this pattern in British Columbia is the Sunshine Coast (see Part Three).



Figure 3.6 Percentage of Salish Sea population by Regional District and County, 2000. *Source:* BC 2002:3

Cultural Heritage Impacts (Archaeological)

The growth of modern, developed coastal regions, defined as coastal urban centers and their immediate peripheries, has long been a subject of academic interest (Semple 1911), and the environmental consequences of such transformations are generally well understood (see below). All aspects of the environment—physical, biological, human—have been heavily impacted, and archaeological heritage has not been immune. As Reeder and colleagues (2012:187) observe, "Coastal archaeological resources around the world often coincide with dense contemporary human populations and a rapidly changing physical environment."

Most of the coastal erosion problems affecting communities are the product of human intervention in the coastal zone (Rampino 2005:432), what have be termed "anthropogenic factors" (Scott 2005:254). Population growth and change can impact heritage landscapes in two ways: (*a*) directly, by altering coastal landscapes physically through "development," and (*b*) indirectly, by altering how coastal communities value, thus define, view and interact with maritime heritage (i.e., "sea change"). In British Columbia, for example, resource extraction and infrastructure building accounted for more than half of the 383 archaeology permits issued by the Archaeology Branch in 2011 (see Chapter 4). About 20 percent of permits issued were held by private residents doing home construction. Nearly all permits can be considered to be related to "development" (La Salle and Hutchings 2012).

An array of human activities contribute to coastal erosion, and while these "interventions" often take place at or near the coastline, they may also be significant distances inland, as is the case with hydroelectric dams (Chen 2005). Such activities include: aggregate extraction (including dredging); aquaculture facilities; docks and piers; energy production (e.g., oil, wind); gas mining (relative sea level rise induced by land subsidence); harbor infrastructure and activities (including navigational dredging); land reclamation, nearshore or offshore (e.g., wind farms); maritime navigation (e.g., ship and boat-induced waves); pollution; recreation and tourism; industrial resource extraction (e.g., fishing, logging, mining); river water regulation works (particularly dams); shore protection structures; (e.g., breakwaters, groins, seawalls); seafront roads; tidal power facilities; and waterfront development, both industrial and residential (adapted from Eurosion 2004:8-10).

Coastal specialists distinguish between *direct* and *indirect* human impacts; while some impacts are a result of "direct acts of development," others are "indirectly the result of those activities" (Davis 2005:532). Indirect human impacts are typically more complicated and subtle than direct ones, and there are innumerable ways in which human activities along the coast can indirectly impact the behavior of coastal environments (2005:533). These range "from the obvious situations where jetties at an inlet may impact beach erosion kilometers down the beach to more subtle situations where activities in an estuary

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can influence open coast morphodynamics" (2005:535). An even more subtle impact is illustrated in Tallis' (2006) work on the Pacific Northwest Coast. She shows how logging has a "chemical footprint" in the coastal ocean with biological implications, lending support to the argument that "conservation planning and socio-ecological decision making need to consider links between natural systems" (2006:n.p.).

From a geological perspective, coastal change occurs on multiple scales, thus defining coastal change as "gradual" or "rapid" is difficult. For Thom and Cowell (2005:251), the concept of gradual coastal change can be seen as "embracing different contexts, both spatial and temporal. ... Therefore, a wide-ranging time frame may be used covering geological, engineering, and arguably event scales." As with gradual change, rapid coastal change can take many forms. As Scott (2005:254) points out, there are many definitions of what might be called "rapid events" occurring on coastlines, "including sea-level movements caused by global warming and/or cooling (10's to 1,000's of years) to tsunamis that occur in seconds." In addition to tsunamis (Dawson 2005), other rapid changes of an instantaneous nature are storm surge (Gornitz 2005) and human activity (Davis 2005), both of which are of particular concern here.

A very different way to think about coastal change and erosion is in terms of social, cultural, and economic transformation. This kind of change can lead to what Ommer and colleagues (2007:3) refer to as "coasts under stress," where "[c]hanges in natural environments have interacted with political, industrial, and social change to adversely affect the health of the people who live there, their communities, and the natural environments in which they are embedded." The outcome here is not simply the transformation or "wearing-away" of physical landscapes, but also the cultural attachments to those landscapes. Coastal change discourse, therefore, must be broadened to include the physical and social impacts of such processes as economic change (Ommer et al. 2007), migration (Gurran et al. 2007), and recreation and tourism (Goodhead and Johnson 1996), among others. In this light, the discussion is not just about physical erosion, but also the erosion of community identity (French 2005) and health (Dolan and Ommer 2008; Ommer et al. 2007).

Responses

As coastal development is intensifying, so are coastal property losses. The higher wind speeds, storm surge, flooding, and erosion hazards intrinsic to coastal regions increase the likelihood of property damage, degradation of coastal ecosystems, and subsequent social costs. Changing climate trends may increase the potential for more frequent and severe damage. Routinely, policymakers, developers, and property owners are not aware of the present and future risks associated with coastal development.

-Heinz Center, Resilient Coasts: A Blueprint for Action, 2009:3

Demographic factors, especially migration, are major considerations in how people use coastal regions. Understanding how population issues can be integrated into coastal management will help policymakers, program managers, and communities design more viable and sustainable strategies for using and safeguarding the world's coasts and the resources they provide. – Liz Creel, 2003:7

Cultural resource management *is* western society's response to development-led heritage destruction. As such, there is no special branch of CRM⁹ that focuses on the issue; it is what most CRM specialists do daily. Prior to 2012, there were no local studies or assessments of the predicted impacts of or suggested responses to sea level rise on cultural heritage sites and landscapes (Grossman and Parker 2012); this is returned to in Chapter 9.

To understand current responses to population growth and change, we need to examine the world that is CRM, and see what it and its critics have to say. This is discussed in detail in Chapter 4. Here, I instead consider two very different kinds of heritage responses to population growth and change from the Pacific Northwest Coast. The first involves the development of a "National Maritime Area," while the second compares an anthropological/historical approach with one based in risk management.

A National Maritime Heritage Area Approach

I trace here the evolution of a decade-long attempt in Washington State to counter the ill-effects of modernity. The three documents I refer to here are by the Seattle-King County Task Force on Maritime Heritage (Task Force 2005) and Washington State Department of Archaeology and Historic Preservation (DAHP 2009, 2010). When examined in chronological order, they provide valuable insight into the development of a plan to "save" maritime heritage.

In December of 2005, King County and the City of Seattle jointly released the document *Seattle-King County Task Force on Maritime Heritage—Final Report* (Task Force 2005). The report opens with

⁹ Or archaeological resource management (ARM), or cultural heritage management (CHM), or academic archaeology.

this introduction by then-politician and Task-Force Chair Jim Compton, titled "A New Maritime Heritage Consensus."

Our region's history is tied to the sea and its industries. This is a rare moment when the 'stars are aligned' to launch a long-overdue effort to preserve Puget Sound's rich legacy of maritime history. Centuries of maritime activity on Puget Sound have created an extraordinarily rich body of traditions, artifacts, and history. But efforts to bring them together and honor them at some focused location have been fitful and unsuccessful. It is no overstatement that regions with fewer maritime treasures have made a much better effort of preservation. The challenge ranges from finding a home for tall ships and work vessels, to making documents, plans, and models accessible, to teaching the skills of boatbuilding and boat handling. (Task Force 2005:2)

As this illustrates, maritime heritage is conceived of in very specific terms, including technology, exploration, and discovery.

While the earlier, high-profile Maritime Heritage Foundation "had failed to bring together the necessary consensus in 2002," Compton writes that King County's cultural services agency, 4Culture, subsequently convened in 2004 a Summit and Task Force for a "last-ditch effort to pull together the strands of maritime heritage." The Task Force's objective, described in their Executive Summary, was to "Create a vision and chart a course for a sustainable maritime heritage presence in Seattle, King County and Puget Sound." The "problems" of concern, as alluded to by Compton above, include:

- "Working waterfronts are fast being displaced by development and gentrification," with the result that heritage sites are increasingly slated for demolition.
- Historic vessels are deteriorating while appropriate facilities and funding to house and conserve them are more and more difficult to establish.
- "Seattle's maritime preservation remains in the hands of a number of small organizations, each with its own mission and interest," leading to a fragmented community of interest.

Although "[t]he identity of the region is linked inextricably to its maritime culture," there is no "defining maritime heritage amenity in the city," preventing Seattle from "positioning itself as a world-class, heritage-rich seaport city" (Task Force 2005:5-6).

The objective, then, in a nutshell, appears to be to 'brand,' 'market,' and 'house' Seattle/King County's maritime heritage under 'a single leadership' with the goal of delivering a 'cohesive,' 'unified' and 'authentic' message regarding maritime heritage. This represents the centralization and commodification processes central to "authorizing" heritage, discussed further in Chapter 8. Significantly, in this document, there is no recognition of or discussion about climate change and sea level rise. There was also very little specific information provided regarding population growth and the impacts of development on heritage. Indigenous peoples are only mentioned in the Appendix as a potential "Theme." Ultimately, tourism is offered as the solution to a declining maritime cultural heritage. In 2009, the Department of Archaeology and Historic Preservation produced a draft report titled *Washington State National Maritime Heritage Area Feasibility Study* (DAHP 2009). The goal of the study was to evaluate "whether western Washington's maritime heritage resources might qualify for designation as a National Maritime Heritage Area" (2009: n.p.). The proposal was building on the 2005 Task Force's observations and suggestions, offering designation as a National Heritage Area as a "solution" to some of the problems identified previously.

The report states that "[p]art of the challenge of the heritage area is to emphasize the common issues that face western Washington's shoreline communities, and model shared stewardship for the region's maritime heritage resources" (2009:12). In stark contrast to the 2005 Task Force report, the 2009 document includes discussion of Indigenous history and contemporary interests in the Area. Indeed, the economic benefits for tribes overall is especially emphasized, since tourism and related economic development is offered as "one of the important potential benefits of designation as a National Heritage Area" (DAHP 2009:11). Towards this, maritime commerce, past and present, is given central stage in the proposal.

The report (2009:52) refers to potential "direct and indirect effects" of establishing the proposed Heritage Area. Effects mentioned include increased pollution associated with vehicle and boat travel and associated impacts of visitor traffic (2009:58-9). However, without such designation, the report's authors indicate that cultural resources "would continue to be lost" (2009:55). Again, climate change and sea level rise impacts on heritage is not mentioned in the text. Again, heritage is viewed as a commodity and potential money-maker for willing communities.

In the 2010 final version of this report, *Washington State National Maritime Heritage Area Feasibility Study for Designation as a National Heritage Area*, several noteworthy changes have been made specifically to incorporate "stakeholder" feedback (DAHP 2010). The report restates five primary goals of designating this National Maritime Heritage Area (2010:3), including: to share Washington State's unique and nationally distinctive maritime heritage resources and stories with a broader audience; to support local communities by promoting heritage tourism; to support local heritage organizations; to support contemporary working waterfronts; and to support healthy marine waters.

Like its draft, the 2010 document does not address any climate change issues for coastal heritage. It likewise does not address any impacts or management issues for cultural resources; indeed, the subject of archaeology is scarcely mentioned. The effect of this designation on the management of archaeological sites is wholly absent. As such, this report cannot be seen as motivated by the protection, preservation and/or conservation of heritage sites. Instead, the proposed project to establish a National Maritime Heritage Area is primarily about economic development through tourism, under the guise of rejuvenating a local sense of maritime "heritage."

A Risk Management Approach

The Washington State study above illustrates a "tourism" response to the threat of maritime heritage deterioration; yet, the actual impacts on heritage sites and landscapes and the *archaeological* response are, for the most part, remain vague at best. In contrast, the case presented by journalist Mapes (2009; see also Charles 2010; Stapp and Longenecker 2009) provides a detailed account of the Tse-whit-zen village archaeological project and the all-too-real impacts resulting from development and CRM.

Despite an apparent regard by the City of Port Angeles for the concerns of the Lower Elwha Klallam, as detailed in their 1995 *Shoreline Master Plan Regulations*, in 2002 the City sold to the Washington State Department of Transportation (WSDOT) a 22.5 acre (9.1 hectare) waterfront parcel. The site was to be used as the location of a 200,000 cubic foot (5,663 cubic metre) dry or 'graving' dock to facilitate the replacement of the Hood Canal floating bridge, a project expected to total \$30 million. Construction and use of the graving dock, projected to cost around \$19 million, was a massive and unexpected infusion of wealth (and power) into the relatively small community of Port Angeles. "*This would prove to be a mistake*, as over a 24 month period, WSDOT would disrupt 276 full burials and 500 partial burials of Lower Elwha Kallam ancestors. The costs for recovering the burials and the millions of artifacts were staggering" (Stapp and Longenecker 2009:41, emphasis added). By 2008, four years *after* the Port Angeles project had been abandoned by the State, the estimates for the bridge and graving dock had ballooned to \$291 million and \$85 million, respectively.

When the State of Washington "broke ground" for their bridge project in August 2003, inadvertently unearthing Tse-whit-zen, they "actually broke ground for a different sort of bridge altogether," one leading to a "sense of history" (2009:xi). Not unexpectedly, project 'abandonment' did not bring closure, for "breaking ground at Tse-whit-zen uncovered not only the past of this place but its present" (2009:215):

The true history under every footfall, along every shoreline, is often silenced by collective amnesia. But here, on a twenty-two-acre waterfront property, the ground spoke: of the Indian village here, and of a river that once sustained an entire ecosystem and way of life. Of uncounted Indian burials, ancestors of the Klallam people. Of the sawmill built right over their village and cemetery, transforming the look, but not the truth, of this ground (2009:xi).

For Mapes, "the buried past came alive" on the Port Angeles waterfront (2009:13); but it is not the burials but rather "the invisibility of the Lower Elwha Klallam Tribe, here for more than 10,000 years, that is the real surprise" (2009:10). In this sense, "Port Angeles still seems perplexed by the Indians who refused to die off. Local histories of the town usually give scant mention to the area's first residents. They are often consigned to a misty realm, usually with a combination of romanticism and insult" (2009:56). Mapes thus uses archaeology to confront head-on deeply rooted and ongoing colonial structures, challenging along the way "the history of the forgetting," a "collective amnesia [that] is so profound that no one even asked the question," what about the Indians (2009:107)? The Tse-whit-zen story thus parallels the history of colonialism and Native-white relations on the Pacific Northwest Coast, where they, for a variety of reasons, "don't understand each other's history" (2009:120).

While Mapes presents a very personal, emotional and historical account of the social tensions and ongoing politics of Indigenous-settler relations in Washington, archaeologists Stapp and Longenecker (2009) offer a resource management approach to "avoiding archaeological disasters," such as the Tse-whit-zen situation. The authors begin by recognizing the primacy of archaeology and industry in the heritage response, and note that "[d]evelopment projects constitute one of the greatest physical threats to the archaeological heritage" (ICOMOS 1990, cited in 2009:17). Their work *Avoiding Archaeological Disasters: A Risk Management Approach* is focused on the cultural resource management process, drawing on two Washington State case studies of archaeology "gone wrong."

For Stapp and Longenecker, CRM is a "profession…relating to the preservation of cultural resources. It was developed to assist the government and the private sector to *comply* with legislation passed to protect the nation's heritage" (2009:156, emphasis added). King's definition also includes this important reference to modernity, where CRM is "the management both of cultural resources and of effects on them that may result from land and other activities *in the contemporary world*" (1998:265). CRM is also an "institution," a "field," an academic "discipline," a "profession," a "community," a "philosophy," an "identity," as well as a response or "adaptive strategy." Its central element, however, is—as it has always been—legal compliance.

For Stapp and Longenecker (2009:15,) "[t]he problems associated with the discovery and disturbance of archaeological resources are serious and can significantly affect the budget, schedule, and even the successful completion of a project." They conclude by offering ten basic principles for avoiding an archaeological disaster and a "risk management matrix" to assist project managers "in balancing the probabilities and consequences of specific risk events" (2009:92), involving three steps (79):

- 1. Perform a baseline risk assessment...[which] involves developing archaeological scenarios specific to the project
- 2. Identify the actions that need to be taken to address the problems posed by those scenarios
- 3. Revisit the risk scenarios regularly to determine if any new information has surfaced

As I have previously discussed (Hutchings 2010), I am wary of Stapp and Longenecker's assertion that if a project manager is able to incorporate these ten principles and three-step risk management approach, "the risk of turning the project into an archaeological disaster will be *virtually eliminated*" (2009:23, emphasis added). This simplifies and underestimates the dynamic, multifaceted, and inherently social and political nature of the archaeological landscape (David and Thomas 2008a, b; Nicholas 2006). It also

assumes that development does not inherently present a threat to archaeological heritage sites, contrary to the ICOMOS statement cited early in the text. Although not stated, a basic premise of the book is that cultural resource management and legislation are actually effective tools for dealing with these issues—for, if they are not, and if, instead, CRM is part of the problem, Stapp and Longenecker's entire project would be undermined.

Reflecting on the Tse-whit-zen "archaeological disaster," Lower Elwha Tribal Chairwoman Frances Charles identified two major concerns. The first, regarding policy and hindsight: "Everyone would go back and say, 'What we would we do differently?' It's good to have a checklist. But what is the next crisis going to be?" (Mapes 2009:117). Her point, emphasized by Stapp and Longenecker, is this: checklists are for the expected, not the *unexpected*. If anthropology has taught us anything, it is that history repeats itself. Yet history never reproduces itself perfectly, thus the landscape, including the archaeological landscape, is subject to change, for better or worse. In this sense, these perspectives are in line with Hicks and McAtackney (2007:15), who suggest that landscapes are complex and uneven, "where many past and present voices are silenced or erased." Charles' second point cuts closer to the quick: "I don't blame [DOT]. I don't blame federal highways. I blame the City of Port Angeles. They knew what was here 150 years ago. They knew the heritage, of what was here. They can't sit there and be unaware. They ignored it because of their greed" (Mapes 2009:117).

While the Tse-whit-zen case study may represent a "disaster," it is by no means an isolated event. Sea level rise and population growth pose significant risks to maritime cultural heritage on the Pacific Northwest Coast. While mainstream responses to sea level rise are significantly limited (Grossman and Parker 2012), archaeologists have been dealing with the problem of "development" since the 1960s, as discussed in the following chapter. The mainstream response to coastal change threats, as defined here, is what Stapp and Longenecker refer to as "the risk management approach." This is a checklist approach to heritage stewardship whereby site loss is taken for granted.

Chapter 4: British Columbia Resource Management in Historical Context

[T]he granting of permission to build factories or other structures at places where [archaeological] sites are located...should be made contingent on the provision by the interested parties of funds for the investigation of such sites before construction commences. We cannot prevent urban expansion and industrial development, but by intelligent legislation they could be turned from a bane to a boon to archaeology.

– Charles E. Borden, 1950

In order to understand contemporary global human problems, history must be placed at the centre of the conversation. To understand the maritime heritage crisis—a specific kind of global human problem—the history of resource management must become the focal point.

In Northern America, resource management is a relatively new cultural product, largely not much more than five or six decades old. Prior to the 1950s in Canada, and regarding only European settler populations, different government policies were used to address the various concerns of the day. Before 1900, there were either no formal government policies or only ones that simply charged fees for access to land and resources. In either case, before 1950, administrative provisions for resource protection were "minimal, fragmented, and framed primarily in terms of human economic and organizational requirements," while existing 'lands and forest' departments "actively abetted the pillaging of Canadian resources by issuing many and cheap licenses to companies willing to extract resources at a rapid rate" (Hessing and Howlett 1999:48-49, 49-50).

A central issue, then, is how and why these policies were produced and modified and, most importantly, who benefitted from those changes. More to the point, did these policy changes represent true shifts in values toward heritage, or were they simply old paradigms dressed up in fancy new language? Without going into too much detail, the answer to both questions is yes and no. I illustrate below how resource management has remained consistent throughout Canadian history insofar as it has always been linked to economic development and resource extraction.

In this chapter, I provide a brief overview of land use in British Columbia, from pre-occupation to present, and then place in specific historical context (*a*) resource management, (*b*) coastal resource management and (*c*) (coastal) cultural resource management. As discussed in Part Three, historical approaches are useful because they can put into context what is all-too-often "taken for granted" —in this case the *intent* of resource management. This is particularly important because resource management represents the mainstream response to coastal change. A focus on resource management also emphasizes the intrinsic link between "cultural" and "natural" heritage (for example, the idea that soil and sediment are the matrix that hold archaeological sites together).

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A Brief History of Land Use from Preoccupation to Present¹

The aim of this section is to provide an historical baseline for thinking and talking about contemporary coastal resource management. Working to bridge Indigenous and scientific knowledge systems, Ken Lertzman (2009) offers an integrated approach to resource management in British Columbia. He suggests that "strong commonalities" exist between Indigenous Traditional Resource and Environmental Management Systems (TREMS) and modern Western Science-Based Management Systems (WSBMS). When linked, these commonalities comprise different "gradients of management and anthropogenic influence" (2009:349, Figure 1). These commonalities, he suggests, are "rooted in many of the fundamental attributes of both types of systems and can be observed in many of the issues that arise regarding the relationships between the management systems, the managers themselves, and their broader social context" (2009:348). Thus, they can be "placed on a common scale or gradient of the degree of anthropogenic modification of ecosystems, which illustrates both commonalities and differences among them. This suggests that TREMS and WSBMS exhibit differences in degree, not kind. They are not different kinds of things; they are different examples of the same thing."

For Lertzman, the following key continua can be identified:

hunting and gathering $\leftarrow \longrightarrow$ industrialized forestry/agriculture "wild" ecosystems $\leftarrow \longrightarrow$ human determined ecosystems

Building on this, Lepofsky (2009:162) notes that "many of the TREM practices are subtle and/or will not leave an easily detectable footprint." In this vein, then, we can also add the following spectra:

light footprint $\leftarrow \longrightarrow$ heavy footprint

Lertzman also points out that the poles that define these spectra are extremes, thus those archetypes (e.g., "wild" ecosystems) are "unlikely." Towards this, on the Northwest Coast, as in other parts of North America, assumptions about a precontact, culture-free "wilderness" are now being "seriously challenged" by academics (Oliver 2007:5). According to Oliver, scientific study and renewed scrutiny of the ethnographic record demonstrate that "earlier perceptions were bound up in a kind of cultural myopia" and that "the so-called 'wilderness' was often under some form of 'low intensity cultivation'" (Deur 1999: 139) or other form of alteration." In short, various approaches show the

¹ I use the terms "preoccupation" and "occupied" to highlight the colonial undercurrent to Canadian society, including archaeology.

"degrees to which people managed ecosystems or otherwise altered the physical landscape in places once considered 'wilderness' by newcomers" (2007:1). For Oliver (2007:5), these contributions have "convincingly shown that what Europeans previously took for unbridled 'nature,' was not uncommonly, in part, a product of human intervention ... a result of resource procurement or landscape management practices, some of which may date to the early Holocene." Oliver concludes, however, that one "cannot separate economic (or cultural) patterns from the social qualities that are implicated within the practice of landscape modification." Indeed, for him academic interpretations too often operate at a scale "that has less bearing on the historical experience of those groups caught up in working the land" (2007:6-7).

This is an important point, because for all of the detail that is starting to be forged into arguments about Indigenous land-use practices, we actually have very little understanding of how the 'material culture' of landscape management—those ecological forms that can be defined as a product of cultural intervention—and the social practices and routines of working that became inscribed within such contexts, helped to reproduce, transform or challenge past social orders. (2007:6-7)

What can be said about preoccupation land use practices in general? Anthropologically speaking, and in broad terms, Indigenous groups reflect "small-scale societies," which have attendant small-scale impacts on their environment when compared to industrial or commercial scale activities (Bodley 2008a:76). However, as Bodley (2008a:76) describes the process generally, "[t]he massive government-financed development programs of the twentieth century largely ignored the human advantages of small-scale production systems. Development planners arrogantly dismissed domestically organized systems as 'primitive' and 'pretechnological,' assuming that people had little knowledge of their environment and no 'control' over it." As such, Indigenous land use practices were not integrated into government policy.

In occupied Canada, the function of the government has "evolved dramatically," according to Hessing and Howlett (1999:47-70). They identify four stages of Canadian natural resource and environmental policy, culminating in the contemporary era. The four stages are presented in Boxes 4.1 and 4.2.

The four-stage evolutionary sequence reflects changes in the "institutions, processes and actors in the resource and environment policy sector" and shows government policy moving from (*a*) inaction to (*b*) a concern with resource rents, then to (*c*) a concern with resource management, and finally to (*d*) the current resource and environmental management regime (1999:47-48).

Before examining the post-1950 "Management Era" in greater detail, there are two important concepts that require attention because they inform both Hessing and Howlett's four stages as well as the ideas introduced throughout the remainder of this chapter. The first concept is *world systems theory*, the analytical approach that views national societies in the context of global power differentials (Hiller 2000:46).

Basic to this theory is the idea that capitalism developed a world system of economic power which consisted of core societies, peripheral societies, and semi-peripheral societies. Core societies are highly industrialized and invest in societies weaker than themselves. Peripheral and semi-peripheral societies [may] seek to emulate core societies through the adoption of economic, technological, and political systems and processes. Despite this imitation, peripheral societies remain subordinate to the core economic powers who possess the capital needed for development. Because core societies need the markets, resources and labour of the weaker societies, they tend to assume an expansionist posture.

Hiller also reminds us that, long before world systems theory was proposed, political economist Harold Innis (1930, 1933, 1940) described Canadian society as being founded upon *staple industries* established for export to empire societies (Hiller 2000:47), this comprising the second important concept to consider. As Hillier (2000:47) discusses, "[w]hether it was the cod fisheries, trapping, lumbering, mining, or agriculture, Canadian hinterlands were developed for the exploitation by external markets. Canadian society, then, could be viewed as a series of resource-based communities centring around extractive processes and primary industries." Such staple-based communities are recognized for their social instability, in part because human wellbeing is inextricably tied to the boom and bust economy, a point made clear by Innis' protégé, Clark (1942; see also Bowles 1982; Clement 1980, 1983). Importantly, local stability is not linked to just local or regional economic factors, but to foreign ones as well. As Innis asserted, it is impossible to understand development in Canada "without viewing its rich resources as a commodity in demand by more industrialized nations" (Hiller 2000:47). The concept of externally-driven development is central to this dissertation, a point made clear in Part III.

Hiller points out that there has been renewed interest in the staples thesis because, although considered an industrial nation, "Canada possesses a truncated industrial base which is still highly dependent upon natural resources" (2000:47).

The dependence of many Canadians on resource-based employment means that the staples thesis is an important way of understanding the society and its dependence on external forces. There are two aspects about a resource-based economy that are important. First, much of the impetus, capital, and technology for resource exploitation comes from core nations (particularly the United States but also countries like Japan), and results in a high degree of foreign ownership. Second, resource-based economies are highly vulnerable to market demand. When market demand increases, boom conditions prevail; when market conditions are poor or weak, poverty, unemployment, and displacement or population result. (2000:47-48)

The significance of the staples economy to cultural resource management is discussed in the Cultural Resource Management section of this chapter.

Box 4.1 The Evolution of Canadian Resource and Environmental Policy, Part I

Hessing and Howlett's first three stages are "inaction," "revenue," and "conservation" (1999:48-49).

The Era of Government Inaction—pre-1800

In the colonies of Great Britain in the northern half of North America, it took several decades for governments to realize that they should take action on behalf of natural resources. Although some key resources of great financial or military value (such as gold or tall trees suitable for masts of wooden sailing ships) were reserved for the use of the Crown, other resources were simply used by settlers for their own purposes.

The first actions taken by governments involved their securing different forms of property rights, which ensured early mining and forestry operations that they would have a secure supply and the exclusive right to remove the resources located on the lands that they owned or leased. While land in some parts of the country (notably the Maritimes and parts of Quebec) was sold to private owners, elsewhere the overwhelming majority of land was never 'alienated' but retained as Crown land. Resources located on private land...required little regulation save surveying and title registration. ...

Once the demand for timber, mineral, or other resource 'concessions' grew, it was possible to for governments to begin to charge different kinds of rents for the use of their lands and resources, and Canadian government policy entered a new era.

The Era of Revenue Generation—1800-1880

The second period lasted for almost 100 years as governments in Canada developed a host of legislation containing a bewildering variety of charges for resource use. They included annual rents for mineral claims or timber limits, the development of extensive royalty or stumpage charges for the extraction of resources, and the development of embryonic taxation schemes levied against company profits. It was during this era the first government departments were established to deal with resources.

These 'lands and forest' departments actively abetted the pillaging of Canadian resources by issuing many and cheap licenses to companies willing to extract resources at a rapid rate. By Confederation [1867], when most lands and resources were retained by the provinces, royalties from their sale by far amounted to the largest proportion of provincial government revenues. This great revenue made control over resources a subject of much inter-governmental competition. Between 1867 and 1900, the federal government attempted to use its powers over trade, commerce, and fisheries and other means to extend its control over provincial resources.

The Conservation Era—1880-1950

By the 1880s, the negative aspects of the policies of revenue enhancement were obvious in the deforestation of much of central and eastern Canada. In addition, due to technological improvements [industrialization]...governments were increasingly called upon to moderate the rate of resource extraction and to secure supplies for industries and towns over the long term and not simply on an annual basis. These calls led to the development new administrative arrangements embodied in regulatory agencies...and long-term tenures. It was also during this era that Canada's system of national parks and forest reserves was created.

After 1900, having lost its constitutional battles with the provinces, the federal government had to be content to administer its own lands through the Department of the Interior and to attempt to influence provincial policy through reason and persuasion. ... The constitutional arrangements for the distribution of federal and provincial authority over natural resources during this period also established the framework within which policies aimed at environmental protection have since been created. As Rankin notes, when the Constitution was adopted in 1867, "the environment' was not perceived as a coherent subject for the legislators' attention ... The jurisdiction of the federal and provincial governments for the protection and enhancement of environmental quality is not explicitly addressed. ... Prior to World War II, environmental functions, including resource management...were allocated to different ministries, legislated and administered largely at the provincial level. Administrative provisions for environmental protection were minimal, fragmented, and framed primarily in terms of human economic and organizational requirements.

Box 4.2 The Evolution of Canadian Resource and Environmental Policy, Part II

Hessing and Howlett's final stage is the "management" era (1999:50-52).

The Management Era—1950-present

After the Second World War, federal reconstruction efforts targeted expansion of the national economy though resource development. Although the federal role remained limited by the constitutional division of powers and provincial resource ownership, [certain federal] governments attempted to influence the direction of provincial resource policies though the utilization of the federal spending power. ... Throughout this period, efforts were also made at the provincial level to secure long-term resource conservation. This initiative involved long-term land zoning—such as the creation of forest and mineral reserves—as well as the establishment of new boards and agencies to secure resource supplies—such as those established in Alberta to regulate oil and gas production. ...

Over this period, the consolidation and force of environmental activity, in both legislation and administrative character, accelerated dramatically. The administrative structure for Canadian environmental protection was the focus of considerable attention. These changes reflected two major developments: an overall increase in the role and powers of the state in regulatory processes, and a corresponding increase in the complexity of legislation and administrative structures to facilitate this movement. In this period, environmental protection essentially underwent a transformation from de facto self-regulation by industry to more sophisticated state supervision of the regulatory process. ... Regulatory models were adapted from many countries, especially the United States, where a flurry of postwar regulatory legislation was directed not only to pollution but also wilderness and species preservation. ...

The establishment of ministries of the environment at both federal and provincial levels represents the formal recognition of an environmental agenda that both transcends and ... appropriates the responsibilities of existing resource departments. At the federal level, Environment Canada, whose jurisdiction included both resource management and pollution prevention, was created in 1971. ...

Departments of the environment were created at the provincial level throughout the 1970s and 1980s, although they provided primarily environmental regulatory, rather than resource management, functions. The technique of the environmental impact assessment was introduced. Provincial legislation and administration was significant in its extension of regulatory provisions and its increased 'get tough' policy, with greater punitive sanctions available for enforcement. Yet the legacy of structural fragmentation in jurisdiction and regulatory standards continues to make resource and environmental administration a complex and difficult process.

While it is tempting to keep these historical moments and movements locked in the past, Hessing and Howlett's four stages should in no way be seen as replacements for each other. They usefully highlight policy shifts, but fundamentally all fall under the larger cultural paradigm of capitalist growth, development and progress. Our present "Management Era" fits within this and yet is *very modern* in its penchant for economic, science and technology-based policies and shallow in its date of origin at 1950.

Resource Management

In 2025, a little over a decade from now, there will no doubt be many reflections upon the 75 years that have passed since "1950"—arguably the most transformative year (and decade) in postwar history. In 1950, with the vision of World War Two (1939-1945) still lingering in the western consciousness (some 50 to 80 million died), U.S. President Harry S. Truman ordered the development of the hydrogen bomb, this in response to the detonation of the Soviet Union's first atomic bomb the previous year. That response helped usher in the new "arms race" and the doctrine and national security policy of Mutually Assured Destruction, or MAD. In 1950, U.S. Senator Joseph McCarthy accused the United States Department of State of being filled with 205 communists, in the process amplifying the Red Scare (1947 to 1957) and Cold War (1946-1991). In 1950, Truman ordered American military forces to aid in the defense of South Korea, a move that set the stage for the Korean War (1950-1953), and sent military advisers to support French forces operating in Vietnam, a move that led to the two decade-long Vietnam War (1955-1975). 1950 also spawned an era of unbridled post-World War Two economic expansion (1950-1973), a period commonly referred to as the "Golden Age of Capitalism."

It is the latter point that makes the year 1950 so important to understanding resource management. As I will show, modern resource management was developed in response to the worldview that was—and in many ways still is— the "1950s." It might be useful here to recall Mark Twain's *favorite* theory: "to wit, that no occurrence is sole and solitary, but is merely a repetition of a thing which has happened before, and perhaps often" (1903:64). It is in this light that consideration of the Golden Age of Capitalism, alternatively termed the "postwar economic boom" or "long boom," is so vital. The question at hand, then, is what else do the "Golden Age of Capitalism" and the "Age of Management" have in common besides a birthday?

In addition to the Korean, Cold and Vietnam Wars, the Golden Age of Capitalism was associated with the rise of civil rights movements, feminism, decolonization, postmodernism, consumerism (i.e., the "culture of consumption"), suburban sprawl, and the baby boomer generation. In many ways, the Golden Age *defines* both "America" and the "American Dream" (or "Canada" and the "Canadian Dream"). Also

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during this period, science and technology solutions were increasingly marketed to the public as solutions to the ever-growing social and environmental problems that were (and still are) a consequence of unchecked growth, development and progress.

Mid-century British Columbia offers a prime example. The 1949 provincial election was an "interesting affair characterized by a high-powered, extremely effective expression of the paranoid style of B.C. politics. Most of the coalition's pitch was for a renewed mandate to encourage investment and development in the province" (Mitchell 1983:94). In that election, William Andrew Cecil (or W.A.C.) Bennett was returned to the British Columbia Legislative Assembly. Bennett is perhaps best known for two things: the hydroelectric dam on the Peace River that bears his name and this illuminating quote: "The finest music in the land is ringing of cash registers" (Bennett, in Mitchell 1983:255).

In many ways, W.A.C. Bennett embodies what historian David Mitchell terms "The Rise of British Columbia." As Mitchell describes it (1983:256), Bennett came to power when the province "was ripe for development, a rich frontier ready for experimentation and innovation." Mitchell's "rise" maps reasonably well onto economist Rostow's "stages of economic growth" (1960). As explained by Hessing and Howlett (1999:23) in relation to Canada:

Economic takeoff occurred from the turn of the century to the First World War, with early industrialization. The drive to maturity took place in the contest of continuing industrialization and culminated in post-Second World War years with the expansion of the service sector and the age of high mass consumption.

Under Rostow's framework, Mitchell's post-1950 "rise" of British Columbia encompasses (*a*) the *drive to maturity*, characterized by the emergence of self-sustaining economic growth and (*b*) the *age of high mass consumption*, that is, the "culmination of the drive to maturity" (1999:23). Under this formulation, the *takeoff* stage, characterized by intensive growth and a "new sociopolitical framework promoting change," was already well established. After 1950, however, it became an institutionalized, bureaucratized and self-propagating ideology (see Chapter 8).

After 1950, development increasingly became the dominant paradigm for government problem solving. This is perhaps best highlighted in the worldview of one of Premier Bill Bennett's (the son of W.A.C. Bennett) appointments, Bill Vander Zalm, then a newly elected minister of human resources. According to Persky (1989:61),

Literally within minutes of being sworn in, on December 22, 1975, as the new government sipped champagne at Government House, Vander Zalm made his indelible mark on provincial politics. 'If anybody is able to work, but refuses to pick up a shovel,' said the new welfare minister, setting the tone for the freshly-minted government, 'we will find ways of dealing with them.' The shovel would quickly become Vander Zalm's personal emblem ... and the minister signed his personal notes, 'Happy Shoveling.'

Given this credo of growth, development and progress, and recognizing British Columbia's position as a staple economy, it is perhaps not surprising that Vander Zalm would go on to become Premier himself in 1986.

During the 1950s, concludes Mitchell (1983:256-257), the Western industrial world, especially British Columbia, "embarked upon a period of economic expansion and material prosperity that, in retrospect, we realize was exceptional. That decade in particular has become perceived as a time of social, political and economic innocence which later generations both long for and deride." Hessing and Howlett (1999:232) summarize the troubled history of resource and environmental policy as follows:

Over a long period, Canadian policy can be understood to have shifted from a system of laissezfaire resource exploitation to a system in which governments are heavily involved in a complex regime of resource management and environmental protection. The shift encompasses several features. Canada's history as a staples economy has encouraged resource extraction, traditionally driven by private interests. The growth of government's role in resource extraction parallels the general expansion of the Keynesian welfare state, increased public knowledge about the potential adverse effects of resource degradation, and increased competition and conflict over access to resources.

It is in this light that resource management developed in British Columbia, supported in large part by the passage of environmental protection legislation that in many ways define the "environmental movement" of the late 1960s to early 1980s.

An outstanding dilemma here is whether the resource and environmental policy shift, from its "early support of environmental extraction" toward a more "environmentally friendly" orientation (Hessing and Howlett 1999 232), has fundamentally changed resource management's prime directive that is "resource allocation" (Mitchell and Sewell 1981:1). In short, the endeavour has not changed from determining who gets to do what with the landscape. This is important because environmental concerns under the latter view become merely sidebars to the primary task that is facilitating resource development.

Based on knowledge accumulated during the 1960s and 1970s, researchers Mitchell and Sewell (1981:2-19) identified nine key barriers to "effective" resource management in Canada. Those are:

- 1. Incomplete information: too little data about resources
- 2. Divided and fragmented responsibility: ambiguities and inconsistencies in jurisdiction over resources
- 3. Poorly integrated institutional arrangements: as a consequence of point two, realizing *integrated* management of resources is difficult
- 4. Trade-offs and compromises: resources may be traded-off to obtain other things, or used as mechanisms to achieve gains in other areas
- 5. Diffused and changing public interests: the resource management policy field experiences varied and changing public interest
- 6. Educational structures: organizational structures at universities which are based on disciplines provide little opportunity for students to be exposed to the necessary cross-section of concepts

- 7. External events and decision: resource management is influenced by events outside the country, i.e., globalization
- 8. Lack of control: foreign investment reduces domestic control over resources, i.e., economic globalization
- 9. Political commitment: political leaders are often seen as having low commitment to environmental issues

While now over thirty years old, this list of challenges in resource management has only grown longer (see Chapter 9). At the end of the next section, which focuses on coastal resource management, I examine two key contemporary debates that are co-management and integrated management, which have been proposed as solutions to some of the above problems.

Coastal Resource Management

By the 1970s, North American coastal observers had become keenly aware of the impacts of industrialization and development on coastal landscapes, including those working in western Canada (Harrison and Kwamena 1981; Johnston 1977). In 1981, and focusing on the specific issue of *coastal* management in British Columbia, Harrison and Kwamema observed that "[b]eing concerned is not sufficient. What is needed is a reasonable attempt at solving some of the problems which arise in coastal areas in more than *ad hoc* fashion, and at defining objectives for the type of coastal environment which society is willing to accept" (1981:84-85). Unfortunately,

there is little agreement as to what these objectives are, how they should be enunciated, and who should promote their realization. The very field of coastal and shoreline management in Canada, as in most countries, is typified by confusion – over definitions of what constitutes the shoreline and the coastal zone, over conflicting requirements between different resource users, over government agency responsibilities, and even as to how to approach the possibility of "managing" a resource area which is difficult, if not impossible to define.

Harrison and Kwamema (1981:92) posited that "there does seem to be a consensus emerging. The approach to institutional arrangements in the Canadian situation should (*a*) focus on coordinating existing agencies and programs and (*b*) relate to specific 'areas' and their groups of problems rather than dealing with extensive coastal/estuarine areas." This is especially important given the problem that decision-making or political boundaries do not usually coincide with ecological units (1981:91-92). They concluded that old problems of coastal zone development, including urbanization, industrialization and recreation issues, "are increasing in importance."

In 1983, University of Victoria geographer Barry Sadler assembled and edited the volume "Coastal Zone Management in British Columbia" (Sadler 1983a). He set the tone in his introductory remarks with the following observations (1983b:1) about the Strait of Georgia, "the urban and industrial heartland of the province." According to Sadler,

Much of the regional coastline has been modified in character and configuration by urbanization. [...] Landfill and dredging activities, for example, have been required to construct and maintain port, commercial and recreational boating facilities. These activities collectively have caused the permanent loss and temporary impairment of a great deal of productive habitat. Marine ecosystems are undergoing subtle and, in certain cases, drastic alterations though the use of coastal waters as a flushed sink for waste disposal. Uses which are wholly or partly dependent on the maintenance of natural conditions, notably mariculture and fishing, have been correspondingly affected.

Such problems and conflicts "transcend jurisdictional boundaries," Sadler observed—this *despite* the fact that in British Columbia most of the coastal zone is under crown ownership (mostly provincial) and that "private title becomes important only on the landward margins" (1983b:1). From this vantage, the late twentieth century coast was, therefore, a complex place, politically, economically, and managerially. For Sadler, the complexity of use of the coast "is both the product and cause of fragmentation in public administration of resources and environment" (1983b:1).

Specter (1983), writing in the same volume, illuminates these complexities and multiplicities further in his description of then-current practices in environmental impact assessment (EIA), the latter serving as "the main tool for integration of coastal development and protection concerns in decision-making" (Sadler 1983b:2). Specter's analysis hinges on the notion of "resource assessment" of coastal systems as an "aid to planning for their use, disposition and conservation, and in order to evaluate the impacts of specific proposals on the integrity and well being of coastal systems, including reference to the social and economic context" (1983:67). However, Dorcey (1983:73), in the same volume, begins by noting that "[f]rom observation and study it is clear that coastal zone management is a bargaining process."

Before moving forward, it is appropriate here to quickly look *back*. In his overview of the historical development of coastal zone management, French (2005) notes that during the nineteenth century in particular, "the tendency to view all natural systems as: (1) "resources" to be exploited for the benefit of humans; and (2) something over which humans should have total control; laid the foundations for many of our contemporary coastal management problems" (2005:313-314).

The words and policies of W.A.C. Bennett exemplify the continuation of said tendencies into the twentieth century. Following his reelection in 1953, Bennett had this to say in his first post-election, province-wide speech:

We in British Columbia ... share the undoubted belief in the tremendous future of our province. Here in British Columbia are to be seen the wealth of mineral, forest, oil and natural gas and potential hydro-electric resources which constitute perhaps the last economic frontier of North America. ... To the virtually limitless resources of British Columbia there must also be added as a matter of deliberate policy the additional resources of population and of capital if this province is to develop as it should. (Bennett in Mitchell 1983:205)

Given Bennett's closing observation concerning policy, we must add to French's previous statement this: these very same tendencies have also "laid the foundations for many of our contemporary coastal resource management strategies."

(Integrated) Coastal Zone Management

Since the early 1980s, when Sadler and colleagues were working, use of and reliance upon the coastal zone management framework have grown tremendously. Worldwide, it is a commonly used process for coastal management today. Coastal zone management (CZM or ICZM) refers broadly to an "integrated process which manages all areas of coastal activity which occur along a stretch of coastline, in an holistic manner, so that minimal impacts occur which may be detrimental to the coast itself" (French 2005:313). CZM is a tool by which "the multivariate uses of coasts, such as leisure, residential, industrial, conservation, protection, etc., can be integrated into a management scheme so as not to conflict. The outcome of CZM should be a management plan which identifies coastal problems and *outlines solutions* which should be appropriate to both the resource value and the natural process "value" for each coastal issue" (French 2005:313).

During the 1970s, observes European geographer French (2005:313), there existed "a general worldwide increase in environmental awareness, both in official sectors, such as government and planning, but also within the general public." However, despite this concern, the demand for coastal tourism resulted in "the continued development of the world's coastlines, which thus allowed the continuation of many of the impacts associated with erosion, sediment starvation, and user conflict" (2005:313).

Recognizing the disastrous outcomes of "competition and environmental degradation" concerning carrying capacity, French (2005:314) identifies four key issues that need to be addressed within coastal zone management:

- 1. Coasts are used for recreation by many different user groups for many different things, producing conflicts of interest and locally intense usage.
- 2. Coasts are used by developers for many forms of structure, from urban to industrial. This may attract more people to the area (increased visitor pressure), or put people off coming (declining tourism); may cause pollution; or may interfere with natural processes.
- 3. Coasts experience a series of natural processes which can be modified by, or impinge on, human activity. This relationship of people to process is, therefore, critical because it will govern how the coastal environment undergoes change. This change can be unpredictable in both its rates and style.

4. Activities inland (catchments) and out to sea can also affect the coast. For example, dam building may stop sediment reaching the coast, or oil spillages may cause coastal pollution.

I will return to coastal zone management at the end of this chapter, examining some of the critiques laid against it, notably those of French (2005) and Billé (2008). This includes critique of the very notion "management" (Lertzman 2009). Before this, however, it is necessary to consider CZM's cousins that are co-management and adaptive co-management.

(Adaptive) Co-Management

The language of "co-management" emerged in part from coastal resource management, specifically fisheries management (Pinkerton 1992, 1994; Pinkerton and Weinstein 1995), developing only a few years after the work of Sadler and colleagues. Since the1980s, co-management has permeated deeply into natural resource management, conservation and development discourse (Armitage et al. 2007a:xi; see also Berkes 2007). Emphasizing such alluring and democratic concepts as "sharing," "partnership," "collaboration," "co-operation," and "responsibility," it is no wonder that it has been thoroughly embraced by numerous branches of coastal resource management, including fisheries (Ayles, Bell, and Hoyt 2007; Charles 2007; McConney, Mahon, and Pomeroy 2007), coastal watersheds (e.g., Olsson 2007), marine protected areas (e.g., McConney et al. 2007) and Indigenous coastal land planning in Canada (e.g., Ayles et al. 2007; Landry et al. 2009; McDonald, Arragutainaq, and Novalinga 2006).

Co-Management

There exists no single definition of co-management, rather there exists "a continuum of possible co-management arrangements in the degree of power sharing" (Armitage et al. 2007b:3). Armitage et al. (2007b:3) identify three benefits of co-management: (*a*) community-based economic and social development, (*b*) decentralized resource management decisions, and (*c*) reduced conflict through participatory democracy. Additionally, co-management may enhance the functions of (i) data gathering, (ii) logistical decisions such as who can harvest and when, (iii) allocation decisions, (iv) protection of resources from environmental damage, (v) enforcement of regulations, (vi) enhancement of long-term planning, and (vii) more inclusive decision making.

Trends towards collaborative management since the 1980s are both an outcome of "the limitations of a 'command-and-control' bureaucracy" and "the privileging of formal science" (Armitage et al. 2007b:2):

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Collaborative or cooperative management are generic terms "conveying the sharing of rights and responsibilities by the government and civil society" (Plummer and FitzGibbon 2004:63). There are multiple strands of collaborative management, including integrated conservation and development, participatory natural resource management, participatory appraisal and participatory action research, decentralization and devolution, and community-based natural resource management and co-management (Berkes 2002).

Co-management in particular has evolved "as a more formalized management strategy with which to link local communities and governments" (2007b:2, emphasis added); indeed, some such arrangements are even codified in law (e.g., in various indigenous land and resource rights cases in the United States, Canada, Australia, and New Zealand).

Adaptive Management

Adaptive management is described as a "learning approach focusing on improving policy and practice in the face of uncertainty" and as a "tool to frame the philosophical, methodological, and practical challenges associated with the management of natural resources. ... Management strategies and policies are considered experiments..., and learning is encouraged through both structured experimentation and management flexibility" (Armitage et al. 2007b:4). According to Armitage et al. (2007b:1),

Centralized, top-down resource management is ill-suited to user participation, and it is often blamed for the increased vulnerability of resource dependent communities worldwide (Zerner 2000; Colfer 2005). In response, co-management arrangements have emerged to secure an expanded role for stakeholder and community participation in decision making. Recognition that ecological systems are dynamic and non-linear (Levin 1999) has similarly highlighted the inadequacy of yield-oriented 'command-and-control' resource management. Centralized bureaucracies are limited in their ability to respond to changing conditions, an anachronism in a world increasingly characterized by rapid transformations (Gunderson and Holling 2002; Berkes et al. 2003).

As such, Armitage et al. (2007b:4) suggest that "[p]olicy decisions regarding natural resources are increasingly less a matter of appropriate expertise or the domain of specialist institutions, and more a question of negotiation and agreement among stakeholders."

Just as the language of co-management was so warmly embraced by late twentieth and early twenty-first century resource specialists, *adaptive* co-management has been received with great fanfare, at least as indicated by its popularity today. Rooted in the theoretical paradigm of management, adaptive co-management is undeniably modern. Consider the following terms that in part make up adaptive co-management discourse: adaptive capacity, complex systems thinking, innovation, resilience, robust management, social learning, social-ecological systems, sustainability, transformability, and visioning.

These concepts reflect both the ideology of progress and a response to it, comprising a fundamental and seemingly insurmountable contradiction for resource management. While comanagement tries to overcome the fragmentation brought about by modernity and capitalism, primacy given to science and technology as "solutions" is ultimately paradoxical, given that these same processes/tools initiated the "fragmentation" in the first place. I would suggest even the term fragmentation itself is flawed, given its complete lack of any human emotion. In this way, it is akin to the term "stakeholder." Both work to neutralize and dehumanize what is always a human experience. Despite this, these make up the language that is resource management.

Cultural Resource Management

Back in the 1970s, archaeologists in the United States faced a challenge. New laws had been enacted promoting the protection of 'natural resources' on the one hand and 'historic properties' on the other. Government agencies were being required to conduct environmental impact assessments of their actions, seeking ways to protect the environment. How could archaeologists be sure that the places they were concerned about—archaeological sites—were protected by these legal requirements?

- Thomas F. King, 2008

According to Eldon Yellowhorn (pers. comm. 2014), the notion of "cultural resource" emerged in the 1950s (see Meighan and Eberhart 1953) and developed in the 1960s (see Wendorf 1963), at which point the concept became linked with free enterprise.² According to Yellowhorn, "The resource paradigm was a good fit too for public government who saw no difference between natural and cultural resources. In Canada, the constitutional division of powers meant that all archaeological resources are the property of the province in which they are found."

Indeed, Thomas King (1998:6-7) posits the term cultural resource management was invented by archaeologists "to equate what they did with natural resource management." While one might expect the term to mean the management of cultural resources, it is commonly used, primarily by archaeologists, in a much narrower sense to refer to "managing historic places of archeological, architectural, and historical interest and to considering such places in compliance with environmental and historic preservation laws" (1998:7).

² Elsewhere, I have linked British Columbia archaeology to capitalism, including its cycles of "boom and bust" (Hutchings and La Salle 2014a; La Salle and Hutchings 2012). A recent example of the latter can be found in Elaine O'Connor's (2014) article "How B.C.'s resource and development boom allows a new generation of archaeologists to dig for a living."

Canada has no federal overarching heritage legislation. In British Columbia, cultural resources are defined in relation to the *Heritage Conservation Act (HCA)*. As articulated by the province, the *Act* is designed to "encourage and facilitate the protection of conservation of heritage property in British Columbia" (British Columbia 1996). Archaeological sites are managed by the B.C. Archaeology Branch, currently run out of the Ministry of Forests, Lands and Natural Resource Operations. In this sense, cultural heritage is viewed as another resource alongside, for example, fish, forests and minerals.

Under the Act, the Archaeology Branch is responsible for "maintaining and distributing archaeological information" and permitting development "within protected sites" (BC Archaeology Branch n.d.). The role of the Archaeology Branch is described in their website as "not to prohibit or impede land use and development, but rather to assist the development industry, the province, regional authorities, and municipalities in making decisions leading to rational land use and development" (B.C. Archaeology Branch 2012).³ Archaeological work throughout the province is authorized through a permitting system and a provincial heritage registry is maintained of all known archaeological sites, heritage sites and objects, heritage wrecks and other types of sites. The CRM process in British Columbia has been described (ASBC Executive 2011:1) as follows:

Those seeking to develop an area that either contains a recorded archaeological site or has not been assessed for archaeological remains are responsible for the logistical and financial planning of this process. Depending on the scale of the proposed development, archaeological sites are subject to varying levels of assessments known as Archaeological Overview, Impact and Alteration. In this system, landowners hire qualified archaeologists to determine the levels of investigation required and undertake this work under provincially issued permits.

This is commonly known as a "user-pay model," where the project proponent is responsible for paying for the archaeological permitting and mitigation process. Archaeological work conducted for pay, usually in the context of development, is referred to as "contract archaeology" (Stapp and Longenecker 2009) or "archaeology-for-profit" (Muckle 2013). In British Columbia, therefore, CRM is archaeology designed to facilitate the public's compliance with the *Heritage Conservation Act* and Archaeology Branch policies. In this light, CRM may be construed of as "compliance archaeology." As discussed in Chapter 8, the process by which archaeologists facilitate the state is termed Authorized Heritage Discourse, or AHD.

The British Columbia Archaeology Branch (2012) summarizes the site evaluation process as follows: "When the benefits of a project outweigh the benefits of archaeological preservation, the branch will work with the proponent to determine how the project can go ahead with minimal archaeological resource loss. Where the loss of significant archaeological values cannot be avoided, the branch ensures that appropriate compensatory measures are implemented."

³ Importantly, the Union of B.C. Indian Chiefs (UBCIC 2013:13) note that the values espoused by the Archaeology Branch "and the desire to 'assist the development industry,' are in stark contrast to how First Nations value heritage sites.

The concept of "significance" is thus critical. The Archaeological Impact Assessment Guidelines Appendix D Checklist of Criteria for Pre-Contact Site Evaluation identifies four features to evaluate significance: scientific, public, ethnic and economic. Appendix E Checklist of Criteria for Post-Contact Site adds to these the criteria of historic significance and integrity and condition. The two sets of evaluative criteria somewhat reflect the date of 1846 established by the *Heritage Conservation Act* in relation to what sites and objects are automatically protected by law (Section 13.1.d). However, it is unclear to what extent each category of significance is weighted—for example, would a site with high "ethnic" significance but low "scientific," "public" and "economic" significance warrant increased conservation efforts? This will be returned to in Part Three.

Archaeologists doing CRM in British Columbia must have certain qualifications in order to be considered eligible to hold a permit from the Archaeology Branch. Those include academic training and field experience, in particular. While not necessary to be a permit-holder, many CRM archaeologists have chosen to become members of the British Columbia Association of Practicing Archaeologists (BCAPA 2012), an association operating since 1995 whose members subscribe to the following principles:

- 1. The archaeological record is the physical remains of past human activity, and as such, members of the association hold it is of importance to all people;
- 2. Members of the association have a responsibility to work for the preservation and protection of the archaeological record.

The Bylaws of the BCAPA include a formalized Code of Ethics, a Code of Conduct and a Grievance Procedure, the latter to address complaints made against their members. The Archaeology Branch estimates that about 60% of archaeologists able to hold permits are also BCAPA members. I have commented elsewhere on my concerns about the BCAPA's efforts to "increase professionalization" of their members and the CRM practice (Hutchings 2011). I return to the related concepts of professionalization and specialization in the following chapters.

Another archaeology organization in the province is the Archaeological Society of British Columbia (ASBC 2012), established in 1966. The aims of the society are

- 1. To encourage the identification and protection of archaeological sites and material in B.C.
- 2. To provide lectures and publications for the spread of knowledge about archaeology.

While the BCAPA is specifically for practicing archaeologists, the ASBC's membership has traditionally been very broad, aimed at the interested public. Their publication, *The Midden*, has provided the venue for most local reporting of archaeology in the province, including summaries of recent work and current issues. Increasingly, it, too, has become "professionalized" insofar as it is dominated by a students and practicing archaeologists, raising concerns about its "public" mandate.

History of Research

In contrast to academic publications about the ancient past, comparatively little has been written about the cultural resource management process in British Columbia (e.g., Angelbeck 2008, 2010; Apland 1990; Bell and Napoleon 2008; Bernick 1990; Bryce 2008; Budhwa 2005; De Paoli 1999; Dent 2012; Fladmark 1981, 1993; Hammond 2009; A. King 2008; King, Lepofsky, and Pokotylo 2011; Klassen 2008; Klassen, Budwha, and Reimer 2009; McLay 2011; McLay, Bannister, Joe, Thom, and Nicholas 2008; Merchant 2010; Nicholas 2006; Ormerod 2004; Simonsen 1978; 1979a; 1979b; Spurling 1986, 1988; Welch et al. 2011; West 1995). The vast majority of this body of work focuses on First Nations' heritage (see however Project Pride Task Force 1987), with little focus on post-contact immigrant histories. In addition, although archaeology's colonialist history has been noted (Nicholas and Hollowell 2007), CRM's capitalist orientation has received little critical attention, at least since the 1980s; i.e., since Spurling.

In an attempt to better understand the history of commercial archaeology in British Columbia, La Salle and I recently undertook a basic survey of the practice (La Salle and Hutchings 2012). Specifically, we sought to bridge recent political economy studies of cultural resource management in other parts of Canada (Birch 2007; Ferris 2002; Hamilakis and Zorzin 2014; Zorzin 2010, 2011) with an older political economy analysis of western Canadian cultural resource management (Spurling 1986).

In 1986, Brian Spurling completed an exhaustive study of Western Canadian archaeological resource management. In the process he found evidence of "serious problems" (1986:464). Viewing CRM as a *policy science*, insofar as it represents "the legislated conservation and preservation activities of the archaeological profession" (1986:11, 19), Spurling had this to say about the rise of commercial archaeology: "The transformation of archaeology into a business is a very recent phenomenon, *one which occurred entirely within the last decade as a response to the passage of provincial heritage legislation*" (1986:291, emphasis added). Initially viewed with "trepidation and suspicion" by the archaeological establishment, commercial consulting "proved to be the only areas of disciplinary expansion through the later 1970s and early 1980s. As the ranks of universities, museums and government agencies were filled, students graduating with Masters and PhDs perforce gravitated towards private sector employment" (1986:292).

Spurling, from his vantage in 1986, identified four "gaps and problem" for archaeology: (1) "academic archaeologists can still argue that [CRM] studies make few theoretical or methodological contributions to the discipline"; (2) the interested public, including avocational archaeologists, are "mostly excluded from meaningful involvement"; (3) the wider public remains basically unaware of the "results of and need for archaeological activity"; and (4) archaeological heritage "is still being lost at

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uncontrolled and unknown rates" (1986:464). Additionally, and perhaps most significant, archaeology "cannot be defended" against allegations of resourcism (1986:500). More recently, Joshua Dent (2012) updated and refined Spurling's narrative with special attention paid to bureaucracy and what he terms the "archaeobureaucrat" (see Chapter 8).

Between 2007 and 2008, Zorzin (2010:1) completed a quantitative study based in Quebec to determine who CRM archaeologists were, what they do and what organizations they were part of. He considered this "a crucial step when defining the future directions of archaeology and archaeologists in Quebec"; however, his results suggested that the profession is in "a worrisome state" (2010:1). For Zorzin (2011:119), the political economy of Western archaeology has "ignited a series of new discussions and debates which call into question archaeology's capitalist influences and its materialisation as a profession."

Building on both of these works, we (La Salle and Hutchings 2012) sought to characterize contemporary commercial archaeology in British Columbia. This included an historical focus on the permitting process in this province, and specifically how many permits have been issued annually since permits were first issued in 1960. The trend in annual permits issued has been one of significant growth which, we postulate, is directly connected to larger economic trends. Like Spurling and Zorzin, we conclude that archaeology is a capitalist endeavour and dictated by government policy. As such, political economy and policy science approaches (e.g., Hessing and Howlett 1999) are useful tools for understanding cultural resource management.

It was identified in the 2012 study that most archaeologists work for multi- or trans-national consulting corporations, which are hired by development proponents to complete necessary impact assessments and prepare reports for the government (Hutchings and La Salle 2012; see King 2009 and Dent 2012). Analysis showed that 97% of archaeology undertaken in British Columbia in the year 2011 was in the form of compliance archaeology (Figure 4.1). This is a critical point for it suggests that mainstream archaeology *is* cultural resource management, despite intellectual efforts to distance academic (research) archaeology from CRM (Dunnell 1984). Despite such assertions, the two remain fully entangled (Zorzin 2011).

Welch and colleagues (2011:2-3) recently pointed out that nobody is accepting responsibility for tracking and communicating contraventions of heritage conservation laws. Toward this, they have created a database of "unauthorized heritage site alterations," which is a work in progress that seeks to "improve the effectiveness" of the *Heritage Conservation Act*.

Another area of concern is related to Section 12 site alternation permits, which are granted directly to property owners or developers. McLay (2011:3) suggests that this form of permit "allows British Columbia to suspend the legal protection of archaeological sites to permit development." In his

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view (2011:5), "Such permitted site destruction is simply land development in the 'guide of archaeology'—premeditated salvage with no pretense for any scientific method, knowledge production, or respect for sustainable heritage site conservation principles." As such, McLay suggests that the Archaeology Branch is "facilitating 'demolition permits' rather than regulating any modern heritage conservation practice" (2011:5). For him, "no archaeological site is safe from the wrecking ball in British Columbia" (2011:7).



Figure 4.1 Virtually all archaeology is compliance archaeology, at least as measured in 2011 in British Columbia, Canada. After: La Salle and Hutchings, 2012:10.

McLay also brings attention to Cheryl Bryce (2008), who, he writes, "pessimistically" suggests that the provincial law should be more aptly called "*The Heritage Destruction (or Development) Act*" (2011:5). While I might agree that her views are "pessimistic" insofar as they might presume a "direct involvement with the anxieties provoked by high consequence dangers" and might represent a "mode of dampening the emotional impact of anxieties through either a humorous or a world-weary response to them," one must not oversimplify her perspective by presuming it to be "doom laden" (Giddens 1990:136). A more accurate descriptor, I think, might be "radical engagement," which holds that "we can

and should mobilize" to reduce impacts or to transcend them; following Giddens (1990:137), I suggest she indeed offers an "optimistic outlook."

Who has the right, Bryce asks, to make decisions that "horrifically impact" Indigenous people's "cultural connections to the land and environmental health?" (2008:9). Further, "[t]he degrading of the environment and the resulting impacts from development can and do alter significant cultural and archaeological sites. … How can one justify [placing] economic rights over cultural rights? Overall, what are we really doing to protect rights, land and resources?" Indeed, CRM is structurally limited to value a scientific approach and tangible/empirical "sites" and "evidence" above personal, emotional, spiritual perspectives and intangible but meaningful landscapes. As the Union of BC Indian Chiefs asserts (UBCIC 2013:15-16),

the provincial Archaeology Branch sees heritage as archaeological; therefore a site that does not have a physical or archaeological expression, or human alteration of the landscape, is usually not recognized as a provincial heritage site. This has made it virtually impossible for First Nations to rely on this legislation to help protect our spiritual, sacred and traditional use sites—all of which frequently have little physical or archaeological evidence.

As a process governed by state policy and practiced within a commercial setting—both predicated on capitalist ideologies of growth, development and progress—cultural resource management therefore has built into it some fundamental limitations (Moens and Zorzin 2014). Critically, there is little quantification about regional site loss, either in part or in total. Without this knowledge, there is no baseline to evaluate whether or not CRM has been a "success" or a "failure" at conserving archaeological sites as per the *HCA*.

The Mainstream Response

Virtually all coastal activities are managed and regulated to some extent by public authorities, through central government, through its agencies, or through its agencies. - T. Champion, A. Firth and D. O'Regan, 1997:179

Richard Davis (2005:535) observes that human impacts along the coast are "numerous, widespread in kind, and typically detrimental to the environments where they take place. In general, the impacts on these environments are the result of development pressures for more space to be occupied by residential or commercial properties. Because the land along the coast is so expensive, the pressures are great; both economical and political. The consequences have been disastrous in nature." Compounding the problem is that global warming "implies a world-wide sea level rise, which will cause coastal submergence, inundating lowlands and enlarging estuaries and lagoons. It will also initiate or accelerate erosion of beaches, cliffs, coastal dunes, marshes and swamps and deltas. Coastal changes will be much

affected by human impacts, past, present and future" (Bird 2008:385). The convergence of population growth and sea level rise creates unprecedented problems for coastal communities.

There exist stark contrasts between responses to this crisis. For example, while some see the coastal erosion problem in economic terms, to be solved by natural resource managers applying "economic dynamic optimization models," as in Landry's (2011) treatment of beach replenishment, others see climate change-related issues as rooted in the "culture-nature relationship" (e.g., Antonio 2009; Zimmerman 2009). Antonio (2009:29), for example, calls for "re-embedding the social in nature" — "We need to frame theories and practices that stress culture's embeddedness in nature and that, consequently, manifest actively our responsibilities to distant peoples, future generations, and other life forms with which we share the planet. Our futures are entwined" (2009:33-4).

So, how does one go about defining a "mainstream" response to sea level rise and coastal change impacts? In effect, the mainstream response is the government's response, and the government's response is "mitigation"—that is, resource management (King 2009). The goal involves balancing stakeholder interests, however the process and outcome inevitably becomes weighted toward commercial interests, not preservation interests. Mitigation enables commercial interests to proceed, with questionable outcomes for conservation of either natural or cultural heritage.

As an example, in 1999 the European Commission released its influential "Demonstration Programme on Integrated Coastal Zone Management" (ICZM) (European Commission 1999). That report documented and assessed the hypothesis that the continued degradation and mismanagement of many of Europe's coastal areas can be traced to problems related to the following three factors: (*a*) insufficient or inappropriate information, both about the state of the coastal zones and also about the impact of human activities (economic and non-economic); (*b*) insufficient coordination between different levels and sectors of administration, and their policies; and (*c*) insufficient participation and consultation of the relevant stakeholders (1999:5).

The authors of the European Commission study emphasize "the principle that economic wellbeing, social justice and environmental objectives cannot be decoupled," and in fact are "inherently interdependent over the long run" (1999:15). For them, sustainable management of coastal areas "strives for the maximum long-term societal good, including environmental, economic, social and cultural considerations. It strives to promote social equity through the fairer distribution of opportunities both within the present population, and between present and future generations" (1999:15). Towards this,

ICZM is a dynamic, continuous and iterative process designed to promote sustainable management of coastal zones. ICZM seeks, over the long-term, to balance the benefits from economic development and human uses of the Coastal Zone, the benefits from protecting, preserving, and restoring Coastal Zones, the benefits from minimizing loss of human life and property, and the benefits from public access to and enjoyment of the Coastal Zone, all within the limits set by natural dynamics and carrying capacity (1999:16).

Coastal zones, they remind us, serve functions related to job creation, economic growth and quality of life, such as: residences; mobility and commerce; defense against the destructive forces of the sea; energy; tourism, leisure, recreation and aesthetics; diversification of fishery activities; the breakdown and buffering of pollutants; agricultural production in coastal plains; and as repositories of cultural heritage, both in living communities and at archaeological sites (1999:7).

Problematically, growing populations are leading to increased conflict between competing uses in the coastal zone, "with low impact uses frequently being replaced by intensive uses that are profitable in the short-term, but which undermine the long-term potential of the coast, by reducing its 'resilience'" (European Commission 1999:7). Toward this, three relevant problems in the coastal zone are identified:

- Unplanned and uncontrolled development, which can destroy landscapes, reducing the quality of life for residents (this type of development also destroys the resource base that supports economic activity, attract tourists, and supports fisheries);
- Coastal erosion, which damages natural habitats and human settlements, destroys economic activities and threatens human life; and
- Decline of traditional, environmentally-compatible sectors, which can lead to unemployment, massive emigration, and social instability. (1999:8; see also Ommer et al. 2007)

While similar issues may arise in other parts of the landscape, "they are particularly acute in the coastal zones because of the complexity of the interactions between the aquatic systems and terrestrial systems, between coastal zones and their hinterlands [...] and between islands and continental areas" (European Commission 1999:8). The "urgency for action" (1999:8-9) in the coastal zone is also determined by: a history of mismanagement of many coastal areas; the limited resilience of the coastal zone to recover from serious mismanagement; the short time scales over which dynamics evolve in the coastal zones; the rich potential of the coastal zone, which acts as a magnet to individuals and economic activities; the many problems of pollution and sediment management that are generated upstream, or in the open seas, but have their ultimate manifestation in the coastal zone; the particular limits and challenges to land use planning and transport management that the physical boundary between the land and the sea presents; the particularly high risk of natural hazards, such as flooding from either the land or the seaward side; and the extremely large number of different activities that are vying for use of the same resources.

It is recognized that conflict between stakeholders in the coastal zone can arise from: (*a*) competing sectoral interests, each with its own agenda and professional objectives; (*b*) cultural differences and traditions; (*c*) inaccurate, withheld or disputed data; (*d*) ignorance or unconcern for other

needs; (f) structural, social or economic inequalities; (g) clashes of interest on specific issues or procedures; and (h) personalities and power struggles (European Commission 1999:13).

As the members of the recent Committee on International Capacity-Building for the Protection and Sustainable Use of Oceans and Coasts point out, developing the capacity for ocean and coastal stewardship is a challenging undertaking. It is complicated by many constraints (CICB 2008:11-12), including: the challenges of anticipating and managing unprecedented changes in coastal ecosystems; the difficulty and expense of monitoring marine ecosystems; the legacy of outdated attitudes and knowledge about ocean and coastal ecosystems; the fractured nature of ocean and coastal management; the impacts of land-based activities on coastal resources and ecosystem services; the insufficiency of means of documenting the effectiveness of governance systems; and the relative scarcity of established mechanisms for planning and decision-making in the marine realm as opposed to the terrestrial realm, in which property rights and jurisdictional boundaries are more firmly established.

Additionally, institutional systems are often complex, "with overlapping jurisdictions, conflicting responsibilities, and legacies that make stewardship difficult":

Conflicts over access and tenure, piracy, illegal and unreported extraction and polluting activities, and tendencies toward overexploitation of shared resources and open-access resources all warrant improved governance. Resolving conflicting societal goals and values is difficult, and the existence of multiple interests and values means that success or failure of stewardship is largely in the eye of the beholder. Thus, capacity-building for stewardship of oceans and coasts in part involves establishing a process for decision-making that is viewed as legitimate by a broad spectrum of stakeholders. (CICB 2008:11-12)

These are indeed serious problems, and become compounded when managers of "natural" and "cultural" resources work in isolation. Part One has established the baseline for what constitutes the maritime heritage crisis, and the mainstream resource management response. In Part Two, I explore these issues "on the ground" through a case study. In Part Three, then, I "shift" the baseline by examining the underlying and foundational principles guiding the mainstream response to coastal change in British Columbia.

PART TWO: shíshálh HERITAGE AND COASTAL CHANGE

We, the *shíshálh* Nation, openly and publicly declare that we have Aboriginal Title and Aboriginal Rights to our Territory, including the lands, waters, and resources that have been ours since time immemorial. We have been given the responsibility from the Creator to care for our Territory. Our Territory sustains our people, maintains our indigenous way of life, and is integral to our identity as *shíshálh*. We have always governed ourselves and our Territory, and have never relinquished our authority or jurisdiction over such. We assert our collective right to live as a distinct people. - *shíshálh* Nation Declaration

In Part Two, I consider the issue of coastal change in the context of *shíshálh* First Nation heritage. *shíshálh* (or Sechelt) traditional territory, thus history, corresponds to the region commonly known as "The Sunshine Coast,"¹ located about 10 nautical miles (20km) northwest of Vancouver, British Columbia. The *shíshálh* Coast case study was designed to bring clarity to the themes identified in Part One of this investigation, which were coastal change, the impacts of coastal changes on heritage, and the response to such impacts. The broader objective of the study is to see what coastal change impacts look like "in practice," with a view to assessing the effectiveness of cultural resource management.

The *shíshálh* Coast Study Area, shown in Figure 5.1 in relation to metropolitan Vancouver, was designed to capture a cross-section of landscapes and issues as they exist along a mostly uninterrupted length of *shíshálh* coastline. Extending from Sechelt in the south to Pender Harbour in the north, the study area encompasses the cultural "heart" of the *shíshálh* Nation. It is shown in relation to the larger *shíshálh* territory in Figure 5.2. To facilitate discussion and analysis, the Study Area is further divided into three Study Units, shown in Figure 5.3. The three *shíshálh* Coast Study Units are Sechelt, Halfmoon Bay, and Pender Harbour.

The northwest-trending Study Area is located 25 road kilometers northwest of the seaside Town of Gibsons, itself a 45 minute ferry trip across Howe Sound (Strait of Georgia) from the urban centre of Vancouver. The distance from Gibsons, which marks the southeastern-most point of the Sunshine Coast, to Sakinaw Lake, where the Study Area terminates in the northwest, is approximately 70 road kilometers. The Study Area thus covers approximately 45 road kilometers of coastal Highway 101, or "The Sunshine Coast Highway."

¹ As defined here, The Sunshine Coast stretches from Gibsons/Langdale in the south to Earls Cove in the north; it thus does *not* include the Powell River region (Sliammon First Nation territory) to the north. As with the more isolated Powell River region, access to the Sunshine Coast region is primarily restricted to ferries, thus it has many of the properties of an island community (Rainbird 2007), surrounded by the sea (Mack 2011).

Importantly, both coastal sprawl and climate change have been recognised as major concerns for the *shíshálh* Nation. The Study Area has been recognised as a site of "unprecedented" population growth by the Nation (SIB 2007:15):

The southern portion of our territory [is] experiencing unprecedented population growth, in part as a bedroom community for the rapidly growing urban centre of Vancouver, [in part] as a retirement destination and [in part] for recreational activity. In 2005, the population of ch'átlich (Sechelt) increased by 4.6%, almost three times the rate of growth experienced by the Province as a whole. This change has increased the demand for residential development, and settlement is now occurring in many areas of *shíshálh* Nation territory at an unprecedented rate. The *shíshálh* Nation is particularly concerned about the potential impacts on cultural sites resulting from this rapid pace of development, and about environmental impacts resulting from the conversion of natural areas to urban areas. Our territory has also become a favoured destination for outdoor recreation, with increasing use of mountain bike trails, hiking trails, and other outdoor amenities related to recreational boating and fishing.

While the Nation recognises the serious threat climate change poses, it has yet to develop a climate change program. This includes the impacts of sea level rise on the Nation's territory and people.

Another way the *shíshálh* Nation case study is unique resides in the Nation's political relationship with the Canadian government. Specifically, in 1986, the Sechelt Indian Band entered into a self-government agreement enabling the Sechelt to obtain control over their lands and resources and enact local by-laws (Etkin 1993; UBCIC 1988; Yellowhorn 1997). Although not explicitly referenced, this framework arguably could provide the Nation with control over archaeological sites and heritage landscapes, recognized by the United Nations (2008) as integral to the survival of Indigenous peoples. As I discuss in Chapter 9, heritage, both natural and cultural, is linked to human health and wellbeing. In this light, this case study provides a window into how successful this form of "self-governance" has been as it pertains to the protection of lands and cultural heritage of importance to the *shíshálh* Nation.

Chapter 5 is divided into three parts. I begin by considering the *shíshálh* Nation Strategic Land Use Plan, with specific attention given to the roles of cultural heritage and cultural landscapes. In the next section I examine in photo-essay format the problems of coastal sprawl (past and present) and sea level rise (future) as they relate to the *shíshálh* Study Area. I end with a summary of key themes and findings.



Figure 5.1 The *shíshálh* Coast Study Area (dashed oval) in relation to Vancouver and Lower Mainland (bottom right) and Gibsons (arrow). Reaching the coast requires a forty-five minute ferry crossing from Vancouver (at Horseshoe Bay) to Gibsons (at Langdale). Vancouver Island is visible at bottom left. Top is north. Source: Google Maps.



Figure 5.2 The *shíshálh* Coast Study Area in relation to larger *shíshálh* Nation territory. The Study Area, shown here in red, extends from Pender Harbour (including southern Sakinaw Lake) in the northwest to Sechelt (including Porpoise Bay) in the southeast. This section of *shíshálh* territory comprises the cultural "heart" of the Nation. *Source:* Sechelt Indian Band.



Figure 5.3 Three *shíshálh* Coast Study Units. To facilitate discussion and analysis, the *shíshálh* Coast Study Area is divided into three discrete Study Units: Sechelt, Halfmoon Bay, and Pender Harbour. Top is north. Source: Google Maps.

Chapter 5: The shishálh Strategic Land Use Plan

In 2007, the *shíshálh* Nation adopted its Strategic Land Use Plan (SLUP) (SIB 2007). The plan, titled *lil* <u>*xemit tems swiya nelh mes stutula* (roughly translated as "we are looking after our land, where we come from"), is a living document that sets out the Nation's vision for the long-term future of their territory. Developed with extensive input from its members, objectives of the Plan include:</u>

- Provide summary information about the land and resources within the territory of the *shíshálh* Nation, and a brief profile of the *shíshálh* community;
- Articulate the *shíshálh* vision for the future of their land and their people's place within their territory;
- Identify *shíshálh* goals for the management of *shíshálh* land and resources, and to establish priority actions to achieve those goals;
- Clarify priorities for the use, protection and management of areas within *shíshálh* territory;
- Highlight opportunities for economic development; and
- Explain how they envision the Plan's implementation, including opportunities for capacity building and for the *shíshálh* Nation "to assume greater responsibilities for management decisions affecting land and resources." (SIB 2007:2)

Key background information for the plan is provided in Box 5.1, including an affirmation of *shíshálh* Nation Aboriginal Rights and Title and a profile of the *shíshálh* Nation and Territory (see also SIB 2007:7-15). A more detailed history can be found in Merchant (2012), who focuses on issues of colonization and resistance for the period 1791-present. Other important historical works include Maud (1978) and Peterson (1962, 1990). Many key parts of the Land Use Plan have been reaffirmed and codified in the *shíshálh* Nation Lands and Resources Decision-Making Policy (SIB 2013).

For the *shíshálh*, the Land Use Plan represents the Nation's best efforts to summarize their core values and to describe how they would like to see terrestrial and intertidal resources "protected, managed and utilized now and into the future." Those include heritage properties, which include but are not limited to archaeological sites and cultural artifacts including: resting places of *shíshálh* ancestors and remains; sacred and spiritual places; house sites; battle areas; wood and stone fish traps; works of art; travel routes; rock shelters and cave sites; wet sites; and high altitude sites. As discussed in Chapter 6, all of these categories except for high altitude sites occur in the *shíshálh* Coast study area.

The *shíshálh* expect to "review and refine the plan over time, as [their] knowledge and understanding of [their] land and the interrelationship among all living things improves" (SIB 2007:1). A vision statement and guiding principles for *shíshálh* Nation lands and resources are included in Box 5.2. Boxes 5.1 and 5.2 are critical because they frame the remainder of this dissertation.
Development and Sprawl

Over the years, the *shíshálh* have seen their land and heritage "developed without...consent." This important concept is applied on the first page of the Land Use Plan (SIB 2007:1), included here in detail as it aptly describes the conditions surrounding *shíshálh* heritage:

Areas that have great cultural and historical importance for our people have been impacted, and access to some areas that we have used for generations has been denied. Particularly in recent years, development pressures within our territory have increased, from activities such as:

- ✤ Land dispositions that result in permanent alienation of parts of our territory;
- Forestry activities, that continue throughout our territory in many areas of cultural and economic importance to our people;
- Fish farms, that have been located in the territory without any regional planning and that raise particular concerns for the health and the well-being of wild fish stocks and which impact marine conditions around the farm sites;
- Commercial backcountry tenures, that allocate to third parties rights and interests for the use of key areas within our territory;
- Residential development, that in recent years has dramatically increased in pace with local population growth at nearly 5% (approximately three times the average rate for BC as a whole) as the Sunshine Coast becomes a more desirable recreational area and a bedroom community for the Lower Mainland;
- Foreshore development, including the building of docks without approvals and log dumps that impact foreshore areas;
- Multiple applications for Independent Power Projects (IPPs) along key rivers and creeks and in high value watersheds; and,
- Proposals for industrial development, including large scale aggregate mining, in areas that are of special significance to the *shíshálh* Nation.

Box 5.1 Contextualizing the shíshálh Nation Land Use Plan

The *shíshálh* Strategic Land Use Plan (SLUP) begins with this affirmation of *shíshálh* Nation Rights and Title and profile of the *shíshálh* Nation and Territory (SIB 2007:6-8).

Affirmation of shishálh Nation Rights and Title

The *shíshálh* Nation asserts aboriginal title to and aboriginal rights throughout its territory. We have in the past and continue to engage in cultural activities throughout the territory, activities giving rise to aboriginal rights. We will engage in cultural activities in the territory now and into the future. In addition, we exclusively occupied our territory in and prior to 1846, and assert aboriginal title to all of our territory.

Aboriginal title carries with it the right to choose the use to which the land is put. This Land Use Plan is an exercise of governance by the *shíshálh* Nation over our territory and is intended to provide direction on current and intended future land use and stewardship of the territory.

Nothing in this Land Use Plan is intended to abrogate or derogate from *shíshálh* Nation aboriginal rights, including aboriginal title, and the content of this Land Use Plan is without prejudice to negotiations with the Crown.

Profile of the shishálh Nation and Territory

Since time immemorial the *shíshálh* Nation has occupied and utilized its entire territory from the oceanside to the mountain tops utilizing and managing its vast and varied natural resources through the development of complex social institutions, technological innovation and development.

Our territory is located in the southwest corner of what is now referred to as British Columbia, it extends from *xwésám* (Roberts Creek) in the southeast to the height of land located north of <u>xénichen</u> (head of Queen's Reach) in the north, <u>kwékwenis</u> (Lang Bay) to the west and *spíl<u>k</u>sen* (Texada Island) to the south. [See Figure Z]

Prior to European invasion our Nation comprised at least four distinct sub-groups occupying at least twelve large settlements. The groups include:

- téwánkw who were located in stl'ixwim (Narrows Inlet), skwúpa (Salmon Inlet) and ?álhtulich (Sechelt Inlet) and had major town sites located at the head of stl'ixwim (Narrows Inlet) and álhtúlích (inside waters/Porpoise Bay);
- <u>xeníchen</u> (Hunechin) with their principal town located at the head of *lékw'émin* (Queen's Reach in Jervis Inlet);
- ts'únay (Tsonai) with their main town site located at ts'únay (Deserted Bay); and,
- xíxus who were located along the outer coast between xwésám (Roberts Creek) and <u>k</u>wékwenis (Lang Bay) with principle town sites located at <u>k</u>álpilín (Pender Harbour) and ch'átlich (Sechelt).

Our Nation practiced a typical North-Coast Salish subsistence pattern utilizing a combination of hunting, fishing and the gathering of shellfish and food plants as they became seasonally available as well as preservation and storage of foods at residential locations. Principal settlements where inhabited by populations who gathered during the winter months and resided in large multi-family dwellings (long houses). The large villages at <u>kálpilín</u> (Pender Harbour) and ch'átlich (Sechelt) were occupied year round by segments of the population. Portions of the population traveled throughout the territory in the warmer months, dispersing and regrouping to make the most efficient use of the available resources. Ungulates and sea mammals formed a significant portion of the diet; however, salmon was the most important food. Much of the food was dried and stored for use during the winter months.

Box 5.2 shíshálh Nation Vision Statement and Guiding Principles for Lands and Resources

The following vision and principles guide the *shíshálh* view of land and heritage, and thus the *shíshálh* Strategic Land Use Plan (SIB 2007:16).

We, the *shíshálh* people, were put here by the Creator as keepers of our waters and lands. We have lived in our territory according to our own laws and systems of government since time immemorial and will continue to do so forever.

We will give back to the earth the respect and sanctity it rightfully deserves. We will honour our lands, waters and air as our ancestors have taught us. We know how the environment used to be and we will work to rehabilitate our territory's natural resources to what they once were.

The *shíshálh* Land Use Plan represents our vision for the management of our territory—a picture of our desired future—that includes the following:

- Our cultural practices and customs, including those related to the use of land and resources, will be revered and will continue to be handed down from our ancestors through to our Elders and youth with respect. We will preserve *sháshíshálem* (our *shíshálh* language) and continue to promote its use and our cultural ways so that they continue as they have been for countless generations.
- Our leaders will continue to be guided by our cultural values and by the wishes of our community, who will be fully engaged in planning and management for our future.
- Our people will welcome opportunities to accept new ideas and innovations that can assist us in managing our land and resources on a sustainable basis. We will anticipate changes to our territory, and adjust to new challenges such as climate change.
- Our members will be active throughout the territory, and continue to access all areas for economic, subsistence, cultural or other needs. In this way, we will maintain our connection to the land and waters of our territory, and all that it symbolizes for our people. We will resettle some of the village sites that were in place before Europeans arrived.
- Key areas of our territory will be protected from development, to preserve areas of cultural importance so that our land and waters can continue to support healthy populations of wildlife and we ourselves as a people that depend on them for our way of life. The natural ecosystem processes that have occurred over thousands of years in our territory will continue unimpeded.
- We will adopt ecosystem based management approaches that reflect our understanding of the connection among all things, and the need for planning over extended timeframes and at multiple scales.
- Our decisions regarding land and resources will continue to reflect our humility and connection to all things, and our commitment to sustainability for current and future generations. Our decisions and actions will make clear that our interest in resource development is not driven simply by economics, but by sustainability for all people that choose to make our territory their home.
- We will secure greater authority over the management of land, water and resources within our territory. Land within our territory will no longer be alienated from us, and we will secure compensation for resources that have been removed without our consent. Over-harvesting and destructive resource extraction will cease.
- We will achieve greater self-sufficiency as a people, and will sustain ourselves with more of our own materials and energy so that we can thrive within our territory and reduce our dependency on others for our well-being.
- Our communities will be safe, secure and healthy. Our young people will achieve health and educational standards that compare favourably with the rest of Canada.
- We will establish cooperative relationships with those who have chosen to make our territory their home, and with commercial and industrial interests that operate within our borders.
- Sustainable industry and commerce will thrive in our territory, and operate in a manner that assures the long term health of the land, resources and our people as well as the economic well-being of our people.

As indicated, land use pressures on the foreshore have been a major concern, both by the *shíshálh* Nation and other governments operating in their territory. In recognition of the need for action to avoid conflict among competing uses, for example, a multi-agency initiative was launched in 1990, with representation from the *shíshálh* Nation—to examine the status of the coastal resources within the Sechelt Inlets area, including Sechelt Inlet, Salmon Inlet and Narrows Inlet. The plan identified four main areas of concern for the foreshore: (*a*) environmental degradation from industrial activity and development (e.g., fish farms); (*b*) reduced access to recreational opportunities; (*c*) loss of the "quiet, wild character" of the area; and (*d*) the need for continued opportunities for forest harvesting for local and regional economic well-being (SIB 2007:37). The resulting Sechelt Inlets Coastal Strategy (Catherine Berris Associates Inc. 1990) proposed foreshore zonations, delineating permitted land uses and suggested management policies, with a monitoring regime to be implemented by various resource management agencies (see McMullen 1994).

As development pressures have increased, the *shíshálh* Nation has been "inundated" with requests from Government agencies to assess proposals for projects through the referral process². As described in the Land Use Plan (2007:1), this approach puts the *shíshálh* Nation in a "reactive position," placing a "significant burden" on *shíshálh* technical staff as they attempt to "respond meaningfully to every project on an individual basis." As made clear in the Plan,

The referral process also fails to address fundamental questions regarding our rights and title and leaves our Nation without a meaningful role in planning or management decision-making. Through such experiences, we have come to understand the risks of coping with development pressures one project at a time. We have developed this Land Use Plan in order to provide a more comprehensive and integrated view of our territory, so that we can be proactive in determining what happens in the future.

The "vast majority" of *shíshálh* Nation members support having areas set aside for future band member housing. This view reflects concerns over a "rapidly growing population, and concerns over the adequacy of current housing available, particularly for the Elders and for those with lower incomes" (SIB 2007:86).

Our members would also like the *shíshálh* Nation to have greater authority over the planning and management of residential development. Some of our members have also expressed concern over the loss of future options for the *shíshálh* Nation given the pace of private development in prime settlement areas, particularly along the waterfront. There is strong support among our members for settlement by the Nation in other areas of our territory, so that our presence on the land is more widely distributed as it was many years ago. Areas where there are sacred sites, such as gravesites, should be avoided. Other areas may need to be kept free of residential development so that they may enable other purposes, such as wilderness tourism.

² The Union of B.C. Indian Chiefs (2013:9) describe that, throughout the province, "First Nations have been inundated with referrals" regarding proposed developments: "Sadly, more often than not, the referral is received because the site is in danger of being altered, damaged or destroyed by development" (see McLay 2011 also).

The Nation's concern over population is borne out in Figure 5.4, which shows how the Sunshine Coast has grown and is expected to continue growing.



Sunshine Coast Population, 1956-2036

Figure 5.4 Sunshine Coast (SCRD) population, 1956-2036. The population of the region sat around 5,000 people in 1950. It will be approaching 50,000 in 2050. This is a growth rate of 1000 percent per century, or 10 percent per year. Source: Statistics Canada

Stewardship Directions for Cultural Heritage

The protection of cultural heritage is a priority for the *shíshálh* Nation, and the Land Use Plan provides specific management directions in three specific areas: (*a*) cultural resources, (*b*) stewardship areas, and (*c*) cultural emphasis areas (SIB 2007:18). Generally speaking, *shíshálh* approaches to heritage and heritage stewardship are holistic, ecosystem-based, human-centred, and built on community and learning; i.e., it is "adaptive" (Armitage et al. 2007; see also Berkes 2008; Menzies 2006; Rose 2005). That paradigm is illustrated in Box 5.3, which are the guiding principles for planning and management of *shíshálh* land and resources.

In the Plan, the subject of cultural heritage is broached with and prefaced by the following statement (SIB 2007:18):

Since time immemorial the *shíshálh* Nation has occupied our territory. A consequence of this occupation are the cultural properties (e.g., artifacts, spiritual sites, stories, names and traditions) left behind by our ancestors. It is a central principle of the *shíshálh* Nation Heritage Policy that all cultural properties belong to those who made them regardless of the world—living or spiritual— within which they live. Therefore, the *shíshálh* Nation has primary jurisdiction to manage, protect and preserve the history of the Nation throughout our entire territory. The management of *shíshálh* cultural resources must reflect *shíshálh* values for the purpose of preserving and protecting *shíshálh* culture, and to ensure that our traditions and way of life live on.

For over two hundred years the needs of settlers and development have superseded the protection of *shíshálh* cultural resources, resulting in the destruction of our history. Such development continues today and threatens the existence of our culture.

The necessity to protect our culture should be primary over the needs of external development. Therefore all land use within our territory must be planned so as to result in as little conflict as possible with *shíshálh* cultural resources.

The *shíshálh* Nation approach to heritage and heritage protection is community-based, beginning with the community interviews that informed the Land Use Plan (see Boxes 5.3 and 5.4). Those

interviews produced the following ideas about and viewpoints toward heritage (2007:18):

- Most community members strongly support protecting land and resources for traditional harvesting and cultural practices—including fishing for food, hunting, gathering timber for shelter and forest plants for food and medicinal purposes, and protecting landscapes for cultural and spiritual values.
- Other important cultural values and uses include gathering natural materials for art, regalia, and construction of houses, timber harvesting for personal use, and harvesting cedar bark and roots.
- Community members strongly support providing land-based cultural education programs, especially for youth.
- Many community members said that cultural harvesting must be done in a sustainable and respectful way that protects and honours the land, and that the nation and families need to continue to teach traditional practices.
- Most members strongly support protecting and/or restoring specific cultural sites or natural features in the territory. Types of sites mentioned for protection included pictographs, paintings on the foreshore, spiritual sites all along the water edges, culturally modified sites, archaeological sites, ancient villages, middens, sacred sites, gathering sites, burial sites, canoe routes, and hunting and harvesting areas.

Core guiding principles for planning and management of *shíshálh* land and resources are shown in Box 5.3. Those, along with community values and historical knowledge (Box 5.4), inform the definition of four land use zones, depicted in Figure 5.5.

Land use zones are a means to ensure that different areas within *shíshálh* territory are used in ways that are compatible with, and protect, *shíshálh* values and interests. In simple terms, these zones delineate what type of activities can occur; where they can (or cannot) occur; and, how such activities should be managed within these zones. (2007:61)

Below are descriptions of three land use zones (2007:61, 84) that are directly relevant to this study:

shíshálh lil xemit tems swiya (shíshálh Conservation Areas)

These are areas identified for their high cultural and ecological values. The primary management intent for *shíshálh lil xemit tems swiya* areas is to protect, and where necessary, restore their cultural and natural values, while maintaining and enhancing opportunities for cultural use. Industrial land uses and permanent land dispositions are prohibited in *shíshálh lil xemit tems swiya* areas, although appropriate low impact tourism and recreation is permitted. Eight *shíshálh lil xemit tems swiya* areas are identified and described in this land plan.

* shíshálh kw'enit sim alap (shíshálh Cultural Emphasis Areas)

These are areas identified for their sensitive cultural, social and ecological values. The primary management intent for *shíshálh kw'enit sim alap* areas is to protect and or restore cultural use resources and activities and sensitive cultural, ecological and/or tourism and recreation values, while allowing for appropriate resource development. There is no blanket prohibition on industrial land use in *shíshálh kw'enit sim alap* areas, however, in some cases, some specific sites within the special management area may prohibit some or all forms of development, while in other locations, terms and conditions may be placed on appropriate land use to protect cultural values or sites, cultural use activities, wildlife and their habitats, or tourism values. Fourteen *shíshálh kw'enit sim alap* areas are identified and described in the land plan.

* shíshálh Stewardship Areas

These are the remaining areas outside of the *shíshálh* Conservation and Cultural Emphasis Areas. Stewardship Areas represent approximately 46 percent of *shíshálh* territory. Many specific sites and areas within this zone are and will continue to be of particular significance to the *shíshálh* Nation for cultural, economic or other reasons. Detailed management direction needs to be established for the stewardship zone. The management intent for this zone is to maintain opportunities for *shíshálh* cultural use, while allowing for appropriate economic development activities that respect the integrity of the *shíshálh* Nation territory as whole.



Figure 5.5 The four designated land use zones defined in the *shíshálh* Strategic Land Use Plan (SLUP) are: Community Forest; Cultural Emphasis Area; Conservation Area; and Stewardship Area. As depicted, two of the three *shíshálh* Coast Study Units, Sechelt and Halfmoon Bay, occur in the Stewardship Area (grey zones), while the Pender Harbour Study Unit lies within a Cultural Emphasis Area (tan zones).

Box 5.3 Guiding Principles for Planning and Management of shishalh Land and Resources

The following guiding principles for planning and management are laid out in the *shíshálh* Strategic Land Use Plan (SIB 2007:17).

- Guidance of Ancestors and Elders: All shíshálh Nation land use planning and resource management activities shall be undertaken in a manner that is consistent with the teachings taught to us by our Ancestors and Elders.
- *Respect: shishálh* Nation use and management of the land shall always reflect our deepest respect for the land and the interconnectedness of all things.
- Sustainability: shíshálh Nation use and management of resources shall be guided by our commitment to sustainability both in the present and for all generations to come—which means maintaining diverse and abundant wildlife and ecosystems in perpetuity while providing for diverse cultural, social and economic activities that support a balanced, healthy, secure and sustainable quality of life.
- Self-Reliance: Our use and management of land and resources shall seek to increase the self-reliance of the *shíshálh* Nation, so that we can support our own communities and others that have chosen to make our territory their home over the long term.
- Cultural Practices: shishálh Nation planning, use and management activities shall ensure that access is maintained for our people so that our cultural practices can continue unimpeded throughout our territory.
- *Cultural Sites*: Sites of our past, current and future use and occupation of the territory shall be respected and preserved.
- Ecosystem-Based Approach: Management of our shishálh Nation territory shall adopt a holistic, ecosystem-based approach that considers the entire ecosystem in determining use of specific areas and setting harvest rates that focus on what to leave behind, rather than what to take.
- Capacity Building: We shall strive to provide opportunities for members of the shishálh Nation, particularly the youth, to build their skills and experience in management of lands and resources, so that they and all future generations continue to act as stewards of our territory.
- Knowledge: shíshálh Nation planning and management approaches for land and resources shall incorporate both our own cultural and local knowledge as well as western science-based understandings.
- Space and Time: shishálh Nation planning and management approaches shall take into account multiple spatial scales and time frames, and seek to maintain or increase resilience in the face of critical and long-term issues such as climate change.
- Precaution: A precautionary approach shall be adopted for land planning and management, so that decisions err on the side of caution when information is limited.
- *Consent*: Development of land and resources shall only proceed when the risks of impacts on our territory are well understood and accepted by the *shíshálh* Nation.
- Benefits: The shíshálh Nation shall benefit fairly from development and use of land and resources within our territory.
- Monitoring: The condition of the land and resources across shishálh Nation territory shall be monitored, and knowledge of trends and responses to change shall be incorporated into future decision-making through adaptive management.

Box 5.4 Comments from shishalh Nation Members on Heritage and Development

Included throughout the Land Use Plan are quotes from *shíshálh* Nation members. Some speak directly to the importance of "authority" and "external development" in discussions of heritage and heritage stewardship (SIB 2007:20, 25, 35, 51, 55).

- I would like to see our nation being successful at sustaining and protecting our traditional territory. I believe that we have lived off this land for thousands of years, and be should be able to live off our land for thousands of more years. We should be able to exert our rights and protect our traditional sites and resources and have a say in where new economic development should be. (Rita Poulson)
- I think we should protect all our resources for the betterment of our grandchildren, so our grandchildren can be better people, they can be better then we were, you know. (Willard Joe)
- We got to look after the land, the land will look after us, we can't let it go to industry. We can't destroy it, and our resources; be careful, because as soon as you destroy that area, it takes a hundred years for it to recuperate itself. All my relations. (Randy Joe)
- And our water/watersheds, there shouldn't be any development around watersheds whatsoever, to keep our water pure. What we take for granted now, our old people didn't. They knew what to do, and it's been passed down, which we ourselves cannot forget. You hear of people playing around a river, and they think it's a sport, its not, those rivers are very important to us. (Anne Quinn)
- There used to be an underground stream that came out where our sweat lodge is in Selma Park, now its gone, it used to be clean, down here the water is still polluted (Terry Joe)
- Sea mammals and birds and all that are getting extinct now. If you looked this way (points to her foreshore) and it used to be all black with ducks, now there are none. Besides, they are really getting contaminated, pollution in the water. (Myrtle Page)
- I believe it [mining] is detrimental to mother earth's nature, the trees, rivers, lakes. We already have a mine, I see the damage it's doing to mother earth, the pollution it's creating, the air quality in the summer, it's bad. The mine is on our band lands. Our houses are dusty, our cars, our bodies, the asthma is getting more and more, the allergies are getting worse. (Robert Joe)
- We've always logged, our people have always been loggers. We've harvested timber, but within a balanced, sustainable way. (Candace Campo)
- It [forestry] has got to be used for value added—for our people. It's not going to us; it's not a value to us at all. (Dave Quinn)
- Something we are not doing, but we should is logging for ourselves and our homes, that's what I'd like to see with logging. When I think to myself, everybody is trying to live as cheaply as possible, but we're not. We really need to be self supporting, we're not doing that. (Anne Quinn)

Summary

It is clear from the Strategic Land Use Plan that significant changes are taking place on the *shíshálh* Coast, including but not limited to intensive residential and marine development. That these changes constitute a major concern for *shíshálh* people is also clear. While climate change is recognized as a serious threat, it has not yet been integrated into *shíshálh* land use strategies; this includes sea level rise.

Two key points need highlighting before proceeding to the survey. The first concerns *shíshálh* Nation's authority over the stewardship of their heritage, and the second the relationship between cultural survival and external development. As shown in Table 5.1, the SLUP lays out a goal and three "priority actions" concerning *shíshálh* Nation control over the stewardship process. Priority actions toward greater control over heritage stewardship include (*a*) developing regulations, guidelines, and protocols, (*b*) requiring archaeological impact assessments, and (*c*) requiring *shíshálh* approval of all site alteration permits.

Table 5.1	shíshálh Nation	Goal and Priority	Actions Concerning	Authority over H	Ieritage Stewards	ship
Process (S	SIB 2007:19, Tab	ole. 2)				

<i>shíshálh</i> Nation Goal and Priority Actions Concerning Authority over Heritage Stewardship Process				
Goal	Priority Actions			
Ensure that the <i>shíshálh</i> Nation has authority over planning and management of cultural resources in the territory.	 Develop and implement <i>shíshálh</i> laws, regulations, guidelines and/or protocols to protect <i>shíshálh</i> archaeological and cultural sites, cultural practices and intellectual property. Require archaeological impact assessments (AIA) prior to development in areas of known or probable archaeological potential. Require <i>shíshálh</i> approval of all site alteration permits under the BC Heritage Conservation Act. 			

A useful frame for approaching Table 5.1 is the poignant concept "developed without consent." In such light, the goal of ensuring *shishálh* authority over planning and management can be seen as a response to the historic loss (or taking) of control at the hands of outsiders (or colonialists), a wholly asymmetrical power relationship that clearly continues into present times. One manifestation of that relationship on the landscape is development, specifically "external development."

In the context of the *shíshálh* Coast, *external development* refers to development ("urbanisation") authorised and undertaken by outsiders and settlers. It is worthwhile to recall at this juncture this key section in the Land Use Plan's preamble (2007:1):

For over two hundred years the needs of settlers and development have superseded the protection of *shíshálh* cultural resources, resulting in the destruction of our history. Such development continues today and threatens the existence of our culture.

The necessity to protect our culture should be primary over the needs of external development. Therefore all land use within our territory must be planned so as to result in as little conflict as possible with *shíshálh* cultural resources.

External development has become such a problem that some *shíshálh* members have expressed concern over the "loss of future options for the *shíshálh* Nation given the pace of private development in prime settlement areas, particularly along the waterfront" (2007:86). As illustrated in Chapter 5, these concerns are justified; indeed, Chapter 6 demonstrates they are even understated, in light of sea level rise.

Chapter 6: The shíshálh Coast Study

The *shíshálh* Coast Study was designed to clarify the three broad themes identified in Parts One and Two of this investigation. Those themes, expressed here as three questions, are:

- 1. What is coastal change?
- 2. What are the impacts of such changes on heritage?
- 3. What has been the response to such change?

Thus far, what has been addressed about coastal change is largely theoretical. A major aim of this case study, therefore, is to demonstrate what those ideas look like in practice, or "on the ground."

To address these questions, I adopted a landscape approach to survey and a photo-essay approach to storytelling. I believe that a landscape-based approach, as opposed to more rigid site-based approaches, is more flexible thus more amenable to the study of coastal change impacts on heritage, especially Indigenous heritage (see Buggey 1999, 2004; Wohlforth 2004). In part, this is because the approach recognizes the indivisibility of nature/culture and the multiscalar character of heritage (Barry 2007; Berkes 2008; Rose 2005). I use the term *landscape* to refer to a "socially and experientially engaged place" and a "concern for the where" (David and Thomas 2008b:39). On a most basic level, a landscape approach forces the investigator to look beyond the archaeological "site" (David and Thomas 2008a). Similarly, the photo-essay approach to conveying survey information permits the *shíshálh* heritage landscape to be seen at a variety of scales and from a number of perspectives. In these ways, my investigation seeks to move beyond the confines of archaeology and constraints of site-based analysis.

This does not mean, however, that site-based information is not considered here. Key information is summarized for each of the three Study Units. This includes: the number of archaeological sites, the number of sites located less than 15m elevation, the number of sites that intersect the shoreline, the number of sites "disturbed" and "destroyed," and the kinds of disturbances operating in each area. Basic observations about elevation and marine exposure (fetch) are used to create vulnerability maps of heritage landscapes. These summary maps are included as Figures 6.21, 6.23, 6.46, 6.82, and 6.83.

The *shíshálh* Coast Study was carried out not just with the Strategic Land Use Plan in mind, but also with consideration for previous research into the effects of development on *shíshálh* heritage. In 1976 and 1977, Steve Acheson and Syd Riley, working under contract with the province of British Columbia, conducted regional surveys and inventories in three sections of the northeast Strait of Georgia coastline (Acheson and Riley 1976, 1977, 1979; see also Welch et al. 2011:95-8). Two of those sections are located in *shíshálh* territory, specifically Smuggler Cove and Jervis Inlet (Acheson and Riley 1979:53, 55). The primary objective of Acheson and Riley's inventory was to establish a database designed to "facilitate future planning and management of the heritage resource within the Gulf of Georgia in response to intensified land-use and demographic pressures taking place" (1979:39). Importantly, the following

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informative statement on "intensified land-use," included in the first project report (1976:1), was dropped from subsequent ones:

Land use on the Pacific Coast rim of British Columbia has intensified over the last decade [and] the concern for the archaeological resource of this area has manifested itself into a management programme initiated by the Archaeological Sites Advisory Board of British Columbia. This agency has the responsibility for the management and preservation of the province's prehistoric/protohistoric record -- the archaeological resource.

It is in response to the need of management as the first criterion for proper control and research of the prehistoric record that a systematic site survey of the entire province has been undertaken. The following information [i.e., their study] directs itself to the archaeological resource of the Powell River and Sechelt Regional Districts -- two areas presently under study due to the rapidly expanding economic and demographic forces being felt in this region of the Gulf of Georgia. An inventory and subsequent evaluation of the archaeological resource of these areas will be presented herein.

In all, Acheson and Riley compiled information on 186 sites located along 156 kilometres of shorelines. Most importantly, they quantified modern (<1977) landscape disturbances and made predictions about future impacts (>1977).

Three decades later, Peter Merchant (2004) conducted an intensive study of 16km of the Pender Harbour coastline, asking similar but more detailed questions than Acheson and Riley about the nature of heritage destruction in the region. The aim of Merchant's study, conducted on behalf of the *shíshálh* Nation, was to (2004:ii):

- Re-identify the twelve previously recorded archaeological sites located within the study area, assess their condition and identify any current/ongoing or future potential causes of impact
- Identify any unrecorded archaeological sites and determine any current/ongoing or future potential causes of impacts, and
- Develop a management plan for protecting, and mitigating adverse impacts to all identified sites.

In all, Merchant complied information on and made recommendations for 19 sites.

These two investigations provide key historical baselines for thinking and talking about development and heritage in *shíshálh* territory and the wider Salish Sea basin. The studies will be discussed in the context of the Halfmoon Bay and Pender Harbour Study Units, as well as the chapter summary.

To facilitate reading and cross-referencing, I have included a quick guide to the figures that make up Chapter 6.

• Figures 6.1 to 6.40 correspond to the *Sechelt Study Unit*: Figures 6.1 to 6.17 concern the Sechelt Isthmus study area; Figures 6.18 to 6.32 relate to the Angus Creek study area; Figures 6.33 to 6.40 pertain to the Snake Bay study area.

- Figures 6.41 to 6.63 correspond to the *Halfmoon Bay Study Unit*: Figures 6.42 6.45 pertain to the Thormanby Island study area; Figures 6.46 to 6.53 relate to the Smugglers Cove study area; Figures 6.54 to 6.63 concern the Sargeant Bay study area.
- Figures 6.64 to 6.89 correspond to the *Pender Harbour Study Unit*: Figures 6.65 to 6.73 relate to central Pender Harbour; Figures 6.74 to 6.78 concern Oyster and Gunboat Bays (inner Pender Harbour); Figures 6.79 to 6.89 pertain to lower Sakinaw Creek.

Sechelt Study Unit

In 2010, my partner Marina La Salle and I relocated to the Sunshine Coast for the purposes of (*a*) escaping the city (Vancouver) and (*b*) carrying out this project. As such, the observations in this section and those that follow reflect my experience as a full-time "Sechelt" resident. I put Sechelt in quotes here because although I did not live in Sechelt proper, I did visit it regularly (weekly) for shopping and, more importantly, few people know where Sargeant Bay is. During this time, I commuted for work as a university lecturer to various institutions in the metropolitan Vancouver area. During one short period, I even commuted as far away as Bellingham, Washington State, located across the international border in the United States. In these way, I became a member of the "bedroom community" described in the Strategic Land Use Plan (SIB 2007).

The Sechelt Study Unit, the southern-most in the study, is subdivided into three smaller study areas: Sechelt Isthmus, Angus Creek, and Snake Bay, as illustrated in Figure 6.1. Physiographically, the most prominent landscape in the Study Unit is the Sechelt Isthmus (Figures 6.1 and 6.3). This narrow, low-lying landform represents the only terrestrial connection between the southern and northern parts of the Sunshine Coast. The isthmus both defines the head (terminus) of Sechelt Inlet (at Porpoise Bay) and protects it from the larger thus more erosive waters associated with the Strait of Georgia. In the Early Holocene, when regional sea levels were higher than they are today, the isthmus would have been submerged, making the northern Sunshine Coast (from Sechelt to Earls Cove) an island. Prior to colonial settlement and development, a significant portion of the Sechelt Isthmus Study Area was a large wetland complex. As in the past, the Isthmus today is a central place and transit zone (Westerdahl 1998). The Sechelt Isthmus study area contains multiple archaeological sites and multiple *shíshálh* Band Lands (SBL).

The two other study areas in the Sechelt Study Unit, Angus Creek and Snake Bay, are located within the more protected waters of Porpoise Bay (Sechelt Inlet). The Angus Creek study area, situated on the east side of the inlet, includes the widely recognized and heavily used Porpoise Bay Provincial Park. Snake Bay is located on the western side of the inlet, directly opposite Angus Creek. Although located the same distance (~ 4km) from downtown Sechelt as Angus Creek, Snake Bay is far more difficult for the

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general public to access as it requires a boat or crossing private property. Angus Creek and Snake Bay study areas are each associated with an estuary, a large shell complex (DjRw-1 and DjRw-2, respectively), and *shíshálh* Band Lands.



Figure 6.1 Sechelt Study Unit, divided into three study areas: A. Sechelt Isthmus; B. Angus Creek; C. Snake Bay. There are 25 registered archaeological sites in this Study Unit (defined as entire image, not just study areas). Top is north. Source: Google Maps.

As illustrated in Figure 6.2, the Sechelt Study Unit contains important examples of two different kinds of vulnerable coastline: *exposed coasts* and *low-lying coasts*. Exposed coasts are those with high wave energy or "fetch." Wave fetch is the distance over which wind can push water to generate waves. In general, the longer the fetch, the larger the waves (see Islands Trust 2013; SNC–Lavalin 2012). As such, much of the *shíshálh* coastline that opens onto the Strait of Georgia is considered at-risk (see Thomson 1981). This includes the southern coastline of the Sechelt Isthmus study area. By the nature of their low elevation, low-lying coasts are most vulnerable to sea level rise-induced flooding and erosion. An example of this type of coast is the delta at Snake Bay, as identified in Figure 6.2.



Figure 6.2 Vulnerable shorelines in the southern Strait of Georgia. As illustrated in this panel from a 1999 Government of Canada public awareness poster on climate change, the Sechelt Study Unit (top left) is informative if for no other reason than it contains examples of two major categories of vulnerable coastline: *low-lying coasts*, which includes the delta at Snake Bay (see Figure 6.40), and *eroding coasts*, which includes the entire exposed outer coast fronting the Strait of Georgia (see Figures 6.9, 6.17, and 6.63). Source: Natural Resources Canada (1999).

Sechelt Isthmus Study Area

The Sechelt Isthmus is associated with the central village of *ch'atlich*. In the *shishálh* language, *ch'atlich* means "outside waters" and it is typically used to refer to the contemporary consolidated *shishálh* community located at Trail Bay adjacent to the District of Sechelt (Merchant 2012:1).

The province of British Columbia recognizes a total of 12 archaeological sites in the Sechelt Isthmus study area. Most prominent is the "Trail Bay site" (DiRw-28), taking up much of the southeastern part of the study area. This site-complex, which includes shell midden deposits, lithics, house depression, habitation platform(s), burials, burial mound, and cultural depressions, corresponds to the village of *ch'átlich* (see Bilton 2013).

The Sechelt Study Unit is the most heavily developed Study Unit considered in this investigation, and the Sechelt Isthmus study area (Figure 6.3) is the most heavily developed area therein, an observation born out in Figures 6.4 and 6.12; as such, the entire landscape is considered to be "at-risk." This heavy footprint reflects the area's role as the commercial centre for the central Sunshine Coast. In addition to being a transportation centre, the area is also the nexus of political power, as it is headquarters for three regionally significant governing bodies, the District Municipality of Sechelt, the Sunshine Coast Regional District, and the *shíshálh* First Nation. While the District of Sechelt is situated on top of the *shíshálh* Nation's principle town site of *ch'átlich* (Box 1), the Sunshine Coast Regional District covers nearly perfectly the territory of the *shíshálh* Nation.

Development is central to the economy of the District of Sechelt, which is largely dependent on the large summer tourism industry, a booming retirement population, and the area's growing popularity as a commuter town. This follows a long history of industrial resource extraction, notably logging (Peterson 1962). Based on my time living in *shíshálh* territory, the drive to development was best exemplified in two particular projects, both in the Trail Bay area. The first was a residential development just west of downtown Sechelt. This project's footprint is clearly visible in Figure 6.4. This development received significant vocal opposition in part because it involved a large-scale landscaping (terracing) component, with massive walls clearly visible from the Sunshine Coast Highway. While there appears to have been no direct negative impact to archaeological heritage from this project, the case provides an example of what can motivate public resistance to development.



Figure 6.3 Aerial view of the low-lying Sechelt Isthmus study area in relation to Trail Bay/Strait of Georgia (foreground) and Porpoise Bay/Sechelt Inlet (background) (see Figure 26). The less developed area in centre foreground, visible as green space, is *shíshálh* Band Land. The large cleared area at right is a gravel quarry. Much of the highly exposed Trail Bay coastline shown is protected by various segments of seawall, some of which can be identified here. Note also the steep fjord topography up Sechelt Inlet. View is north. Source: *shíshálh* Nation.



Figure 6.4 Detailed satellite image of Sechelt Isthmus showing contemporary development footprint. The recently cleared area at bottom left represents a new residential subdivision. Top is north. Source: Google Maps.



Figure 6.5 Trail Bay seawall and promenade near Marine Gateway Park and Sechelt Wharf. The building at left is a condominium. This is the same building shown in Figure 6.6. This image illustrates both the degree to which the shoreline has been developed and its exposure to sea level rise and increased storminess, the latter illustrated in Figure 6.9. View is east.

Settlement on the isthmus and along this dynamic section of coastline necessitates protection from wave action. Much of the southern shoreline in the Sechelt Isthmus study area is protected by a riprap seawall (see Figure 6.5; see also Figures 6.9 and 6.10). This is a concern for the much heralded "Watermark at Sechelt" condominium development (Figures 6.6, 6.7, and 6.8). Construction of the project has involved significant landscape modification (Figure 6.6) in the vicinity of a recorded archaeological site (Figure 6.8). The Watermark is significant in part because it shows the desire to develop high-risk low-lying coastal areas, irrespective of potential coastal erosion threats, real or perceived. The Watermark development in particular is of interest because coincides with the construction of the proposed Trail Bay foreshore project, which includes a massive seawall project.



Figure 6.6 The Watermark condominium development behind Trail Bay seawall. Excavated pit is below sea level. This is the same building shown in Figure 6.5. This image illustrates the impact of development on coastal landscapes. View is southeast.



Figure 6.7 "Watermark at Sechelt" condominium development behind Trail Bay seawall. Land has been cleared, but construction has not yet begun (as shown in previous two figures). Sign at right reads "BEACHFRONT HOMES WITH PANORAMIC OCEAN VIEWS." Trail Bay seawall and Strait of Georgia are to left (behind signs and fenced-off stand of trees), Clayton's Heritage Market and Trail Bay Shopping Centre are to right. The building visible in distance is the Driftwood Motor Inn, located at the terminus of Trail Avenue (see Figure 6.11). View is northwest.



Figure 6.8 Heritage protection at the Watermark condominium project included the fencing-off of this lone stand of trees in the southwest corner of the lot. The already mostly destroyed site DiRw-25 includes/included wet site, lithic and shell midden components. The Trail Bay seawall is behind berm at centre between sign and trees. View is northwest.

A shown in Figures 6.9 and 6.10, both archaeological and capital investment in the commercial centre that is the Sechelt Isthmus study area is vulnerable to erosion, both through gradual and punctuated coastal events. The current seawall is deteriorating (Figure 6.10), prompting large-scale redesign of a major portion of the coastline (Figure 6.11). This redesign is referred to as the "Trail Bay foreshore project."



Figure 6.9 Winter storm surge over-washing the Trail Bay seawall. Source: District of Sechelt.



Figure 6.10 Failure of Trail Bay seawall due to erosion. Source: District of Sechelt.



Figure 6.11 Area of proposed Trail Bay foreshore project, which includes protecting the Sechelt economic centre from sea level rise to the year 2060. The eastern terminus of the coastal defense project is the boundary between Maritime Gateway Park and the Sechelt Indian Band Lands, denoted here by the grey void at far right. Source: District of Sechelt.

There is little, if any, unmodified shoreline to be found in the Sechelt Isthmus study area: while seawalls dominate on the mostly uniform and exposed southern shoreline, a mixture of uses make up the leeward northern shore at Porpoise Bay (Figures 6.12, 6.13, and 6.14). These land uses include: marina (e.g., boat and seaplane), residential housing, commercial (e.g., restaurants), industry (e.g., gravel quarry), and recreational (e.g., parks).



Figure 6.12 Detailed satellite view of northern Sechelt Isthmus coastline at Porpoise Bay. Note scale of development and broad low-energy beaches. Sechelt Band Lands, which include residential housing, is located at the top right of the image. Marinas at centre provide air and boat access to Porpoise Bay, Sechelt Inlet and beyond. Source: Google Maps.



Figure 6.13 Intertidal zone at southern terminus of Porpoise Bay. Individual at left is pointing at an intertidal lithic scatter. View is northeast.



Figure 6.14 Storm drains under Wharf Avenue that connect intertidal zone shown in Figure 6.13 to Sechelt Marsh, which is visible at bottom of Figure 6.12. Sechelt Marsh is all that remains what was once a large, complex peat wetland complex. This image illustrates that the size and nature of coastal wetlands in the study area are largely managed landscapes.

Infrastructure around Sechelt serves as a canvas to emphasize the "natural" or "scenic" beauty of the Sunshine Coast, seen in Figures 15 and 16 where an electrical box adjacent to the restaurant and marina complex has been painted with a mural depicting an idyllic Pacific Northwest maritime heritage landscape or "seascape." Such imagery is repeated in numerous settings around Sechelt, prominently at the local grocery store, Clayton's Heritage Market, where historic black and white photographs and murals of early homesteaders decorate the interior. Indigenous history is largely excluded from these representations, with the notable exception of a single mural depicting a small group of local fishermen.



Figure 6.15 Electrical box painted with Eurocanadian maritime heritage theme, as seen from street and sidewalk. Note the log rafts, inbound seaplane (top left), outbound tugboat (pulling log raft) (top centre), and absence of human beings. The painted box is an example of the normative settler heritage on the Sunshine Coast and serves to hide, or cover up, modernity, in this case a large metal box.



Figure 6.16 Back side of painted electrical box showing heron sitting atop log raft. Text reads: "Inlet Reflections' by Jan Poynter 2009." Note the absence of human beings.

Figure 6.17 illustrates the threats in the Sechelt Isthmus Study Area. As an urban centre and low elevation, the entire landscape is deemed "at-risk." In Figure 6.17, the arrows denote flood risk and the dashed red line, coastline loss due to increased storm surge and more frequent weather events. The construction of a seawall in this area will permanently alter the dynamic of the landscape.



Figure 6.17 Vulnerable shorelines in the Sechelt Isthmus study area. Arrows point to low-lying zones at risk of flooding; dashed red line indicates eroding and/or high energy shoreline. The entire low-lying Sechelt Isthmus study area is deemed at-risk. Top is north. Source: Google Maps.

Angus Creek Study Area

Compared to the Sechelt Isthmus Study Area, the story of the Angus Creek study area is relatively straightforward. As mentioned earlier, this study area is comprised of a small estuary, a large shell midden site complex, a provincial park and Sechelt Band Land. The area is just far enough away from downtown Sechelt to have the much sought-after amenities associated with the region, the most prominent of which is visual, illustrated in Figure 6.18. The "natural" beauty here is somewhat illusory however, as the entire green space is surrounded by and, indeed, contains various forms of development. This is best exemplified in Porpoise Bay Provincial Park.

There, trees mask the heavy footprint of the only major campground servicing this part of the coast (Figure 6.19). The park's sandy waterfront is attractive to day-users for swimming, kayaking and, most recently, paddleboarding. Boat rentals are available here during the summer months, and boat and seaplane traffic are regular occurrences in this bay. Throughout the year, I visited this park more than any other on the coast, approximately once per month, and typically walked along the beach north to the estuary and back through wooded trails.

The Porpoise Bay archaeological site, DjRw-1, is a large village site containing remnants of shell midden, house platforms, a petroform and lithics. There is clear evidence of active erosion along the entirety of its shoreline, and past impacts to the site include landscaping, logging, recreational use, refuse dump, residential development, and road construction.



Figure 6.18 Two panoramic views of Angus Creek study area. Top image (A) shows mouth of Angus Creek (right), Porpoise Bay, and, across Porpoise Bay, the Snake Bay study area (see Figure 6.33); view is west-northwest. Bottom image (B) is of Angus Creek showing low-elevation coastline and mudflats; view is east. These two images illustrate a major amenity in the area in this study unit: "nature."



Figure 6.19 Vulnerable shorelines in the Angus Creek study area. Arrows point to low-lying zone at risk of flooding; dashed red line indicates eroding shoreline. Inset image shows developed area within Porpoise Bay Provincial Park. The boundary of SIB IR#4 is also shown. Much of the actively eroding coastline (dashed red line) in this study area is associated with archaeological site DjRw-1. Top is north. Source: Google Maps.

While development has had a significant impact in the Angus Creek area, Figure 6.19 also illustrates ongoing and future threats. These include flooding, sea level rise induced flooding of the estuary, and increased erosion of the shell midden. All of this has been, is and will be exacerbated by the presence of Porpoise Bay Provincial Park, the result of which is increased human traffic on the beach. Frequent boat traffic up and down the channel has also contributed to shoreline erosion in this vicinity.

To more closely examine these threats and impacts, the following images highlight portions of this coastline moving northwards from SIB IR#4. Figure 6.20 shows the southern extent of archaeological site DjRw-1. Much of what remains of this shell midden site complex is located on SIB IR#4, seen above as the green space to the left of the image. The area to the right, Porpoise Properties, is built on top of the southern aspect of this site. While the developed area's shoreline is protected by seawalls, the undeveloped shoreline is highly vulnerable and, in many area, significantly undercut (Figures 6.21 and 6.22).



Figure 6.20 Satellite image of the southern boundary of the Angus Creek study area showing SIB IR#4 (left) and "Porpoise Properties" (right). This image illustrates the different "management" practices, where *shíshálh* First Nation land is to the left and a developer's vision on the right. Top is north. Source: Google Maps.



Figure 6.21 Wave erosion (undercutting) at site DjRw-1. While logs may protect shell midden sites in some contexts, when afloat at high tide they act as giant abraders and pile drivers, scouring the shell midden and destabilising the bank, as shown here. As shown here, this entire stretch of shoreline is at significant risk to sea level rise, increased storminess, as well as marine development including watercraft.



Figure 6.22 Eroding shell midden at site DjRw-1. This section of the site is held together by tree roots and invasive ivy. Removal of any vegetation at this locale will result in increased erosion.

Evidence of the erosional history of this section of Angus Creek shoreline (Figure 6.23) is borne out in the extremely high number of lithic and bone artifacts that define the littoral. Indeed, my many repeated surveys of this shoreline revealed countless formed tools, lithic debitage and fire cracked rock. The most notable discovery was a flint for an 18th-century musket.

Compared to the only slightly elevated shoreline associated with the southern portion of the Angus Creek study area, its northern boundary, as seen in Figure 6.24, is low-lying. Shown here is the creek's estuary and mud flats, with the "Porpoise Bay Development" (Figures 6.25 to 6.27) visible in the distance. There are no registered archaeological sites in this immediate area, however it is a prime locale for evidence of intertidal fishing sites.


Figure 6.23 Gravel beach fronting site DjRw-1. The entire foreshore is covered with lithic and other cultural material eroding out of the shell midden. This entire landscape is deemed at-risk. View is southeast.



Figure 6.24 Mudflats at Angus Creek estuary. Large-scale coastal development / shoreline modification project is visible in the distance (see Figures 6.26 and 6.30). View is northeast.



Figure 6.25 Modified shoreline at western end of "Porpoise Bay Development." The boulder seawall is protecting imported fill, presumably from upslope quarry. The entire landscape is artificial. View is northwest.



Figure 6.26 View of "Porpoise Bay Development" shoreline modification. Angus Creek estuary is visible at centre. The low-lying Sechelt Isthmus is clearly visible in the distance. View is south.



Figure 6.27 Satellite image of northern Angus Creek study area showing "Porpoise Bay Development" (centre) and Angus Creek estuary (crossing intertidal shelf at bottom left). Sechelt Inlet Road dissects the image. In this image, only the northern, lesser-developed section of Porpoise Bay Provincial Park is visible (bottom middle). Top is north. Source: Google Maps.

Having visited the northern Angus Creek study area shoreline from the beach, further exploration on the eastern (road) side of this vicinity provide important context regarding "local" development in the area (Figures 6.28 and 6.29). Signage reveal a global connection for this large-scale coastal development project (Figure 6.30). The source of fill for the Porpoise Bay Development appears to be local, however, as this resource is particularly abundant along this stretch of Sechelt Inlet Road (Figure 6.31). Not far away is this sign at Angus Creek (Figure 6.32), illustrating the complex and at times perhaps conflicting interests in land and resource use and selective representations of "heritage."



Figure 6.28 Signage at Sechelt Inlet Road access to "Porpoise Bay Development." This intersection is clearly visible in Figure 6.30. These signs highlight the commercial nature of these landscapes as well as their place in the global economy.



Figure 6.29 Signage at entrance to "Porpoise Bay Development." Sign reads: "NAI Commercial -Commercial Real Estate Services, Worldwide - 9.85 Acres Waterfront FOR SALE." This is an excellent example of the "external" nature of development on the Sunshine Coast.



Figure 6.30 Detailed satellite image of coastal and shoreline modification at "Porpoise Bay Development." Area to right of roadway has been deforested and quarried (gravel); area to left has been filled. This image illustrates a landscape where virtually everything has been transformed (e.g., Figure 6.31). Top is north.



Figure 6.31 Abandoned(?) gravel quarry on east side of Sechelt Inlet Road, Angus Creek. This location, illustrating the nature of landscape modification in this area, is around the corner from Angus Creek and Figure 6.32.



Figure 6.32 Heritage signage at Angus Creek bridge. Sign reads "ANGUS CREEK SALMON HABITAT - PLEASE PROTECT OUR HERITAGE." This is symbolic of how "heritage" is both natural and cultural but selectively represented and thus differently prioritized. This sign is located just a few metres from the entrance to Porpoise Bay Provincial Park.

Snake Bay Study Area

Across Sechelt Inlet (Porpoise Bay) from Angus Creek is the Snake Bay estuary (unnamed creek). As seen in Figure 6.33, this area is characterized by an encroaching "exclusive" residential development adjacent to an undeveloped green space that, as at the Porpoise Bay site, is Sechelt Band Land and a major shell midden site (DjRw-2). This area has seen extensive logging, which has disturbed most of the site.

As illustrated in Figure 6.34, the Snake Bay delta is restricted to boat access as private property limits access from Gale Avenue. As such, I was only able to visit the site via kayak, which afforded the unique perspectives shown in Figures 6.35 and 6.36. These images capture the interface of development and heritage, illustrating the extensive coastal modification required to support such elaborate residences.



Figure 6.33 Snake Bay study area, which includes shell midden site and Sechelt Band Lands (forested area at top left), in relation to encroaching Gale Avenue development. The Snake Bay delta, which can be identified here by the creek cross-cutting it, is characterized in Figure 6.2 as "vulnerable." Note the number of boats moored off Gale Avenue properties. Like Figure 6.20, this image captures the various threats to *shíshálh* maritime heritage. Top is north. Source: Google Maps.



Figure 6.34 View of Snake Bay study area, visible as low deciduous trees at centre of image, from Porpoise Bay/Sechelt Inlet. Development is encroaching from left (south), i.e., from downtown Sechelt. View is west.



Figure 6.35 Convergence of development (left) and heritage (right) at Snake Bay. View is west.



Figure 6.36 Close-up of intensive landscape modification at north end of Gale Avenue. This image illustrates legal and permitted coastal development immediately adjacent to a marine delta and archaeological site. View is southwest.

While a significant portion of site DjRw-2 is situated atop an elevated knoll, the lower, southerly extent of the site is at great risk of erosion, as is the delta platform (Figure 6.37).

In addition to logging, evidence for recent use of Snake Bay includes the cabin shown in Figure 6.38. This structure may have been sited here to take advantage of the local fishery. Today, terrestrial access to this location is via Gale Avenue (Figure 6.39).

Perhaps the most striking aspect of development impact at this locality is visual, evident from Figure 6.30 where exclusive, heavily landscaped seaside residences overwhelm the viewshed.



Figure 6.37 Eroding (undercut) shell midden at site DjRw-2. The processes working here are the same as those described for Angus Creek in Figure 6.21.



Figure 6.38 Unoccupied shack at site DjRw-2. Possibly situated here to take advantage of a local fishery either historically or more recently, this illustrates an at-risk historic structure, as well as continued use of a maritime landscape.



Figure 6.39 Gale Avenue development as seen from Snake Bay delta and Figure 6.38. View is southeast.

DjRw-2 is vulnerable to both flooding and wave action, as shown in Figures 6.37 and 6.39. Other pressures include upstream logging and impacts associated with the Gale Avenue residential development (Figure 6.40).



Figure 6.40 Vulnerable shorelines in the Snake Bay study area. Arrows point to low-lying zone at risk of flooding; dashed red line indicates eroding shoreline. While the entire delta is at immediate risk, only the lower portions of the mostly elevated shell midden site (along dashed line) are vulnerable. Top is north. Source: Google Maps.

Sechelt Study Unit Summary

My survey of the above-discussed and other locations within the Sechelt Study Unit reveals the diverse and heavy footprint by development on *shíshálh* heritage landscapes. This observation is supported by the numbers.

There are a total of 25 registered archaeological sites in the Sechelt Study Unit. Of those, 21 (84%) have been described as "disturbed" or "destroyed" (n=19 and n=2, respectively). Of the 25 sites, 16 (64%) occur at less than 15m elevation, and 15 (60%) intersect the shoreline. 7 (28%) occur on *shíshálh* Band Land.

- Site types include: shell midden, lithic scatter, house depression, house platform, burial, petroform, pictograph, wet site, rock shelter, historic building
- Site disturbances include: hydro lines, gravel pit, pipelines, commercial and residential development, logging, industrial development, road construction, marine development, refuse dump, erosion, gas pipeline, recreation use, archaeological investigation, sewer/septic

I have quantified these disturbances by number and type of sites impacted (Table 6.1), and grouped them by categories that will be useful in comparing the results of this study area with others in Chapter 7.

Disturbance Category	Disturbance Type	# Disturbed	Total
Infrastructure			22
	Energy (Hydro/Gas)	11	
	Refuse Dump	2	
	Road Construction	8	
	Sewer/Septic	1	
Residential Development			11
	Landscaping	3	
	Marine Development	1	
	Residential Development	7	
Commercial Development			1
	Commercial Development	1	
Industrial Development			9
	Gravel Pit	2	
	Industrial Development	3	
	Logging	4	
Other			7
	Archaeological investigation	1	
	Erosion	3	
	Recreational Use	3	
No Information			0

Table 6.1 Site Disturbance in Sechelt Study Unit

Halfmoon Bay Study Unit

The Halfmoon Bay Study Unit (Figure 6.41) is located northwest or "up-coast" from the Sechelt Study Unit (see Figure 6.3). The colloquial up-coast/down-coast distinction defines one's geographic location on the Sunshine Coast in relation to the City of Vancouver, specifically the ferry terminal at Horseshoe Bay. The further one is "up" the coast, the further "away" from Vancouver one is.

A 15 minute drive from downtown Sechelt to southern Halfmoon Bay along the Sunshine Coast Highway, there exists a very clear urban-rural distinction. During my year-and-a-half residence in Halfmoon Bay, downtown Sechelt came to be associated with driving and commercialism, and the intervening space simply became a blurred travel corridor. In opposition to those negative feelings, my return trip to Halfmoon Bay became associated with rural retreat and escape. This dynamic was far stronger in relation to required trips into Vancouver, colloquially known as the "big city." That far more intensive trip, which minimally required at least a three-quarter-day investment, involved car, ferry, and bus.

Along with its many "million dollar" views, the rural character of the Halfmoon Bay Study Unit that most distinguishes it from down-coast Sechelt, and Vancouver beyond that. What, if anything, does this distinction mean when it comes to heritage destruction? In the context of the Sunshine Coast, does "urban" living translate into greater heritage impacts? Conversely, does "rural" living protect heritage from negative impacts? One can begin thinking about these questions in terms of the data, but they alone are insufficient in characterizing the complex nature of the relationship.

There are a total of 33 registered archaeological sites in the Halfmoon Bay Study Unit (Figure 45). Of those, 24 (73%) have been described as "disturbed" or "destroyed" (n=24 and n=0, respectively). Of the 33 sites, 32 (97%) occur at less than 15m elevation, and 28 (85%) intersect the shoreline (note that 3 sites are submerged, 2 are inland). While none occur on *shíshálh* Band Land, 17 (51%) occur in parks.

- Site types include: shell midden (n=27), fishtrap (n=8), canoe skid, burial, lithic scatter, rockshelter, shipwreck, airplane wreck
- Site disturbances include: hydro lines, gravel pit, pipelines, commercial and residential development, logging, industrial development, road construction, marine development, refuse dump, erosion, gas pipeline, recreation use, archaeological investigation, sewer/septic

As before, I have quantified these disturbances by number and type of sites impacted (Table 6.2), and grouped them by categories that will be useful later on when comparing these results with other studies.



Figure 6.41 Halfmoon Bay Study Unit and three study areas (A) Thormanby Island (northern), (B) Smuggler Cove, and (C) Redrooffs Road. There are 33 registered archaeological sites in this Study Unit (defined as entire image, not just study areas). Top is north. Source: Google Maps.

Disturbance Category	Disturbance Type	# Disturbed	Total
Infrastructure			3
	Road Construction	2	
	Sewer/Septic	1	
Residential Development			14
	Landscaping	4	
	Residential Development	10	
Commercial Development			0
	Commercial Development	0	
Industrial Development			8
	Agriculture	1	
	Logging	7	
Other			10
	Archaeological investigation	1	
	Erosion	4	
	Pot-hunting	4	
	Recreational use	1	
No Information			0

Table 6.2 Site Disturbance in Halfmoon Bay Study Unit

My description of the Halfmoon Bay Study Unit begins in its most western and "rural" part. The island can only be reached by private boat or small ferry. Coastal erosion is a major concern in the Thormanby Island study area (Figure 6.42). This is because Thormanby Island is exposed to significant wave energy from the southwest, while the north shore of North Thormanby Island is exposed to waves generated by northerly outflow (Islands Trust 2013: Map 2). While Thormanby Island's shorelines are largely rock-dominated, the North Thormanby Island shoreline and adjoining isthmus/spit are sediment-dominated with large eroding bluffs (2012: Map 1). North Thormanby also has a number of low-lying coastlines that are subject to sea level rise-induced flooding. Unlike the other Study Units and study areas, the Thormanby Island complex has seen very little shoreline modification. Less than 0.5km (1.5%) of the archipelago's shoreline has been "structurally altered," defined as shorelines modified by facility development, principally boat ramps, seawalls, riprap, landfills, piers, groynes, dykes or breakwaters (2012: Map 1).



Figure 6.42 Vulnerable shorelines in the Thormanby Island study area. Arrows point to low-lying zones at risk of flooding; dashed red line indicates eroding and/or high energy shorelines. The entire Thormanby Island study area is deemed at-risk. Top is north. Source: Google Maps.

In light of these and other factors, including development and tourism pressures, the entire Thormanby shoreline has recently been mapped (Islands Trust 2012) in an effort to better understand local shoreline values and vulnerabilities (see 2012: Map 3). The map series includes a distribution of shoreline types (Figure 6.43), making the identification of vulnerable coastlines a straightforward task (Figure 6.44).



Figure 6.43 Portion of Islands Trust map showing energy and sediment movement in the Thormanby Island study area. Dotted yellow line that predominates indicates actively eroding shorelines. Source: Islands Trust (2012: Map 2).



Figure 6.44 Northeast corner of North Thormanby Island showing cliff erosion (center) and low-lying development of Vaucroft Beach (left), as seen from Smuggler Cove (see Figure 6.41). The entire platform is an archaeological site. South Texada, Lasqueti, and Vancouver Islands are visible in background. View is west-southwest.

As indicated in Figures 6.42 and 6.43, and shown above in Figure 6.44, the entire northeast corner of North Thormanby Island is a vulnerable landscape. In addition to significant bluff erosion, a large portion of this exposed sedimentary coast is low-lying. The low-elevation landform is the small vacation community of Vaucroft Beach (Figures 6.44 and 6.45).

This area includes a number of archaeological sites and site complexes. For example, the entirety of Vaucroft Beach roughly corresponds to site DjRx-34, and Buccaneer Bay includes three sites, while the northwest corner of South Thormanby Island, which is low-lying, includes two sites. While this area represents the most remote locations within the *shíshálh* coast study, this does not appear to limit potential impacts, as illustrated in Figure 6.45.



Figure 6.45 Vacation development on low-lying Vaucroft Beach, northeastern North Thormanby Island. The entire deforested lowland at centre is archaeological site DjRx-34. Note the number of residents' boats and seaplanes just offshore in channel. Top is north. Source: Google Maps.

Unlike the Thormanby Island study area, Smuggler Cove is accessible by land. The terrestrial access to Smuggler Cove Provincial Marine Park, shown in Figure 6.46, is just ten minutes (driving) from Highway 101 (Sunshine Coast Highway). This highly popular recreational destination, for both tourists and locals alike, includes a 20 minute hiking/walking trail that terminates at the coast. The following description is from the Smuggler Cove Provincial Marine Park Master Plan (BC 1985:1,2).

The park preserves a beautiful and scenic popular anchorage and marine landscape for the pleasure of boaters and other park visitors (hikers). It offers such activities as walk-in camping, picnicking, viewing, photography, nature study and recreational fishing.

Smuggler Cove compliments the other provincial parks in the district by offering different opportunities to the public. While Porpoise Bay and Roberts Creek offer family camping and swimming, neither has a suitable anchorage for boaters. Nearby Garden Bay Provincial Park offers limited anchorage and seascape hiking. Smuggler Cove offers all-weather anchorage for up to 60 boats [and] additional seacoast hiking opportunities.

Smuggler Cove Provincial Park will serve regional recreation and tourism markets. The general park objectives are:

- 1. Preservation to preserve the special park features.
- 2. Recreation to provide transient and destination anchorage for up to 60 boats.
 - to provide day use opportunities and walk-in overnight use.



Figure 6.46 Terrestrial entrance to the very popular Smuggler Cover Provincial Park. This access point requires only a short side-trip from Highway 101. The bright yellow sign warns visitors to be cautious of thieves. It begins: "STOP - protect yourself..." This image illustrates the urban problems that accompany tourism.

Unlike the unlithified sedimentary deposits that make up Northern Thormanby Island, Smuggler Cove has a rocky coastline. The park, which represents "a protected cove on a rugged seacoast" (1985:4), has three main anchorage areas as well as five semi-isolated bays, with three of those bays dry out to varying degrees.

According to the Cultural Resources section of the 1985 Master Plan, no archaeological sites have been identified within the park (1985:7).¹ The area is deemed to have historical value, however, because of the cove's name. The following story is provided as evidence of that value (1985:7).

¹ This statement is perplexing, as Acheson and Riley's 1977 survey identified 15 archaeological sites within Smuggler Cove Marine Park (see Acheson and Riley 1979:53, 65-65).

A possible apocryphal story is that Smuggler Cove owes its name to its reported use by Larry Kelly. Kelly, the "King of the Smugglers" who was also known as "Pirate" or "Pig Iron" came up to Canada after fighting for the confederates in the American Civil War. When the Canadian Pacific Railway was completed, many unemployed Chinese workers tried to emigrate to the United States but were forbidden official entry. Kelly assisted the Chinese to cross the border for a fee of \$100 each. His insurance against detection was to have the Chinese agree to be roped together and tied to a large hunk of pig iron. If there was a chance that "Pig Iron" would be apprehended by U.S. customs, he would throw the iron and Chinese overboard.

The source for this story, which is used as evidence for the park's cultural heritage value, is "Wolferstan, Bill. 1982. *Pacific Yachting's Cruising Guide to British Columbia, Vol. III – Sunshine Coast. Fraser Estuary and Vancouver to Jervis Inlet*" (1985:7). However, the Master Plan also notes there is "no proof of smuggling enterprises actually taking place" (1985:9).

The 1985 Smuggler Cove Provincial Marine Park includes an analysis of different resources, with *opportunities* and *constraints* identified for each resource. The following is the sum total of the Province's analysis for Cultural Resources (1985:9):

- Opportunities "opportunity to include historical information in regional interpretive programs. (Smuggling of Chinese labourers and liquor)."
- Constraints "no proof of smuggling enterprises."

The major planning issue, the study finds, is "the retention of Smuggler Cove in its natural state" (1985:14). Toward this, the primary objective of the park is "To preserve Smuggler Cove in a natural state and to provide quality recreational use of its features" (1985:15).

Although the "visual resources" are recognized as an important asset to the park (1985:9), the scenic value is seasonally variable. I visited the cove approximately a dozen times and found that the park can be extremely busy in the summer months, evident in the photographs included here. As illustrated here, a large portion of park visitors arrive not from the trailhead shown in Figure 6.46 but come instead by sea. Figure 6.47 shows the innermost section of the cove; this is the first view encountered after emerging from the forest trail. The two small craft on shore (at right) originated from yachts moored in the deeper anchorage (Figure 6.48), highlighting the easy shore access by these marine recreationists.



Figure 6.47 First view of Smuggler Cove. Innermost reach of bay as seen from Smuggler Cove walking trail. This image depicts the wide rocky intertidal zone and the bay's popularity as a marine recreational tourism destination (see Figure 6.48). View is northwest.



Figure 6.48 Yachts moored in deeper, outer waters of Smuggler Cove. Although Smuggler Cove is located a distance off the main highway and requires a half-hour walk to reach the ocean, boats allow easy access. Recreational boating represents a complicating factor when it comes to issues of coastal resource management.

A short walk further reveals the first of three heritage posters in the cove, this one titled "Smugglers' Hideaway." shown in Figure 6.49. Recalling the cultural resource inventory discussed above, the main image shows Asian "labourers" being brought aboard a ship to be smuggled into the United States. The accompanying text reads:

"At the first sign o' trouble I'll toss ye overboard and ye'll sink like a rock to the bottom o' the sea." This was the policy of Larry Kelly, an ex-Royal Navy seaman who used Smuggler Cove's tranquil waters to collect cargoes of Chinese labourers. The labourers, recently unemployed with the completion of the Canadian Pacific Railroad (1885), paid 'pirate' Kelly \$100 each to smuggle them into the United States in the hopes of finding work."

The inset describes how during prohibition (1920-1933) Smuggler Cove was used as a "safe haven for rum-runners" moving alcohol from such places as Texada Island to "thirsty destinations is the United States." Two logos appear at the bottom right of the image: "Forest Renewal BC" and "BC Parks."



Figure 6.49 "Smugglers' Hideaway" heritage poster located at beginning of the marine portion of Smuggler Cove walking trail. This poster denotes the state's effort to inform the citizenry about local heritage.

A second poster (Figure 6.50), encountered a few minutes later, is titled "Harvesting from the Sea." The main image shows individuals fishing with a herring rake (left) and spear (right) inside a fence-enclosed pool. The caption reads: "Fish was a staple food for coastal peoples and numerous techniques were devised to harvest this important resource. or example, the shallow bay below was used by the Sechelt people to corral rock cod and herring. They placed a rock and wood weir at the bay's entrance which allowed the fish to swim in during high tide but which trapped them as the water receded at low tide. All family members then helped to collect the stranded fish." Two logos appear at the bottom right of the image: "Forest Renewal BC" and "BC Parks."



Figure 6.50 "Harvesting from the Sea" heritage poster at Smuggler Cove. The poster relates to the pool in background, which is an ancient *shíshálh* fishing site. Photo taken at flood tide. Compare with Figures 55-57.

The fishing features referred to in that heritage poster (Figure 6.50) and illustrated in Figures 6.51 through 6.53 are but one of many archaeological sites that occur in the vicinity. There are 14 sites recorded within the Smuggler Cove Provincial Marine Park boundary. Of these, 8 are located within the cove proper. Those include shell midden (n=14), fish traps (n=7), and rock shelter (n=1). All of the 14 sites occur at the shoreline, and at least five have been disturbed by past logging activity.



Figure 6.51 Boulders and cobbles at bottom of tidal channel at low tide. Fishing pool is up channel to left, Smuggler Cove is at right. These landforms will be inundated in the future.



Figure 6.52 Looking up tidal channel toward fishing pool. Fence shown in Figure 6.50 would be positioned at top of channel, across the constriction. Photo taken at ebb tide.



Figure 6.53 Fishing pool at low tide. Photo of heritage poster and fishing pool in Figure 6.50 is taken from bluff at top left. The impacts of sea level rise and recreation are not clear for this site.

Whereas tourism and recreation are clear threats at both Thormanby Island and Smuggler Cove, the story is somewhat different in the Redrooffs Road study area. There, residential development is far more intensive and extensive. Additionally, while recreation is certainly still important here, its focus is inland rather than marine, this due in part to the heavily privatized and intensively developed shoreline (Figure 6.54). Tourism is limited however, with exceptions being a number of bed and breakfasts and Sargeant Bay Provincial Park (see below). In my experience, only half of the houses in the Redrooffs study area. Residents here are dependent upon Sechelt for virtually everything but the most basic needs. I lived on southern Redrooffs Road, near Sargeant Bay, for a year and a half. I will begin my description in the north, however, at Coopers Green Regional Park.



Figure 6.54 Recreation map of "Halfmoon Bay Trails" showing location of Coopers Green and Sargeant Bay along Redrooffs Road. Note that while the hilly and forested interior landscape is protected by a number of Provincial, Regional and Local parklands (see Figures 6.41 and 6.58), the coastal strip along scenic and highly-valued Redrooffs Road has been heavily developed. The density of development is indicated here by the many long, narrow lots that typify coastal residential landscapes. Source: Sargeant Bay Society n.d.

Redrooffs Road is a 10km side-road to Highway 101. It is known regionally for its exclusive ocean view properties. There are, however, only a handful of public beach access points available. This is due in part to the steep bluffs that predominate in the south. Access is also restricted, however, by the intensive and extensive nature of private shoreline development (Figure 6.54). Exceptions include Sargeant Bay Provincial Park in the south and Coopers Green Regional Park in the north, as both provide public access to ocean amenities. As illustrated in Figures 6.55 and 6.56, there are variety of activities that take place in the postage stamp size park that is Coopers Green. In addition to being a popular picnicking site and boat launch, the area also functions as a SCUBA dive site and temporary log boom storage.
The entire length of the Coopers Green shoreline, extending north and south into the adjacent private residential developments, is archaeological site DjRx-48. This approximately 800m long by 30m wide shell midden site has been disturbed by both park and residential development. In 1978, the site was considered 60 to 70% destroyed. The vast majority of the coastline here is modified, including a continuous seawall running the entire length of Coopers Green (Figure 6.56 and 6.57).



Figure 6.55 Seawall, SCUBA signage and vista at Sunshine Coast Regional District's coastal park Coopers Green. Boat ramp shown in sign is to right (see Figure 6.56). Canadian and British Columbia flags are on a heavily developed private property abutting the park. As illustrated earlier at a number of locations, including at Snake Bay (Figure 6.33), Coopers Green and the ancient landscape associated with it are threatened in a variety of ways, including sea level rise and development (see also Figure 6.56).



Figure 6.56 In addition to picnickers and SCUBA divers, the Coopers Green foreshore is used as a boat launch and for storing log rafts. Sign in Figure 6.55 is to left. View is west.



Figure 6.57 Seawall and boat ramp access-road fronting Coopers Green wetland complex and part of an 800m by 30m shell midden (DjRx-48). As mentioned earlier, many of the coastal wetlands examined in this study are artificially controlled, thus restricting their size and form. As described for Porpoise Bay (Figure 6.14), the Coopers Green wetland complex exists at the whim of the state. A key lesson here is that efforts to mitigate sea level rise in the future will have drastic effects on coastal wetlands.

Whereas homes along the northern stretch of Redrooffs Road are heavily concentrated along the road, often with driveways entering directly onto Redrooffs, the southern stretch has seen more extensive development, with subdivisions encompassing a much broader swath of coast (see Figure 6.54). Figure 6.58 is a detailed satellite view of this area. This was my neighborhood for a year and a half.



Figure 6.58 Detailed satellite view of southern Redrooffs Road development (left) around Sargeant Bay (centre). Large-scale slope failure shown in Figures 6.59 to 6.62 is visible at bottom as white strip and blotches. The constructed berm protecting the wetland at head of bay shown in Figure 6.62 is also visible. The Sunshine Coast Highway (Highway 101) is visible at far right. Clearcutting above (northeast) highway at right is for residential development. Top is north. Source: Google Maps.

I moved into a small leased bungalow on southern Redrooffs Road in 2011. My residence sat high atop a bluff that afforded a 180-degree panoramic view of the Strait of Georgia. This view was only possible, however, because I lived on the more expensive western (seaward or "ocean-view") side of Redrooffs Road and because most of the trees located on the upper-bluff had been removed. The few large trees that remain, however, hint at the unstable nature of this landscape (Figures 6.59 to 6.61).



Figure 6.59 View southwest from my leased bluff-top residence; bent trees in gully are an indicator of persistent slope failure. Strait of Georgia is on left (Vancouver Island [Parksville/Qualicum Beach] is visible in distance), and Redrooffs Road is to right. All the vegetation between the garden (foreground) and trees is invasive (primarily Himalayan blackberry, knotweed, and morning glory). Dwarfed by knotweed (light green) I am barely visible behind garden for scale at lower left.



Figure 6.60 Slope failure on Redrooffs Road bluffs immediately below my home. As described for Angus Creek (Figure 6.21), undercutting is a serious problem along Redrooffs Road, only to be exacerbated by sea level rise and increased storminess.



Figure 6.61 Close-up of slope failure on Redrooffs Road bluffs immediately below my home. Archaeologist is examining steel baskets full of boulders (function unknown). This pattern of erosion is repeated along the entire length of the Redrooffs coastline.

Like at Coopers Green, the entire Sargeant Bay shoreline is modified. As shown in Figure 6.62, this includes a large dyke and spillway. Without perpetual management of these components, the landscapes would not function nor look as they do today. As shown in Figure 6.63, the entire landscape is at risk.

There are two registered archaeological sites in the Sergeant Bay. One, a shell midden site (DiRx-10), which includes a canoe skid feature, has been disturbed by both residential development and tidal erosion. The other, a shell midden site and lithic scatter (DiRx-4), has also been disturbed by residential development.



Figure 6.62 Eastern terminus of Sargeant Bay dyke. The dyke, which doubles as access road and walking trail, protects the southeast facing wetland complex (right) from the open waters of the Strait of Georgia. The level of the pond is controlled via a managed spillway located under the footbridge (compare with Figures 6.57 and 6.14). View is southwest.

There are a total of 7 archaeological sites along the Redrooffs Road coastline. All occur at the shoreline (i.e., there are no recorded bluff-top sites). All 7 have been significantly impacted, primarily by residential development. Summary data from the Redrooffs study area and the larger Halfmoon Bay Study Unit are revisited in Chapter 7, where they are compared with the other two Study Units.



Figure 6.63 Vulnerable shorelines in the southern portion of Redrooffs Road study area. Arrow points to low-lying zone at risk of flooding; dashed red line indicates eroding shoreline. Top is north. Source: Google Maps.

Pender Harbour Study Unit

The Pender Harbour Study Unit (Figure 6.64) is located about 25 road kilometres northwest of Sargeant Bay. It is about 60 road kilometres "up-coast" from Gibsons/Langdale, and 120 travel minutes (minimum) from Horseshoe Bay. The Study Unit represents the core of the Pender Harbour–Sakinaw Cultural Emphasis Area (see Figures in Chapter 5). Central to this Cultural Area is *séxw?ámin*, which corresponds to the area known as Garden Bay (see Box 6.1).

There are a total of 71 registered archaeological sites in the Pender Harbour Study Unit. Of those, 53 (75%) have been "disturbed" or destroyed" (N=48 and N=5, respectively). Of the 71 sites, 70 (99%) occur at less than 15m elevation, and 70 (99%) intersect the shoreline. 7 (0.1%) occur on *shishálh* Band Lands.

- Site types include: shell midden, lithic scatter, house platform, rock art (pictograph), burial, burial cairn, fish weir (n=1), fish trap (n=2), canoe skid, historic building
- Site disturbances include: erosion, residential development, recreation use, relic collecting, marine development, landscaping, logging, road construction, sewer/septic, commercial development, environmental testing

As before, I have quantified these disturbances by number and type of sites impacted (Table 6.3), and grouped them by categories that will be useful later on when comparing these results with other studies.



Figure 6.64 Pender Harbour Study Unit. There are a total of 71 registered archaeological sites in this Study Unit (this does not include Nelson Island, visible at top left). Developed areas appear as white scabs or pocks on the landscape.

Table 6.3	Site Disturbance in Pender Harbour Study Unit	

Disturbance Category	Disturbance Type	# Disturbed	Total	
Infrastructure			11	
	Road Construction	5		
	Sewer/Septic	6		
Residential Development			53	
	Landscaping	14		
	Marine Development	5		
	Residential Development	34		
Commercial Development			2	
	Commercial Development	2		
Industrial Development			5	
	Logging	5		
Other			28	
	Environmental Testing	1		
	Erosion	12		
	Recreational Use	11		
	Pot-hunting	2		
	Dredging	2		
No Information			2	

Box 6.1 The Pender Harbour–Sakinaw Cultural Emphasis Area

The Pender Harbour Study Area is part of the Pender Harbour–Sakinaw Cultural Emphasis Area, described in the *shíshálh* Nation's Strategic Land Use Plan (SIB 2007:77-78) as follows.

Area Description

The *kálpilín* – *stséxwena kw'enit sim alap* (Pender Harbour – Sakinaw Cultural Emphasis Area) comprises approximately 10,623 hectares and contains an extremely high concentration of *shíshálh* cultural use and occupation sites, cultural features and archaeological evidence. Located at the heart of the historically most populous region in the territory, this area was the site of the main winter villages of the *shíshálh* people, and included a great many well-protected home sites and productive harvest locations with varied marine and terrestrial resource opportunities. To the north, an extensive lake district was used for hunting and fishing with main camps at *stséxwena* (Sakinaw Creek) and *kwíkwilúsin* (east side of Sakinaw Lake) and *lóh-uhlth* (Mixal Lake).

Key Values, Including:

- Extremely high cultural and spiritual values, including:
 - Very high concentration of *shíshálh* cultural use, occupation, and archaeological sites
 - séxw?ámin (Garden Bay) could be considered the "centre of the shíshálh universe"; it was a year round village by virtue of its sheltered location, and served as a gateway to transportation corridors on sinkwu (Georgia and Malispina Strait) and lékw'émin (Jervis Inlet) via líkw'émin (Agamemnon Channel);
 - Includes main winter villages of *poke-poke-um* (Bargain Harbour), *sálálus* (Madeira Park), *smexhalin* (Kleindale), *kway-ah-kuhl-ohss* (Myer's Creek), and *séxw?áwinl* Garden Bay);
 - Primary location for winter dances and ceremonials;
 - o Many lakes on upper Sechelt Peninsula were favoured harvest sites;
 - Fishing at Ruby, Ambrose and *stséxwena* (Sakinaw) lakes for Rainbow Trout, and hunting, primarily for *húpit* (Black Tailed Deer), in adjacent forests;
 - Wide variety of seasonal settlements and camps to facilitate harvesting of local resources.
 - *wah-wey-we'-lath* (Mt Cecil) and *shélkém* (Mt Daniel) were important local mountain peaks used for a variety of cultural and spiritual purposes and in defense;
 - Numerous fish weirs, canoe skids, ceremonial sites, archaeological sites.
- High wildlife/biodiversity values, including:
 - Extensive and intensive foreshore, inter-tidal and marine harvesting of resources.

Key Management Issues, Including:

- Proliferation of docks, boats and foreshore development.
- Land alienation due to intensive rural residential development.
- ✤ Water pollution from septic systems.
- ✤ Shellfish contamination.
- Loss of access to cultural harvesting sites and resources.
- Potential impacts of water diversion from Sakinaw/Ruby lakes for domestic residential use.
- Destruction of *shíshálh* cultural resources and archaeological sites.

Management Direction, Including:

- ✤ To be developed through a CEA management planning process.
- Detailed landscape level planning and zoning required to protect and restore opportunities for shíshálh harvesting, especially in areas of current or proposed development expansion.

As described in Box 6.5, Pender Harbour is an extremely important cultural area. However, as shown in Figure 6.65 and detailed by Merchant (2004), it is also a major tourism and recreation destination. The impacts of these and related activities on cultural has been a great concern from the Sechelt Indian Band. A decade ago, and in response to development pressures, the Band hired archaeologist Peter Merchant to undertake a large-scale shoreline study in an effort to characterize and quantify the impacts (Merchant 2004). Merchant's survey of 16km of southern Pender Harbour shoreline identified 18 archaeological sites (Figure 6.66). Of the 18 sites, 16 are above 60% destroyed (2004:53-55). Figures 6.67 and 6.68 are images from Merchant's study. They offer excellent examples of the kinds of development pressures that typify this area. In addition to terrestrial disturbances associated with residential development and infrastructure, "marine disturbances" (i.e., docks) are identified as a major problem. I will return to Merchant's study for comparison in the final section of this chapter.



Figure 6.65 Detailed satellite view of central Pender Harbour Study Unit around the communities of Garden Bay (north) and Madeira Park (south). Note intensive coastal development and high number of docks. Top is north. Source: Google Maps.



Figure 6.66 Merchant's (2004) Pender Harbour Pilot Project map showing his coastal survey, which covered approximately 16 kilometres of shoreline. SBL areas are shown in red.



Figure 6.67 View south at site DjSa-37, south Pender Harbour. The dashed lines show the boundary of the site as it was mapped in 1978. In his 2004 study, Merchant found cultural material extending the entire length of the coastline shown in this image. According to Merchant (2004:53), the site has been "adversely impacts by residential construction, construction of private moorages and concrete boat ramps." He estimates that 70% of the site has been destroyed. Source: Merchant 2004:20, Fig. 10.



Figure 6.68 View east at northern extent of site DjSa-37, southern Pender Harbour. The dashed lines show the boundary of this portion of the site as surveyed and mapped by Merchant. Source: Merchant 2004:20, Fig. 11.

In terms of shoreline development, the situation is no different on the northern side of Pender Harbour, including the vicinity of Garden Bay (Figure 6.69). One exception to this however, is Garden Bay Marine Provincial Park, which is associated with Sechelt Band Lands. The Garden Bay Marine Park shoreline is 200m in length, much of which is visible in Figure 7.70. The park contains both high elevation and shoreline archaeological sites. The shell midden associated with Figures 6.70 and 6.71 is village site DjSa-3 (see Box 6.2). At 650m by 25m, it extends well beyond the park boundary into the developed area to the west (Figure 6.71) and Band Land to the east. The site is a shell midden with human burials (i.e., it is a cemetery). The site has been "badly disturbed" by residential development.



Figure 6.69 Marine access at Garden Bay Marine Provincial Park. Steel ramp leads to village and cemetery site DjSa-3 (see Box 5). This image, in particular the dock, highlights the issue of recreational boat access to these sensitive places (see, for example, Figures 6.47 and 6.48). View is southeast.

Box 6.2 séxw?ámin (Garden Bay) and the Pender Harbour Study Area

Central to the Pender Harbour–Sakinaw Cultural Emphasis Area is *séxw?ámin* (Garden Bay), described in the *shíshálh* Nation's Strategic Land Use Plan (SIB 2007:9-10) as follows.

In social, political and economic terms *séxw?ámin* (Garden Bay) could be considered one of the most important residential locations of the *shíshálh* Nation and is an example of the Nations intense and complex utilization of its territory. Located at the heart of one the most populous regions in the territory, it dominated <u>k</u>*álpilín* (Pender Harbour) and the surrounding area. Together with the villages of *p'úkwp'akwem* (Bargain Harbour), *sálálus* (Madeira Park), *smishalin* (Kleindale) and *kway-ahkuhl-ohss* (Myer's Creek), it shared well-protected home sites and productive harvest locations with varied marine and terrestrial resource opportunities.

The winter homes of the Sechelt (sicelt) were in Pender Harbour. Near the hospital on the presentday reserve was *tsxwaman*. There were seven big houses there; four of them stood one behind the other while the other three ran crosswise close to the ends. Farther away, on each side of the harbour, were the small houses.

Situated just south of an extensive lake district, it [*séxw?ámin*] was further supported by strategic camps at *stséxwena* (Sakinaw Creek) and *kwíkwilúsin* (east side Sakinaw Lake). *Séxw?ámin* was a year round village that by virtue of its location, served as the gateway to transportation corridors on *sínkwu* (Georgia Strait and Malaspina Strait) and *lékw'émin* (Jervis Inlet) via *lílkw'émin* (Agamemnon Channel). Together with the village of *klay-ah-kwohss* (Buccaneer Bay) on *sxwélap* (Thormanby Island) to the south, it also served as a primary location for winter dances and ceremonials.

... at SAUGH-KWAH'-MAIN, [*séxw?ámin*] Garden Bay. Each chief village, he said, had its lodges there, reserved for winter ceremonials.

The Johnson Reserve at Garden Bay, likewise, in the thick layers of shell exposed along the bank, shows signs of long occupancy. Present day residents cannot recall the old buildings, but, from the position of the clam heaps, and from the contours of the terrain, it would seem logical to suppose that they were located on the flat ground immediately above the steep bank to the salt water, at an elevation of some forty feet. The stream that drains what is now Garden Bay Lake runs through that flat.

With the increase in European settlement in *kálpilín* (Pender Harbour) during the early 20th century, many resident *shíshálh* Nation members were forced to move to *séxálíten*, the harbour entry islands (Skardon Islands). Apart from small remnant populations at some of the old village sites, little evidence remained of the once vibrant community that prospered there.

Site disturbance is occurring within the park boundary as well. In this case, erosion is the result of trampling associated with a picnic area located the west of the park dock (Figure 6.71). There is evidence of past log raft storage on this shoreline as well.



Figure 6.70 Rocky shoreline at Garden Bay Marine Provincial Park and village site DjSa-3. As seen from the marine dock in Figure 6.69, this image highlights the ease of access to this village site and cemetery. Figure 6.71 is to left. View is North.



Figure 6.71 Eroding shell midden at village site DjSa-3 at Garden Bay Marine Provincial Park. Eroding sections at right of photo are associated with the park's picnic area, located just out of frame at top right. Impacts here are related to trampling. There is also evidence of past log raft storage here.

In the forested area of the park, I encountered a decomposing donkey engine from late 1800 to early 1900s (Figures 6.72 and 6.73). Donkey engines were portable, integrated powerplants and gearing that turned one or more drums or winches containing wire rope (Kamholz 2013). Donkeys were designed to lift, drag, and move logs from the stump to an accumulation point. They were also used to load logs on cars that transported logs to distant mill sites. Invented in California, the donkey engine helped accelerate timber harvesting throughout the Pacific Northwest. Used extensively in Oregon, Washington and British Columbia, it contributed significantly to the region's economy and culture from the late nineteenth well into the twentieth century.

After the railroad, the donkey engine was the next major application of industrial revolution technology to the movement of logs. Prior to the invention of the donkey engine, logs had to be moved by gravity or brute force, usually in the form of hand labor or by using teams of oxen or horses. The advent of the steam-powered donkey engine made high-volume, mechanized logging possible, thus ushering in the era of large-scale logging and lumbering during the early years of the twentieth century.



Figure 6.72 Decomposing donkey engine in forest off of walking trail at Garden Bay Marine Provincial Park. Note wire rope on drum (centre) and bolts through log (foreground). This artifact is indicative of historic-era logging on the Sunshine Coast, a practice which is ongoing (see Figure 6.74). As discussed in Chapter 7, logging has played a significant role in maritime heritage destruction on the *shishálh* coast (see also Figure 6.87).



Figure 6.73 Donkey, still attached to original base logs, at Garden Bay Marine Provincial Park.

The eastern portion of Pender Harbour is defined by two large shallow embayments, Oyster Bay in the south (Figure 6.74) and Gunboat Bay in the north (Figures 6.75, 6.76, and 6.77). There are a total of five registered archaeological sites in Oyster Bay, including shell middens, fishing weir and lithic scatters. Of those, five occur at the shoreline and all but one (DjRx-16) have been described as disturbed via logging, recreation and residential development. The site report for DjRx-16 notes that: "housing development in the area appears imminent. Watch." The site report for DjRx-56 describes: "Wave action and bank erosion have disturbed site, and shovel tests likely removed most of the remaining deposit."

There are total of 10 archaeological sites in Gunboat Bay. Of those, all occur at the shoreline, nine are shell middens, with human burials, lithic scatters, and pictograph features also included. Of the 10, five are disturbed, and one is destroyed. This scenario is virtually identical to Oyster Bay. Figures 6.75 through 6.77 illustrate the range of impacts to these low-lying archaeological landscapes.



Figure 6.74 Looking southeast into Oyster Bay and its watershed. There are five registered archaeological sites in Oyster Bay. Note different stages of deforestation/regrowth in upper basin. Gunboat Bay is to left. The entire low-lying eastern portion of the Pender Harbour Study Unit is at great risk of erosion and inundation (see Figure 6.75 for example of the area's low elevation).



Figure 6.75 Panoramic view of Gunboat Bay at low tide. There are ten registered archaeological sites in Gunboat Bay. As with many other locations visited for this study, "natural beauty" is a major amenity, as well as easy access to marine environments. View (at center of image) is southeast.



Figure 6.76 Residential development near entrance to Gunboat Bay. There are two archaeological sites recorded for this area, DjRx-13 and DjRx-14. Shell midden site DjRx-13 has been completely destroyed by residential development, and midden DjRx-14 has been heavily disturbed. View is southeast.



Figure 6.77 Residential development near entrance to Gunboat Bay. These residences sit in site DjRx-13, a shell midden. Note boat docks, which permit quick access to virtually everywhere in Pender Harbour. View is east.

As indicated in Figure 6.78, the entire Pender Harbour Study Unit is deemed "at-risk." This includes the Sakinaw Creek estuary (see Figure 6.79). As illustrated in Figure 6.78, the primary threat in the eastern portion of the harbour is flooding, while in the central and western areas, residential development and concomitant seawalls and docks pose the greatest threat, along with supporting municipal infrastructure.



Figure 6.78 Vulnerable shorelines in Pender Harbour. Arrows point to low-lying zones at risk of flooding; dashed red line indicates eroding shoreline. The entire area is deemed at-risk. Top is north. Source: Google Maps.

Sakinaw Creek, which is located northwest of Pender Harbour, is a short stream that connects Sakinaw Lake with the Strait of Georgia (Figure 6.79). The Sakinaw Creek estuary is associated with shell midden site DjSa-12 and Sechelt Band Lands. There evidence of active site erosion and disturbance by recreational activity in the vicinity. Development pressures are also increasing due to ongoing residential development to the south.



Figure 6.79 Vulnerable shorelines at Sakinaw Creek estuary. Arrow points to low-lying zone at risk of flooding; dashed red line indicates eroding and/or high energy shoreline. Agamemnon Channel is at left, Sakinaw Lake at right. Top is north. Source: Google Maps.

The Sakinaw Creek estuary houses a fish ladder complex, shown in Figures 6.80, 6.81 and 6.82. The water levels in the creek and lake are therefore highly managed. This estuary and surrounding landscape is very sensitive because of at-risk fish species in the lake. The infrastructure and maintained by the Department of Fisheries and Oceans is situated on top of archaeological site DjSa-12 and the corresponding Sechelt Band Lands. As shown in Figure 6.83, the western portion of the Sakinaw Creek estuary is a high-energy landscape and thus vulnerable to storm surge and sea level rise.



Figure 6.80 Sakinaw Lake fish ladder, maintained and operated by Canada's Department of Fisheries and Oceans. This image illustrates the level of modification to this landscape; the salmon population is now dependent upon these structures and the people who manage them.



Figure 6.81 Looking downstream at Sakinaw Lake fish ladder and Sakinaw Creek estuary. Sechelt Band Land is on right. Future sea level rise will not only impact the shell midden site associated with this landscape but the operation and functionality of the fish ladder as well. As such, attempts to mitigate sea level rise impacts at this location will have repercussions for an already at-risk salmon population.



Figure 6.82 Side view of Sakinaw Creek estuary just below structure shown on Figures 6.80 and 6.81. Site DjSa-12 (shell midden) is actively eroding here, primarily through trampling by recreationists.



Figure 6.83 Looking northeast at high energy Sakinaw Creek estuary. Site DjSa-12 is at left.

The final pages of my description of the *shíshálh* coast survey correspond to the last stages of my Sakinaw Creek estuary survey. These photographs provide a poignant capstone for this study. This narrative begins with me walking seaward across the Sakinaw Creek estuary platform, as shown in Figure 6.84. As I approached the western limit of the platform, which itself contained numerous eroding lithic artifacts from site DjSa-12, I spied atop a raised bench an unusual artifact or feature (Figure 6.85). As I approached, I came across a pile of decomposing steel rope (Figure 6.86) directly below the mystery object. A short climb satisfied my curiosity (Figure 6.87): another donkey engine, this one branded "EMPIRE." This aptly describes the historical importance of logging to British Columbia's development and contemporary economy. However, today on the Sunshine Coast, residential development has replaced commercial logging in the pursuit of growth, development, and progress (Figure 6.88).



Figure 6.84 Looking seaward at Strait of Georgia from Sakinaw Creek estuary. I am walking on an intertidal lithic scatter, with lithics eroding out of site DjSa-12, located at right. Vancouver Island is visible in distance. I am walking towards what is the northern-most limit of the *shíshálh* Coast study area. View is southwest.



Figure 6.85 This cliff face represents the northern extent of the *shíshálh* coast study area. It is here, in this seemingly-remote corner of the coast, that I spied an indeterminate artifact/feature on a raised bench located above the Sakinaw Creek estuary.



Figure 6.86 The author inspecting decomposing steel rope, indicative of industry, on beach below unknown artifact/feature.



Figure 6.87 Unknown artifact identified: early twentieth century "EMPIRE." The terminus of my *shíshálh* coast study was on this small bench above the Sakinaw Creek estuary. Here, I identified the unknown artifact as a Vancouver-manufactured donkey engine. The significance of this artifact is two-fold. First, as discussed further in Chapter 7, logging has historically had a significant impact on coastal heritage landscapes. However, logging is also central to Pacific Northwest Coast settler heritage, as illustrated in Figures 6.15 and 6.16. As indicated in the name of the donkey engine, logging was central to empire-building in British Columbia and remains a key aspect of contemporary growth, development, and progress.


Figure 6.89 An example of early twenty-first century "EMPIRE," this plan for development around Sakinaw Creek estuary symbolizes how amenity migration and residential development have replaced commercial logging as a primary driver of coastal change.

Chapter 7: Summary and Discussion

One hundred and twenty-nine registered archaeological sites occur within the *shíshálh* Coast Study Area. With 71 sites, the Pender Harbour Study Unit has more than the Sechelt and Halfmoon Bay Study Units combined (Table 7.1).

As predicted, archaeological sites in the urban centre have been impacted noticeably more than in outlying areas. 84 percent of known sites in the more developed Sechelt Study Unit are characterized as disturbed or destroyed. This is, on average, 10 percentage points higher than at Halfmoon Bay (73%) and Pender Harbour (75%). A major factor in this difference is the high percentage of destroyed sites in the Sechelt Study Unit (Figure 7.1).

Summary Comparison of Three Study Units									
	SSU		HBSU		PHSU		Total #	Total %	
	#	%	#	%	#	%			
Number of Known Sites	25		33		71		129	100	
Disturbed	19	76	24	73	48	68	91	71	
Destroyed	2	8	0	0	5	7	7	5	
Disturbed and Destroyed	21	84	24	73	53	75	98	76	
<15 Metres Elevation	16	64	32	97	70	99	118	91	
Intersects Shoreline	15	60	28	85	70	99	113	88	

 Table 7.1
 Summary Comparison of Three Study Units

Three-quarters of all sites in the *shíshálh* Coast Study Area are described as being disturbed or destroyed (Figure 7.2); about 70 percent are disturbed, 5 percent destroyed, and 25 percent categorized as "unknown." This number is considered a *minimum estimate* because of (*a*) the high variability in details included in archaeological site forms and (*b*) the ontological problem of "site disturbance" versus "site destruction" (see below).



Figure 7.1 Disturbed and destroyed sites by *shíshálh* Coast Study Unit (n=129).



Figure 7.2 Sites disturbed and destroyed in all shishálh Coast Study Units (n=129).

Residential development is by far the biggest threat to *shíshálh* heritage today. Whether measured by type (Figure 7.3) or by category (Figure 7.4), residential development has impacted more than twice the number of sites than any other factor.¹ This finding contradicts Acheson and Riley's 1977 identification of logging as the most common cause of site destruction (Figure 7.5, left).

In addition, Acheson and Riley predicted erosion and recreation would become (>1977) the most destructive forces in the region (Figure 7.5, right). Put another way, Acheson and Riley found that that the most destructive forces in 1977, logging and construction, would decrease over time, and that those forces would be replaced by erosion and recreation in the future.

In explaining the latter prediction, Acheson and Riley (1979:66, emphasis added) described how "in the last decade there has been a marked shift within this region of the Gulf, towards increased recreational activity *due to an increase in local population.*" Clearly, they perceived a direct link between local population growth and increased impacts. It is therefore perplexing why they felt that recreation would become the biggest threat rather than construction.

Taken together, Figures 7.3, 7.4, and 7.5 highlight the problem of *ontology* in archaeology/CRM discourse. The wide variety of types (labels) used to describe heritage impacts, illustrated so clearly in Figure 7.5, limits any kind of fine-grained analysis.² What is actually meant when it is said that a site has been "disturbed?" What is meant by "recreational impact?" What *is* "landscaping?" What do any of these terms say, if anything, about heritage impacts?

Based on their calculations, Acheson and Riley estimated that 99 percent of known sites in their northeastern Strait of Georgia study area would be threatened by "destructive agencies" in the future (>1977). These predictions are reminiscent of those described by Moss and Erlandson (2008) in coastal Oregon; I will return to this in Part Three.

¹ When looking at Figures 7.3 and 7.4, recall that the *types* (Figure 7.3) are based on archaeological assessments (i.e., site forms) on file at the BC Archaeology Branch, and that the *categories* (Figure 7.4) are analytic units defined by me to simplify that typology.

 $^{^{2}}$ This diversity is also reflected in the high number of sites that fall into the "other" category in Figure 7.4.



Figure 7.3 Site disturbance by type for all *shíshálh* Coast Study Units (n=129).



Figure 7.4 Site disturbances by category for all *shíshálh* Coast Study Units (n=129). Today, residential development is the most common cause of site disturbance.



Figure 7.5 Site disturbances in Acheson and Riley's 1977 northeastern Strait of Georgia study (n=186). In 1977, logging was by far the most common cause of site disturbance. They predicted erosion and recreation would become the most destructive forces in the future (>1977).

The situation is further complicated by inclusion of Merchant's (2004) Pender Harbour findings (Figure 7.6). All (100%) of the shishalh sites that Merchant visited (n=15) in southern Pender Harbour had been disturbed, and, on average, three-quarters (74%) of each site had been destroyed. Seven of the sites he visited had been 90 percent destroyed. In addition to characterizing the destructive nature of residential development, Merchant's study raises important questions about the use of the terms "disturbed" versus "destroyed."

To start making sense of this language, one must begin by recognizing that the use of the term "disturbed" by archaeologists makes no sense if one takes disturbed to mean mixing of provenience and context. This is because for scientific archaeologists, a site is destroyed when that site's scientific value is destroyed. In this way, site disturbance *is* site destruction. What this means, for example, is that when an archaeologist says that a shell midden is 60 percent "disturbed," what they are really saying is that the site is 60 percent *destroyed*.

To further complicate matters, while 60 percent of that site may be considered "destroyed," the site in its entirety may only be deemed "disturbed" because it does contain 40 percent intact materials. This is if ones places the frame of reference around the site itself, in a "dots-on-maps" approach. If, however, we zoom out to view the site as part of a larger cultural landscape, then using the term "disturbed" may be absurd as the landscape itself is changed when, say, a condominium is constructed in the middle, resulting in 60% of the archaeological site being "destroyed." Scale, therefore, shapes perspective, as does cultural context, influencing the language employed to describe these places.

The term "destroyed" has important ethical and legal implications that must be immediately accounted for. As Merchant (2004:47) points out, regardless of the level of "disturbance," most of the sites he examined are considered by the *shíshálh* Nation to have high cultural significance. The correlation between site destruction and heritage "value" is therefore complicated. I will return to this key point in the next chapter.



Figure 7.6 Percentage of known sites destroyed in southern Pender Harbour (Merchant 2004). On average, 74 percent of every *shíshálh* site that Merchant visited (n=15) had been destroyed. See Appendix 2 for tabled data. Source: Merchant 2004:53-55.

On top of all of this, 90 percent of known sites in the *shíshálh* Study Area are located at less than 15 metres elevation above sea level (Figure 7.7), placing them within the SLR Management Zone³. More startling is that just under 90 percent (88%) of known sites intersect the contemporary shoreline (Figure 7.8). The key point here is that nine out of ten sites will be impacted, directly or indirectly, by sea level rise over the coming decades.

Sea level rise-induced flooding, exacerbated by increased storminess, will have a devastating impact on the vast majority of *shíshálh* heritage landscapes. Each Study Unit has at least two critically important landscapes that are imminently threatened. Those are:

- Sechelt Study Unit
 - o ch'átlich / Trail Bay (1 archaeological site)
 - o tsúlích / Porpoise Bay (1 archaeological site)
- Halfmoon Bay Study Unit
 - Vaucroft Beach (1 archaeological site)
 - o *klay-ah-kwohss /* Buccaneer Bay (3 archaeological sites)
- Pender Harbour Study Unit
 - o *klay-ah-kwohss /* Gunboat/Oyster Bays (15 archaeological sites)
 - o stséxwena / Sakinaw Creek (1 archaeological site)

Responses to sea level rise—notably the landward/upward relocation of infrastructure such as roads, structures and seawalls—will also have a significant impact on *shíshálh* heritage landscapes (see BC Ministry of Environment 2013:7, Figure 3; Pilkey and Young 2009:179). Complicating matters is that many of these low-lying landscapes are actively controlled/protected by mechanized systems, and/or they already have certain demands upon them for key functions other than the protection of archaeological heritage. Examples shown here include *freshwaters wetlands* at southern Porpoise Bay (Figures 6.14), Coopers Green (Figure 6.57) and Sargeant Bay (Figure 6.62), and *salmon* at Sakinaw Creek (Figure 6.82).

³ This figure of 15 metres was designed to (*a*) reflect the uncertainty of future sea level rise (expected to be 3 metres by 2300 in British Columbia; see Pilkey and Young 2009); (*b*) accommodate bank and bluff erosion above 3 metres; and (*c*) take account of future responses to sea level rise impacts that themselves will negatively affect coastal heritage (e.g., relocating such infrastructure as roads, waterlines, seawalls). Toward this, I argue for a 15-metre elevation coastal buffer zone for all shorelines.



Figure 7.7 Site elevation (< 15 metres) for all *shíshálh* Coast Study Units (n=129).



Figure 7.8 Percentage of known sites intersecting shoreline in all shishálh Coast Study Units (n=129).

Seven key findings have emerged from my analysis of three *shíshálh* heritage landscapes, which include a total of 129 registered archaeological sites. Those findings are:

- 1. Residential development has replaced logging as the primary cause of site disturbance on the *shíshálh* Coast. This represents a shift away from an industrial use of this landscape. In the next chapter, I discuss how this change signifies *amenity migration* or "sea change," characterized by migrants who "move for lifestyle, rather than jobs, choosing places with natural amenity, climate, recreation, and affordable housing" (Gurran 2008:391). As illustrated on the following page, about 80% of homeowners in the Sunshine Coast Regional District are "non-local" (Figure 7.9). Of those, about 80% come from the Vancouver/Lower Mainland area (Figure 7.10).
- 2. At least 75 percent of all known sites examined have some degree of disturbance. This number is ten percentage points higher in the more urban (heavily developed) Sechelt area. In southern Pender Harbour, however, Merchant found that *100 percent of known sites had been disturbed*, and, on average, 74 percent of each site had been destroyed.
- **3. 90 percent of known sites are located at the contemporary shoreline.** All of these sites will be *severely impacted* over the coming decades by residential development and sea level rise. The same percentage of known sites falls within the15m SLR Management Zone.
- **4.** For scientific archaeologists, a "disturbed" site is effectively considered destroyed. This is because such a site has lost its ability to contribute to knowledge about the past.
- 5. For the *shíshálh* Nation, all sites are "significant" irrespective of any measure of site destruction or disturbance. However, the *shíshálh* management plan seeks to protect heritage landscapes from "disturbance."
- 6. While the *shíshálh* have tried to be proactive in the stewardship of their heritage, their ability to affect meaningful change is severely limited by the state and its supporters. In reality, and despite active participation in the cultural resource management process, the *shíshálh* Nation has very little control over how *shíshálh* heritage landscapes are stewarded.
- 7. If the goal of (state-controlled) cultural resource management is to protect sites, then the *shíshálh* Coast study demonstrates that it is an ineffective strategy. The question of whether or not this IS the goal of cultural resource management will be the subject of the next chapter.

Above all, the *shíshálh* Coast Study brings awareness to the issue of internal and external impacts and internal and external control. The impacts can be observed in a variety of ways, including the international development firms encountered at Porpoise Bay, and the residential development that is now the dominant force on the coast. The latter is addressed in Figures 7.9 and 7.10. The issue of internal and external control is the subject of Part Three.



Figure 7.9 Residential ownership by origin (local vs. non-local) and location (SCRD, Sechelt, and Gibsons) for the year 2010. In the Sunshine Coast Regional District, 80% of residences are owned by non-locals (see Figure 7.10), compared to 20% in the Town of Gibsons. Source: Sunshine Coast Credit Union 2011:45



Figure 7.10 Non-local housing ownership on the Sunshine Coast by origin, 2010. About 80% of all nonlocal Canadian home-owners on the Sunshine Coast derive from the Lower Mainland. Source: Sunshine Coast Credit Union 2011:46 A 2011 Sunshine Coast Credit Union socioeconomic study provides a useful baseline for contextualizing my seven findings, in particular how they relate to Figures 7.9 and 7.10. These key points are made in the bank's report The Future Business Environment of the Sunshine Coast, 2011-2021 (Sunshine Coast Credit Union 2011:13-14, 34-35, 52):

- Population growth driven mainly by migration
- Largest migration segment from Lower Mainland
- More than two-thirds of net migration is in age group 45 years or older, mainly from Lower Mainland
- Net migration outflow in the 15-24 and 75+ age groups (youth and elderly)
- Sunshine Coast population has higher proportion in 45+ age groups and lower proportion in under 44 age groups than B.C.
- Population aged 55+ increased more than 140% since 1986 compared to less than 45% in the under 55 age groups
- Aging of the post-war baby boom and the older age make-up of migration to the Sunshine Coast are main factors
- Economy less dependent on natural resources, more service industry-oriented economic base
- Economy largely dependent on external factors for growth with some lift from local growth conditions
- A significant number of workers commute
- Large non-local ownership of residential properties; generates seasonal increase in population
- Majority of non-local owners from lower mainland
- Non-local ownership highest (>80%) in Sunshine Coast Regional District

The bank's report ends with these final points made in its "forecast summary" (2011:57-58):

- Higher growth largely depends on stronger economy and housing markets in Metro Vancouver and B.C. leading to more in-migration and non-local ownership activity
 - Higher in-migration and population growth drives real estate, construction, and retail employment
- Non-local residential ownership continues to increase
 - Age structure of population shifts towards older age groups; by 2021, more than 50% of resident population aged over 55 and 33% aged 65 years or older.

The authors conclude that in order to "retain, expand, and attract businesses and people," efforts need to be made to "[p]romote and market [the] Sunshine Coast."

It is through amenity migration that contemporary *shishálh* maritime heritage destruction and degradation is linked to the core that is Vancouver. This is no different than the previous period when logging was the dominant destructive force. In this way, there has been no change in the dominance of the core over the periphery in issues of local control over heritage.

PART THREE: SHIFTING THE BASELINE—THE POWER OF SCALE

shift — verb (used with object)

 to put (something) aside and replace it by another or others; change or exchange: *to shift friends; to shift ideas*.
 to transfer from one place, position, person, etc, to another: *to shift the blame onto someone else*.¹

The *shíshálh* Coast study shows CRM to be ineffective at protecting Indigenous heritage, and highlights how heritage destruction emanates from the core, in this instance the metropolis of Vancouver. In the past, the primary cause of *shíshálh* heritage destruction and degradation was industrial resource extraction. Today, it is amenity migration and residential development. In the future, rising seas and responses to coastal flooding will consume what (little) remains of the *shíshálh* maritime landscape. My goal for Part Three, then, is to better understand how and why things have gone so terribly wrong.

Towards that goal, I shift the discussion away from the *shíshálh* Coast and toward the centre of Power, in this case Vancouver-Victoria. This pairing is important because while the impacts on the Coast principally emerge from the economic center (Vancouver), it is the legal-political thus bureaucratic center (Victoria) that "permits" the development. In addition, both Vancouver and Victoria house the major universities that discipline archaeologists in resourcism and management, the two key elements of compliance archaeology. Further, the vast majority of professional archaeologists are permanent residents of the core, thus they naturally take on the urban or metropolitan worldview.

In Chapter Eight, I apply the "power-elite dynamic" to the *shíshálh* Coast study to explicate what has happened there. I begin by deconstructing the concepts that are "management" and "resourcism." I then show how archaeology/CRM is a form of neoliberal statecraft, a government "technology" designed not to "save" heritage from development, but rather to "clear" it from the landscape. A major challenge to seeing how archaeology/CRM works "in service of the state" is that archaeology constitutes an ideology, thus its position at the center of the system represents a "taken-for-granted," rendering it largely "invisible," especially to its practitioners. A similar challenge is the slow pace at which the maritime heritage crisis typically unfolds, a tempo that also works to obscure archaeology's role in it.

In Chapter Nine, I use the "miner's canary" metaphor to think about the lessons to be learned from the *shíshálh* Coast study. I then intentionally complicate matters with a "problematique," and build on that concept with a discussion of "intractability" and "hope." I conclude the study in Chapter Ten.

¹ shift. *Dictionary.com Unabridged*. Random House, Inc., n.d. Retrieved 20 February 2012, from http://dictionary.reference.com/browse/shift

Chapter 8: The Power-Elite Dynamic—Scale, Power and Land Use

It is only through fundamental change at the center of the system, from which the pressures on the planet principally emanate, that there is any genuine possibility of avoiding ultimate ecological destruction.

– John Bellamy Foster, 2009:7

Academic archaeologists spend a lot of time talking about "collaboration" and "community" these days (Colwell-Chanthaphonh and Ferguson 2008; Nicholas and Hollowell 2009; La Salle 2010). A defining characteristic of such approaches is that archaeologists (typically urban, typically European) fix their gaze upon the "local" (typically rural, typically Indigenous). Apart from the obvious racial component, a potentially fatal flaw in such approaches is the underlying assumption that problems—thus solutions—are "local." Rather, I posit that because heritage destruction so clearly emanates from the core, understanding the crisis means fixing the gaze on "the center of the system" This includes not just capitalists (Vancouver) and the government (Victoria), but also archaeology and archaeologists (Gnecco 2012; Haber 2012; Nicholas and Hollowell 2007; Thomas 2004), for all call the core home.

A focus on the centre, the nexus of power and authority, brings awareness to not just the lopsidedness or asymmetry of core-periphery relations, but also to the critical role of resource management in mediating those relations. Toward this, Chapter 8 focuses on four areas: (*a*) the power-elite dynamic; (*b*) the power-elite dynamic as it applies to practice of "management"; (*c*) the power-elite dynamic as it applies to the ideology of "resourcism," and (*d*) capitalism and neoliberalism. As discussed below, *ideology* refers to culture that is directed by power. I end by showing how archaeology, as a technology of government, aids and abets the neoliberal project that is growth, development, and progress, the outcome of which is "slow violence."

To be clear, my intention here is not to "prove" here that archaeology is ideological. Archaeologists have repeatedly shown how the discipline works "in service of the state" (Fowler 1987; see also Trigger 1989, 2006; Smith 2004; McNiven and Russell 2005; Hamilakis and Zorzin 2014; Hamilakis and Duke 2007; Moens and Zorzin 2014). As Shanks and Tilley (1987:62) observed over a quarter century ago, "a great deal of archaeology is ideological practice, practice which sustains and justifies a capitalist present." Overall, the discourse of archaeology, they found, "tends toward an argument for capitalism." As such, my goal is to demonstrate how this process works in light of the *shíshálh* Coast study.

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The Power-Elite Dynamic and Land Use

The beliefs underlying capitalism are the most important ideological cause of contemporary adverse environmental changes because capitalism drives the scale changes that have most intensified human pressures on the environment. – John H. Bodley, 2008a:53

Anthropologist John Bodley's power-elite hypothesis states that growth in the scale of sociocultural systems is an elite-directed process that concentrates social power (Bodley 1999, 2001, 2003). This dynamic has important implications for such key areas as growth and sustainability (1999, 2001, 2004a, 2008a), environmental and cultural heritage destruction (2008a, 2008b), uses of resources and space (2004b), resiliency (2002a), human wellbeing (1999, 2008b), and globalization (2002a, 2002b). Not surprisingly, the dynamic also has significant implications for archaeology and the maritime heritage crisis. Most relevant here are links between (*a*) capitalism, population growth, land degradation and decreased resiliency (2008a:57-59), (*b*) capitalism, population growth, concentrated social power and institutionalized specialization (2008a: 119-120, 278-282), and (*c*) capitalism, colonialism and the loss of political autonomy by Indigenous peoples worldwide (2008b:10-12).

The power-elite hypothesis predicts that when power is commercially organized and the scale of a community grows (urbanizes), "economic power becomes more concentrated" (Bodley 1999:595). *Scale* refers to the <u>absolute size</u> of populations, economic enterprises, markets, armies, cities, or anything that affects human health and wellbeing, i.e., the individual and their environment² (Bodley 2003:5). *Culture scale* refers to specific order of magnitude differences in the size of social systems, and the corresponding cultural features that support them. In a nutshell, the theory is that "scale-increases occur as an elite-directed process designed to disproportionately concentrate social power under elite control. In this respect, big may not be better for everyone, but small economies may be beautiful as Schumacher (1973) has observed" (Bodley 2002a:73).

Bodley recognizes *social power* as the ability of individuals to influence other people and events in order to improve their own material opportunities, or life chances, and "[t]he ability to make strategic decisions that transform or 'develop' entire societies and cultures to suit one's purpose is the apex of social power" (2003:4). Whereas *commercialization* refers to the production and maintenance of private profit-making business enterprises, the term *commercial scale culture* signifies a cultural system

² See Elizabeth Barnett and Michele Casper's (2001) 'A Definition of "Social Environment." The link between environmental destruction, which includes cultural heritage, and human wellbeing is the subject of Chapter 9.

organized by impersonal market exchanges, commercial enterprises, contracts³ and money (2005:520). In particular, Bodley's 1999 study⁴ of contemporary communities in eastern Washington State shows that

Elite property owners, who most benefit from growth, assume a larger role in municipal government, where they can encourage further growth through municipal annexations and zoning changes. Thus, as elite power becomes increasingly concentrated, the growth process itself tends to become self-perpetuating. In the [Washington State] example, small, no-growth municipalities appear to be politically more democratic than larger-scale, growing municipalities and household well-being in them more equitably distributed. (1999:595)

Population pressure is the most widely accepted anthropological explanation for intensified environmental problems such as land degradation (2002b:166), and "the most striking general conclusion to be drawn from the cultural ecological data in the anthropological record is that the speed and scale of resource depletion and environmental degradation accelerates with increases in the scale of culture and the concentration of social power" (2002b:163). Bodley concludes that "people living in small-scale cultures were better able to maintain long-term, relatively resilient relationships with the natural environment than peoples living in larger scale cultures."⁵ Bodley's findings contradict established beliefs about evolutionary progress and "challenge the popular ideology that unlimited growth, especially economic growth, is a natural process, and the best way to improve human well-being" (2002b:163).

The impact of the power-elite dynamic in a commercial scale culture (e.g., British Columbia) is increasingly centralized social power in the core and heritage destruction in the periphery (Bodley 2008a, $2008b^6$). In this framework, archaeology is not just simply a product of the power-elite dynamic, but it is a tool of the power-elite. For example, in terms of Indigenous heritage management in British Columbia, Vancouver-Victoria controls all the key aspects of the process, from governance (Dent 2012) to ideology production (Nicholas and Hollowell 2009). In the *shíshálh* case study, heritage destruction is largely associated with amenity migration, the result of people trying to "escape" an increasingly toxic and nature-less thus sick urban environment² (La Salle 2014). The outcome of urban growth for "peripheral" Indigenous cultural heritage is demonstrated clearly in the number of sites disturbed and destroyed as a result of out-migration *from* the Lower Mainland *to* the amenity-rich "Sunshine Coast."

The power-elite dynamic goes a long way in explicating the nature and meaning of globalization, itself a form of imperialism. For Bodley (2002a:73), *globalization* is a cultural process in which "peoples,

³ As in "contract archaeology" (Gnecco and Dias 2014).

⁴ Bodley (1999, 2001) tested the power-elite hypothesis using a wide range of quantitative data, including ethnographic information on urban property ownership, covering all incorporated urban places within 27 municipalities in the Palouse region of eastern Washington State.

⁵ For regional examples of this, see Campbell and Butler's (2010) 'Archaeological Evidence for Resilience of Pacific Northwest Salmon Populations and the Socioecological System over the last ~7,500 years' and Tropser's (2011) *Resilience, Reciprocity and Ecological Economics: Northwest Coast Sustainability.*

⁶ See also Michael Renner's (2002) *The Anatomy of Resource Wars*. Renner discusses how "violence serves an economic function" (2002:14), a point I will be taking up in the following chapter.

cultures, natural resources, and ecosystems from throughout the world are drawn into a single, vast, elitedirected network of production and consumption." Beyond a certain minimum scale, growth naturally becomes an "elite-directed process that disproportionately benefits the elite and shifts costs to the majority" (2002a:73). This makes the growth process *unsustainable* "because elite decision-makers who enjoy increased benefits, but are relatively unaffected by increased costs, have little incentive to accept natural or cultural limits."

Apart from its ties to the Vancouver-Victoria core, itself a major hub in the global elite-power network, the *shíshálh* Coast has another, less apparent global connection. That the major impact on *shíshálh* heritage has shifted from resource extraction to home construction points to a much larger trend, one that adds another layer of complexity to the unfolding global ecological crisis. Not only does it explain the global relevance of the *shíshálh* case study, it provides further support for Bodley's use of the notions of "households" and "up-scaling." That trend is the global "household explosion" (Badger 2014):

Why does this matter? In the U.S. and Europe, the average household included about five people in the late 1800s. Now it has more like 2.5. That means the same number of people today live in twice as many homes, requiring twice as many resources to build and furnish them, to heat and cool them, to pave roads to their front doors. This 'household explosion' has long been underway in developed countries. But it's rapidly accelerating throughout the rest of the world.

In their recent study of the "explosion," Mason Bradbury and colleagues (2014) apply a variation of the famous I=PAT model, where heritage impacts (I) = population (P) × affluence (A) × technology (T). As the authors point out, "many researchers have found correlations between population size and impacts on resources including water, air, and plant and wildlife species." Based on their analysis, Bradbury and colleagues (2014:n.p.) conclude that "declining household sizes, from over 5 to approximately 2.5, will mean approximately twice as many houses will be needed per capita in any areas of the world yet to undergo the shift in household size. If the average household size had been 2.5 people globally in 2010, then the number of households would have been 41% higher, resulting in 800 million additional households." As Badger (2014) points out, this also means "800 million more refrigerators and ovens and climate-control systems, 800 million more homes that need roads and sewage hookups and access to a power grid. If every one of those homes were the size of the average American home circa 2002 ... that would mean constructing about 72,000 square miles of new housing on the planet." My own experience shows amenity migration must be considered part of this "explosive" up-scaling. For me, moving from Vancouver⁷ to the Sunshine Coast meant moving from a small, dark, cramped basement apartment to a (relatively) large house with a (relatively) large property, all for less money.

⁷ Vancouver is one of the most expensive cities in the world to live in.

In terms of the present inquiry, the outstanding question, then, is what specific roles do scale and power play in resource management? Before delving into that question, it is useful to pause and think about the very much taken for granted ideas/ideologies that are "management" and "resourcism." After considering each, I examine them in the context of the power-elite dynamic. My premise here is that the best way to understand "resource management" is through its component parts. Toward this, I begin by looking at the terms *manage, manager* and *management*.

Cultural Resource Management as Management

management. the process of planning, organizing, coordinating, and directing the productive process in an economic enterprise.

The term is also applied to those persons, organized in a hierarchy, who carry out the management process, that is, who perform these tasks or functions. – George A. Theodorson and Achilles G. Theodorson, 1969:240

The verb "manage" is derived from the Latin *manus*, meaning "hand," and later the Italian word *maneggiare*, meaning "to handle," especially in regards to tools and weapons. In its current usage it refers⁸ variously to: (*a*) The action of controlling or manipulating a person, animal, etc.; the exercise of control; (*b*) To control (a person or animal); to exert one's authority or rule over; (*c*) To take charge of, control, or direct (a household, institution, business, state, etc.); (*d*) To organize the activities of (a person or group of people); (*e*) Formerly: to cultivate, till (land); Later: to maintain and control (the environment, an area, forest, nature reserve, etc.); Also: to conserve natural resources such as game, fish, timber, wildlife, etc.; (*f*) To manipulate or tamper with in order to deceive; to adulterate, doctor. To "manage," therefore, is to *exert control*, the latter being a synonym of power.

The noun "manager" refers² variously to: (*a*) A person who organizes, directs, or plots something; a person who regulates or deploys resources; the wielder of a weapon; (*b*) A person skilled in controlling or regulating finances and expenditure, esp. of a household; a person who runs a household (well or badly); and (*c*) A person who manages (a department of) a business, organization, institution, etc.; a person with an executive or supervisory function within an organization, etc. "Managers," therefore, are individuals or groups who control some "thing," be it tangible or intangible. In addition, the latter definition (*c*) hints at the bureaucratic and financial nature of modern management.

⁸ Paraphrased from *Oxford English Dictionary*. Third edition, September 2000; online version June 2011. An entry for the word "manage" was first included in *New English Dictionary*, 1904.

The noun "management" refers² variously to: (*a*) Organization, supervision, or direction; the application of skill or care in the manipulation, use, treatment, or control (of a thing or person), or in the conduct of something; (*b*) Cunning, manipulation, trickery; the use of scheming, intrigue, prudence, etc., to achieve something; (*c*) A negotiation (to be in a management); to be engaged in negotiations; (*d*) A governing body of an organization or business, regarded collectively; the group of employees which administers and controls a business or industry, as opposed to the labor force; and (*e*) The responsibility for and control of the resources of a company, department, or other organization. As indicated by Theodorson and Theodorson's definition above, there is an essential economic aspect to management.

Management, therefore, refers to the collective work that a manager does and managers do, what Lertzman (2009) calls a "management system" and I term "management discourse."⁹ Implicit in management discourse is the *managerial mentality*, "[t]he thesis that organizations are rational and efficient entities and that people can be regarded as role incumbents and managed to maximize efficiency" (Hale 1990:570; see esp. Ritzer 1993). In the context of systems theory, the resource manager's position or status is set by the social context:

The important feature of social roles in systems theory is that they exist independently of any single actor. They are predefined, and new generations of role-incumbents are trained to fit them. This does not mean that all people [resource managers] play the same role in exactly the same way, but rather the role itself has typical aspects that are common to all incumbents, regardless of individual idiosyncrasies. (1990:20).

While roles vary in the degree of detail and conformation, in general, bureaucratic work roles are "defined in the highest detail and require exact conformity."

In *Economy and Society*, Max Weber (1922:956-958) identified six bureaucratic values that he saw as essential for a fully functioning, self-sufficient institution. Those values are: (*a*) imperial positions (top-down control), (*b*) chain of command (hierarchy of power), (*c*) rule-governed decision making (rules of conduct regarding chain of command), (*d*) defined responsibilities (specialization), (e) bounded authority (rules of conduct for workers), and (*f*) professionalism (pursuit of excellence). These values characterize the CRM system today (Hutchings and La Salle 2014a). Archaeologists who operate in this system—referred to as "archaeobureaucrats" by Joshua Dent (2012)—"are paid to asses projects, apply for permits, carry out fieldwork, write technical reports, and in effect 'manage' resources" (Lyons et al. 2012:8).

According to Weber (1922:225), bureaucratic administration means, fundamentally, "domination through knowledge." Today, scholars see bureaucratic institutions as containing the "seeds of failure"

⁹ As used here, *management discourse* encompasses both natural and cultural heritage discourses (e.g., Mühlhäusler and Peace 2006; Smith 2004, 2006, respectively).

(Acheson 2006:124). Ken Lertzman (2009:347) reminds us that there is "nothing inherent in the idea of 'management' that implies an objective of sustainability or conservation." Indeed,

[i]f 'management' embodies values and norms determined by its social context, then to the extent that they follow social norms, the goals of a management system may legitimately not include a 'conservation' ethic. If a society values commodity production over conservation, then we will see management systems develop that reflect this, such as the large-scale, industrial clearcutting of temperate rainforests in western North America or industrial grain farming in the mid-continent. A management system as a whole can reflect largely commodity or utilitarian values.

Sociologist Sylvia Hale (1990:518-519) describes the major design flaw this way: "The loyalty of officials lies not with the general public or the electorate, but with the bureaucracy itself. Their vocation is to serve their official duties." Employees within the bureaucracy are "even more rigidly subject to its regulations. They operate as cogs in the machine." Hale suggests that the "major requirement for their position is unquestioning and strict adherence to written regulations within their narrowly defined areas of jurisdiction. Their individuality has no place within such a system, for it would disrupt the calculated order."

Lertzman concludes that resource management is intended to "achieve goals and objectives provided to it by its societal context. The job of management is to manifest in practice the normative values of society that are reflected in policies, plans, and accepted behaviors" (2009:346). This is deeply troubling insofar as the "societal context" for resource management is free-market capitalism and the "culture of consumption."

There is "increasing consensus that the cause of resource degradation is institutional" (Acheson 2006:118). In his study of "institutional failure" in resource management, Acheson (2006:125) pays special attention to the inherent weaknesses of imperial or 'top-down' management:

Centralized, hierarchical government units have a number of traits that in the long run work against effective resource management. Government agencies have a strong penchant for regulatory uniformity. As a result, central governments are apt to promulgate one set of rules for large areas that do not take into account variations in the local ecology. Agencies are invested with a good deal of power, which they often use to ride roughshod over the wishes of local government units. This can result in a lot of hostility and opposition from local[s].

The *shíshálh* case study demonstrates exactly this conflict between Indigenous interests in heritage stewardship and government-permitted "management" of archaeological sites. These two concepts—stewardship and management—are, in Lertzman's view, lying in contrast, wherein stewardship has a "clearly implied embedded context of values in relation to the resource" (2009:347): "While managers can 'manage' to achieve whatever objectives society has given them, *stewards* always have an obligation to the resources or ecosystems themselves. The idea of stewardship is very consonant with traditional resource management principles."

Lertzman points out how resource managers have very little control over the nature of their work. In part, this is due to the institution's hierarchical, bureaucratic structure (they do as they are told), and in part because most managers have been socialized into the cultural tradition of resource management, which is hierarchical, bureaucratic and scientific. The first helps explain why resource managers so often carry out what they personally see as counterproductive policies, the second why so many resource managers believe in the system to begin with. The first makes the resource manager part of the problem; the second makes them blind to that fact.

As a state-sanctioned project, resource managers do not conserve things so much as they help carry out the elite-driven project that is growth, development and progress (Hutchings and La Salle 2014b). Lertzman (2009:347) summarizes the situation this way:

[B]y following the rules of behavior and upholding the values that society has laid out for them, [managers] have managed us into a global economic decline, resource management professionals (in the broadest sense of the term) and the institutions in which they participate have 'managed' us into a global environmental catastrophe. This is despite the best efforts of enormous numbers of individuals to do the very best job they can as part of a management system which operates under a 'wicked,' mixed set of conflicting goals and objectives which, to some extent, must inevitably have led us along this path.

West (1995), Spurling (1996) and Dent (2012) have thoroughly detailed the history of "management" in British Columbia archaeology, from its invention to the present day. The picture they paint is not pretty. In this way, the Canadian situation appears identical to that of Australia (Smith 2004), the United States (King 2009), and South America (Gnecco and Diaz 2014).

Cultural Resource Management as Resourcism

Since by 'resources' we generally mean anything which can be bent to human use or consumption, then virtually anything is potentially a resource. ... In Heidegger's earlier terminology, it is the view of the world as a 'standing reserve' awaiting exploitation by human societies.

– Neil Evernden, 1995:563

If one takes stewardship and management to be philosophical positions occupying two ends of a spectrum, then one should ask what the philosophy of management actually is. According to Lertzman, resource managers embody the values and norms determined by their social context, and, according to Bodley, that context is a commercial-scale culture of consumption. It seems, then, that resource management's governing paradigm centres on commodification (i.e., Bodley's commercialization

process), thus it also includes aspects of bureaucratization, specialization and globalization, as well as resourcism.

Resourcism involves the conversion of the environment¹⁰ into commodities. Through this conversion, "resources" are produced that are in need of "management." Evernden (1995:563) addresses this issue as follows:

But while it is commonplace to speak of resources (and nowadays even 'human resources'), the striking feature of resourcism is its tacit expectation that we exist solely in a domain of resources, whether of present use or potential use. ... To its critics the disturbing feature of resourcism is the single, homogenizing feature of value that it brings to its worldview. ... Resourcism constitutes a kind of 'lowest common denominator' of material existence and makes it difficult or impossible to speak of heterogeneity of values or to deal in anything except economic evaluation. Hence the ubiquity of resourcist assumptions has a tendency to constrain debate to terms consistent with those assumptions, and to inhibit nonconformist considerations.

For Brian Spurling, who studied the early (pre-1986) history of Western Canadian cultural resource management, the very term resource management "reveals it as a field whose roots are squarely modern, with some judging archaeology's goals to be congruent with resourcism"—that being "the commodification of all components of the biophysical world, including landscapes and landforms" (1986: 500). Such resources may then be viewed as "merely raw materials or assets appropriable for human purposes," thus aligning archaeology "with the industrial imperative," wherein the concept of management "epitomizes control and the ability to engineer¹¹ away problems affecting them" (1986:500). Zorzin recently described the situation this way: "The current political economy of Western archaeology has ignited series of new discussions and debates which call into question archaeology's capitalist influences and its materialisation as a profession" (2011:119; see also Moens and Zorzin 2014).

The resourcist ideology, produced by the power-elite dynamic, is hegemonic (see Figure 8.1 and Table 8.1 below). That is, the power elite supply the values, sense of heritage, meaning and motivation for managing "resources" that are in line with their own capitalist interests. In academic archaeology, this is achieved through a focus on science, progress, and materiality. In cultural resource management, as in other management areas, the resourcist ideology permits and promotes an agenda of growth, development, and scientific progress. Ironically, in cultural resource management, this very ideology is responsible for the depletion of the resource. In the end, resources are ultimately defined by their scarcity.

Thomas King (2009) accuses the American resource management system of "whitewashing" heritage destruction. He summarizes the situation this way (2009:7):

[W]e now have bureaucracies overseeing environmental impact assessment (EIA) and cultural resource management (CRM), and we have well-heeled private companies doing EIA and CRM

¹⁰ See Barnett and Casper's (2001) "A Definition of 'Social Environment.""

¹¹ Such "engineering" is commonly achieved through licensing or permitting, a government-controlled process moderated by specialists.

work under contract. What we do not have is an orderly system for actually, honestly considering and trying to reduce impacts on our natural and cultural heritage. It's all pretty much a sham. ... [W]e've let things develop in such a way that we're spending lots of money on mere public relations efforts, slathering the lipstick on the pigs of ill-considered development. We ought to change our system.

In this dynamic, resourcing is the (re)definition and (re)allocation of heritage so as to secure access and control for exploitation. This term *resourcing* refers to (cultural) resource management's essential function—that is, the (re)allocation of heritage or 'resources'—and relies on the use of experts to (re)name thus (re)classify people, place and things (see Moghaddam 1997), discussed in terms of "authorization" below (Smith 2004).

As Bodley (2008a:279) suggests, "[t]wo closely interrelated variables—concentrated social power and institutionalized specialization—are fundamental characteristics of politically centralized cultures, and they were the foundation for the later emergence of commercial culture." In this way, resource management is an elite-directed process, underpinned by "ideological hegemony." *Ideology* is the system of "values that justify certain kinds of actions or ways of life" (Hale 1990:568). *Ideological hegemony*, then, is the capacity of the dominant class to "rule through control over prevailing ideas or cultures. It ensures that the mass of people accept as legitimate the activities that directly benefit the dominant class" (1990:568). These ideas are discussed further below.

To reiterate, the project that is growth, development, and progress is elite-directed and the institution of archaeology/CRM is one technology that facilitates that project. By converting heritage landscapes into archaeological resources, state-sanctioned managers can control heritage from afar and in service of the state. The driving force behind this project is capitalism.

Archaeology as Neoliberal Statecraft

What could be more reasonable than a desire to ensure that you are the custodian of your own cultural heritage? And what could be more unreasonable than holding another people's cultural heritage, of ongoing significance to them, in your hands? – Michael Asch, 2008:394

In critical heritage studies, researchers distinguish between "official" and "unofficial" heritage. *Official heritage* is state-controlled and relates to processes of heritage listing and management (Harrison 2010b:310-313). Heritage listing is the formal process whereby a "heritage register" or "site register" is produced. The register, a "statutory list of objects, places or practices of heritage significance," determines which sites have "value" (and, by default, which do not). *Unofficial heritage*, then, includes

objects, places or practices not officially recognized by the state, "but which nonetheless are used by parts of society in their creation of a sense of identity, community and/or locality."

This production of *official heritage* Laurajane Smith (2004:2) describes as authorized heritage discourse (AHD), whereby archaeological knowledge and expertise is "mobilized by public policy makers to help them 'govern' or regulate the expression of social and cultural identity" (2004:2). In his reading of AHD, Rodney Harrison (2010:27) explains:

It is a set of ideas that works to normalise a range of assumptions about the nature and meaning of heritage and to privilege particular practises, especially those of heritage professionals and the state. ... [AHD concerns] the ways in which heritage conservation operates at a local or regional level through the documents, protocols, laws and charters that govern the way heritage is assessed, nominated and protected. ... Smith suggests that the official representation of heritage has a variety of characteristics that serve to exclude the general public from having a role in heritage and emphasizes a view of heritage that can only be engaged with passively.

As previously discussed regarding cultural resource management in British Columbia, official discourse is focused largely on material object and places, "this rather than on practices or the intangible attachments between people and things" (Harrison 2010:27). As Harrison points out, "documents and charters that govern heritage designate particular professions as experts and hence as the legitimate spokespeople for the past; they tend to promote the experiences and values of elites social classes, and that heritage is 'bounded' and contained within objects and sites that are able to be delineated so that they can be managed." It is through this "authorization" process (Smith 2006) that "material culture, as 'heritage,' becomes a resource of power in the politics of identity and archaeological practice" (Smith 2001:97). Authorized heritage discourse is thus hegemonic; its production through cultural resource management is a technology of government, driven by the power-elite dynamic.

In her analysis, Smith (2001:98) sought to "examine and theorize the role of archaeology in the state, to identify the institutions and resources of power and authority that intersect with and underlie archaeological knowledge, and to theorize the interrelation between the history of archaeological theory and state and bureaucratic apparatus" (2001:98). The theoretical basis for that undertaking was Michel Foucault's research into "government" and "governmentality" (Burchell et al. 1991; Foucault 1991; Power 2011). Foucault defines government as "the conduct of conduct"—that is, a form of activity aimed at shaping, guiding or affecting conduct (Gordon 1991:2). The specific mechanism whereby states shape conduct is laid out in Foucault's vision of governmentality, which is about how to govern (1991:7). More specifically, it is about the mobilization of expert knowledge by the state to control human behaviour. Smith (2001:99) describes it this way:

The governmentality thesis, in short, argues that expert knowledge in the social sciences has been mobilized by bureaucracies to govern the 'conduct of conduct' of populations (Foucault 1991). By making the surveillance of populations, and the monitoring of their internal states, a focus of

'technical' and supposedly neutral experts, the political dimensions of the exercise of power and knowledge are obscured.

In this way, state-sanctioned "experts," bouyed by their scientific techniques, work to make the state's authority—thus their own authority—appear invisible and neutral.

It is generally accepted among heritage experts that archaeology is a form of statecraft (Fowler 1987; Trigger 1989; Smith 2004), and archaeology's capitalist and colonialist tendencies have been queried and clarified (Shanks and Tilley 1987; Hamilakis and Duke 2007; McNiven and Russell 2005). Less well understood, however, is archaeology's ties to neoliberalism, a conceptual framework that brings specific focus to the intersection of capitalism and the state. Following Naomi Klein (2007), I have posited that because neoliberalism is the key to understanding disaster capitalism, it is also the key to understanding archaeology (Hutchings and La Salle 2014a; see also Gnecco and Diaz 2014; Moens and Zorzin 2014).

Rooted in capitalism and laissez faire principles, neoliberalism refers to a new political, economic, and social arrangement emphasizing market relations, minimal states, and individual responsibility (Springer 2010:1025). Understood as an ideologically hegemonic project, neoliberalism maintains that "elite groups, organized around transnational class-based alliances, have the capacity to project and circulate a coherent program of interpretations of the world on to others" (2010:1032). The views of geographer David Harvey (2003, 2005, 2010), highly regarded for his work on neoliberalism, are summarized here by Springer (2010:1032):

Harvey's primary contention is that the foremost achievement of neoliberalism has been the redistribution of wealth to elites, rather than the actual generation of new wealth. In other words, neoliberalism represents the continuation of what Marx (1867/1976) regarded as 'primitive accumulation,' which Harvey (2003:145) has renamed 'accumulation by dispossession' to signify its ongoing relevance under contemporary capitalism in the form of: the commodification and privatization of land and the forceful expulsion of peasant populations; the conversion of various forms of property rights (common, collective, state, etc.) into exclusive property rights; the suppression of rights to the commons; commodification of labour power and the suppression of alternative (indigenous) forms of production and consumption; [and] colonial, neocolonial, and imperial processes of appropriation of assets (including natural resources).

In addition to class power, Springer (2010) describes two other important facets or formations of neoliberalism: its bureaucratic formation and its political formation (see also Springer 2008, 2011, 2013). Through this dynamic, archaeology operates as a technology of government, used to produce and mobilize knowledge in support of neoliberal state interests, economic and otherwise. That structure is (re)produced via ideological hegemony, illustrated in Figure 8.1.

Hegemony, or *ideological hegemony*, is an "iterative process whereby people in power deepen their dominance by using culture to negotiate for the consent of the subjugated" (Dorsher 1999). By

controlling prevailing ideas or culture, hegemony "ensures that the mass of people accept as legitimate the activities that directly benefit the dominant class." Starting with the "Dominant Culture" and working clockwise, the model indicates that "coercion is the least important component of hegemony, which is primarily a transparent process, as indicated by the boxes with dashed outlines. The dashed arrows indicate that outsiders who do not negotiate are marginalized, and those who still do not conform become part of the counterculture, which may launch a counterhegemonic effort to regain power" (1999).

At top is the counterhegemonic loop (shaded boxes), which flows counterclockwise from the counterculture box. *Counterhegemony* is an alternative process wherein "people attempt to gain dominant power by countering, co-opting and compromising dominant culture. It is not the opposite of hegemony; it is merely someone else's hegemony—one that has not yet become dominant" (Dorsher 1999). Viewed from the perspective of the counterculture, *co-optation* is the process wherein the state and its supporters "actively work to prevent community leaders from furthering the goals of their own people, and instead manipulate them into satisfying the state and elite's own objectives" (Alfred 2009:97; see also Bodley 2008b; Breton 1991).

One key takeaway point is that everything in the system is defined in relation to the Dominant Culture, in this case the "culture of capitalism" (Bodley 2008a) and "culture of consumption" (Tomlinson 1991). Having spent significant time pondering the system (i.e., Figure 8.1), I have repeatedly been struck with this question: In a given year/month/week, how much time is devoted to the (re)production of the dominant narrative versus time spent navigating the counter-hegemonic loop? My guess is that the ratio is overwhelmingly skewed towards the former.

To summarize, archaeology/CRM is about social power in the present (Shanks and Tilley 1987), specifically neoliberal state power (Moens and Zorzin 2014). Put another way, archaeology/CRM is hegemonic. As such, the motivations of the institution are economic and capitalist (i.e., based on the ideology of growth, development, and progress). In this light, archaeology/CRM is a conduit for elite values and interests.

On the Sunshine Coast, the power-elite dynamic is manifested through "external" development that is, "development" conceived of by the core and carried out in the periphery. Cultural resource management serves these interests by facilitating and "permitting" development, rather than by protecting heritage from those interests. Towards that end, CRM may be seen, not as "failing" at conservation, but rather as succeeding at its true function.

Critical examination of the role of ideological hegemony and the power-elite dynamic in archaeology/CRM requires adopting a whole new vocabulary. In Table 8.1, I provide short definitions for 17 key concepts that represent a shifted baseline for cultural resource management discourse. Going forward, archaeologists will need to engage with this language if they are interested in understanding the

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complex nature of the maritime heritage crisis, discussed further in the next chapter (see esp. Table 9.1 and Figures 9.2 and 9.3).



Figure 8.1 Hegemony modeled: Power, ideology, and the (re)production of "authorized" and "official" heritage discourses. In this model, the *shíshálh* Nation's conception or sense of heritage and heritage stewardship constitutes counter-hegemonic flow (top circuit), thus it exists in relation and marginal to the dominant or mainstream culture's conception or sense, i.e., archaeology/CRM (bottom circuit). Note the proximity of capital (cash nexus) to the system's center. The primary task of the academy, and of archaeology programs therein, is the (re)production of "common sense." This is the power-elite dynamic in action. See Table 8.1 for definitions and related concepts. Adapted from M. Dorsher.

Governance					
Term	Definition	Key Features			
state	a formal, hierarchically structured, bureaucratically organized type of government ¹	shared government; bureaucratic			
nation	a body or group of people with a shared identity that recognize themselves as a more-or-less united group ¹	shared identity; 'imagined'			
nation-state	a state characterized by a population with a shared identity ¹	shared government and identity: 'imagined'			
government	for Foucault, 'the conduct of conduct'; i.e., a form of activity aiming to shape, guide or affect conduct ²	governmentality;			
governmentality	expert knowledge mobilized to govern 'the conduct of conduct' ³	technology of government: power			
institution	the formal (rules, laws, constitutions, organizational entities) and informal (norms of behaviour, conventions, codes of conduct) practices that structure human interaction ⁴	controlled or structured human interaction			
bureaucracy	literally 'rule from the desk/office'; a hierarchically structured government administrative unit	government; governmentality			
management	a set of actions taken to guide a system towards achieving desired goals and objectives ⁵	organizational control; resourcing			
management system	the sum of management actions, goals and objectives, the process through which they are legitimized by social norms, and the institutions and actors involved in carrying them out ⁵	holistic perspective; totality of management actions, processes and institutions			
resourcing	(re)definition of human (cultural) and non-human (natural) heritage so as to secure access and control for exploitation	(re)definition of heritage for exploitation			
Power and Ideology		W D			
Term	Definition	Key Features			
imperialism	creation and/or maintenance of an unequal economic, cultural, and territorial relationship based on domination and subordination; typically between states and often in the form of an empire; usually for the purpose of economic exploitation ⁶	exploitation			
power	ability of an individual or group to get what they want, even when others might object ⁷	hegemony, ideology			
ideology	culture directed by power; i.e., the culture favored and manufactured by society's dominant coalition ⁸	hegemony, co-optation			
hegemony	iterative process whereby people in power deepen their dominance by using culture to negotiate for the consent of the subjugated coalition ⁸	ideology, co-optation			
co-optation	process whereby the state and its supporters actively work to prevent community leaders from furthering the goals of their own people, and instead manipulate them into satisfying the state and elite's own objectives ⁹	hegemony, ideology, governmentality			
counterhegemony	an alternative process whereby people attempt to gain dominant power by countering, co-opting and compromising dominant culture ⁸	hegemony, ideology, co-optation			
pluralism	the sharing of power among groups in society; the opposite of hegemony and counterhegemony ⁸	power sharing			
Sources: 1. Hall and Fenelon (2009:15); 2. Gordon (1991:2); 3. Foucault (1991); Smith (2001:99); 4. Armitage et al. (2007:329); 5. Lertzman (2009:339); 6. Clayton (2009:373); Hale (1990:568); 7. Bodley 2008a, 2008b; 8. Dorsher 1999; 9. Breton (1991); Alfred (2009:98)					

Table 8.1 Key Concepts in Critical Heritage Discourse

State Management of Indigenous Heritage

Site destruction is a major concern for descendant communities, whose views have been increasingly taken on by archaeologists working in this province. As Klassen (2008:8) notes, First Nations in British Columbia have, since the 1970s, "lobbied actively for the protection of their archaeological and cultural heritage." This is part of a much larger trend wherein "indigenous peoples worldwide have become increasingly involved in the *process* of doing archaeology" (Nicholas 2009:203). Nicholas (2006:371) promotes this movement as fundamental to the goal of "decolonization," which, in archaeology, involves an epistemic shift: "[t]he incorporation of Indigenous perspectives into archaeological and other studies will likely result in new methodologies and interpretations, allowing researchers to move beyond the limits of archaeological knowledge grounded in a Western worldview."

Klassen (2008) provides important commentary on three different pieces of provincial heritage legislation that fall within the timeframe of Figure 7.2. Those are (*a*) the *Archaeological and Historical Sites Protection Act* [1960; amended 1972]; (*b*) the *Heritage Conservation Act* [1977; amended 1979]; and (*c*) the *Heritage Conservation Act* [1994; 1996], describing the limitations of each. In particular, Klassen notes key criticisms of the current *Heritage Conservation Act*:

- The limited range of automatically protected heritage, including:
 - the arbitrary age limit of 1846
 - the separation of tangible and intangible cultural heritage;
- The inability for managing and protecting culturally significant landforms and landscapes;
- The silence on ownership and title, particularly for ancestral remains;
- The lack of provisions preventing the buying and selling of artifacts;
- The absence of mandatory impact assessment requirements, as in the *Environmental Assessment Act*;
- The lack of delegated investigation and enforcement powers; and
- The lack of a meaningful decision-making role for First-Nations.

This brings up perhaps the most essential question in this inquiry: What is archaeological heritage? As Watkins and Beaver (2008:12) explain, heritage is far from a one-dimensional concept and is fundamentally personal and political. In the context of CRM in British Columbia, archaeology is viewed as tangible, empirical, grounded in the physical world; this negates understandings of heritage as intangible, ethereal, and constructed in the social world. The result is that CRM inherently breaks up (or tears apart) what are two halves of a whole, and other attempts by government bodies to recognize the intangible elements of heritage have thus far failed to materialize in practice (Levesque 2010).

In pursuit of solutions to this, McLay and colleagues (2008) explore Central Coast Salish Hul'qumi'num customary laws and concerns about the protection of their archaeological heritage, a key cultural issue for Hul'qumi'num peoples. As the authors describe the situation, the "urban, privatized nature of their traditional land base on southeastern Vancouver Island, the south Gulf Islands, and the lower Fraser River imposes increasing challenges upon Hul'qumi'num peoples to maintain their cultural connections to their ancestral lands" (2008:150):

Located in a very rich region of archaeological heritage on the Pacific Northwest Coast, the majority of recorded archaeological sites in Hul'qumi'num territory are now on private property. The incremental destruction of this archaeological heritage by modern development is a chronic problem that is currently witnessed by Hul'qumi'num people across the region.

Hul'qumi'num elders assert that "this loss of and disrespect shown towards their archaeological heritage is contrary to many of their cultural teachings" (2008:150). This includes cultural resource management (Cowichan Elder Joey Caro, quoted in Mclay et al. 2008:182):

We're concerned about archaeologists operating in our territory, as well as other First Nations territories, archaeologists who are lacking in the kind of ethics we require. We see instances, over and over again, of consultants being employed who are not looking for evidence of First Nations use and occupation but are looking for evidence of a pay cheque.

As such, and even within the practice of cultural resource management, heritage destruction is a major concern (2008:178):

Hul'qumi'num elders fear that, in continuing to bend their customary laws to permit the removal and reburial of ancient human remains that are threatened by development projects, they will ultimately undermine their own laws against disturbance and, ultimately, leave these sites vulnerable to exploitation by developers.

In light of these comments and my research conclusions, a critical question arises: Given that cultural resource management does not seem to prevent heritage site destruction, and that this appears well known to archaeologists working in the province and elsewhere, why does society continue to pursue "these ineffective measures with so much determination?"¹² Nicholas and Hollowell (2007:2) discuss how, "[h]istorically, archaeology has served the needs of the nation-state" as it "disenfranchises [descendant communities] from their own histories." Eldon Yellowhorn, responding to the thesis laid out in this dissertation, offered his view on the matter this way (pers. comm. 2014):

CRM is statecraft that facilitates the statutory expropriation of Aboriginal rights, because if culture is a resource then its constitutional status is clear. The archaeological record stops being the labour of the ancestors of Aboriginal people and instead becomes analogous to concretions

¹² This question is after Erich Fromm, who "asked a profound question that broke new ground in the criminological thought of his time: If the criminal justice system has so little effect on the criminal rate, and if this is well known to both policy makers and social scientists, why then does society maintain 'these ineffective measures with so much determination?'" (Anderson 2000:100).

that form naturally in the land. On the other hand, archaeologists become the people who go into an area to harvest¹³ the cultural resources before corporate entities harvest the natural resources.

Using similar language, Welch and Ferris (2014:94) draw attention to "inconsistencies between what archaeologists say archaeology is doing (i.e., conserving the archaeological record) and the consequences that the unprecedented rate and scale of harvesting the record is having, primarily within CRM practice."

These concerns have been expressed by many First Nations across the province. Recently, the Musqueam Indian Band staged a long-term protest at the Marpole village, a major cultural site along the Fraser River. A permit had been issued to undertake archaeological investigations in advance of the construction of a condominium. There was little consultation with Musqueam in advance of the project. This, and the discovery of human burials, prompted a widely publicized protest that eventually resulted in a hastened transfer of funds so Musqueam could purchase the land to prevent further damage to the remains of their village (Hutchings 2012:6-7).

A number of critical points were raised by late Musqueam Chief Ernest Campbell in an open letter sent to various levels of government, Aboriginal groups and the United Nations (Musqueam Indian Band 2012). Some of these points challenge mainstream archaeological views concerning what makes a site "significant" enough to protect. For example, regarding the ancient Musqueam Village containing intact ancestral remains:

a. We have also consistently stated that the 'redisturbance' of these disturbed ancestral remains should not now be permissible simply because they have been previously disturbed, broken up, and pushed aside and otherwise desecrated to make way for the buildings on the site. Note that one of the 'disturbances' was to build a body shop on the site that has caused environmental damage to the midden (another indignity to these remains with oil and other petro-contaminants leaked onto their burial site.)

b. That the intact remains must remain where they are and not be further disturbed. They are the final resting places of our ancestors, not something to be dug up, moved, and stored.

Further, Musqueam Chief Campbell suggested archaeology/CRM itself to be an unnecessary invasion and destructive act:

The site contains priceless artifacts dating back over 4,000 years. These artifacts should not be disturbed for commercial purposes or to satisfy the curiosity of archeologists and scholars. If and when Musqueam is ready to investigate the archeology of the midden it will be when we are in charge of the investigation and in control of our ancestral heritage—not to have our heritage shipped off to some academic institution outside of our control as has happened so often before. ... Musqueam has stated that investigation of the site, even by competent archeologists, is still desecration of the site. As stated above, it can and must only happen under a plan approved by Musqueam, at the time and pace of Musqueam, under our control and in accordance with our

¹³ See for example Brady, Hasemann and Fogarty's (1995) "Harvest of Skulls & Bones."

cultural proto cols. The current development plans would destroy and remove a large portion of the site. Little meaningful data will be collected and stored, leaving the site destroyed.

Concerning the legalities of doing archaeology, Musqueam Chief Campbell offered that the solution lies in "Doing the Right Thing." This, he viewed as at odds with the B.C. *Heritage Conservation Act*, which is "being implemented so as to destroy historical First Nations sites so development can take place."

It places little value on pre-colonial history or First Nations wishes. To the best of our knowledge, it has never prevented a commercial development despite generations of First Nation protest. Now it is being used to legalize the destruction and desecration of one of the largest and most significant remaining archaeological sites or Middens in Canada for a few condominiums that could be built elsewhere.

As an alternative to this system, the First Nation's Leadership council has pursued the possibility of what are known as Section 4 agreements (UBCIC 2013). These agreements enable the government to afford First Nations with "greater involvement in the management of their heritage sites," including "effective recognition, respect, protection, and conservation of First nations cultural heritage resources, unlike the current provincial process" (UBCIC 2013:47). However, "at this time, the provincial government will not negotiate a Section 4 agreement." In the UBCIC's view, "with this decision, the province is now allowing for the continuing desecration of First Nations heritage sites" (UBCIC 2012:n.p.).¹⁴ As of 2012, the states position has been "that it has no plan or solutions to deal with issues arising out the HCA or protecting First Nations sacred/cultural sites" (2012:n.p.). For this reason, First Nations are trying to move "beyond archaeology" (UBCIC 2013:47) to seek mechanisms outside of the Heritage Conservation Act, including a number of legal tools (2013:50-62).

Cultural resource management, representing the practice of archaeology today, is thus viewed with trepidation by the descendants of the heritage that is being "managed." As such, and like coastal resource managers, cultural resource managers, acting as specialists, are increasingly focusing on integration and co-management, what is referred to as "consultation" and "collaboration" (La Salle 2010; Merchant 2010). These approaches assume that the system itself is not the problem. However, as discussed in this chapter, CRM is "ultimately about the management and governance of the meanings and values that the material heritage is seen to symbolize or otherwise represent" (Smith 2004:195).

As Smith (2001:196) describes the situation, archaeology has been viewed by the government to be useful, "in so far as it had a concrete policy effect, because of the social claims made by Indigenous peoples in the 1960s and 1970s. Archaeology as an area of expertise could be mobilized to help the state

¹⁴ A recent example of this is Grace Islet, southeast Vancouver Island, where residential development is proceeding with complete Archaeology Branch permission, i.e., in accordance with the law, but against the wishes of the local First Nation whose cemetery is being destroyed (compare Slawsky 2014 and Sayers et al. 2014).

make sense of, and 'govern,' Indigenous claims." Archaeology, and "its regulatory role in legislation, thus plays a part in 'governing' populations and representations of their pasts" (Smith 2004:197). In this sense, CRM may be considered a "technology of government" (Mallette 2009) or "ideological state apparatus" (Althusser 1971) designed to solve what is still considered to be "the Indian Problem." The result of state management of Indigenous heritage is considered in the next chapter.

Chapter 9: "The Miner's Canary"—Problematizing the Coastal Change Response

The central argument of this book is that the 'seeming intractability' of environmental problems has to do with the inaccessibility of the forces which cause environmental problems. This inaccessibility has been created by the increasing privatization of political power in the economy, rendering the dynamics of appropriation, and domination, beyond the realm of public policy or democratic processes.

- Raymond Rogers, 1998:175

My aim in this chapter is to develop a more focused understanding of the maritime heritage crisis, especially in light of how it is playing out on the *shíshálh* Coast. To do this, I draw on three specific frameworks: the miner's canary, the problematique, and the concept of intractability. The goal here is not so much "resolution" of specific issues as it is their complication. As I discuss below, problematizing the maritime heritage crisis makes sense insofar as "resolving" the crisis is extraordinarily complicated.

The concept of the "miner's canary" comes from American lawyer and scholar Felix S. Cohen (1907-1953). Cohen maintained that the United States could be measured by the state of Native America. In scientific parlance, Cohen suggests that Indigenous communities can serve as "proxies" for the overall state of democracy (or the environment¹) in the country. The miner's canary is a powerful metaphor that illustrates the significance of the *shíshálh* Coast study to broader society.

The second framework, the "problematique," is an attempt to (re)connect the maritime heritage crisis to the broader global processes and problems that define it, thus also prohibit its resolution. In essence, it is an attempt to see the forest (global ecological crisis) through the trees (local expressions of the maritime heritage crisis). One way of understanding complex problem like the maritime heritage crisis is to simplify, which the problematique is also designed to do.

In the third section, I consider heritage landscape destruction in terms of global core-periphery relations, in the process highlighting the (seeming) intractability of the maritime heritage crisis.

¹ See Barnett and Casper's (2001) "A Definition of 'Social Environment.""

The Miner's Canary

Indigenous peoples are like the miner's canary—when their cultures and languages disappear, this reflects the profound sickness in the ecology. Biological and cultural diversity are basic indicators of ecological health.

- Paul Havemann and Helena Whall, 2002:iii

According to the miner's canary metaphor, as initially described in 1953 by Cohen, Indigenous communities play "much the same role" in contemporary North American society that Jewish peoples played in Germany. Like the miner's canary, Cohen asserted, Indigenous communities mark the movements "from fresh air to poison gas in our political atmosphere"—treatment of Indigenous peoples, more so than the treatment of other minorities "reflects the rise and fall in our democratic faith" (1953:390). Since then, a wide variety of Indigenous economic, environmental and health measures/indicators/proxies have been used to characterize the state of North America and its surroundings (Grossman 2012; McNutt 2007; McSloy 2002-03²).

I consider the state of Aboriginal maritime cultural landscapes (Buggey 1999, 2004, 2005; Prosper 2007; Andrews and Buggey 2012) to be a proxy for not just the current sociopolitical "atmosphere," but also the global ecological crisis of which all are now a part. Like the canary that warns the miner of a toxic atmosphere, issues of marginalized heritage—specifically Indigenous heritage—point to underlying, structural problems in western society that ultimately affect everyone, not just Indigenous peoples, and not just Northern Americans. In this way, heritage is very much like race. Guinier and Torres (2002:11) describe the metaphor this way:

The canary's more fragile respiratory system would cause it to collapse from noxious gases long before humans were affected, thus alerting the miners to danger. The canary's distress signaled that it was time to get out of the mine. ... Those who are racially marginalized are like the miner's canary: their distress is the first sign of a danger that threatens us all. It is easy enough to think that when we sacrifice this canary, the only harm is to the communities of color. Yet others ignore problems that converge around racial minorities at their own peril, for these problems are symptoms warning us that we are all at risk.

For Guinier and Torres, the metaphor "captures the association between those who are left out and social justice deficiencies in the larger community" (2002:11-12). In this sense, *the canary is diagnostic*, "signaling the need for more systemic critique," that is, more social critique (2002:12). Specifically,

The miner's canary metaphor helps us understand why and how race continues to be salient. Racialized communities signal problems with the ways we have structured power and privilege. These pathologies are not located in the canary. Indeed, we reject the...approach that locates

² For other uses of the miner's canary metaphor—all of which have relevance here—see Eldredge (1997), Guinier and Torres (2002), Havemann and Whall (2002), King (1967), Martin (1998-99), Saldivar (2008), Silverman (1991), and Weaver (2010).
complex social and political problems of the mines by outfitting the canary with a tiny gas mask to withstand the toxic atmosphere. ... Political race tells us that we need to change the air in the mines. If you care to look, you can see the canary alerting us.

Importantly, modern conceptions of "heritage," "environment" and "stewardship" are tied up with—thus inseparable from—western conceptions of race, especially in settler nations like Australia, Canada, and the United States (Gosine and Teelucksingh 2008; Smith 2004, 2006). This connection is best exemplified in the idea of *environmental racism*, which is "any policy, practice or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or colour" (Bullard 1996:497). In their study of environmental racism in Canada, Gosine and Teelucksingh (2008:4-5) build on Bullard's work:

'The question of who pays for and who benefits from the current environmental and industrial policies,' Bullard [1990:98] argued, 'is central to [the] analysis of environmental racism and other systems of domination and exploitation.' Environmental racism recognizes that because of intentional and unintentional processes that are often historically rooted, individuals, populations, and communities bear the burden of environmental risk due to their 'race'³ or their perceived undesirability. ... Through private industry and government collaboration, environmental racism provides benefits to whites while shifting costs to people of colour.

To understand how environmental racism is manifested in everyday life, one must confront *institutional racism*. Building on the work of Ginsburg (1992:111), Gosine and Teelucksingh (2008:7) see institutional racism as a "subtle form of racism that focuses on how the systemic bureaucratic processes of institutional policy and administration serve to perpetuate racial differentiation and racial inequalities." The broad history of institutionalized environmental racism since A.D. 1600 is generally well understood, both in the context of capitalism, industrialization and globalization (Bodley 2008a) and of colonialism (Bodley 2008b). This includes western "land" and "cultural modification" policies specifically designed to drive a wedge between Indigenous peoples and their "resources" (2008b:95-116, 117-140; see also Gosine and Teelucksingh 2008:33-62).⁴ As Jerry Mander (1992:263) has succinctly put it, "In the later stages of an epic worldwide struggle, the forces of Western economic development are assaulting the remaining native peoples of the planet, whose presence obstructs their progress."

So, to what is the (*shíshálh*) maritime heritage crisis alerting? And how exactly does the miner's canary apply? A useful place to start, at least in regards to sea level rise, is with Zoltán Grossman and Allen Parker's (2012) book *Asserting Native Resilience: Pacific Rim Indigenous Nations Face the Climate Crisis.* Their collection of papers and stories is relevant not just because of its focus on climate

³ Gosine and Teelucksingh place the concept 'race' in quotation marks "to acknowledge that race is socially constructed, and has no foundation in biological fact" (2008:5).

⁴ See also: Adams 1999; Bodley 1988; Culhane 1998; Harris 2002; Hayter and Barnes 2001; Peake et al. 2001, Jaimes 1992; Satzewitch 1998; Tennant 1990.

change or the authors' use of the miner's canary metaphor, but also because it deals with challenges particular to the Pacific Northwest Coast and Salish Sea regions.

In his essay No Longer the Miner's Canary, Zoltán Grossman (2012:175) looks at Indigneous nations' responses to climate change, including sea level rise, and concludes that "the fate of Native peoples provides an early warning to the fate of all humanity."

On one hand, Indigenous peoples are on the front line of climate change—the first to feel its effects. ... On the other hand, Indigenous peoples have certain advantages in responding to climate change, compared to non-Native neighbors or local governments. They want their continuing lifeways (not their death) to provide some direction to the rest of humanity. Perhaps the 'miner's canary' fourmulation could be revised, so the canary escapes the cage, flaps its wings, and shows the hapless miner a safe way out of the toxic mine. Indigneous knowledge and experience has the potential to help the rest of humanity get more out of harm's way.

For Grossman, it is "critical" that Indigneous climate change discourse not only warns Indigenous communities of the dangers inherent to climate change, but also empowers those communities around the "inherent tribal strengths" that are political sovereignty and a sense of community. Political sovereignty is a strength because bands and tribes have unique status as nations. With their sovereignty, Indigenous communities "can develop their own models of dealing with climate change and managing nature in a sustainable way" (2012:176). A sense of community is an asset because, in contrast to much of non-Indigenous society, "Indigenous peoples still have a community." These and other strengths play into a wide range of relationsips and strategies related to building climate change resilience (2012:176-185).

These strengths also play into Alan Parker's ten recommendations to native government leadership.⁵ Parker's recommendations (2012:189-192) for building resilience to the climate crisis is prefaced by this statement: "As one contemplates acceleration of climate change in the next five to ten years, our tribal communities must adapt to these changing conditions at a pace that will stress their social, economic, and cultural fabrics. But, we cannot afford to join [the mainstream] in massive denial. *The time to plan is now.*" The ten recommendations are:

- 1. Gather information on the impacts of climate change in your region and make it available to your tribal community.
- 2. Secure sources of water.
- 3. Secure sources of food.
- 4. Prepare for imapcts on plant and animal species.
- 5. Develop relationships with neighboring governments and communities regarding disaster planning.
- 6. Consider political alliances to build a renewable energy policy.

⁵ See also Debra McNutt's (2012:208-224) Community Organizing Booklet on Climate Change.

- 7. Consider strategies to unite Tribes and First Nations around the protection needed to defend treaty rights.
- 8. Consider active involvement as soverign Indigenous governments in global climate change negotiations.
- 9. Get youth involved in cultural education and defending thefuture of their nation
- 10. Work with other Indigenous nations across imposed colonial boundaries on the basis of being natural regions (such as the Pacific Rim, Northwest Coast, and Salish Sea).

Like Grossman, community is central to Parker's strategy. Parker (2012:189) puts it this way: "As we contemplate the potentially disastrous consequences of climate change upon our communities, it seems clear that we must look to the structures and institutions of community as the means to prepare for and deal with these consequences."

The maritime heritage crisis, then, is alerting all to the global consequences of unfettered growth, development, and progress. Those consequences include the (a) extermination of places and place-based rights and (b) devastation of Indigenous economies and health (Parker and Grossman 2012:14-15). Both are considered below in the context of "slow violence."

Archaeology as Slow Violence

As Marx showed so convincingly in the closing chapters of the first volume of *Capital*, the primary accumulation of capital was effected through violence and plunder, and the same methods continue in daily use throughout capitalism's dependent colonies and semi-colonies. – Paul A. Baran and Paul M. Sweezy, 1966:336

Whereas individual people can become dislocated by misfortunes in any society, including tribal, feudal, and socialist ones, and whereas the downfall of any society produces mass dislocation, only free-market society produces mass dislocation as part of its normal functioning. - Bruce K. Alexander, 2008:60

Archaeological violence is manifested on the ground through what Bruce Alexander (2008) calls "dislocation" and Glenn Albrecht (2005) terms "solastalgia" (Hutchings 2014a; Hutchings and La Salle 2014a). Working in a poverty-stricken neighborhood with a high Indigenous population in urban Vancouver, B.C., Alexander demonstrates how neoliberal policies work to "dislocate" First Nations individuals from their past (heritage, place, identity) and present (community, place, identity), often resulting in addiction, homelessness (physical dislocation or displacement), and violence.

Importantly, Alexander (2008:15-16) puts the conversation about dislocation in British Columbia in historical and economic context: "Although carried out with relatively little lethal violence, the dislocation imposed upon aboriginal people in British Columbia was arguably more severe than in other

Canadian provinces. British Columbia's Indians were dislocated from physically from their land, socially from their culture and families, linguistically from their native tongues, economically from their livelihoods, and spiritually from their ancestors, and gods."

Albrecht and colleagues (2007:45) use the term *solastalgia* to characterize the distress caused by dislocation from one's environment, which includes pain, loss and a feeling of being "undermined by forces that destroy the potential for solace to be derived from the present." In their study of the significance of solastalgia to cultural resource management in a major coal mining district in Australia, Sutton and colleagues (2013:7-8) provide this snapshot:

Albrecht (2005:46) links solastalgia to 'more serious health and medical problems such as drug abuse, physical illness and mental illness (depression, suicide)' and suggests it may be a diagnosable 'psychosomatic illness.' A Wanaruah Local Aboriginal Land Council representative interviewed by Connor et al. (2008:84-86) expressed Indigenous attachment to the environment as an intimate spiritual connection; the impacts of coal mining therefore not only destroy that environment but irrevocably damage people's connections to country. Albrecht (2005, p. 54) argues solastalgia is experienced at a potentially deeper level by Indigenous people due to their strong spiritual and emotional connections to 'country,' with distress manifest from the ongoing destruction and transformation of the landscape since European invasion. He has suggested solastalgia is a potential contributor to high Indigenous suicide rates and premature death rates because of the transformation of traditional lands and a resulting sense of powerlessness and challenges to individual and group identity (2005:47-49).

One problem in identifying solastalgia in the context of heritage destruction is that it is a "slow" process, thus making it difficult to see (Nixon 2007-08; 2011a, b). As Rob Nixon articulates (2011b),

We are accustomed to conceiving violence as immediate and explosive, erupting into instant, concentrated visibility. But we need to revisit our assumptions and consider the relative invisibility of slow violence. I mean a violence that is neither spectacular nor instantaneous but instead incremental, whose calamitous repercussions are postponed for years or decades or centuries. I want, then, to complicate conventional perceptions of violence as a highly visible act that is newsworthy because it is focused around an event, bounded by time, and aimed at a specific body of bodies.

Heritage is fundamental to cultural survival (United Nations 2008). Archaeology/CRM, as the process by which Indigenous heritage places are destroyed for capitalist expansion, constitutes violence consistent with the genocidal policies of the colonial governments (Hall 2009; Regan 2010). However, archaeology/CRM is *slow* violence because the "loss" of heritage sites, or rather their permitted destruction, is incremental and rarely newsworthy (see, however, Hutchings 2012; Mapes 2009). In this context, the shifting baseline syndrome concept is vital (Jackson et al. 2011).

In academic archaeology especially, the violence produced through cultural resource management constitutes an externality— it is something "outside" of the institution, thus beyond the control of both the individual archaeologists. As such, neoliberal violence is accepted unquestionably as part of the

permanent structure within which the modern heritage manager must operate. This is what I have referred to as "siloing" (Hutchings 2013), whereby archaeologists look at problems "in isolation, so we don't see the whole picture" (Homer-Dixon 2006:17). The role of archaeobureaucrats in reproducing the structure is thus made invisible, in the process erasing archaeology's role in the heritage crisis. It is in the everyday and in the banality of simply doing one's job (Arendt 1963, 1970; Rogers 1994, 1998) that such structure is sedimented and slow violence unfolds.

Of specific concern here is what I term the resource management policy wedge. As illustrated in Figure 9.1, control over heritage is maintained by the elite and state through (*a*) the management policy wedge, which uncouples people from land and history. Ensuing dislocation, made possible through the bureaucratic management system, (*b*) reduces community health and wellbeing. The wedge also (*c*) uncouples "natural" or environmental heritage from "cultural" heritage, a critical part of the commodification process. In this illustration, the prime objective of the wedge, the conversion of heritage into a consumable resource, has been achieved: (*d*) the commodification of heritage has been successful.

The result is that archaeology is a billion dollar industry in Northern America today. In light of its corporate nature and industrial context, I have suggested using the term "heritage industry" to refer to the archaeology/CRM institution (Hutchings and La Salle 2014a). A form of late modern statecraft, archaeology is disaster capitalism, characterized by specialist managers (archaeobureaucrats) "clearing" Indigenous heritage from the landscape (Smith 2008), making way for economic development. Landscape clearance is achieved by first converting cultural heritage into archaeological sites, then, when development is to occur, converting archaeological sites (formerly Indigenous cultural heritage) into scientific collections and reports. In this light removal of the management policy wedge is critical if the goal is to (re)couple heritage with health and wellbeing.

Over the years I have compiled a list of what I call "wedge words." These are parallel and overlapping concepts that are commonly used to refer to the constellation of outcomes resulting from the policy wedge. They are: alienation; anomie; atomization; dehumanization; demystification; detachment; disassociation; disconnection; disenchantment; dislocation; disorder (addiction, nature deficit); displacement; dispossession; fragmentation; marginalization; and rift (metabolic). Most of the terms on the list have both physical and mental aspects. Dislocation, for example, refers to both physical dislocation (displacement) and mental dislocation (e.g., alienation). The Latin prefix dis- features prominently in this list. Meaning "apart," dis- is placed in front of words to form their opposites. Thus, the wedge words signify what resource management does to associations, connections, place attachments, and the material world.



Figure 9.1 The resource management policy wedge.

As with solastalgia and dislocation, the cultural and psychosocial effects of the maritime heritage crisis can be difficult to explain, let alone quantify. While I suggest that my findings from the *shíshálh* Coast study represent the physical manifestation of the resource management policy wedge on heritage landscapes, it is beyond the scope of the present study to quantify or characterize the sociocultural consequences of that loss for the *shíshálh*. There is a plethora of data to demonstrate the ongoing systemic problems among Indigenous communities in British Columbia (Alexander 2008), most of which are rooted in colonization. Simply consider, for example, the following three major health indicators, which compare the Aboriginal Population with the General Population (Vancouver Coastal Health 2008:7):⁶

⁶ http://aboriginalhealth.vch.ca/media/VCHAHWP.pdf

- Infants and Children: infant mortality two to three times higher in Indigenous communities, low immunization rates, and high risk of unintentional injury and early death.
- Housing: Aboriginal off-reserve housing 2.5 times more likely to be in need of repairs; 40% of on-reserve housing in need of repairs; a greater proportion of Aboriginal families face problems with housing and food affordability.
- General Health: injuries as the biggest contributor to premature death among on-reserve First Nations, with rates four times that of the overall Canadian population; higher rates of diabetes; two to six times higher rates of suicide.

Perhaps the most cogent description of—and response to—the crisis comes from Vancouver Island artist Roy Henry Vickers. Writing almost a quarter-century ago, Vickers presciently described the situation this way (Bouchard and Vickers 1990:n.p.):

Revival, culture, heritage, environment. These are key words... We now find ourselves fighting a battle to turn a tide of destruction that has been rising for too many years and threatens to drown the family unit, our social structure and our environment. We have been overly self-indulgent for much too long, and it is time for change.

Change comes from understanding ourselves—our weaknesses, our strengths. That understanding can be fostered from knowledge of our past, our cultural heritage and our environment. This priceless wisdom is available from our elders, ancestors and a cultural heritage. Once we know our past, we have taken a step in understanding ourselves, and we will be able to strengthen our truths, bringing about change for the better.

Such changes can affect our many relationships—intimate ones, social and professional ones, and the one we have with our environment. These actions will help us to turn the tide, letting it wash over the land, healing those wrongs we have had a part in creating.

Interestingly and perhaps surprisingly, Vickers' "tide of destruction" is not a reference to sea level rise. He is simply drawing on his own heritage to describe the impacts of colonialism and capitalist expansion on coastal First Nations in British Columbia. The main difference between the crisis in 1990 and today is that the "tide of destruction" includes actual physical drowning (Garrett 2006, 2009; Upton 2014⁷). In this way, maritime-oriented Indigenous communities are not just "victims of progress" (Bodley 2008b): many will also be "climate refugees" (Farbotko and Lazrus 2012). In the context of the miner's canary and the maritime heritage crisis, this is everyone's future, however we will not equally bear the burden nor share the costs.

⁷ http://grist.org/news/low-lying-islands-are-going-to-drown-so-should-we-even-bother-trying-to-save-their-ecosystems/

Problematique

Resource management is at a crossroads. Problems are complex, values are in dispute, facts are uncertain, and predictions are possible only in a limited sense. The scientific system that underlies resource management is facing a crisis of confidence in legitimacy and power. Top-down resource management does not work for a multitude of reasons, and the era of expert-knows-best decision making is all but over.

- Fikret Berkes, Derek Armitage and Nancy Doubleday, 2007:308

Building upon observations made in the preceding chapters, twelve theses are presented—they make up the backbone of the coastal change "problematique." These are detailed following an explanation of the problematique concept.

As a theoretical device, the term "problematique" first appeared in 1970 in the Club of Rome's famous 'Predicament of Mankind' study. There, the *problematique* concept was introduced as follows (1970:12-13):

It is in the nature of our languages, hence of our manner reality, to see and call the dissonant elements in a situation, 'problems.' Similarly, we proceed from the belief that problems have 'solutions'—although we may not necessarily discover these in the case of every problem we encounter. This peculiarity of our perception causes us to view difficulties as things that are clearly defined and discrete in themselves. It also leads us to believe that to solve a problem it is sufficient to observe and manipulate it in its own terms by applying an external problem-solving technique to it. Although it is true that there are certain problems (mostly in the field of technology and engineering) that can be dealt with in this way, it is also becoming quite evident that such problems are no longer the most important ones with which we must deal.

Further,

When we consider the truly critical issues of our time such as environmental deterioration, poverty, endemic ill-health, urban blight, criminality, etc., we find it virtually impossible to view them as problems that exist in isolation—or, as problems capable of being solved *in their own terms*. For even the most cursory examination will at least reveal the more obvious (though not necessarily the most important) links between problems. Where endemic ill health exists, poverty cannot easily be divorced from it, or vice versa. ... [I]f we try to solve any such problems exclusively in their own terms we quickly discover that what we take to be the solution of one category of problem may itself generate problems of another category.

My twelve theses must therefore be considered in addition to and alongside the Club of Rome's 49-point problematique (1970:14-16), included as Table 9.1. Not only do the Club of Rome's "Critical Continuous Problems" remain standing (Meadows 2004), they have become more problematic. From the Club of Rome's "limited listing" (i.e., Table 9.1), it becomes clear how these large problem-areas are "system-wide, interdependent, interactive and intersensitive; that they transcend national frontiers, or even regional boundaries; and that they are seemingly immune to linear or sequential resolution" (1970:16).

According to Warfield and Perino (1999:226), "[t]here is ample evidence to suggest that the unaided human mind is incapable of coping effectively with modern societal issues. The problematique has proven to be highly effective in illuminating the structure that underlies problematic situations, thereby increasing the potential for successful human intervention." Significant to the maritime heritage crisis problematique is the idea that complexity is a state of mind, "not a system parameter. In other words, the origin of complexity resides in the mind of the individuals attempting to understand a system, not in the system itself" (1999:225-226).

A problematique is in part a graphical portrayal of relationships among members of a set of problems (Warfield and Perino 1999:221). In this light, rather than being made to be exceedingly complicated, the crisis can be expressed in uncomplicated terms. One general kind of portrayal involves illustrating the problematique metaphor itself, as is done in Figure 9.2. Another, more specific kind of representation is the tripartite syllogism, a specific kind of problematizing (1999:222, Fig. 1). The syllogism that underpins my twelve theses, and the maritime heritage crisis more broadly, is this:

- Archaeology/CRM is a "failure" or "disaster" at protecting heritage.⁸
- The loss of heritage, or heritage destruction, leads to dislocation and solastalgia.
- Therefore, archaeology/CRM is implicated in dislocation and solastalgia.

In this portrayal, heritage destruction is the product of daily Northern American life. Rather than seeing the system as broken as a result of many complicated causal factors, one can see the system as functioning as designed, with heritage destruction being the normal system output.

⁸ Put another way, the archaeology/CRM institution, as part of its official routine, "permits" heritage destruction. See especially Acheson (2006); King (2009); Hutchings and La Salle (2014).



Figure 9.2 The problematique metaphor illustrated. Under growth conditions (up-scaling), previously unconnected problems (T1) enlarge and encroach on each other (T2) until such time (T3) when they become entirely entangled (T3), or "concatenated" (i.e., fully (inter)connected). In the final phase, problem areas (e.g., the maritime heritage crisis) are deemed "intractable" when they reach attain a level deemed irresolvable under the current circumstances. Intractable problems such as global warming, thus sea level rise, are sometimes referred to as "super wicked" problems to highlight their extreme scope and scale, thus intractability. After: Club of Rome, 1970:17-19; Warfield and Perino 1999:223

As illustrated in the twelve theses that follow, my problematique highlights the complexity and interconnectedness of the many issues raised in this dissertation, but also the ultimate simplicity of those problems. In addition to urban elites, it also points to the problems seeming intractability, discussed in the next section.

1. Coastal development has had and continues to have a tremendous impact on Pacific Northwest maritime heritage.

Data from the Pacific Northwest Coast demonstrates the enormous effect that a Western ideology of growth, development, progress has had on maritime heritage. For Indigenous descendent communities, this has meant the physical destruction/desecration of heritage sites and landscapes. Importantly, such offenses are part and parcel of *a long list of other very serious violations* (Culhane 1998; Harris 1997; Regan 2010). Via the hegemonic process described here in Part Three, cultural heritage, both tangible and intangible, has been and continues to be co-opted or "taken" by the state and dominant culture for its own benefit and use (Bell and Napoleon 2008; Bell and Paterson 2009; Bodley 2008b; Roy 2010; West 1992). Today, "negative impacts" are normal operating procedure in cultural resource management (McLay 2011). They are merely the "cost of doing business."

For the most part, non-Indigenous heritage falls outside the practice of cultural resource management⁹. Rather, settler heritage falls under the purview of other government agencies, often related to urban "revitalization" and "parks," regional/local historical societies and organizations, mass media, and educational textbook publishers. The "heritage" celebrated largely focuses on the history of discovery, conquest and capitalist exploitation of a virgin or untamed "wilderness." Small local museums centre specifically on the establishment of an industrial maritime-based economy focused on logging and fishing, along with pioneer settlement, growth and expansion. Collectively, these stories comprise the "Northwest Coast settler narrative," part of the larger endeavour to manufacture a Canadian (or American) national identity (Anderson 1983; Carr-Locke and Hutchings 2014). As such, the heritage celebrated in mainstream society is the heritage of coastal growth, development, and progress; the heritage that suffers this narrative is often Indigenous (Bodley 2008b).

2. In British Columbia, heritage specialists should plan for a sea level rise of 1m by 2100, 2m by 2200, and 3m by 2300, a process that will have a catastrophic impact on maritime heritage sites and landscapes.

However, sea level rise is but one threat among many when it comes to climate change. Impacts on natural heritage cannot be separated from those acting on cultural heritage landscapes; the loss of one means the loss of the other. There is significant uncertainty in the predicted rate of sea level rise globally and locally. However, all coastlines will be impacted in some way. These impacts are and will be compounding the long history of more direct development impacts. It is critical to recognize that sea level rise is itself a product of industrial development. Consequently, it should be treated as such.

⁹ The division of heritage into pre/post-contact or Indigenous/settler histories is significant. These relationships will be revisited in part Four.

3. Taken together, coastal development and sea level rise represent a modern, concatenated "maritime heritage crisis."

Until very recently, the problem has constituted a "quiet crisis" as it has received so little attention. Indeed, archaeologists and cultural heritage specialists have been late on the climate change scene despite that the preservation and conservation of archaeological sites is usually touted as the primary concern by this community. In cultural resource management, this is highlighted by King, who devotes the final pages of his most recent book to the subject. As King (2009:166) writes,

I've often paused in writing this book, sometimes for hours, sometimes for months, overcome by the feeling that I'm fiddling while Rome burns. What earthly point is there, I ask myself, in diddling about with the adjustments in the way we consider environmental impacts—and impacts on things like old buildings and archaeological sites, for heaven's sake—when the atmosphere's warming, the polar ice is melting, the seas are rising? Doing field work as I sometimes do on a Pacific atoll, I can see the water rising, and I doubt if anything is going to save a host of island nations and a lot of continental waterfront from inundation. The costs of this disaster in terms of natural and cultural heritage—including living, functioning human populations and their social systems—will be far beyond anything we can imagine measuring or mitigating.

As King (2009:167) observes, and as discussed in Part One, the impacts of coastal change responses "may be greater in some ways than the impacts of climate change itself. And unlike climate change these impacts will be subject to human control, human influence."

EIA and CRM can help governments manage these impacts so that we don't inadvertently do more damage than necessary to achieve the adaptations we will have to make. But if all we have to work with is the EIA/CRM industry as it is presently constituted, we will only be wasting money that could be better spent building floating cities or seeking another planet to despoil. (King 2009:167)

4. The mainstream response to the maritime heritage crisis is cultural resource management.

Predicated on "resourcism," cultural resource management privileges the role of physical heritage and sites over intangible meanings and landscapes. The mainstream approach includes coastal survey, site valuation and proposing mitigation strategies. This is **reactive** and has little to do with preserving or conserving heritage sites. As such, CRM is fundamentally about compromise.

As the status quo process by which archaeological sites are administered by the government, CRM is society's default response to the maritime heritage crisis. Mainstream strategies typically revolve around the collection of more "data" and incorporate "stakeholder" perspectives. By no means do these approaches consider resource management to be inherently flawed or even part of the problem. Considering the dire state of natural and cultural heritage, this situation quickly becomes untenable.

5. Archaeology, the backbone and 'authorizer' of cultural resource management, emphasizes a scientific understanding of "the past" and the material record, notably the archaeological "site." Archaeology has been and continues to be active in all levels of cultural resource management. As Moss (2005:584) points out, "archaeological theory—specifically that of processual archaeology—is written into the language of the federal laws, regulations, and guidelines that direct heritage resource managements." Indeed, archaeologists helped construct British Columbia's cultural resource management laws; they today dominate the workforce that sustains cultural resource management, and they hold top government positions that oversee the industry¹⁰. However, despite this strong relationship,

most archaeologists draw a sharp dividing line between archaeology as a scientific discipline on the one hand, and a heritage archaeology as part of more encompassing heritage practices on the other. Following this distinction, scientific archaeology is primarily driven by intellectual interest in the past...whereas heritage reflects an interest in the use of the past for present-day purposes.

In short, heritage is often seen as secondary and 'additional' to archaeological science, except where it is understood in a narrow sense as the material source of authorized (academic) archaeological research. (Kolen 2009:210)

This mainstream scientific approach, concerned with the "material record," is narrow in scope and relevance. It is narrow in scope because it cannot deal with either the intangible or the present; thus, its relevance to contemporary society and their heritage is questionable. Archaeology as cultural resource management is therefore less about meaning and more about money, tied into larger economic interests. Zorzin (2011:130) points out that archaeology has been "dispossessed of its autonomy," as a result of

becoming financially dependent on public managers who apply rules defined by the competitive system to archaeological practices. In turn, public managers are then influenced by the financial interests of individuals, namely developers and taxpayers, who aim to pay less for an activity they judge as trivial. This process tends to alienate the archaeological product from the archaeologists themselves.

6. Archaeologists have a monopoly over the production of heritage meanings; the public and descendant populations have little direct involvement in the process.

North American archaeologists, operating as specialists, have come to dominate the production of knowledge about the ancient past. Significantly, historic and settler heritage has largely fallen outside the purview of archaeology and cultural resource management. This means that the project of CRM is to undertake scientific exploration of *Indigenous* history, yet Indigenous views on their own past have been routinely ignored (Markey 2001). Indeed, while the permitting process in British Columbia requires a notice of intended archaeological work be sent to affected First Nations communities, in practice they

¹⁰ This has been the case for British Columbia's Archaeology Branch and Washington State Department of Archaeology and Historic Preservation.

have little control over the process, which may well proceed without their involvement. This point has been made clear by King (2009) for the United States and raised by the UBCIC (2013) for British Columbia, as well as by the *shíshálh* Nation.

The history of coastal development in the Pacific Northwest and Salish Sea shows the same holds true. The result has been that the histories produced through archaeology bear little resemblance to the cultural understandings of descendent communities (Yellowhorn 2002). Indeed, what is produced instead is an authorized heritage, one that reinforces the power of the state to write history. The mainstream response to this has been toward consultation or even collaboration with descendant communities, however this involvement does not destabilize the authority of the archaeologist (La Salle 2010; 2013).

7. In British Columbia, cultural resource management is fundamentally about managing *Indigenous* heritage, populations and rights.

Smith (2004) links the rise of CRM with the Indigenous rights movement, reinforcing how controlling heritage is about controlling the past to control the present/future. As Asch (2009:395-6) discusses,

The state of Canada—a state that did not even exist when much that is cultural heritage of First Nations was created, largely does not respect the names given to places before the arrival of European settlers, and established the rule of law over First Nations on the basis of a colonial ideology invented at the time of the British imperium—is considered to hold legitimate authority over First Nations cultural heritage. ... [I]n British Columbia today, First Nations still have to appeal to the courts, government officials, or boards regulated by the province in order to persuade people to respect gravesites when developing lands that are part of their cultural heritage.

In this view, CRM may be considered a technology of the state, mobilized to minimize resistance to the national and imperialist project that is growth, development and progress. CRM can therefore be considered a token gesture or "trade bead" in the pursuit of profit, representing not a departure from but the continuation of colonialist policy. Indeed, while the law, institutions and governments have "moderated their thinking and practice with regard to these issues, the state and its institutions remain firmly in control" (Asch 2009:396). Yet, to reiterate from earlier, "[w]hat could be more reasonable than a desire to ensure that you are the custodian of your own cultural heritage?" (2009:394).

8. Integration/consultation/co-management/collaboration are not solutions to any of these problems, for they largely reproduce the current socioeconomic structure.

Consultation is not a solution within the current system "because it is being defined and implemented within a wider capitalist and colonial framework" that "does not allow for devolution of power and authority from the state to [sovereign] peoples" (Cobb 2010:2). As Cobb (2010:2) puts it, "as long as no broader steps towards decolonization are taking place, meaningful consultation will remain a superficial

method of consulting without accommodating." This argument applies equally to collaboration, comanagement, and other 'integrative' projects. La Salle (2010:401), for example, identifies discrepancies between how academics "sell' the collaborative endeavour in theory and how it is actually practised." Indeed, she asks what I consider to be *the* critical question: "whether the collaborative research model represents a break with the past, or is instead simply the same old practice dressed up in fashionable new language" (2010:401; see also La Salle 2013).

Indeed, the scale of the problem is not one that can be solved by "individuals with good intentions" (La Salle 2010:417). While there may be "a 'feel good' factor for the discipline at large here, it is often more a politics of gesture than serious recognition" (Smith 2004:200). The reality is that heritage destruction is deeply embedded in the structure of society (Williams 2012), thus research and (social) science itself, and so "these same individuals, when they are employed or are rewarded by elite power structures that are founded upon racist ideologies, sustain these structures" (Dabulkis-Hunter 2002:77). As Smith (2004:198) has asserted, "[w]ithout an active understanding of power/knowledge relations, any attempts to incorporate Indigenous or other non-archaeological knowledges and aspirations into archaeological practice will simply end in appropriation by archaeologists, no matter how unintended that may be."

As discussed in Chapter 8 and illustrated in Figure 8.2, this is what Alfred (2009:99) describes as co-optation, a process that hinges on appropriating dissonant or "alternative" views into mainstream theories and practices. This process is a replacement for direct coercion.

9. Lack of scientific research is not a limiting factor in addressing the maritime heritage crisis; indeed, because of its values, science is a major limiting factor insofar as it promotes the ideology of growth, development and progress.

The mainstream response to the maritime heritage crisis has been a near unanimous call for more research. This presumes there is a need for more data. Yet, government agencies and local communities already have official lists, many of them digitized for quick mapping, that include key information needed to make decisions about at-risk heritage sites. Indeed, for coastal archaeologists and Indigenous communities, virtually all cultural resource management is about dealing with these very issues and places. The problem then, is not insufficient data. In this sense, the call for more research itself is a call for growth, development, and progress, notions which define the scientific process. One need only add up all the external costs of a large-scale archaeological field research project to see how this unfolds in the real world.

Additionally, since the 1970s the reactions of archaeology to the commercialization process were "not to challenge the commercial environment for archaeology, but to reinforce its foundations by

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shadowing business principles" (Zorzin 2011:131). Here, the interest is not in protecting or conserving sites but in profiting from them. In this sense, archaeologists are being paid to oversee heritage destruction. Further, archaeologists working in service of developers are inherently working in service of development. In this world, it may be in one's interest to not find sites, or not value them fairly. This process is mirrored in situations whereby scientists working for government agencies, or interacting with them in other capacities, "are directed to lie, to reinterpret findings in ways that support a policy position that has already been decided upon, or not disclose findings that might be politically inconvenient" (Schrecker 2001:40). Attempts to incorporate values outside of scientific archaeology, such as the views of Aboriginal communities, have so far failed to produce any meaningful change in the system (Markey 2001).

10. "Resources" are defined within a capitalist economy regulated by the state that promotes and is supported by a broader "culture of over-consumption."

Resource management is the prevailing Western environmental and cultural paradigm (Hessing and Howlett 1997:234). In Canada, the "primary idea" driving recent resource use, thus policy discourse, has been that of "resource management as the allocation of public resources to private industry" (1997:12). Cultural resource management, however, does not fall so neatly into this categorization. On one hand, archaeology is recognized as being fundamentally an "extractive" process, wherein archaeological "sites" are mined for archaeological "resources" (artifacts) to produce scientific data and artifact hordes. Once removed from the ground, both archaeologist and museologist translate the resource into economic profit and social power.

Alternatively, rather than being a resource that is extracted and manipulated, cultural heritage can be seen as falling into the category of "resources" that *impede* economic development. In this latter sense, cultural heritage is like the spotted owl or eelgrass: spotted owl impede timber extraction and eelgrass impede port construction, and thus both impede development, thus "productivity" (i.e., profitmaximization). In the end, cultural heritage, owl, and eelgrass alike are "managed" in a nearly identical manner as wood and gravel. In the process, so-called "cultural" resources are objectified, commodified, then "negotiated."

Resources are located both within an economic framework based on a market economy with state regulation (Hessing and Howlett 1997:47) that facilitates a "culture of over-consumption" (Bodley 2008a:101-120). Connections between capitalism, environmental politics, environmental policy and environmental change are all "deeply if not inextricably interwoven" (McCarthy and Prudham 2003:275). This applies to both natural and cultural heritage (King 2009).

11. Resource management is a modern hegemonic project.

The intersection of economics, state governance and resources has been mapped by Hessing and Howlett (1997:47) in their political economic analysis of Canadian natural resource and environmental policy:

The state is active in establishing and maintaining conditions for the accumulation of capital, and the Canadian governments' ability to act on various resource and environmental issues is severely constrained by the reliance of the economy on resource production and international trade in bulk commodity resources.

In addition, "much of the research on which government policies have been based has been produced by industry," and the private sector has been "extensively involved in the policy process in various capacities" (1997:13).

While political economic perspectives are generally critical of the (unequal) social distribution of the effects of resource activities¹¹, they remain an "essentially anthropocentric" undertaking— environments are perceived in "human-centred terms with no, or little, concern for intrinsic ecological value. Concerns over environmental integrity are articulated only within the context of their ability to generate or impede market activity" (Hessing and Howlett 1997:12).

In summary, resource management is a hegemonic project; it is also a political ecological projects¹² (Ekers 2009:303). The history of social processes can be seen as "unfolding in concert with the production of natures," requiring a focus on "how ideologies and practices concerning 'nature' and 'ecology' are constitutive relations in the orchestration of hegemony" (Ekers 2009:303). Ideology has an especially "insidious nature" in its seemingly intrinsic ability to "make itself invisible" (Macedo 1998:xiv). Complicating matters further is that capitalists, and the government officials and agencies that represent thus promote their interests, externalize or "hide" environmentally and culturally destructive practices from the public and the consumer (Robbins 2011). As a result, the Canadian government strategy is "essentially reactive," aimed at "ameliorating the effects of industrial activity without necessarily changing it" (Hessing and Howlett 1997:229).

12. Cultural resource management is performing as designed.

Points 1-11 lead me to conclude that cultural resource management is performing as it was designed, and it is *fundamentally* about neither culture nor community. In contrast to the goals set out in the *Heritage Conservation Act* of protecting and conserving heritage sites, my research illustrates that the practice of archaeology/CRM, defined by its outcomes, is primarily concerned with converting culture to nature, legalizing that conversion via state policy, and legitimizing or authorizing that conversion via heritage

¹¹ For examples, see Hessing and Howlett, 1997:46.

¹² In this usage, "political ecology" refers more specifically to efforts that seek to "establish the political forces behind different accounts of "ecology" (Forsyth 2002:4).

specialists, typically archaeologists. Put another way, cultural resource management is the process through which heritage is converted, via science and policy, from a cultural idea to a physical or "natural" commodity. Objectifying cultural heritage converts it into an economically negotiable commodity and resource in need of management. This gives rise to the cultural resource manager, or consulting archaeologist, whose task is to extract cultural heritage for profit, freeing up other more valuable resources for extraction (e.g., timber, minerals, oil and gas). Ironically, this process is typically thought of as heritage conservation, however it results in the clearance of Indigenous landscapes to make way for development.

For some, this is an optimistic view wherein development-led site destruction "could be turned form a bane to a boon" for the practice (Borden 1950; compare with O'Connell 2014). As described in Chapter 4, the provincial government's official position is "not to prohibit or inhibit land use and development, but rather to assist the development industry, the province, regional authorities, and municipalities in making decisions leading to rational land use and development" (B.C. Archaeology Branch 2012). This mission statement is clearly not about conservation, and is at odds with the stated aspirations of the *Heritage Conservation Act*.

From a political economy perspective, such "collaboration with industry" represents the cooptation of archaeology—and its (presumed) conservationist ideals—by profit-motivated developers. The result has been cultural resource management where, superficially, the values of archaeology persist yet, in reality, development not only goes unchallenged, it is integral to the success of the CRM industry. Not only does CRM *not* challenge development, it facilitates and promotes it. In this sense, CRM may be considered to be working perfectly.

In the end, and in the context of human history, archaeology and cultural resource management are neither normal nor natural; rather, and contrary to what many assume, they are modern inventions. As such, these projects may be considered to be part of the problem, not the solution—that is, if one sees modernity as the source of the maritime heritage crisis. Under this view, efforts to normalize and naturalize archaeology are efforts to normalize and naturalize Indigenous heritage destruction.

Table 9.1 The Club of Rome's Forty-Nine 'Critical Continuous Problems' (1970:14-16).

- 1. Explosive population growth with consequent escalation of social, economic, and other problems.
- 2. Widespread poverty throughout the world.
- 3. Increase in the production, destructive capacity, and accessibility of all weapons of war.
- 4. Uncontrolled urban spread.
- 5. Generalized and growing malnutrition.
- 6. Persistence of widespread illiteracy.
- 7. Expanding mechanization and bureaucratization of almost all human activity.
- 8. Growing inequalities in the distribution of wealth throughout the world.
- 9. Insufficient and irrationally organized medical care.
- 10. Hardening discrimination against minorities.
- 11. Hardening prejudices against differing cultures.
- 12. Affluence and its unknown consequences.
- 13. Anachronistic and irrelevant education.
- 14. Generalized environmental deterioration.
- 15. Generalized lack of agreed-on alternatives to present trends.
- 16. Widespread failure to stimulate man's [sic] creative capacity to confront the future.
- 17. Continuing deterioration of inner-cities or slums.
- 18. Growing irrelevance of traditional values and continuing failure to evolve new value systems.
- 19. Inadequate shelter and transportation.
- 20. Obsolete and discriminatory income distribution system(s).
- 21. Accelerating wastage and exhaustion of natural resources.
- 22. Growing environmental pollution.
- 23. Generalized alienation of youth.
- 24. Major disturbances of the world's physical ecology.
- 25. Generally inadequate and obsolete institutional arrangements.
- 26. Limited understanding of what is "feasible" in the way of corrective measures.
- 27. Unbalanced population distribution.
- 28. Ideological fragmentation and semantic barriers to communication between individuals, groups, and nations.
- 29. Increasing a-social and anti-social behavior and consequent rise in criminality.
- 30. Inadequate and obsolete law enforcement and correctional practices.
- 31. Widespread unemployment and generalized under-employment.
- 32. Spreading "discontent" throughout most classes of society.
- 33. Polarization of military power and psychological impacts of the policy of deterrence.
- 34. Fast obsolescing political structures and processes.
- 35. Irrational agricultural practices.
- 36. Irresponsible use of pesticides, chemical additives, insufficiently tested drugs, fertilizers, etc.
- 37. Growing use of distorted information to influence and manipulate people.
- 38. Fragmented international monetary system.
- 39. Growing technological gaps and lags between developed and developing areas.
- 40. New modes of localized warfare.
- 41. Inadequate participation of people at large in public decisions.
- 42. Unimaginative conceptions of world-order and of the rule of law.
- 43. Irrational distribution of industry supported by policies that will strengthen the current patterns.
- 44. Growing tendency to be satisfied with technological solutions for every kind of problem.
- 45. Obsolete system of world trade.
- 46. Ill-conceived use of international agencies for national or sectoral ends.
- 47. Insufficient authority of international agencies.
- 48. Irrational practices in resource investment.
- 49. Insufficient understanding of Continuous Critical Problems, of their nature, their interactions and of the future consequences both they and current solutions to them are generating.

Intractability (and Hope)

And that claim is by the right of our manifest destiny to overspread and to possess the whole of the continent which Providence has given us for the development of the great experiment. – John L. O'Sullivan, 1845

[I]t is impossible not to look forward to distant times when our rapid multiplication will expand itself beyond those limits, and cover the whole northern, if not the southern continent. - Thomas Jefferson, 1801

Unalloyed and simplistic optimism about the future is really just denial in another guise. – Thomas Homer-Dixon, 2006

There is overwhelming evidence to suggest that the maritime heritage crisis is irresolvable, at least in the current environment.¹³ I follow Raymond Rogers (1998:ix) in asserting that responses to the heritage crisis have little hope of success "if analysis and actions *assume* capitalism. ... Conservation is a lost cause as long as it is conceived of as a specialty activity operating within the structures and processes of industrial capitalism." For Rogers, heritage conservation is inseparable from the social contexts in which it manifests itself. Yet,

Conservation requires a viable social context. Current movements toward increasing global economic competitiveness—and the consequent lessening of social and political perspectives—do not provide a viable social context for conservation. ... Viable social relations require an expanded conception of the 'political' and the 'social' and a consequent reduction in the role of market relations.

Alternatively, mainstream "solutions" to heritage problems "strategize with variables that are part of these problems without necessarily engaging in a critical analysis of those variables" (1998:xi). These solutions include what Rogers refers to as "accommodation" and "integration" (1998:xi):

The conception of sustainability as 'integration' of conservation and development requires challenge on the part of conservation, rather than integration. Historical forces which are marginalizing human communities and destroying natural communities are aggressively pursuing an intensifying agenda of exploitation and domination. Marginalized groups do not find themselves in benign situations, by definition. Therefore, any call for conservation in this context is a call that requires resistance and challenge to current realities, rather than accommodation and integration.

I posit that "accommodation" and "integration" in natural heritage discourse (e.g., Rogers 1994, 1995, 1998) map directly onto thus parallel "consultation" and "collaboration" in cultural heritage discourse (e.g., King 2009; Gnecco 2012; La Salle 2010, 2013). In all cases, critical analysis leads to the

¹³ See Barnett and Casper's (2001) "A Definition of 'Social Environment.""

same conclusion. King calls the resource management process "a sham." La Salle calls the consultation process a "trade bead." Cristobal Gnecco (2012:398) points out that, for most archaeologists,

'collaboration' is more a way of alleviating their guilt (and getting on with their work) than a way of embarking on the path of different practices; more of the 'political correction' that reaches out to marginalized peoples, frequently with an arrogant naiveté built upon selected criteria of authenticity and purity. Many archaeologists are content with offering to local communities cultural crumbs (a local museum, a video, a school booklet) while preserving their control over critical issues (such as research design, curation of findings, production and distribution of archaeological narratives).

As I demonstrate in "Archaeology as Disaster Capitalism" (Hutchings and La Salle 2014a), archaeologists as a collective have always (since the 1960s) been "mercenaries," be it for the corporation, the state, or the corporate state (i.e., the neoliberal state).

That the maritime heritage crisis constitutes a "super-wicked" problem complicates matters even further. The term "wicked" builds on the notion of *intractability*, minimally defined as the inability to control or direct. Wicked heritage problems, then, are those that defy resolution "because of the enormous interdependencies, uncertainties, circularities, and conflicting stakeholders implicated by any effort to resolve efforts to develop a solution" (Lazarus 2009:1159-1160). More specifically,

'Wicked' problems are large-scale, long-term policy dilemmas in which multiple and compounding risks and uncertainties combine with sharply divergent public values to generate contentious political stalemates; wicked problems in the environmental arena typically emerge from entrenched conflicts over natural resource management and over the prioritization of economic and conservation goals more generally. (Balint et al. 2011:1)

The maritime heritage crisis thus constitutes a wicked problem.

As Richard Lazarus (2009:1160) explains, while wicked problems are synonymous with "social messes," some—including global warming—are deemed *super-wicked* because of "exacerbating features." Among those features is the fact that "time is not costless, so the longer it takes to address the problem, the harder it will be to do so." As sea level rise is the product of global warming, the maritime heritage crisis also constitutes a super-wicked problem.

Through long reflection on the latter point, as well as on Figure 8.1, I have come to two major conclusions: I am (a) a "deconstructive postmodernist" and, depending on what time of day it is, (b) somewhere on a spectrum between "cynical pessimism" and "radical engagement" (see below).

Deconstructive postmodernists believe that the modern age is based on inherently flawed Enlightenment, capitalistic, and that scientific narratives must be repudiated before culture can be reconstructed anew. In contrast the dominant stream of environmentalism, called by a variety of names, including 'resourcism' and 'reform environmentalism,' attempts to solve problems by fine-tuning the present post-industrial paradigm. Thus, so-called modernists contend that ecological dysfunctions can be eliminated through sustainable development; deconstructionists dismiss this contention, and argue that ecocrisis reveals the contradictions structurally (and therefore permanently) in the growth dynamic of capitalistic, industrial society. (Oelschlaeger 1995:531)

By definition, deconstructive postmodernism is linked to the cynical–radical/radical-cynic spectrum insofar as both see the heritage crisis as a structured outcome. In this light, heritage destruction is the normal outcome of archaeology/CRM because that is the system's designed output.

A focus on intractability brings awareness to the different ways people respond to the risks that arise from modernity. In attempting to understand these variations, Anthony Giddens defined four distinct "adaptive reactions" to the crisis of modernity (1990:135-137). As illustrated in Figure 9.3, those responses are: pragmatic acceptance, sustained optimism, cynical pessimism, and radical engagement. *Pragmatic acceptance* involves a concentration on "surviving":

What is at issue here is not so much a withdrawal from the outside world as a pragmatic participation which maintains a focus on day-to-day problems and tasks. Raymond Williams speaks of such an orientation as 'Plan X,' a new politics of strategic advantage—the belief that much that goes on in the modern world is outside anyone's control, so that temporary gains are all that can be planned or hoped for. In his view this applies not only to the attitudes of many lay persons, but to major domains of strategic action.

Pragmatic acceptance is "not without psychological costs," as it implies a "numbness frequently reflecting deep underlying anxieties, which in some individuals repeatedly surface at a conscious level" (1990:136).

Sustained optimism, the second adaptive reaction (1990:136), is essentially "the persistence of the attitudes of the Enlightenment"—it is a "continued faith ... in spite of whatever dangers threaten at the current time."

This is the outlook of those experts...who have criticised 'doomsday' ecological scenarios in favour of the view that social and technological solutions can be found for the major global problems. For lay individuals, it is a perspective which continues to hold great resonance and emotional appeal, based as it is upon a conviction that unfettered rational thought and particularly science offer sources of long-term security that no other orientations can match.

This is the "SIT and wait" (instrumentalist) approach discussed in Chapter 1. It also represents the modernist or mainstream approach (i.e., status quo). As such, sustained optimism lies in opposition to deconstructive postmodernism.

Pragmatic	Sustained
acceptance	optimism
Cynical	Radical
pessimism	engagement

Figure 9.3 Four responses to modernity. After Giddens (1990:135-7).

Cynical pessimism may be seen as representing an opposite set of attitudes to pragmatic acceptance and sustained optimism. Unlike pragmatic acceptance, cynical pessimism "presumes a direct involvement with the anxieties provoked by high consequence dangers" (1990:136).

Cynicism is not indifference. Nor is it necessarily doom-laden, although it is hardly compatible with blunt optimism. Cynicism is a mode of dampening the emotional impact of anxieties through either a humorous or a world-weary response to them. It lends itself to parody.

Radical engagement, the fourth response to modernity's risks, refers to "an attitude of practical contestation towards perceived sources of danger" (1990:137).

Those taking a stance of radical engagement hold that, although we are beset by major problems, we can and should mobilise either to reduce their impact or to transcend them. This is an optimistic outlook¹⁴... Its prime vehicle is the social movement.

After accounting for intractability and deconstructive postmodernism, there is only one author I can name who has proposed a truly "radical" archaeology. In her 1998 essay "Radical Archaeology as Dissent," Theresa Kintz proposed that to do radical archaeology is to not do archaeology. She laid this relationship out in the following metric:

Radical. Departing markedly from the usual or customary; extreme; Favoring or effecting

fundamental or revolutionary changes in current practices, conditions, or institutions.

Archaeology. The systematic recovery and study of material evidence, such as graves, buildings, tools, and pottery, remaining from past human life and culture.

¹⁴ See Thomas Homer-Dixon's (2006) *The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization.*

Radical archaeology, then, is something "markedly" different from "[t]he systematic recovery and study of material evidence"—that is, something radically different from the "archaeological record" (see Moens and Zorzin 2014). While I have worked elsewhere toward defining an "anti-colonial archaeology" (Hutchings and La Salle 2014b), I include this key caveat:

We are left with a lingering discomfort as to the very real possibility that an anti-colonial archaeology may be just another form of hegemony. It is our hope that by honestly and sometimes painfully engaging with these critiques that we may at least begin to understand how insidious colonialism is, and how elusive an anti-colonial ethic may truly be.

Above all others, one concept, the "issue-attention cycle," has cemented my belief that the global maritime heritage crisis is intractable. I am drawn to the framework in particular because it reflects my own experience in the world (e.g., Hutchings 2011), including in archaeology/CRM. The *issue-attention cycle*, re-imagined here as Figure 9.4, represents people's interest in heritage issues. The five-step cycle begins with great fanfare ("alarmed discovery" and "euphoric enthusiasm") around a new idea, giving way to recognition of the full social and economic costs associated with attending to that problem, followed by the gradual decline of interest, and ending in the (status quo) state Downs (1972) calls "prolonged limbo." There, problems sit idle and unattended for long periods of time (post-problem stage) until an individual or group revisits the issue (pre-problem stage), once again to great fanfare. This seems to be the pattern for archaeology in western Canada, where all of the issues addressed here were spelled out decades ago (e.g., Spurling 1986; West 1995). The question, then, becomes why such stories are so quickly and routinely "forgotten."

For me, the question of intractability (and hope) comes down in the end to just one essential issue: truth-telling. Truth-telling is important because it fundamentally influences our baselines, or starting points, thus also our goals. Rationalizing away uncomfortable truths should not and cannot be the norm. On that note, I end with this challenge from Ian Angus (2013):

[T]he first step is to tell the truth—about the danger we face, about its causes, and about the measures that must be taken to turn back the threat. In a time of universal deceit, telling the truth is a revolutionary act.



Figure 9.4 The issue-attention cycle in theory (top) and reality (top and bottom). As illustrated, major problems spend most of their time in "prolonged limbo" (grayed stages), where they are simply ignored. Through time (bottom), the same issue gets repeatedly revisited, invariably in different contexts (e.g., problem worsens through time) but with the same outcome, "decline of interest" and "prolonged limbo." The time gap (bottom line) between Spurling and Dent's analyses of CRM in western Canada, for example, is 25 years. So is the gap between Spurling and La Salle and Hutchings analyses. Top image after A. Downs (1972:39-41); B. Mitchell and W.R.D. Sewell (1981:13, Fig. 1.1).

Chapter 10: Conclusion—The Strangling and Drowning of Maritime Heritage

All of this is well known to historians and ecologists, but that knowledge hasn't changed natural resource policy. We are blithely managing ... by ignoring past failures. – Jeremy Jackson and Karen Alexander, 2011:3

The future is at once both very bright for the employment of maritime archaeologists but very gloomy for maritime cultural heritage. – Joseph Flatman, 2009:6

I set out in this dissertation to explore the twin impacts of coastal sprawl (population growth) and sea level rise (climate change) on maritime heritage landscapes. The logic behind the dual focus was this: if one's goal is to understand the impacts of sea level rise on heritage, then one must *minimally* grapple with the subject of "development." This is because (*a*) development is the cause of sea level rise and (*b*) responses to inundation are largely dictated by the existing built environment (i.e., structure and infrastructure). As set out in Chapter 1, my point of departure for this study of the maritime heritage crisis was to hone in on the mainstream response to the problem. By focusing on the mainstream response, it was posited, I would be better able to delineate not just the Energy of the crisis but its origins in Power.

In Part One, I described the correlated problems that are sea level rise and amenity migration, and identified *resource management* as the mainstream response to the heritage crisis. In light of maritime heritage, the concepts of coastal resource management and cultural resource management were set as key baselines for analysis and discussion. Historical analysis in Chapter 4 revealed resource management both as an ideology and an institution—to be a very recent invention, largely dating to post-1950, locally, nationally and globally (Spurling 1986; West 1995; Hessing and Howlett 1999; Smith 2004). This is important because its emergence coincides with the rise of industrial-scale resource extraction and consumption, affecting how heritage is fundamentally viewed and defined today.

In Part Two, I presented my case study of cultural resource management as it has played out historically within the traditional territory of the *shíshálh* Nation. I was specifically interested to quantify and qualify how effective cultural resource management has been in protecting *shíshálh* heritage. Operating from the position that the past can be used as a proxy for the future, I considered this to be a measure of how effective cultural resource management will be in "managing" the two-pronged maritime heritage crisis. This holistic landscape survey was conducted in light of *shíshálh* First Nation heritage stewardship principles, and my analyses revealed the severity of the crisis on the *shíshálh* Coast, summarized in seven key findings:

- 1. Residential development has replaced logging as the primary cause of site disturbance on the *shíshálh* Coast.
- 2. At least 75 percent of all known sites examined have some degree of disturbance.

- 3. 90 percent of known sites are located at the contemporary shoreline.
- 4. For scientific archaeologists, a "disturbed" site is effectively considered destroyed.
- 5. For the shishalh Nation, all sites are "significant" irrespective of any measure of site destruction or disturbance.
- 6. While the *shíshálh* have tried to be proactive in the stewardship of their heritage, their ability to affect meaningful change is severely limited by the state and its supporters.
- 7. If the goal of (state-controlled) cultural resource management is to protect sites, then the *shíshálh* Coast study demonstrates that it is an ineffective strategy.

Critically, the primary cause of *shíshálh* Nation heritage destruction is "external" (i.e., it is extra-local). For so long as this remains the case, "solving" the heritage crisis through local strategies will invariably be unsuccessful.

In Part Three, I sought to understand this dynamic of external pressures in order to better discern the nature of "the problem," and thus obstacles to its resolution. While my focus on *resourcism* led me straight to political economy (capitalism) and the Western ideology of growth, my focus on *management* led directly to Power. From this vantage, the maritime heritage crisis is fundamentally a social concern, not a scientific one. Toward that end, I adopted a critical approach to heritage (Smith 2004), which focused on the ideas behind the crisis rather than on its mechanics.

I turned to John Bodley's power-elite hypothesis, which states that as communities grow in size, social power becomes increasingly concentrated. This dynamic constitutes a negative feedback loop whereby an ideology of growth, development, and progress dominates. In the case of the *shíshálh* Nation, this ideology and its on-the-ground consequences in the form of coastal "development" or sprawl, are external to that community. Instead, they derive from the power-elite core, including the economic centre of Vancouver and the managerial centre that is Victoria.

In this way, control over heritage is maintained by the elite and the state, which operate from the core to manage the periphery—what social geographers refer to as the "consumption of rural space" (Cater and Jones 1993:219); this is the colonial system *par excellence*. As I described in terms of the policy management wedge, the result is to decouple people from land and history, and disassociate "natural" or environmental heritage from "cultural" heritage. This is made possible through the bureaucratic management system, and reduces community health and wellbeing. It also facilitates the commodification process whereby cultural heritage is reframed as archaeological resources. A form of disaster capitalism, its main function is to "clear" Indigenous heritage from the landscape thereby expropriating land and resources from Indigenous control and making way for economic development. This process is not linked only to capitalism but to the larger projects of colonialism, imperialism, and modernity (Lemeshev 1990).

Working as designed, archaeology is a billion dollar industry in Northern America today (ACRA 2013), with the vast majority of money derived from developers (i.e., the cash nexus). This economic structure guarantees that archaeology will work in service of the neoliberal state, the outcome of which is hegemony and the disintegration of local control over heritage. This is important because archaeology is directly implicated in the destruction of Indigenous heritage landscapes, with potentially devastating consequences for Indigenous communities whose connections to place are fundamental to the preservation of cultural memory and identity (UN 2008). Globally, Indigenous peoples are fighting to maintain these connections and are insisting upon control over resources and places that matter (Bodley 2008b; Mander and Tauli-Corpuz 2002). However, my reading of the *shíshálh* Coast Study results is that the *shíshálh* Nation has very little control over their heritage, despite that they are self-governing and despite recent gains in the arena of cultural heritage stewardship (Nicholas 2006; Yellowhorn 2012). A central issue is thus about sovereignty (Asch 2009; West 1995).

In light of the problematique, the maritime heritage crisis is a philosophical concern of some magnitude. However, I observe that Canada, British Columbia, and regional and local governments therein have spent virtually no time or money on addressing the maritime heritage crisis. This is not to suggest that more money can resolve any of these issues; rather, it indicates to me that the subject of heritage conservation is ultimately of little concern to non-Aboriginal governments. For example, to date, there is no study for either British Columbia or Washington State that recognizes the near-complete destruction of maritime heritage landscapes over the next century, as described here for the *shíshálh* Coast. This apparent lack of concern lies in stark contrast to Europe, in particular England (e.g., English Heritage 1999, 2002, 2003, 2006a, 2006b, 2007, 2008, 2010; Fulford, Champion and Long 1997; Flatman 2007a, 2007b, 2008a, 2008b, 2012). In my mind, this general support for heritage conservation in England is due to the fact that virtually all heritage there is conceived of as national heritage, thus making all heritage "English" heritage. Conversely, in British Columbia, only heritage post-dating 1846 is viewed as "British Columbian" heritage (i.e., settler heritage). In this construct, "prehistoric" sites (i.e., Aboriginal heritage) are alternately conceived of as resources. Despite this difference in national and therefore economic support for heritage conservation, there is little evidence to suggest the situation in England is any different than in North America—specifically, the everyday practice of clearing sites for development is ubiquitous (Gnecco and Dias 2014). In this extractive-consumptive process, the concept of "sustainable" is highly dubious (see Ferris and Welch 2014 for discussion).

Similarly, I have found it disconcerting that academic archaeologists have largely ignored the crisis underway since the discipline's birth in British Columbia (La Salle and Hutchings 2012). In this regard, archaeology follows larger trends in the social sciences. As described recently by the editors at

Monthly Review (The Editors 2014), social scientists have "largely failed" to take up the challenge of what they term the "planetary environmental emergency."

To be sure, there has been a vast upsurge in recent years of social-scientific discussions of climate change. But most of this work has remained confined within the narrow boundaries of mainstream social science, relying on such amorphous, dehistoricized concepts as human behavior, organizations, institutions, government, economic growth, industrialization, modernization, the market, energy efficiency, public opinion, and the like—variables that can be treated in purely technical, 'non-normative' terms, divorced from historical context, social relations, and social agency. ...

Conspicuously missing from conventional social science is any serious consideration of the actual social system in which we live and which clearly constitutes the root of the problem: namely, capitalism. Also excluded are such fundamental issues as accumulation, class (including its gendered and racialized forms), the state, the cultural apparatus, imperialism, monopolistic corporations, economic stagnation, financialization, Marx's concept of the metabolic rift—and indeed all the other major historical realities of our time.

Archaeology does not exist in a social vacuum, nor an environmental one, despite how it is typically taught and discussed (Hutchings and La Salle 2014a,b).

So, what does the maritime heritage crisis say about archaeology, cultural resource management, and global ecological breakdown? First, archaeology/CRM is not designed to conserve or protect cultural heritage landscapes. I agree with King (2009) that resource management is by and large "a sham." Archaeology continues to be used to "whitewash" heritage destruction, locally and globally, insofar as few academic archaeologists show interest in talking openly and honestly about cultural resource management.¹ This means that the dominant voices in archaeology are largely uncritical about the practice. By not speaking loudly and clearly, and making CRM the central focus of discourse, its practitioners are therefore complicit in the extractive-consumptive processes that are destroying culture and natural heritage, despite years of warning (Spurling 1986; West 1995).

Upon recognizing the crisis that maritime heritage now faces, a common response is to reframe the discussion in terms of possible solutions—how do we deal with or manage this crisis? What changes can be made that will fix the problem? Where do we go from here? Yet to have a conversation about "solutions," one must first agree on what exactly the problem is. For archaeologists, the problem may be viewed as the loss of heritage sites *without archaeological investigation first being undertaken*. For First Nations, the problem may be seen as the loss of control over their heritage, defined both as tangible sites and intangible landscapes. For non-Indigenous government, the problem may be considered to be technical and bureaucratic—ensuring the "proper" people are involved, the correct forms filled out, the

¹ For example, some of the canons in Pacific Northwest Coast archeology (e.g., Matson and Coupland 1995; Ames and Maschner 1999; Moss 2011) do not address CRM in their work, thus rendering the practice invisible.

relevant laws and by-laws followed. For developers, thus for the resource managers they employ, the problem is invariably financial—ensuring the most return for the least investment.

As I discussed in Part Three of this dissertation, in my view the problem is the hegemonic powerelite dynamic, which concentrates economic power (cash nexus) and fuels an ideology of growth, development and progress, now with planetary-scale consequences. Vitally, this problem alone has not one head but many, borne out in my discussion of the problematique. There is no quick technical fix to any one of the problems enmeshed in this complex web, for any change tugs on the threads of all in unpredictable and undesirable ways. Further, it is not that there *are* no solutions—indeed, there are many, outlined in Chapter 9's problematique²—but rather it is that these solutions are not in the interests of the power elite. Thus, under the current socioenvironmental circumstances, the global ecological crisis—of which the maritime heritage crisis is a part—is intractable.³

In this dynamic, Indigenous peoples consistently bear the brunt of environmental injustice, despite having very little to do with causing it. Both because of the intrinsic link between heritage and culture, and between culture and land, coastal change is a "potential culture killer." Like many other coastal First Nations, the *shíshálh* run the risk of becoming environmental refugees on their own coast, especially if steps are not taken to secure adequate higher coastal lands and resources. A major concern in the future will be the legal implications of sea level rise, particularly on Indigenous communities; for coastal First Nations in British Columbia, it is not only heritage sites but contemporary villages and Indian Reserves that will be inundated. The implications of this for Aboriginal Rights and Title issues are uncertain.

Until the *shíshálh* Nation has sovereignty over their territory, the protection of their places that matter is unfeasible. To that end, I endorse John Bodley's (2013) "small nation solution" as a useful point of departure for talking and thinking about how scale relates to resource management. A core element of Bodley's small nation thesis is downscaling, bolstered by the redistribution of social and economic power (Dumienski 2014). Minimally, downscaling involves nations finding their "optimum size" (2013:vii). As before (see Chapter 8), Bodley's premise is that all large socioenvironmental problems are problems of scale, this because "we are living with systems that we have allowed to grow so large that they cannot be safely managed by even the best intended elites, whether individual investors, business executives, philanthropists, politicians, or the most skilled technicians" (2013:36). The central problem of large (or industrial) scale is the erosion of democracy, a consequence of the power-elite dynamic and the

² See also Hutchings (2014a).

³ As I have pointed out elsewhere (Hutchings 2014b), a useful model for thinking about intractability in heritage discourse is the famous I=PAT equation, whereby Heritage Impacts (I) are the product of Population (P) × Affluence (A) × Technology (T).

concentration of social power.⁴ In the context of the present discussion, downscaling involves dismantling national and provincial governments and refocusing on local control over local issues in local landscapes (e.g., watersheds, Cascadia). This involves dismantling archaeology and cultural resource management as tools of state control. Aspects of this process overlap with anarchism (Roussopouloss 1986).

Failing such holistic planetary transformation, solastalgia and dislocation will become new baselines (Hutchings 2014), for—as the metaphor of the miner's canary suggests—the strangling and drowning of maritime heritage is fast becoming the concern of all. This elevates the need to integrate philosophies of social work (e.g., Coates 2003; Albrecht et al. 2007; Alexander 2008) into theoretical and practical approaches to heritage, which is a fundamental part of human health and wellbeing.

In my final evaluation, the maritime heritage crisis is part of what Raymond Rogers (1994) calls the "crisis of modernity." With that in mind, resolving the crisis requires moving away from the core tenets of late modernity—unrestrained growth and power (Bodley 2013:27-30). To do so represents a revolutionary paradigm shift of global scale (Foster 2009), one that I consider to be unlikely given the sacrifice of consumption and power that such a move demands. As set out by Ian Angus (2013), our first step from here should be "to tell the truth—about the danger we face, about its causes, and about the measures that must be taken to turn back the threat. In a time of universal deceit, telling the truth is a revolutionary act."

⁴ As Bodley points out, "the real human problem is not how to grow a larger economy. The problem is how to control the most aggressive aggrandizing individuals in our society—those who would promote elite-directed growth in a way that benefits themselves at everyone's else expense" (2013:13-14).

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APPENDIX A: shishálh Nation Heritage Investigation Permit



shíshálh Nation

(Sechelt Indian Band)

PO Box 740, Sechelt, B.C. VON 3AO (Tel: 604-885-2273/Fax: 604-886-2275/Van Direct: 1-866-886-2276)

shíshálh Nation Heritage Investigation Permit

PERMIT NUMBER: 2011.019

ISSUE DATE: July 20, 2011

EXPIRY DATE: December 31, 2012

PROJECT LOCATION: Archaeological Research within shishalh Territory

LEGAL DESCRIPTION: Unsurveyed Territorial (Crown) Land

PROJECT DESCRIPTION: This permit should be considered approval of the shishálh Nation for Richard Hutchings to conduct archaeological research within shishálh Nation Territory. This permit only covers research relating to the permit holders doctoral research. Research methodology and objectives should generally conform to those presented to shishálh Chief and Council. Notification of any changes in either methodology or objectives should provided in writing (by email: <u>arc@secheltnation.net</u>) to the shishálh Nation.

NAME OF PERMIT HOLDER: Richard Hutchings

Is hereby authorized to conduct land altering activity as described in the Application by the permit-holder dated 20 07 2011 subject to the terms and conditions set out on the reverse of this (day) (month) (year) permit as well as any conditions that have been attached by the Sechelt Indian Band.

Peter Merchant Archaeologist - shishalh Nation Rights and Title Department

TERMS AND CONDITIONS

- This Heritage Investigation Permit is valid for the period indicated. The duration of the permit may be extended for a specific period by the shishalh Nation upon receipt from the permit-holder of a written application for an extension.
- The permit-holder shall provide the shishalh Nation with two (2) bound copies and one digital copf of a written
 report, in accordance with the standards established and maintained by Archaeology Planning and Assessment
 of the Ministry of Sustainable Resource Management.
- A person designated by the shishdih Nation may at any time inspect a project being conducted under the terms and conditions of the permit, including projects, records and materials recovered under authority of the permit.
- Upon completion of anf inspection or investigation involving excavations, the permit-holder shall make reasonable efforts to ensure all sites are restored as nearlf as practible to their former condition.
- All cultural materials recovered during the course of the study shall be deposited prior to the expiry of the permit to the Sechelt Indian Bands *lams swijw* Museum (P.O. Box 740, Sechelt B.C. VON 3AO) by the permit holder.
- 6. The permit-holder must be present "on site" for at least 80% of all fieldwork undertaken under this Permit.
- In the event that human remains are identified during the course of the study covered under this permit, the
 permit holder must contact the shishdilh Nation immediately and must not disturb the remains unless or until
 authorized by the shishdilh Nation.
- A member of the shishdih Nation Resource Management Department will be retained as an assistant during the duration of the fieldwork component of the study.
- Prior to the completion of the written report the permit-holder must contact the shishdith Nation regarding the "ethnic significance" (see British Columbia Archaeological Impact Assessment Guidelines, Section 3.5.2.2) of and heritage materials found.
- The Sechelt Indian be given the opportunit to review and comment on the recommendations of the subsequent permit report prior to report finalization.
- The permit holder will supply the shishdith Nation with a copy of the final permit report in both digital (pdf) and hard copy formats, copies of all field notes and photographs.
- If human remains are encountered during the course of this study all work will cease immediately and the permit holder will contact the shishalh Nation

Note: Additional terms and conditions may be required by the shishalh Nation in the Permit.