

Reach 4	City of Pasco
Reach Description: Columbia River from the upstream edge of hardened bank to the downstream end of Wade Park	
Shoreline Jurisdiction: 463 acres	
	
<small>Source: https://fortress.wa.gov/ecy/coastalatlantools/UICoastalAtlas/Tools/ShorePhotos.aspx</small>	
Subreaches; see Map 2:	
SR 4a: Begins at the upstream edge of hardened bank to the downstream end of hardened bank.	
SR 4b: Extending 1 mile to east ending at the downstream edge of Wade Park	
CHARACTERISTICS	
Ownership: Reach 4 is mostly owned by USACE with a very small amount (less than 5%) of private ownership.	
Land Use/Current SMP:	
Land use designation:	
<ul style="list-style-type: none"> • Current land uses are Low Density Residential and Open Space Nature • Zoning – Suburban District (RS-12), Suburban District (RS-20) and Suburban District (RS-1) 	
Current SMP Environment Designation: Urban	
Existing Land Cover/Development:	
There is a levee along the entire stretch of SR 4a and parkland along the entire stretch of SR 4b. SR 4a groundcover consists mostly of riprap with a trail on top of the levee and some riparian vegetation. SR 4b groundcover consists of improved parkland (Wade Park) with a boat launch, piers, a trail, and gravel parking.	

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Geomorphic Character:	
<p>Description: The shoreline throughout the reach consists of outburst flood deposits (SR 4a) and alluvium (SR 4b) with relatively low banks.</p> <p>Hardened Banks: Approximately 6,000 feet of artificial hardened banks exist along the Columbia River (left bank) and occur along the entire length of SR 4a.</p>	
Flooding and Geological Hazards:	
<p>Flooding: Flooding is controlled by Lake Wallula pool levels. Levees are present along SR 4a that reduce flooding potential.</p> <p>Geological Hazards: There are no geologic hazard areas in Reach 4.</p>	
Existing Public Access:	
<p>Reach 4 consists of the Sacajawea Heritage Trail on top of the levee and Wade Park. Access points to the trail are limited due to the drainage ditch behind the levee. Wade Park consists of a boat launch, piers, a trail, and gravel parking.</p> <p>Identified Public Access Improvements:</p> <p>The Rivershore Linkage and Amenity Plan (Pasco 2012) recommends adding amenities to the park, lowering the levee, creating beach area, and creating parks with boats or access points along Roads 60 and 68.</p>	
ECOLOGICAL CONDITIONS	
Water Quantity and Sediment:	
<p>A pump connected to a drainage ditch may locally impact water quantity in SR 4a. Sediment may be impacted by levees in subreach 4a as the hardened banks may cause higher velocities, which may result in more sediment movement, and cause potential aggradation in SR 4b downstream of the levees.</p>	
Water Quality:	
<p>Water quality may be slightly impacted from residential runoff and recreational use in this reach.</p>	
Habitat Characteristics and PHS Presence:	
<p>Reach 4 contains park and multi-use path shorelines adjacent to moderate residential development, offering undeveloped areas, but not a great deal of habitat. The shores are managed for the main use and recreational enjoyment. Fish and wildlife habitat is limited.</p> <p>SR 4a: Banks of this subreach are rocky, contain little to no vegetation, and are within 40 to 50 feet of the multi-use trail that lines the shore. There is a linear ditch that parallels the trail for the length of the subreach. Wetlands and waterfowl concentrations are found just offshore on the small channel islands. There are no docks in this subreach.</p> <p>SR 4b: This subreach contains three smaller docks and one larger dock at the western end of the subreach, all within the waterfront of Wade Park. The park exhibits mowed grass to the water's edge and shoreline vegetation is absent except for several sparse trees. As such, wildlife habitat is limited in this subreach.</p>	

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ECOLOGICAL FUNCTIONS ANALYSIS	
SR 4a	
<p>Level of Existing Function: Impaired</p> <p>Stressors:</p> <p>Upland development: Armored levee, single family residential, and irrigated agriculture upland of levee.</p> <p>Recreational use: Paved trail/maintenance road at top of levee.</p> <p>Potential Restoration Opportunities: Consider incorporating wood structure and vegetation where possible.</p> <p>Potential Protection Opportunities: Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 4b	
<p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <p>Upland development: Bulkhead area at north end of subreach, minimal riparian buffers, irrigated turf within Wade Park.</p> <p>Recreational use: Overwater structures and boat launch with informal parking associated with Wade Park.</p> <p>Potential Restoration Opportunities: Riparian buffer restoration within park.</p> <p>Potential Protection Opportunities: Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

Reach 5	City of Pasco
Reach Description: Columbia River from the edge of hardened bank upstream of US 395 (Blue Bridge) to State Route 397 bridge (Cable Bridge)	
Shoreline Jurisdiction: 195 acres	
	
<small>Source: https://fortress.wa.gov/ecy/coastalatlant/UICoastalAtlas/Tools/ShorePhotos.aspx</small>	
Subreaches; see Map 3:	
SR 5a: Begins at the edge of hardened bank to the US 395 bridge	
SR 5b: Extending 0.9 mile to the east to the upstream edge of water retention facility	
SR 5c: Extending 0.4 mile to the east to the downstream end of retention facility	
SR 5d: Extending 0.4 mile to the east to the State Route 397 bridge	
CHARACTERISTICS	
Ownership: Reach 5 is mostly owned by USACE, City of Pasco, and Washington Department of Transportation. There is a very small amount (less than 5%) of private ownership.	
Land Use/Current SMP:	
Land use designation:	
<ul style="list-style-type: none"> • Current land uses are Open Space Nature, Low Density Residential, Mixed Residential, Mixed Residential Commercial, Commercial, and Industrial • Zoning – Low Density Residential (R-1), Residential Suburban (RS-12), Residential Suburban (RS-20), Residential Park (RP) and Light Industrial (I-1) 	
Current SMP Environment Designation: Urban	

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Existing Land Cover/Development:	
Reach 5 is primarily consists of a levee, riprap, a drainage ditch behind the levee, and a trail on top of the levee. There is riparian vegetation, parking, and a park facilities structure on SR 5c. A rail line on SR 5d is near the Blue Bridge.	
Geomorphic Character:	
Description: The shoreline throughout the reach consists of alluvium with relatively low banks through urban development area.	
Hardened Banks: Approximately 10,500 linear feet of artificial hardened banks exist along the Columbia River (left bank).	
Flooding and Geological Hazards:	
Flooding: Flooding is controlled by Lake Wallula pool levels. Levees are present along the reach, which reduce flooding potential.	
Geological Hazards: There are no geologic hazard areas in Reach 5.	
Existing Public Access:	
Reach 5 contains the Sacajawea Heritage Trail and Riverview Park. Similar to Reach 4, access points to the trail are limited due to the levee and drainage ditch behind the levee.	
Identified Public Access Improvements:	
The Rivershore Linkage and Amenity Plan (Pasco 2012) recommends improving the open space area near W. Havstad Street, adding beach area at the Wade Park entrance and south of the Riverview Park, adding a multi-use path over the Blue Bridge, developing the levee, and improving access from the levee to the river.	
ECOLOGICAL CONDITIONS	
Water Quantity and Sediment:	
Pumps connected to a drainage ditch (all subreaches) and a connected pond (in SR 5c) may locally impact water quantity. Sediment may be impacted by levees as the hardened banks may cause higher velocities, which may result in more sediment movement.	
Water Quality:	
Water quality may be slightly impacted from residential runoff and recreational use in this reach.	
Habitat Characteristics and PHS Presence:	
Reach 5 shorelines include park areas and multi-use paths, with mixed development ranging from residential to light industrial areas. There is little habitat for wildlife along the shoreline, and the habitat function of the nearshore river area is limited due to the lack of riparian vegetation along the shoreline. No PHS are noted within this reach, except for ESA-listed and resident fish in the river.	
SR 5a: Similar to SR 4a (in Reach 4), the banks of this subreach are rocky, contain little to no vegetation	

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<p>and are within 40 to 50 feet of the multi-use trail that lines the shore. There is a linear ditch that parallels the trail for the length of the subreach. There are no docks within this subreach. Wildlife habitat is limited here due to the level of development.</p> <p>SR 5b: Similar to SR 5a, the banks of this subreach are rocky, contain little to no vegetation, and are within 40 to 50 feet of the multi-use trail that lines the shore. There is a linear ditch just landward of the trail that parallels the trail for the length of this subreach. There are no docks within this subreach. There is a shoreline park at the street end at South 25th Avenue where patchy shrubs occur. This subreach has limited habitat function for wildlife or aquatic species.</p> <p>SR 5c: The Pasco Youth Baseball Complex is adjacent to this subreach, and Riverview Park sits along the water. This subreach has shorelines similar to SR 5b, with rocky unvegetated shorelines, a multi-use path within 40 to 50 feet of the shore, and a linear ditch present. Riverview Park is directly east of an open-water pond approximately 1,000 feet in length that connects to the ditch on the pond's western end. The pond is not connected to the river, but does contain emergent vegetation and trees for upland wildlife habitat.</p> <p>SR 5d: Similar to SR 5a in this reach, the banks of this subreach are rocky, contain little to no vegetation, and are within 40 to 50 feet of the multi-use trail that lines the shore. There are no docks within this subreach but there is one small structure just west of the Cable Bridge across the Columbia River on the eastern end of SR 5d. Riparian habitat is limited in this subreach due to development and encroachment by the trail and highway, and this also affects the function of the nearshore aquatic habitat for fish species.</p>	
ECOLOGICAL FUNCTIONS ANALYSIS	
SR 5a	
<p>Level of Existing Function: Impaired</p> <p>Stressors:</p> <p>Upland development: Armored levee, residential and vacant lots upland of levee, substantial non-native species (Russian-olive) within vacant lot, Blue Bridge.</p> <p>Recreational use: Paved trail/maintenance road at top of levee.</p> <p>Potential Restoration Opportunities: Consider incorporating wood structure and vegetation where possible.</p> <p>Potential Protection Opportunities: Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 5b	
<p>Level of Existing Function: Impaired</p> <p>Stressors:</p> <p>Upland development: Armored levee, behind levee is a residential area at north end of subreach and industrial and vacant lands in southern portion.</p> <p>Recreational use: Paved trail/maintenance road at top of levee.</p> <p>Potential Restoration Opportunities: Consider incorporating wood structure and vegetation where</p>	

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<p>possible.</p> <p>Potential Protection Opportunities: Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 5c	
<p>Level of Existing Function: Impaired</p> <p>Stressors:</p> <p>Upland development: Armored levee, stormwater treatment basin landward of levee, substantial non-native species (Russian-olive) surrounding basin.</p> <p>Recreational use: Paved trail/maintenance road at top of levee.</p> <p>Potential Restoration Opportunities: Consider incorporating wood structure and vegetation where possible.</p> <p>Potential Protection Opportunities: Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 5d	
<p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <p>Upland development: Armored levee, Pasco Youth Baseball Complex and associated landscaping upland of levee, and infrastructure (water intake) at south end of this subreach.</p> <p>Recreational use: Paved trail/maintenance road at top of levee.</p> <p>Potential Restoration Opportunities: Consider incorporating wood structure and vegetation where possible.</p> <p>Potential Protection Opportunities: Protect intact shrub-steppe habitat upland of levee. Provide stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	