

SHORELINE AREA (Reach Code): Marine 6

REACH NUMBER: 32

Land Use	Current Land Use	GP property dominates the reach, and Whatcom Waterway (Ref # 8, 54, 71)
	Zoning	32.2 acres water, 29.4 acres industrial, 3.3 acres commercial (Ref # 54)
Potential Species Present	Wildlife species	Areas of significant importance and vulnerability for water birds, 11.1 acres mustelid and 30.6 acres pinned habitat, glaucous-winged gull nesting, harbor seal haul outs on logs adjacent to GP site. Off-shore winter concentrations of marine birds. (Ref # 3, 70, 71, 105)
	Fish species	Pandalid shrimp offshore, demersal groundfish off-shore, bull trout (presumed), steelhead, pink, chum, searun cutthroat, chinook, coho, sockeye (much of anadromous stock originates from hatchery) (Ref # 3, 70, 71, 105)
	PHS species/habitat	Off-shore winter concentrations of marine birds, Harbor seal haul-out areas. (Ref # 3, 70, 71, 105)
	TSE species	Bull trout presumed (FT), Chinook (FT & SC), sea-run cutthroat (FCo), Coho (FCo) (Ref # 92, 93, 105)
	Invasive wildlife/fish species	No data
Physical Environment	Acres of land in reach	64.9 acres total with 29.8 acres of land and 35.1 acres of water (Ref #13)
	Aquatic vegetation	0.1 acres green algae, 0.7 acres mixed algae (Ref #97, 98)
	Slope	0-5% slopes dominate (Ref #47, 103)
	Buildings	38 buildings covering 5.13 total acres (Ref # 16)
	Culverts/stormwater utilities	3 culverts identified. Storm drains and sewer mains in reach. 2 storm drain outfalls. (Ref # 41, 42, 40)
	Geology	Artificial fill and modified land. Seismic hazard area (man-made fill) is indicated in the reach. (Ref # 21, 51, 63)
	Tributary Creeks	None indicated (Ref # 8,42, 71)
	Impervious surface	93% impervious, 6% semi-pervious, 0% pervious (Ref # 12)
	Invasive plant species	No data
	Roads/transportation	1 bridge crossing, 0.5 miles roads (1.6 acres), 0.3 miles rail (Ref # 34, 44, 46)
	Soils	27.0 acres with very slow infiltration rates and high runoff potential. 68.0 acres with severe erosion risk (Ref # 51, 63)
	Topography	0 to 25 feet elevation range with mean of 7 feet elevation (Ref # 47)
	FEMA	38.4 acres in 100 year floodplain, 1.0 acres in floodway (Ref # 19)
	Terrestrial Vegetation	No significant vegetation cover (Ref # 8, 71)
Marine Aquatic Function	Substrate type	5.4 acres artificial, 1.9 acres mixed fines (Ref #3, 99)
	Creosote structures	Docks potential source of creosote (Ref # 71, 73, 74, 99)
	In-water structures	4 docks (Ref # 71, 73, 74, 99)
	Bulkheads	Entire reach armored – rock, concrete and wood bulkheads (Ref # 71, 73, 74, 99)
	DOE 303(d)	Inner Bay, no data. Outer Bay – Category 5 dissolved O2, Category 2 pH, Category 1 for Fecal coliform, pH, and temperature. (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. GP log pond site Sediment area exceeding Mercury Bioaccumulation levels. Burlington Northern Site (630 Cornwall just outside of reach): petroleum products below MTCA in sediments and groundwater. (Ref # 79, 80)
	Bathymetry	-32.0' to 0.0' range; -11.3' mean (Ref # 25, 31)
	Wave energy	1.4 acres channel/slough, 5.9 acres partially enclosed (Ref # 3, 99)
	Point source pollution	No data
	Waterways/dredge beds	Whatcom Waterway (Ref # 3, 99)
	Drift cells	South (Ref # 3, 99)
Marine Foreshore	Beach characterization	No data
	High-Low tide lines	2.0 acres of beach identified from h/l tide waterline
	Erosion/accretion zones	No data
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 at present (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. 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 Dredging of waterways (Ref # 1, 2, 5, 69, 70, 71) Water quality – contaminated sediments, petroleum inputs from marina Limited intertidal area from shoreline armoring Lack of habitat to out-migrating salmonids <p>(Ref # for above 1, 2, 5, 69, 70, 71)</p>
	Functions	
	<ul style="list-style-type: none"> Sustainable Not Sustainable 	<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.
Priority Actions	See preservation/ enhancement section. Action # 18 was rated as a high priority action and Action # 19 was medium. (Ref # 73)	
Current Enhancement Projects	GP log pond has been capped and restored habitat designed as a mudflat habitat. Terrestrial habitat plantings planned. (Ref #1)	

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Preservation/Enhancement Opportunities

- Restoration of GP log pond (BBDP action # 18) (Ref # 73)
- Remove debris and modify shoreline edge in southeast shoreline corner of GP property (BBDP action # 19) (Ref # 73)