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The Commencement Bay Superfund Legacy: Collaboration, Restoration and Redevelopment in the Local Landscape

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2010 Arts, Humanities and Social Sciences Summer Research Grant Recipient

I. Introduction

Commencement Bay has a long history of industrial development, which has leant Tacoma its moniker “City of Destiny” as well as its notoriety as the home of the “Tacoma aroma.” This development has also shaped Tacoma’s current shoreline and overall appearance. Originally, the shoreline was primarily an expanse of tideflats and estuaries, with large shellfish and seabird populations and important salmon habitat. The tideflats have for thousands of years supported tribes such as the Puyallup, and more recently the region’s abundant natural resources and the deep waters of the bay enticed Western settlement. In spite of the 1854 Treaty of Medicine Creek, which supposedly granted the Puyallup the rights to the tideflats at the mouth of the Puyallup River, development by Western settlers quickly overtook the local landscape.¹ The tideflats were filled in, and upon them was built the railroad, roads, homes, lumber mills, and the Port of Tacoma, drastically changing the landscape, the ecosystem, and the local economy. With prevalent industrial activity and hospitable conditions for ocean-going vessels, Tacoma rapidly became a significant port, linking many parts of the world and making a name for itself with many innovative projects.²

This development also yielded environmental degradation. World War I chemical manufacturing, pulp mill processes, creosote-treated pilings, copper and aluminum smelting, discharges from vessels, and many other pollution inputs from Commencement Bay’s industrial history led to such poor environmental conditions that a survey of marine health in the 1970s discovered cancerous tumors in many fish in the bay. Soon after, in 1983, the Commencement Bay Nearshore/Tideflats Area was declared a Superfund site under the newly passed Comprehensive Environmental Response, Cleanup and Liability Act of 1980 (CERCLA, otherwise known as Superfund).³ Considered at that time the worst Superfund site in the country,

¹ SuAnn M. Reddick and Cary C. Collins. Medicine Creek to Fox Island: Cadastral Scams and Contested Domains. Oregon Historical Quarterly, Fall 2005. Accessed online at www.historycooperative.org/journals/ohq/106.3/reddick.html on August 3, 2010.

² Ronald Magden. *The Working Waterfront: The Story of Tacoma’s Ships and Men*. Tacoma: International Longshoremen’s and Warehousemen’s Union, 1982.

³ Sandy Gurkewitz. Preliminary Final 2000 King County Sediment Management Plan. May 1999. Pg. 8. Accessed online at http://your.kingcounty.gov/dnrp/library/wastewater/sedman/smp/SMP_199901.pdf on June 30, 2010.

and for all intents and purposes an “industrial sewer,” Commencement Bay could easily have become a lost cause.⁴ The situation looked especially grim because some areas, such as along the Thea Foss Waterway and in what is now the vibrant museum district of downtown Tacoma, were all but deserted, suffering a brief economic collapse that happened to coincide with the National Priority listing.⁵

In spite of what seemed to be insurmountable difficulties, Commencement Bay’s Superfund designation sparked an unprecedented and innovative cleanup process marked by a high level of collaboration, citizen involvement, and creative restoration and redevelopment. Many environmental citizen groups arose in response to various aspects of the Commencement Bay Superfund cleanup, and a few organizations, such as the Foss Waterway Development Authority, were formed by the City of Tacoma specifically to coordinate cleanup and redevelopment efforts. The Puyallup Tribe, meanwhile, gained greater political influence in the late 1980s and consequently has become a strong advocate for environmentally conscious cleanup and restoration projects.⁶ Though these various organizations have somewhat different environmental goals, they have established strong collaborative relationships—with each other as well as with local, regional and national government agencies. This collaboration, in turn, has minimized litigation and yielded effective cleanup, redevelopment and restoration efforts, all of which sets Commencement Bay apart from many Superfund sites across the United States.⁷

In this paper I focus on the roles of four organizations in the cleanup process: Citizens for a Healthy Bay, Foss Waterway Development Authority, Puget Creek Restoration Society, and the Puyallup Tribe. In my analysis, I argue that the exceptional collaborative atmosphere surrounding the Superfund cleanup of Commencement Bay was influenced by the attitudes toward the local landscape manifested in these organizations, as well as a number of other factors including logistical necessity and the need for a broad array of expertise in dealing with the extensive contamination of the bay. I also will discuss the perceptions of the environment inherent in each of these organizations, and how this led me to develop a series of paintings capturing the complexity of the local landscape.

II. Methodology

This project involved extensive research of four local environmental organizations, the Superfund cleanup, and local development and environmental history. This research informed a series of landscape paintings in oil, as well as this report.

⁴ Bill Sullivan, Interview by Jenni Denekas, 4 August 2010, Puyallup Tribe Administrative Building, 3009 Portland Ave., Tacoma, WA.

⁵ Su Dowie, Interview by Jenni Denekas, 14 June 2010, Foss Waterway Development Authority Office, 535 Dock Street, Tacoma, WA.

⁶ Sullivan, *op. cit.*

⁷ Daniel Sherman. Contamination, Collaboration, Remediation and Restoration: Lessons on First and Next-Generation Environmental Policy Approaches from the St. Paul Waterway Superfund Site in Tacoma, Washington.

Though secondary sources were extensively referenced, first-hand research was the driving force in this project. This primarily consisted of interviews with at least one representative from each organization, and “visual research,” which primarily involved extensive exploration and photographing of relevant sites. Interaction with the people, places and concepts I was engaging in my research gave me a firm understanding of their character, which was vital in analyzing the complex dynamics of collaboration and perceptions of the local environment, as well as creating my painting series. Creating successful art requires a deep and nuanced understanding of the subject, and I wanted to ensure that I effectively and empathetically conveyed the aims and accomplishments of each organization. My painting process will be further detailed later in this report.

III. Organization Overviews

A.) Puget Creek Restoration Society

Viewing the natural world as a perfect blueprint for environmental health, Puget Creek Restoration Society (PCRS) seeks to return Puget Creek and the surrounding Puget Gulch (which are encompassed in Puget Park) to a healthy, self-sustaining ecosystem. Achieving this aim has meant overcoming many human impacts on the gulch. In the words of Scott Hansen, the executive director of PCRS, “Nature had it all figured out; everything had a purpose and a function in the ecosystem. Human’s don’t pay attention to this system, and that’s when issues arise.”⁸ Accordingly, PCRS works to correct human behavior through public outreach and the creation of codes and ordinances that protect stream health, in addition to their restoration work.

The site was originally a hemlock and cedar-dominated forest with a year-round creek that met with a tidal estuary. This habitat supported Coho and chum salmon runs as well as many other native species. With the onset of Western settlement, however, the ecosystem was drastically changed. The gulch, like much of the Puget Sound area, was logged, and in the late nineteenth century, the estuary was bisected by a large dock and sawmill.⁹ The mill burned down in 1902, but the estuary was closed off for good with the construction of the railroad. This significantly altered the hydrology of the gulch, changing it to a purely freshwater ecosystem. The forest was also impacted by various development projects. A combined storm and sanitary line was installed by the City in 1922, and underwent later repairs and revisions, which, each time, “tore up the area.” A private residence was constructed near the base of what is now the park; it was demolished six years ago. There was also a road through the forest, built in 1986. The current path through the park is a remnant of that road.¹⁰ Also, surrounding the gulch is a

⁸ Scott Hansen, Interview by Jenni Denekas, 28 May 2010, Puget Creek Restoration Society Office, 702 Broadway, Tacoma, WA.

⁹ Urban Streams. Accessed online at <http://www.pugetcreek.org/urbanstreamsdraft> on June 12, 2010.

¹⁰ Hansen, *op. cit.*

high-density residential area, which leads to increased stormwater input to the creek. Such stormwater runoff can lead to water pollution and changes in stream flow.¹¹

In order to deal with the historical environmental damage and on-going challenges, PCRS employs several strategies. First, and most direct, they organize and conduct restoration efforts in Puget Gulch. PCRS and its volunteers have created meanders (curves) and riffles (small rapids) in the creek to slow its flow rate and increase the amount of habitat conducive to salmon spawning, added woody debris (including old Christmas trees contributed by community members) to the forest floor and stream to simulate natural cycles of decay and regrowth in the forest, and removed invasive plants and replaced them with native species.¹² Promoting these habitat conditions facilitates the regeneration of a healthy ecosystem and the return of salmon.¹³ Indeed, in 1994, PCRS began to reintroduce salmon eggs and fry into the creek, and they have observed the return of some Coho and chum salmon in the past few years. In conjunction with these efforts, PCRS also conducts habitat monitoring, in order to better gauge the effectiveness of their restoration work and to document the return of native species to the gulch.¹⁴

PCRS has also created railings and interpretive signs to encourage park visitors to stay on the trail, reducing adverse habitat impacts from foot traffic.¹⁵ In order to further reduce the impacts of foot traffic on the park, which includes compaction of the soil and habitat disruption, PCRS plans to install a boardwalk.¹⁶ This will be accompanied by two interpretive kiosks. The kiosks will include information on the importance of Puget Gulch as an urban watershed, the gulch's historical background, information on PCRS's restoration work, and the intricacies of the gulch ecosystem, all of which demonstrate PCRS's interest in public education.¹⁷

Public education and outreach have proven a necessary step in gaining support for PCRS's work and, more generally, improving the relationship between humans and the local environment. PCRS also employs public outreach programs to get community members involved with their restoration projects. Public involvement ranges from neighborhood groups that work on restoration, to developmentally disabled individuals who help with the lawn and orchard in the lower park, to other local groups such as scout troops and churches. As a result of this community outreach and involvement, PCRS has enjoyed significant public support.¹⁸

¹¹ Urban Streams, *op. cit.*

¹² Hansen, *op. cit.*

¹³ Derek B. Booth, Bernadette Visitacion and Anne C. Steinemann. Damages and Costs of Storm Water Runoff in the Puget Sound Region. The Water Center, Department of Civil and Environmental Engineering, University of Washington. August 30, 2006. Accessed online at http://www.psparchives.com/publications/our_work/stormwater/stormwater_resource/stormwater_management/PSATstormwaterFoundation_FINAL_08-30-06.pdf on June 30, 2010.

¹⁴ Urban Streams, *op. cit.*

¹⁵ Hansen, *op. cit.*

¹⁶ Puget Creek Boardwalk Plan and Puget Creek Boardwalk Proposal Map. 2008. Accessed online at <http://www.pugetcreek.org/Boardwalk%20plans%20AHBL.pdf> and http://www.pugetcreek.org/wetlandpermit_sm031909.pdf on June 12, 2010.

¹⁷ Urban Streams, *op. cit.* and Information Kiosk Plan. Accessed online at <http://www.pugetcreek.org/Kiosk.pdf> on June 12, 2010.

¹⁸ Hansen, *op. cit.*

PCRS also has established positive relationships with many local organizations. They collaborate with other environmental groups when their environmental goals overlap, and this collaboration is generally positive and effective. For instance, PCRS regularly works with Citizens for a Healthy bay because their interests in improving water quality and salmon habitat intertwine. This shared interest has led to a collaborative effort to monitor the health of the eelgrass beds at the mouth of Puget Creek, along the shore of Commencement Bay. The eelgrass beds are important habitat for juvenile salmon and help to simulate the estuarine area that once existed between the creek and Puget Sound. Eelgrass is also an important indicator of water quality in the bay.¹⁹

PCRS also collaborates regularly with the City of Tacoma and Metro Parks to coordinate development efforts in Puget Gulch. This relationship with city government appears a bit more combative, as PCRS's primary interest of restoring and maintaining as natural an ecosystem as possible can easily come into conflict with development projects. In particular, sewer improvements (which occur regularly) are of concern to PCRS. These projects can cause acute, temporary impacts to the forest ecosystem. Therefore, PCRS's primary aim in their collaboration with local government is to suggest ways in which the adverse impacts of local development and other projects can be minimized. In the words of Hansen, "We're here to voice the concerns and opinions of the community, but we put fish and wildlife first. They appear to be unable to withstand the onslaught of human development by themselves. With our work, we have to step on a lot of toes, but as long as they're not raccoons' and possums' toes, it's OK."²⁰ PCRS has many constituents, but ultimately prioritizes ecosystem health. Similarly, PCRS often proposes new codes and ordinances to protect natural habitats in the area.

Although there is some contention on issues of development in the area, PCRS has overall been able to effectively protect the ecosystem of Puget Gulch from human encroachment and to help it to recover from past impacts. At the same time, PCRS has been able to successfully and overall amicably reconcile the variety of interests and goals that intersect at Puget Park. Indeed, the park's setting in an urban area necessitates mixed use, and though this often presents challenges, PCRS has risen to the occasion. The organization's successful public outreach and education, creative use of local inputs such as Christmas trees, strong collaborative relationships and, of course, its restoration work have strengthened the gulch's ecosystem and the community's environmental awareness.

B.) Foss Waterway Development Authority

Formed by the City of Tacoma in 1996 to facilitate the redevelopment of the then-industrial Thea Foss Waterway during the Superfund cleanup process, the Foss Waterway Development Authority (FWDA) has paved the way for innovative pairings of development and environmental cleanup. Further, the FWDA's efforts to bring "mixed uses" spanning museums,

¹⁹ Urban Streams, *op. cit.*

²⁰ Hansen, *op. cit.*

parks, upscale condominiums and offices to the Foss have revitalized downtown Tacoma.²¹ The FWDA's collaborative approach to redevelopment, moreover, has fostered increased environmental awareness in the area, particularly among businesses.²² Overall, the FWDA's work on redevelopment is a testament to the effectiveness of creative, environmentally conscious development projects.

To truly appreciate the metamorphosis of this area in the past three decades, some background on the Foss Waterway is necessary. In the early half of the twentieth century, the one and half-mile Foss was known for its mile-long warehouse and dock, which supported a number of industrial uses, primarily sawmills and shipping.²³ However, by the 1980s, the area had degenerated. Warehouses were increasingly deserted as an economic downturn took its toll. Compounding the problem, investors began to pull out due to concerns about land claims from the Puyallup Tribe and the Superfund designation of much of Commencement Bay's shoreline—which included the Foss.²⁴ Sediment all along the waterway was found to have significant contamination from heavy metals including lead, mercury, zinc, cadmium, copper and nickel, and chemicals including polychlorinated biphenyls (PCBs).²⁵ The area was visibly a “biological desert,” in which even barnacles would not grow on piers.²⁶

However, over the course of the Superfund cleanup (which was completed in 2006) an impressive degree of environmental and economic recovery occurred. Thanks to extensive dredging and capping, the level of sediment contamination has decreased and water quality has improved (though there have been some instances of recontamination).²⁷ There also has been a visible increase in wildlife along the waterway, which has been corroborated by various biological surveys of the area. Also, the Foss has undergone an economic transformation. Many

²¹ Thea Foss Waterway Design and Development Plan: A Comprehensive Plan Element. Tacoma Planning Commission. November 15, 2005. Accessed online at <http://cms.cityoftacoma.org/Planning/Comprehensive%20Plan/18%20-%20Thea%20Foss%20waterway%20Design%20and%20Development%20plan%2011-15-05.pdf> on August 22, 2010.

²² Dowie, *op. cit.*

²³ “Repeating History—For the Better.” Foss Waterway Development Authority. Accessed online at www.theafoss.com on June 8, 2010.

²⁴ Dowie, *op. cit.*

²⁵ EPA Superfund Definition of Significant Differences: Commencement Bay Nearshore/Tideflats. United States Environmental Protection Agency. August 3, 2000. Pg. 2. Accessed online at [http://yosemite.epa.gov/R10/CLEANUP.NSF/9f3c21896330b4898825687b007a0f33/a1e00521679803588825694600002bfa/\\$FILE/SDFINALforAreaCenhancedremedyMar20version.pdf](http://yosemite.epa.gov/R10/CLEANUP.NSF/9f3c21896330b4898825687b007a0f33/a1e00521679803588825694600002bfa/$FILE/SDFINALforAreaCenhancedremedyMar20version.pdf) on July 2, 2010.

²⁶ Joe Martinac, Jr. Interview by Jenni Denekas, Evan Eckles and Erica Hann. Spring 2009. JM Martinac Shipbuilding Company, 401 East 15th Street, Tacoma, WA.

²⁷ Steven C. Nadeau and Merton M. Skaggs, Jr. Analysis of Recontamination of Completed Sediment Remedial Projects. Sediment Management Work Group. Accessed online at <http://www.smwg.org/presentations/Battelle/Nadeau%20and%20Skaggs%202007%20%20Analysis%20of%20Recontamination%20of%20Completed%20Sediment%20Remedial%20Projects.pdf> on July 2, 2010, and Results of Year 3 Operations, Maintenance and Monitoring Plan Sampling: Head of the Thea Foss Waterway Remediation Project. Tetra Tech E.C., Inc. August 2007. Accessed online at [http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/Thea/\\$FILE/Thea_Foss_Results_Year_3_OMMP.pdf](http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/Thea/$FILE/Thea_Foss_Results_Year_3_OMMP.pdf) on August 22, 2010.

new businesses and other development projects have brought new life to the once-deserted area.²⁸ This has been brought about largely because of the FWDA's efforts.

Primarily, a "parcel approach" has been utilized along the Foss (as outlined in the 1994 Consent Decree with the Washington Department of Ecology), in which individual contaminated sections of the waterway's shoreline were cleaned piecemeal, and now are being carefully redeveloped. What makes this process truly unique is that the cleanup and redevelopment processes are intertwined.²⁹ In the words of FWDA Interim Executive Director Su Dowie, "With this (creative) approach, development becomes the final cap for contamination."³⁰ Indeed, often the foundations of new buildings and the underlying layers of parking lots can become an insulating layer or cap for contaminated sediment, preventing harmful chemicals and heavy metals from leaching back into surrounding sediment or the waterway.³¹

This redevelopment process is also driven by expectations laid down in Pierce County's and the City's Shoreline Master Plans, as well as by the EPA, for environmentally conscious mixed-use development. Consequently, the FWDA has developed many collaborative relationships with local and national government agencies in order to better direct their planning and feasibility studies. The FWDA also consults with local businesses, various boating organizations, and environmental groups such as Citizens for a Healthy Bay to better mold their projects to the interests of potential investors, environmental groups, and the character of the local community. Input from the general public has also been a key factor in the FWDA's work. Community awareness of the redevelopment process has encouraged the further application of environmental considerations in development plans and has fostered increased investment in the area. This also has worked in the reverse: the public has become more environmentally conscious over time.³²

Though for the most part the FWDA has positive relations with all of these parties, there are some "rub points" as well. In particular, there is still some uncertainty and therefore some conflict surrounding the relationship between "softer uses" such as condos, museums and offices, and industrial uses. As Dowie noted, "Industrial users feel a little bit threatened" by the encroachment of new development that could lead to complaints about light, noise and other inputs from industrial processes. There are also concerns related to the fact that much of the new development differs from the Foss's industrial past. Some industrial companies feel concerned that the public views them as the final vestiges of an old era, rather than an important part of the current Tacoma economy. Fortunately, the FWDA has been working to reconcile the variety of interests present on the Foss in a harmonious manner.³³

In this vein, the FWDA has created a development plan for the waterway that closely fits the layout of the nearby landscape. The northeast bank of the Foss is primarily industrial,

²⁸ Dowie, *op. cit.*

²⁹ Tacoma Redevelopment Properties. Washington Department of Ecology. July 7, 2010. Accessed online at <http://www.ecy.wa.gov/programs/tcp/sites/commBay/commBayHist.html> on July 7, 2010.

³⁰ Dowie, *op. cit.*

³¹ Tacoma Redevelopment, *op. cit.*

³² Dowie, *op. cit.*

³³ *Ibid.*

mirroring the adjacent Port. The other shore is modeled after nearby areas of downtown Tacoma.³⁴ This side of the Foss is divided into several segments that are designated for various uses: a “family campus” that includes hotels and a trail network, a central waterfront district that will mostly house businesses, and a historic warehouse district, which features museums and other heritage sites. These segments are aligned with areas of downtown that are put to similar uses. For instance, the Museum of Glass on the Foss is positioned near the Washington State History Museum and the Tacoma Art Museum, and is connected to this district by the Bridge of Glass. Such arrangements are intended to bring more downtown foot traffic and business toward the Foss, and to create a greater sense of unity in Tacoma’s layout.³⁵

Also, particularly in the historic warehouse district, the Foss’s rich history is drawn into modern development. For instance, timbers from old piers were used to create ornamental structures in a small park near the 509 bridge, and an old warehouse is being remodeled for use as a maritime museum.³⁶ This is intended to preserve the Foss’s past, which is certainly an important component of Tacoma’s history, while still promoting environmental concerns. As Dowie explained, “The Superfund cleanup inspired changing this blighted area into an area for new use. We’re not building for last century, but for the next.”³⁷ Indeed, the FWDA has brought new life to Tacoma, as well as a new environmental ethic to the process of redevelopment.

C.) Citizens for a Healthy Bay

Formed in 1990 as a citizen advisory committee for the Superfund cleanup of the Simpson Tacoma Kraft paper mill site, Citizens for a Healthy Bay (CHB) has grown into a multifaceted, influential environmental organization.³⁸ CHB’s main aim, accordingly, has broadened to improving water quality in Puget Sound.³⁹ The Superfund cleanup has progressed significantly since CHB’s inception, and industry has responded by reducing its environmental impact. Therefore, the main pollution inputs to Commencement Bay now come from non-point sources, particularly stormwater runoff from urban areas.⁴⁰ Accordingly, CHB hopes to reduce these impacts. They are pursuing this goal through a variety of means, but with a unifying, heavy emphasis on collaboration with many local groups, government agencies, and the public.⁴¹ As a result, CHB has a strong presence along the shores of Commencement Bay and its waterways, as well as in the farther reaches of Puget Sound.⁴²

³⁴ Foss Waterway Design and Development Plan, *op. cit.*

³⁵ Dowie, *op. cit.*

³⁶ Foss Waterway Design and Development Plan, *op. cit.*

³⁷ Dowie, *op. cit.*

³⁸ Sherman, *op. cit.*, pg. 11.

³⁹ Bill Anderson, Interview by Jenni Denekas, 15 June 2010, Citizens for Healthy Bay Office, 917 Pacific Ave., Tacoma, WA.

⁴⁰ Booth et al., *op. cit.*, pg. 1, 5.

⁴¹ Anderson, *op. cit.*

⁴² *Ibid.*, and evidenced by the author’s July 12, 2010 ride-along with CHB’s Bay Patrol Director, Jeff Barney.

One of the cornerstones of CHB's strong presence in the local community is public education and outreach. Through partnerships with groups such as the City of Tacoma, FWDA, the Port of Tacoma and the Puyallup Watershed Council, CHB works to raise public awareness about non-point sources of pollution, including oil-leaking vehicles, lawn chemicals and illegal dumping in storm drains.⁴³ In order to raise awareness about the latter, CHB organizes community work parties to label storm drains with the slogan, "No dumping—Drains to Puget Sound." They also provide information to the public on how to reduce their pollution inputs to the bay through pamphlets and outreach programs, and send lecturers to area schools and businesses. In conjunction with its advice on reducing pollution, CHB offers constructive alternatives. For instance, they provide kits for washing one's car in an environmentally conscious manner, and for boaters to safely change their oil. The latter is part of CHB's Clean Boating Program, which provides local marinas and boat operators with information and assistance in reducing environmental impacts. CHB also promotes public involvement in habitat restoration projects around the bay.⁴⁴

These restoration projects are an important component of the push for improved water quality in Commencement Bay. Healthy riparian zones along area streams and rivers help to reduce runoff that ultimately drains to the sound.⁴⁵ Accordingly, CHB has established collaborative relationships with many local organizations that work to restore riparian, wetland and tidelflat habitat areas, such as PCRS and the Puyallup Tribe. They've worked on restoration projects along Commencement Bay as well as along the Puyallup River and many smaller streams. Additionally, CHB created several environmental stewardship programs specifically to spark public involvement, such as the Adopt-A-Wildlife Area Habitat Stewardship Project. This program recently expanded to include a branch for youth, which pairs CHB's interests in community education and public involvement.⁴⁶

CHB also utilizes public input with its Pollution Hotline and Bay Patrol. Citizens are encouraged to call in pollution and other water-related concerns to CHB, which are then investigated by the Bay Patrol branch of CHB. Though the Bay Patrol does not have enforcement capabilities, they collect information on environmental problems that would otherwise be overlooked, provide information to concerned parties about the legal and environmental implications of these problems, and notify the appropriate authorities. In addition to collecting information on water pollution across the broad span of Commencement Bay, this program provides a strong link between CHB and local citizens, allowing more voices to be heard in local

⁴³ Port of Tacoma Stormwater Management, *op. cit.*, and Environmental Education and Outreach Opportunities. City of Tacoma. Accessed online at <http://www.cityoftacoma.org/Page.aspx?nid=391> on July 7, 2010.

⁴⁴ Outreach Presentations and Stormwater Pollution. Citizens for a Healthy Bay. Accessed online at <http://www.healthybay.org> on July 7, 2010.

⁴⁵ Booth et al., *op. cit.* and Fife Shoreline Inventory. October 2004. Accessed online at http://www.ecy.wa.gov/programs/sea/sma/local_planning/pierce/Fife/DraftInventory_0804.pdf on August 3, 2010.

⁴⁶ Anderson, *op. cit.*

environmental issues. Indeed, CHB is often seen as an advocate for the interests of small, waterfront communities and has cultivated many positive relationships with residents.⁴⁷

More recently, CHB has also cultivated stronger relationships with local businesses. One year ago, they began the Businesses for an Environmentally Sustainable Tacoma (BEST) Program, which provides confidential environmental consultations.⁴⁸ “Business goals are, generally speaking, to make money, especially now with the economy as it is, so I try to focus on ways to save money and the environment at the same time,” Bill Anderson, Executive Director of CHB, explained. Indeed, this program helps to reconcile the stereotypically exclusive aims of environmental and economic health. Many local businesses are utilizing the BEST consulting service to evaluate their environmental footprint, and are increasingly expressing interest in more intensive standards such as those of the Leadership in Energy and Environmental Design (LEED) Program. As Anderson noted, “The way economic development is planned these days (in Tacoma), environmental concerns are prominent.”⁴⁹ The Superfund cleanup and the local culture appear to have sparked a widespread interest in sustainability, which CHB has helped to reinforce.

Indeed, the prevalence of environmental concerns in the Puget Sound region can be partly attributed to the extensive efforts of CHB. With their heavy emphasis on public involvement and collaborative problem-solving, this organization has helped to create an atmosphere in which local environmental concerns are both heard and encouraged. In turn, these diverse interests are creatively reconciled with cleanup, restoration and development efforts.

D.) Puyallup Tribe

The Puyallup Tribe regards its role in the Superfund cleanup and other local environmental projects as that of an ecological conscience. Though many of the other organizations involved in the cleanup process also are “environmental” (admittedly this is a broad term), the Tribe has been concerned that political and bureaucratic considerations have a tendency to overrun more comprehensive ecological interests. Indeed, the Tribe has often pushed for more environmentally sensitive solutions to contamination along Commencement Bay, and the restoration of degraded habitat.

Bolstering the Tribe’s push for habitat restoration is their extensive work on environmental monitoring, particularly field work on salmon populations and habitat along the Puyallup River and its tributaries. The Tribe’s Fisheries Division produces an annual salmon, steelhead and bull trout report, detailing habitat conditions and fish populations along all major streams and rivers in the Puyallup/White River watershed. They also collect and report data on

⁴⁷ As evidenced by the afore-mentioned boat ride, as well as Trisha O’Hearne. Analysis of Citizens for a Healthy Bay 2006 Pollution Hotline. University of Washington, Tacoma. 2006. Accessed online at http://www.tacoma.washington.edu/ias/academics/bs/UWaTERS_07/OHearne.pdf on July 2, 2010.

⁴⁸ Businesses for an Environmentally Sustainable Tacoma (BEST). Citizens for a Healthy Bay. Accessed online at <http://www.healthybay.org/protect/best-program> on July 7, 2010.

⁴⁹ Anderson, *op. cit.*

various human impacts to the watershed, and Tribal salmon consumption.⁵⁰ Because of the Tribe's treaty rights to salmon fishing, the latter data provides additional political motivation for the implementation of effective cleanup and restoration efforts in the area. Also, more simply, much of the Tribe's data proves that there is hope for environmental recovery, and therefore justifies cleanup and restoration projects. According to the Tribe's Environmental and Natural Resources Department director, Bill Sullivan, "At the outset (of the Superfund cleanup), Tacoma was considered a throwaway zone. We had to prove fish were still in the river, and that it mattered."⁵¹ This mentality, of proving the importance of ecologically sensitive projects, persists today and makes the Tribe a unique and strong advocate for the environment.

Indeed, the Tribe often takes on the role of an environmental watchdog, which it deems necessary because of the plethora of other, sometimes competing, interests in local environmental projects. The mix of urban, suburban, agricultural, industrial and ecological concerns in the area can make decision-making complicated, and in regard to the Superfund cleanup specifically, the Tribe is concerned that the bureaucratic nature of the EPA (which, along with the City of Tacoma, oversees the cleanup) can cause an expedited and therefore ineffective process of cleanup and restoration. In the words of Sullivan, "It's easier for EPA to implement institutional controls and a cursory cleanup, and had we not been here pushing for ecological concerns, it (the Superfund cleanup) would not have progressed so well."⁵² The Tribe's efforts have indeed led to a more holistic perspective of the local environment, which has driven a comprehensive cleanup and restoration effort.

The Tribe has been able to hold Potentially Responsible Parties (PRPs) and the EPA to a high standard for cleanup partly due to its treaty rights to some of the land in the Port of Tacoma. The Tribe's reservation, in fact, originally encompassed the Port of Tacoma, as well as much of the Puyallup-White River Watershed. The Land Claim Settlement Act of 1988 finally provided the Tribe with some of its land in the Port, and overall clarified the ownership and responsibilities of various parties involved in the Superfund cleanup.⁵³ Land held in trust for the Puyallup Tribe was first to be cleaned by the EPA, City of Tacoma and PRPs, and then it would formally transfer ownership to the Tribe. From there, the Tribe would conduct habitat restoration on most of the sites (a few others were redeveloped for economic purposes). Restoration projects, which were designed to simulate the tideflats and wetlands that used to exist there, and which play an important role in maintaining water quality, occurred on the St. Paul and Blair waterways, as well as four other Port properties.⁵⁴ This restoration work, in turn, was made more

⁵⁰ Eric L. Marks, Russell C. Ladley, Blake E. Smith and Terry G. Sebastian. 2006-2007 Annual Salmon, Steelhead and Bull Trout Report: Puyallup/White River Watershed, Water Resource Inventory Area 10. Puyallup Tribe of Indians, Fisheries Division. August 2007. Accessed online at <http://access.nwifc.org/recovery/documents/BoisetoClear.pdf> on August 3, 2010.

⁵¹ Sullivan, *op. cit.*

⁵² *Ibid.*

⁵³ David Wilma. Puyallup Tribe of Indians Accepts a \$162 Million Settlement For Lost Land on March 25, 1990. Washington State Historical Society. October 21, 2006. Accessed online at http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=7969 on August 3, 2010.

⁵⁴ EPA Superfund Significant Differences, *op. cit.*, pg. 2.

effective because of the initial cleanup efforts. Otherwise, the ecosystems would not have been viable, due to the extensive nature of contamination on these properties. The restoration of these ecosystems, instead, has been highly successful, contributing to improved water quality in the bay, and aiding salmon recovery⁵⁵

The fact that the Tribe has become such a strong presence in local environmental policy is quite a success story as well. At the outset of the Superfund cleanup in the 1980s, the Tribe was “in its infancy, not a political player at all.”⁵⁶ The Tribe had weak political organization, suffered socio-economically from many poverty-related ills, and, geographically, was practically non-existent. Indeed, the land that the Tribe owns today is only a fraction of the 18,000 acres that were deeded to them in the 1854 Treaty of Medicine Creek (which, in turn, was only a fraction of the four thousand square miles that they enjoyed prior to Western encroachment).⁵⁷ In order to correct past inequities, the Tribe put forth a land claim in the late 1980s, which encompassed land that had been developed by the Port and the City of Tacoma, as well as Interstate 5 and all of the City of Fife. The subsequent land claim settlement (which gave the tribe 300 acres of land, \$162 million, economic development assistance, continued fishing rights, and other aid, in exchange for ceding their land claims) began the Tribe’s political and economic revitalization.⁵⁸

The settlement has also proven a boon to the Tribe, the environment and the collaborative nature of local environmental projects in more intangible ways. The Tribe has an increased sense of autonomy and unity.⁵⁹ At the same time, has built “a lot of partnerships up and down the river.” Though the Tribe has sole jurisdiction over its own lands, it frequently collaborates with the Washington Department of Ecology, other government agencies, businesses, and environmental organizations to realize its environmental goals. Further, the Tribe has seen the growth of a regional environmental consciousness and a more hospitable atmosphere over the course of their involvement with the Superfund cleanup. “There’s a lot more awareness coming out of these projects,” Sullivan said. “We’re not really the enemy anymore.”⁶⁰ Indeed, the Tribe has become a strong and respected voice for environmental concerns, within an ecologically-minded and cooperative local culture that it helped to build.

III. Perspectives of Land and Conditions for Collaboration

The diversity of the land surrounding Commencement Bay and the diversity of the organizations that work along the shores of Puget Sound have created a dynamic landscape in which collaborative environmental efforts have flourished. This cooperative spirit stems from a number of factors, including local attitudes toward the land and its history, logistical necessity,

⁵⁵ Sullivan, *op. cit.*

⁵⁶ *Ibid.*

⁵⁷ Reddick and Collins, *op. cit.*

⁵⁸ David Wilma. Puyallup Tribe of Indians Accepts a \$162 Million Settlement For Lost Land on March 25, 1990. Washington State Historical Society. October 21, 2006. Accessed online at http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=7969 on August 3, 2010.

⁵⁹ Brown, *op. cit.*

⁶⁰ Sullivan, *op. cit.*

and innovative policy decisions surrounding the Superfund cleanup process. These policy decisions, moreover, serve to reinforce the collaborative atmosphere that characterizes the Puget Sound region.

I will begin by discussing local attitudes toward the land and its uses. Though there is a broad array of interests in local environmental projects (as demonstrated even by this small sampling of local environmental organizations), they are unified by a strong sense of local history, and a multifaceted and yet holistic conception of the land. The local environment is appreciated for its rich diversity, its historic uses, and the broad array of possibilities for its future. The natural environment, as the backdrop and the focus of many current projects, is highly valued. Though environmental health is a common concern among citizens and organizations, this does not generally lead to a preservationist attitude; rather, the environment is seen as the setting of daily life, an inextricable part of the area's activities. Therefore, mixed-use development and creative problem-solving that benefits many groups are common goals. There is a strong inclination, because of this, to collaborate with other groups and to appreciate what each perspective brings to environmental discourse.

The value placed on diverse perspectives of the environment is perhaps most noticeable in regard to local attitudes toward industry. Although there is a nearly universal acknowledgment of the damage caused by Tacoma's industrial past, the local organizations researched in this paper exhibit an admirable level of respect for all parties involved in the cleanup process, including industrial companies. It would be quite easy to blame industry for its faults, as often occurs in conjunction with the inescapably punitive provisions of CERCLA.⁶¹ However, industry has overall been treated with respect throughout the cleanup process.

The willingness to collaborate with industry likely stems from the fact that industry historically and currently is such a strong presence in the lives of Tacoma residents. This city has a primarily blue-collar background, and therefore, industry is regarded not as an evil outsider, but rather as a partner in economic prosperity, and a key feature of the local landscape. Though I would argue that this is a healthy approach to dealing with industry on the whole, there are certainly valid points of conflict that must also be resolved carefully. For instance, workers at the ASARCO smelter (another Superfund site that was not focused on in this paper) were generally supportive of the plant in spite of the fact that they suffered health issues and environmental degradation as a direct result of the arsenic-laced copper that was being refined. As this example illustrates, when jobs and lifestyles are at stake, or when a region is used to a particular set of conditions, industry may enjoy a more positive reputation than it deserves, while environmental concerns might suffer a worse reputation than is merited.⁶² The tendency in our area to sympathize with industry, therefore, should be carefully evaluated to ensure that it is not done in excess, or against reason. However, as evidenced by Tacoma's unique propensity for finding effective compromises and forging cooperative relationships between various groups, the

⁶¹ Sherman, *op. cit.*

⁶² B.N.R. Baird. Tolerance for Environmental Health Risks: The Influence of Knowledge, Benefits, Voluntariness, and Environmental Attitudes. *Risk Analysis*, 6: 4, 425-435. Blackwell Publishing, Ltd., 1986.

stereotypical dichotomy of environmental interests and business interests has repeatedly fallen flat along the shores of Commencement Bay. The diversity of the local landscape and its history necessitates appreciation for both the environment and industry, driving the search for creative ways in which to reconcile these supposedly disparate interests.

Indeed, as shown by the work of organizations with seemingly divergent emphases such as those of the FWDA (redevelopment and environmental health), the diversity of the local landscape is embraced and integrated into environmental projects. Underlying such practices is the fact that the land's many components are regarded as important parts of the larger whole: the bay, the forests, condominiums, streams and rivers, streets, wildlife, manufacturing plants, parks. This demonstrates the important ecosystem concept of interconnection, which in practice helps to create more effective, long-lasting solutions to environmental problems. Since everything in the environment interrelates in some way, it is important to model development and other environmental projects in a manner that reflects the intricacies of nature and civilization. Inputs and outputs to the ecosystem (such as pollution and water use, respectively) must be taken into account, as should ways to mitigate those impacts. Such a holistic approach also makes it more likely that environmental projects will be politically successful, as they can more easily achieve broad support.

Indeed, the collaborative nature of the Superfund cleanup process also stems from logistical necessity. The broad scope and diverse array of contamination along the shores of Commencement Bay has required an equally diverse cleanup effort—more so than is simply required by law. The sheer amount of affected parties, habitats and areas has meant that many interests and areas of expertise needed a voice in the cleanup process. Reinforcing this recognition of the diversity of the contamination and the necessity for collaboration were innovative policy decisions surrounding the cleanup. In 1989, the EPA, Washington Department of Ecology and City of Tacoma agreed to the unique arrangement of dividing the Superfund site into several smaller parcels (or OUs, operable units), based on geographic location and the type of contamination.⁶³ This has served to streamline and clarify the necessary steps for the cleanup process and provide intermediate indicators of improvement. The parcel approach created manageable steps that facilitated more nuanced and effective cleanup than would have occurred in the face of the overwhelming prospect of cleaning a broad, diverse landscape contaminated with a broad and diverse array of pollutants as quickly as possible.

The “parcel approach” also has trickled down to smaller projects, such as those on the Foss Waterway. This has facilitated quicker and site-specific redevelopment that is attuned to the unique environmental needs of each location. It also ensures that the cleanup is “financially feasible and facilitates development.”⁶⁴ This responsible approach to redevelopment is echoed in the manner in which Puyallup Tribal trust lands are remediated and then returned to the Tribe for further habitat restoration. This method of combining cleanup and redevelopment also implicitly acknowledges the importance of “mixed uses” and speaks to the diversity of the local landscape.

⁶³ EPA Superfund Significant Differences, *op. cit.*, pg. 3.

⁶⁴ Dowie, *op. cit.*

In addition to aiding the cleanup and restoration process, the prevailing emphasis on diversity and collaboration enables many local organizations to expand their influence. As stated by Anderson, “We [at CHB] have a small staff, so in order to accomplish what we want to accomplish, we must look to others, because it maximizes our impact.”⁶⁵ Indeed, as discussed previously, CHB has set up many collaborative relationships around the bay that have persisted and evolved. Though the Superfund cleanup is nearing completion, there are still plenty of related environmental issues to engage, and collaborative relationships to forge and maintain. For instance, many organizations are moving from initial cleanup goals toward a long-term monitoring strategy to ensure continued environmental health. This trend toward on-going monitoring reinforces earlier collaborative relationships. The technical expertise of many organizations continues to be an important component of the goals of other groups, necessitating the maintenance of, and deepening the nature of, these positive connections.

This move toward long-term monitoring also reflects an evolving perspective of the land, as one entrenched in history, yet capable of long-term change. Such a sense of hope and an interest in creating a better future not only motivates cleanup efforts, but also inspires creative and far-sighted problem-solving. Indeed, the diversity of the local landscape is a source of economic, environmental and cultural strength. It provides the area with a broad array of knowledge, ecosystem services, economic opportunities and cultural perspectives. Moreover, this diversity, combined into a strong web of collaboration, yields innovative environmental problem-solving that benefits all.

IV. The Painting Process: Developing a “Portrait of Land”

Through my research I attempted to gain a nuanced understanding of the interrelationships at work within the local landscape, and I used this information to create a series of oil paintings representing each organization that I researched. With each piece, I wanted to capture the unique interconnections inherent in each of these organizations’ relationships with the environment, with the Superfund cleanup, and with one another. More simply, too, I wanted to show each organization’s perspective of the land. Throughout the painting and planning process, I strove to transcend the concept of a ‘landscape’ and instead create a ‘portrait of land’ that is imbued with a sense of the history and character of the area surrounding Commencement Bay, and that captures the perspective of each organization. In order to convey these concepts, I carefully considered a variety of artistic principles, but primarily style, placement of the horizon line, viewpoint, and composition.

Style, including the level of detail, colors and brushstrokes used in a piece, affects a painting’s personality and therefore the impression the viewer gains of the landscape. Accordingly, I carefully considered how my paint application could reflect the personality of each environmental organization I researched, and each corresponding location. Smooth paint application leant a serene or stylized sensation (which was well-suited to my FWDA painting’s

⁶⁵ Anderson, *op. cit.*

focus on the land's layout), whereas textural paint application and visible mark-making conferred vitality and movement in the landscape (this was probably best exemplified by my painting about the Puyallup Tribe, which reflects the Tribe's and the ecosystem's regeneration in the past three decades). Moreover, the level of detail I used was an important influence on the personality of each piece. Each painting had a high level of detail not only for the sake of conveying as much information as possible, but also because I hoped to convey the nuanced and careful approach to the land that each organization I was depicting utilized. To them, each detail in the landscape is important, not only in and of itself, but because of its role in the larger whole.

To achieve a detailed but holistic style, I referenced the style of the Romantic-era Hudson River School, particularly in my PCRS painting. The Romantic approach to landscape painting, in which small details are meticulously and artfully defined, but are subsumed in a grander panorama, captures the holistic conception of nature that PCRS also exemplifies.⁶⁶ Indeed, PCRS's care for the ecosystem and attention to detail extends to concern about the health of individual seedlings and fry that are placed in the gulch, and I wanted to echo this in the amount of care I put into my depictions of all of these small but significant parts of the whole. Each plant, fish, fencepost, tree, house, and the bridge were carefully constructed with a buildup of glazes (thin, semi-transparent layers of oils diluted with mineral spirits and walnut alkyd) in order to convey the importance they are accorded as part of the ecosystem. Creating so many small details, however, could easily override my goal of unity in the piece. I worked to overcome this with a continuity of colors, a sense of perspective and panorama that accentuated the land itself, and with glowing light in the middle of the piece that draws the viewer's eye through the composition. This simultaneous focus on unity and detail echoes the richness of the forest ecosystem that PCRS is working to recreate, and, though I do not profess to be as skilled as the Hudson River School's prolific painters, it also reflects their holistic and reverent conception of nature. Indeed, these Romantic painters' approach to the natural world seemed a good approximation of PCRS's attitude toward the environment: a well-crafted system that ideally is best left to its own devices.

Another factor that influences the unity of a piece is the placement of the horizon line. This affects how elements of the landscape relate to one another, and can confer unity on the land. In all of my pieces, I placed the horizon line high in the picture plane. This decision was influenced by the works of landscape painter Jose Maria Velasco. Velasco primarily utilized a high eye level and high horizon line to convey his hope for unity in Mexico at a time when land use laws and political strife attempted to pull the nation apart.⁶⁷ Though there are many elements in Velasco's (and Tacoma's) landscapes, viewing them from a high vantage point can confer a sense of order and underscore their unity. This is driven by the fact that they all appear mounted on the same plane: the land itself. Moreover, with a high horizon, any dissonance in the landscape is overridden by the primacy of this powerful line. A lower horizon would be bisected

⁶⁶ Linda S. Ferber. *The Hudson River School: Nature and the American Vision*. New York: Skira Rizzoli International Publications, Inc., 2009. pp. 11-12.

⁶⁷ Isabel S. Roberts and Henry Clifford. *Jose Maria Velasco, 1840-1912*. Philadelphia: Philadelphia Museum of Art, 1944.

by trees and buildings, for instance, which would accentuate the power of those individual forms. Instead, a high horizon usurps that influence, projecting instead the influence of the land itself, and accentuating the unity of the landscape. Similarly, in spite of the myriad and sometimes conflicting interests at work in the landscapes surrounding Commencement Bay, there is an increasing unity, politically, environmentally and culturally.

This theme of unified diversity is manifested in the aims of the FWDA. The traditionally incompatible interests of economic and environmental health have been creatively reconciled through the FWDA's environmentally sensitive redevelopment projects. In order to convey these concepts visually, I borrowed Velasco's approach and utilized a high viewpoint and high horizon line. The wide array of buildings, boats and other elements could be viewed with a minimum of confusion with this perspective. With a higher viewpoint, the layout of the Foss Waterway becomes more evident and a sense of order prevails. The sense of order and holism is also conferred by the overarching horizon line, which asserts primacy over other forms in the landscape. This sensation of holism and order best reflects the care afforded to the layout of the waterway by the FWDA. And, more simply, a high viewpoint that accentuates the layout feels most akin to the approach a city planner or developer takes. This allowed me to show the relationships between the buildings, the relationship between the waterway and its larger context in the landscape, and to convey a holistic but detailed conception of the waterway.

Indeed, the viewpoint of a piece affects what is seen, how elements of the landscape relate to one another, and the manner in which a viewer relates to the piece. As discussed above, a high viewpoint tends to confer a more holistic conception of the land, but it also can become more impersonal (an extreme example of which is an aerial view, which feels more like a map than an empathetic painting). Conversely, a low viewpoint tends to confer a more personalized connection with the land, as it echoes the eye level one would have if one was actually present in that setting. I elected to use just such a viewpoint in my painting about CHB. I was conceptually influenced by CHB's close connections with its diverse constituents, and visually influenced by the ride-along I did with CHB's Bay Patrol. The views from the boat provided a new outlook on the bay and the role it plays in the local landscape. On the water, the shorelines are the main identifying features of the land, and the perspective is unusual. The heights of the land masses differ based on their proximity to the viewer, as do their relative blueness and mistiness, but their undersides align nearly perfectly. This not only afforded an interesting experiment in perspective once I returned to the studio, but also conferred upon the shoreline a powerful sense of unity—visually and conceptually. Indeed, though the shoreline is divided by city and county lines, it is all part of the same land, and the same ecosystem. Everyone is interlinked by the flow of water in the local ecosystem, and the bay is inextricably connected to the land. Furthermore, by painting a unified shoreline put to uses ranging from small residential communities to industry, I wished to convey the regional unity that CHB promotes through its diverse and region-wide collaborative relationships. CHB has indeed brought greater unity among various people and organizations in the region, as well as greater awareness of, and connection with, the local ecosystem.

Closely related to viewpoint, and also pertaining to a piece's unity, is composition. The layout of a piece emphasizes certain parts of the landscape, and, in my series specifically, helped me to convey the myriad relationships inherent in the complex landscapes of Tacoma. The water always became a focal point as well as a unifying influence in my paintings. This served both a visual and a conceptual purpose. Giving the water a central location in each piece emphasized its importance in the ecosystem as well as in local environmental policy. The water also provided a strong means of moving the viewer's eye around the piece. In the case of my painting about the Puyallup Tribe, I depicted an oxbow in the Puyallup River, which amounted to a broad, sweeping line that draws the eye from the left (towards Mt. Rainier) to the middle (a riparian zone) and then to the right (the distant Port and hillsides of Tacoma). This was intended to show the sense of balance the Tribe seeks to attain amid a highly diverse landscape, and amid the Tribe's own variety of interests—economic viability, environmental health, political influence, social well-being, land use equity. At the same time, with the central location of the river, and the relatively small scale of manmade structures, I hoped to emphasize the importance of environmental concerns to the Tribe.

Indeed, with each of these paintings, it is my hope to convey the unique character of each organization and its relationship to the natural world. In showing these unique perspectives of the land, I hope not only to inform others on the positive strides these organizations are making toward a healthier local environment, but also to challenge previously-held notions about environmental projects more generally. Traditionally in Western culture, the environment has been regarded as a separate entity from humans, and therefore one of only passing interest. Similarly, there is the prevalent assumption in our society that economic and environmental interests are mutually exclusive. Tacoma's success with the Superfund cleanup and the proliferation of positive environmental projects stands these misconceptions on their heads. Environmental issues, even ones as drastic as the contamination along the shores of Commencement Bay, can be effectively and creatively solved to the benefit of all involved. It is simply a matter of approaching these issues with a new way of seeing the world, of appreciating the extensive resources we have to correct problems, and of utilizing them in an inventive and effective manner, attuned to the local environment. In short, we must deeply understand the ecosystem and artistically execute our solutions.

V. Conclusion

As my focus on unity in my paintings suggests, the interconnections inherent in ecosystem dynamics as well as political collaboration play a significant role in the landscape surrounding Commencement Bay. Not only is everything connected by the flow of water through the ecosystem, but also through the overarching goals of environmental restoration and urban redevelopment. In spite of the diversity of interests in local politics, most environmental concerns are amicably resolved through creative problem-solving and a heavy emphasis on collaboration.

Indeed, most, if not all, local environmental organizations, government entities and agencies collaborate on projects and appear to have friendly ties. Moreover, these organizations employ extensive public outreach and enjoy broad community support. This cooperative and respectful atmosphere has led to innovative policies, environmental projects and redevelopment that distinguish Tacoma from other areas with Superfund sites. Rather than allowing the often problematic NPL designation to discourage progress, and rather than succumbing to the common assumption that economic and environmental aims are incompatible, Tacoma has embarked on a new era, in which pollution control, ecosystem recovery and urban redevelopment can coexist harmoniously. Collaboration and creativity have not only been a necessity in this process due to the broad scope of contamination of the bay, but also have led to innovative and effective solutions to environmental problems.

Reflecting the diverse interests at play along the shores of Commencement Bay in a visual sense, the landscape exhibits an interesting and increasingly harmonious combination of elements. These range from urban to rural, industrial to natural, historic to modern, and confer on Tacoma and the surrounding area a unique and strong character that will serve the area well in the years to come. As in complex biological ecosystems, diversity is a source of stability and strength. Indeed, Tacoma's diversity of perspectives and landscape features has bestowed upon the area a sense of wisdom—the wisdom to utilize all resources, from creativity to natural systems, in a measured and effective manner.

It would seem that Tacoma can provide important lessons for other areas that also have Superfund sites. Tacoma's unique collaborative approach to environmental problem-solving should be further analyzed to discern what attributes and approaches could be applied elsewhere. A logical, and intriguing, next step in my research would be to further explore the similarities and differences between the Commencement Bay Nearshore/Tideflats Site and other Superfund Sites across the US. What mechanisms can be identified in the Commencement Bay cleanup that are unique? To what extent have other cleanup efforts utilized collaborative efforts and arrived at creative solutions to environmental problems, rather than simply following the EPA's directives? How much litigation was involved in other cleanup processes, and how does this compare to the Commencement Bay cleanup? What factors in each region's history, and contemporary socio-economic conditions in the surrounding area, likely contributed to the dynamics of each cleanup process? I would like to pursue these and other questions in future research.

I would also be interested in continuing to pursue research-based landscape painting, and particularly to continue to develop effective methods for conveying the personality and history of the land. In particular, I would like to experiment with the layering of imagery through collage and less literal compositions in order to echo the multilayered nature of Tacoma's complex landscapes, and to underscore the continuing importance of history in the shaping of the area's environmental policies. Providing others with a means of visualizing the land and its complex interrelationships is the first step in changing our culture's perspectives on the environment, a key component of attaining a sustainable future.