

SHORELINE AREA (Reach Code): Marine 5

REACH NUMBER: 31

Land Use	Current Land Use	Predominately water associated industrial uses (Ref # 8, 54, 71)
	Zoning	35.1 acres industrial, 31.1 acres water, 1.7 acres commercial (Ref # 54)
Potential Species Present	Wildlife species	13.7 acres of mustelid, 35.2 acres of pinnepeds, marine haul out sites on GP pond bulkhead and docks on north side of pond (Calf sea lion –personal observation) (Ref # 3, 70, 71, 105)
	Fish species	Surf smelt spawning on north side of I/J Waterway, bull trout (presumed), steelhead, pink, chum, searun cutthroat, chinook, coho, sockeye (much of anadromous stock originates from hatchery) (Ref # 3, 70, 71, 15)
	PHS species/habitat	Surf smelt - forage fish (vulnerable aggregation) (Ref # 3, 92, 93, 70, 71, 105)
	TSE species	Bull trout presumed (FT), Chinook (hatchery stock), chinook in bay (FT & SC), Coho (FCo), sea-run Cutthroat (FCo). (Ref # 92, 93, 105)
	Invasive wildlife/fish species	No data
Physical Environment	Acres of land in reach	68.0 acres total with 33.9 of land and 34.1 acres of water (Ref # 13)
	Aquatic vegetation	1.2 acres mixed algae, 0.9 acres green algae, 0.5 acres eelgrass (Ref # 97, 98)
	Slope	0-5% slopes dominate (Ref # 47, 103)
	Buildings	16 buildings covering 1.85 total acres (Ref # 16)
	Culverts/stormwater utilities	2 stormwater outfalls in Whatcom Waterway and one at northeast end of I/J waterway. (Ref # 40, 41, 42)
	Geology	Glacial marine drift and continental glacial outwash. Elevation ranges from 0 to 25' with a mean of 5 feet. Small areas of seismic hazard areas (man-made fill) are located in the reach. (Ref # 21, 51, 63)
	Tributary Creeks	None identified (Ref #8, 42, 71)
	Impervious surface	87% impervious, 12% semi-pervious, 0% pervious (Ref # 12)
	Invasive plant species	No data
	Roads/transportation	0.2 miles roads (0.7 acres), 0.1 miles rail/ two crossings 1 bridge, 1 railway (Ref # 34, 44, 46)
	Soils	Infiltration rates: 18.0 acres very slow with high runoff potential (Hydrologic soil Group D). Erosion potential: 68.0 acres with severe risk. (Ref # 51, 63)
	Topography	0 to 25' range, 5' mean (Ref # 47)
	FEMA	34.9 acres in 100 year floodplain, 0.4 acres in floodway (Ref # 19)
Terrestrial Vegetation	No significant vegetation, some open weedy fields at head of I/J waterway. (Ref # 8, 71)	
Marine Aquatic Function	Aquatic substrate type	8.0 acres artificial, 4.1 acres sand, 0.5 acres mixed fines, 0.3 acres gravels (Ref # 3, 99)
	Creosote structures	Creosote structures present in I/J Waterway (Ref # 71, 73, 74, 99)
	In-water structures	7 structures. Docks, gravel loading facility, two road crossings (Ref # 71, 73, 74, 99)
	Bulkheads	Entire reach has bulkheads, primarily rock bulkheads with some concrete and wood (Ref # 71, 73, 74, 99)
	DOE 303(d)	No data (Ref #81)
	Toxic sites/land fills	Whatcom Waterway sites. Sediment area exceeding mercury bioaccumulation level, SQS and MCUL and subsurface contamination (waterways only). Sediments (confirmed) phenol, 4-methylphenol, EPA priority pollutants, PCB's PAH's, base/neutral/acid organics, woody debris (suspected) halogenated organics, petroleum, organic contaminants (organic matter that increase BOD, COD, TOC), conventional inorganic contaminants. Groundwater (suspected) halogenated organics, base/neutral/acid organics, EPA priority pollutants, petroleum, phenol,

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		organic contaminants, inorganic contaminants. Roeder Avenue Landfill (Whatcom waterway). Groundwater (confirmed) chromium. GP log pond site. Sediment and groundwater exceeding Mercury Bioaccumulation levels. GP Bio-Treatment Lagoon. Sediments: (confirmed) mercury. Holly Street Landfill. Sediments and groundwater (confirmed) EPA priority pollutant, metals, petroleum, PAH's, base/neutral/acid organics. Colony Wharf site. Sediments (suspected) and groundwater (confirmed): EPA priority pollutants, metals, petroleum, non-halogenated solvents. Sites just outside of this reach: Olivine Corp. Hilton Ave (& Roeder) nearshore site. Sediment area exceeding SQS and MCUL (confirmed) EPA priority pollutants, PAH's, mercury, 4-methylphenol, phenolic compounds, bis(2-ethylhexyl)phthalate, base/neutral/acid organics (suspected) halogenated organic compounds. Groundwater (confirmed) EPA priority pollutants, (suspected) PAH's. Central waterfront site. Sediments and groundwater: (confirmed) EPA priority pollutants (suspected) phenol, petroleum products, halogenated organics, base/neutral/acid organics. Chevron site (1050 C St). Sediments and groundwater (confirmed): petroleum. Chevron Bham Port site (1020 C St). Sediments and Groundwater (confirmed) EPA priority pollutants, petroleum prod., non-halogenated solvents (suspected) phenol, PAH's, halogenated organics. (Ref # 79, 80)
	Bathymetry	-33.0' to 0 range, -11.3' mean (Ref # 25, 31)
	Wave energy	0.6 acres lagoon, 12.4 acres partially enclosed (Ref # 3, 99)
	Point source pollution	No data
	Waterways/dredge beds	I/J and Whatcom waterways, generally northerly (Ref # 3, 99)
	Drift cells	At break over between drift cells (Ref # 3, 99)
Marine Foreshore	Beach characterization	No data
	High-Low tide lines	0.8 acres beach identified from high/low tide waterlines
	Erosion/accretion zones	None identified
Historic & Cultural	Historic aerials	See waterfront futures website http://www.waterfrontfutures.org/learnmore/lm_photo_gallery.htm (Ref # 99)
	Archeological sites	No data
	Historic sites	None indicated (Ref # 77)
	Parks & public access	None indicated (Ref # 33, 34, 36, 48)
Function Analysis	Reach Function <ul style="list-style-type: none"> • Hydrologic • Shoreline Vegetation • Habitat 	<p>Impaired- shoreline armoring and breakwaters (Ref # 1, 2 5, 71)</p> <p>Impaired – absent in most areas (Ref # 1, 2, 5, 69, 70, 71)</p> <p>Impaired – (Ref # 1, 2, 5, 69, 70, 71)</p> <ul style="list-style-type: none"> • Terrestrial – low function, lack of vegetative cover and connectivity • Intertidal- low function in most areas. Pocket Beach at head of I/J waterway provides forage fish spawning habitat. • Shallow and deepwater habitat – shallow water limited, but deep water habitat assumed to be moderate to high function. Harbor seal use of floating log structures and breakwaters.
	Limiting Factors	<ul style="list-style-type: none"> • Breakwaters (Ref # 1, 2, 5, 69, 70, 71) • Dredging of waterways (Ref # 1, 2, 5, 69, 70, 71) • Water quality – contaminated sediments, petroleum inputs from marina (Ref # 1, 2, 5, 69, 70, 71) • Limited intertidal area from shoreline armoring (Ref # 1, 2, 5, 69, 70, 71) • Lack of habitat to out-migrating salmonids(Ref # 1, 2, 5, 69, 70, 71)

<p>Functions</p> <ul style="list-style-type: none"> • Sustainable • Not Sustainable <p>Priority Actions</p> <p>Current Enhancement Projects</p> <p>Preservation/Enhancement Opportunities</p>	<ul style="list-style-type: none"> • Shallow and deepwater habitats – Could be enhanced for juvenile salmonid migration. • Shoreline vegetation- limited areas for establishment of shoreline vegetation exist, however this function will always be impaired by existing land use. • Hydrology – existing use • Terrestrial habitat – existing land use prohibits significant improvement for terrestrial habitat • Intertidal habitat – limited opportunity exists for significant improvement of this function. • See preservation/ enhancement section. Actions # 10, 11 and 12 was rated as a high priority action and Actions # 13, 15 and 16 was medium. (Ref # 73) • Conservation of I/J eelgrass bed (Ref # 1) • Conservation of mudflats at Roeder Ave. Bridge vicinity (Ref # 1) <p>None identified</p> <ul style="list-style-type: none"> • Shallow water habitat could be established next to ASB. (BBDP action # 10 and 11) (Ref # 73) • Elevations could be raised or modified to expand existing eelgrass bed (BBDP action # 12) (Ref # 73) • Remove ASB and establish intertidal and shallow water habitat (BBDP action # 13) (Ref # 73) • Remove existing wooden dock structure and derelict floats (BBDP action # 15/16) (Ref # 73) • Creation of pocket marshes at stormdrain outfalls. (Ref # 1)
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