NOAA Hazardous Waste Site Report

Commencement Bay (X-9, X-10)
South Tacoma and Nearshore Sites
Tacoma, Washington
April 13, 1984

Location and Nature of Site:

South Tacoma, in the area surrounding the confluence of the Puyallup River and Commencement Bay, has been an industrial center for over one hundred years. During this period, the Puyallup River Delta has been extensively altered by channelization, diking, and filling operations. A variety of industries have operated in the area, including chemical and plastics manufacturing, refining, smelting, railroad yards, and chemical storage.

There are two active Superfund sites in the Tacoma area (Figure 1). The South Tacoma Channel (X-10) site encompasses the land area to the south and east of Commencement Bay. The primary concern regarding this land site has been the contamination of drinking water. However, groundwater, surface water, and storm drains continue to carry contaminants into the Bay. Sources include landfills, illegal dumping, contaminants from historical spills, disposal in storm drains, and ongoing industrial activities.

The Nearshore and Tidal Flats site (X-9) is an industrial area which includes nearshore waters, port facilities and a variety of industries located along the shoreline, including the Asarco Smelter. In addition to contaminants from industrial activity located in the area, the tidal flats site receives groundwater, surface water, storm water runoff, and atmospheric fallout from the South Tacoma Channel site.

Proximity of Chemical Hazard to Marine Resources:

The U.S. Environmental Protection Agency, NOAA, Washington Department of Ecology, U.S. Army Corps of Engineers, and others have conducted studies of contamination in Commencement Bay waters (1). Water, sediment, and biota samples have been collected from a variety of locations, primarily in the port area. Some of this data is summarized in Table 1. Known contaminants in the nearshore waters and sediments include trace metals, PCB's, polynuclear aromatic hydrocarbons, chlorinated butadienes, and many other chlorinated organic compounds. Over 150 organic compounds and trace metals have been detected in surface and deeper sediments, suspended particles, flat fish, crabs, and other organisms in marine waters (1).

There are apparently both point and non-point sources, historical and ongoing, which are contributing to contamination of the Bay. A

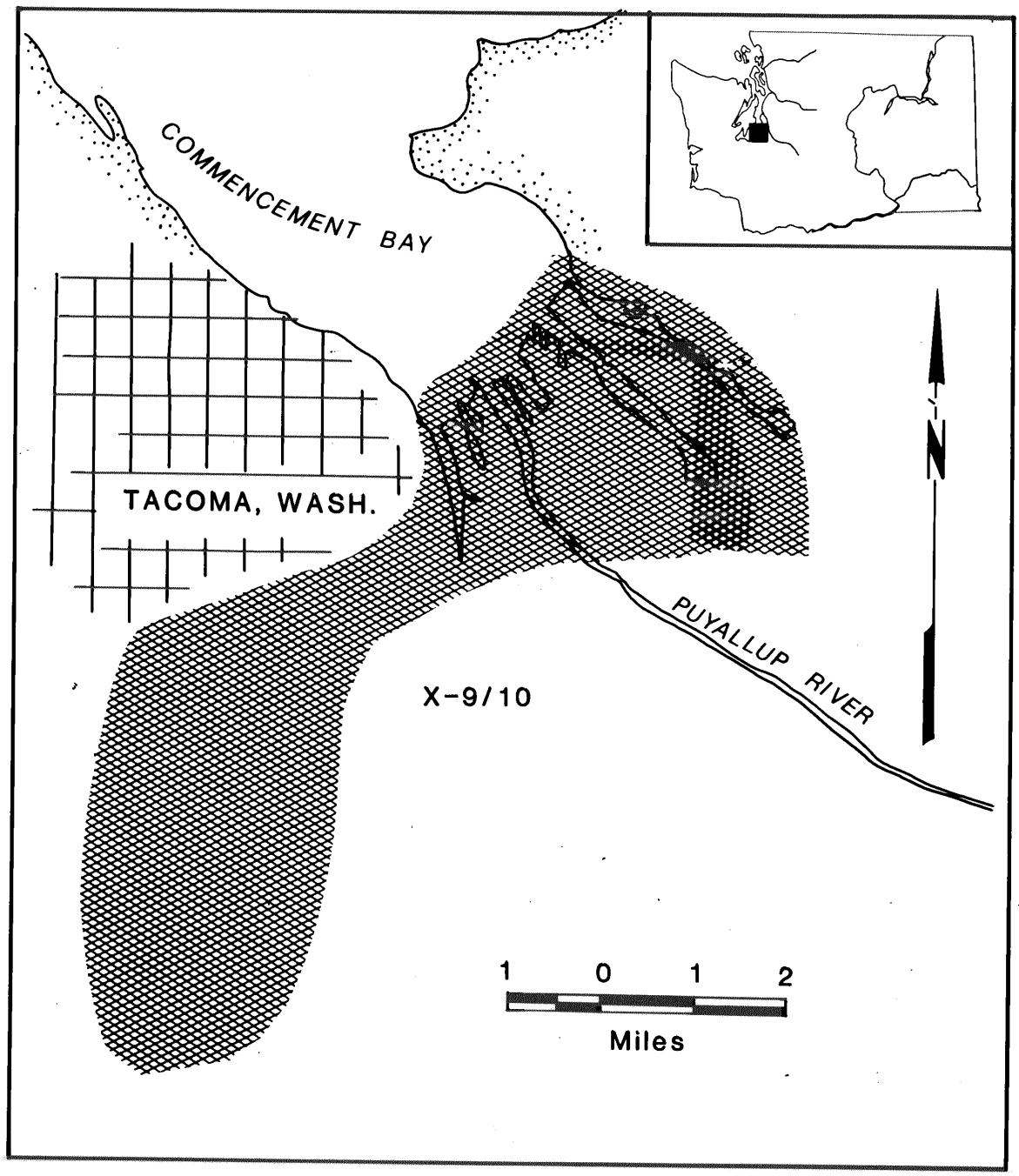

FIGURE 1. Site location.

summary of potential sources and contaminant levels can be found in Johnson, 1983.

Table 1. Subtidal Surface Sediments for Commencement Bay Waters: Representative Values (mg/kg, dry weight)(2)

Pollutants	Hylebos Waterway	Blair Waterway	Sitcum Waterway
Metals			
Copper	130	70	581
Arsenic	48	46	170
Base/Neutrals			
Anthracene	.62	.20	.49
Benzo (a) pyrene	.68	.13	.30
PAH's	.30	.48	.27
PCB's	.2	.02	.06

Marine Resources at Risk:

The Puyallup River system is the fifth, sixth, and ninth most important waterway for winter steelhead, pink, and chum salmon in the State of Washington (3). The lower six miles of the river are a transportation and rearing area for chinook, pink, chum, and coho salmon. The first three miles of river are a critical zone for acclimation of juveniles to salt water. During this period, the salmon feed on benthic organisms in areas contaminated with toxic substances. The State of Washington maintains a salmon hatchery on the river system. Dungeness crabs and a variety of bottom fish are also found in the Bay and its waterways.

There is an active sportfishery, from both the shore and boats, for a variety of species in the Bay. The County Health Department has warned fishermen to limit consumption of bottom fish taken from the area.

The river and bay support a variety of migratory and shore birds. A pair of bald eagles maintain a nest at the southwestern tip of the bay. The Department of the Interior (DOI) maintains an active interest in damage claims in the area (4). DOI's concerns focus on migratory birds, shorebirds, waterfowl, and salmon. There are also Indian Treaty lands in the bay.

A number of studies have addressed potential impacts of contaminants on biota, including bioassays and examination of biological abnormalities in a variety of fish (Tetra Tech, 1983).

Summary of Site-Related Actions:

The State of Washington is responsible for managing the Nearshore site, while EPA maintains responsibility for the South Tacoma Channel site. A range of activities, from discovery through remedial action, are currently ongoing at the South Tacoma site. The State is still

evaluating the extent of contamination in the nearshore area, and is also evaluating mitigation alternatives. It will be difficult to ascribe contamination problems to specific sources because of the complexity of problems at the two sites.

NOAA Reviewer: Robert Pavia, SSC - Pacific
(206)526-6317
FTS 392-6317

NOAA Contact: Ed Long, NOAA Ocean Assessment Division
(206)526-6338
FTS 392-6338

EPA Contact: Phil Wana, Chuck Kleeburg
(206)442-7216/(206)434-9014

Other Contacts: State of Washington - Jim Kurl
(206)459-6050

References:

1. Tetra Tech, 1983. Preliminary Decision Criteria for the Commencement Bay Nearshore/Tideflats Superfund Project. Prepared for Washington State Department of Ecology. Three volumes.

2. Johnson, A., B. Yake, D. Norton, 1983. A Summary of Priority Pollutant Data for Point Sources and Sediments in Inner Commencement Bay: A Preliminary Assessment of Data and Considerations for Future Work. Parts 1-6. Washington Department of Ecology, Olympia, Washington.

3. Washington State Department of Fisheries, 1975. A Catalogue of Washington Streams and Salmon Utilization. Volume I.

4. Blanchard, Bruce, 1984. Letter to Mr. Gene Lucero, Director of Office of Waste Programs Enforcement, U.S. Environmental Protection Agency, Washington, D.C.