

APPENDIX A
FRANKLIN COUNTY REACH
CHARACTERIZATION TABLES AND
REACH MAPS

Columbia River – Reach 1	Franklin County
Reach Description: Columbia River from Grant County boundary to downstream of Savage Island	
Shoreline Jurisdiction: 1,735 acres	
	
<p>Source: https://fortress.wa.gov/ecy/coastalatlantis/UICoastalAtlas/Tools/ShorePhotos.aspx</p>	
Subreaches (SRs); see Figures 1 and 2:	
SR 1a: Begins at Grant County boundary extending south to the edge of White Bluffs	
SR 1b: Extends 2.5 miles to the south to the end of White Bluffs	
SR 1c: Extends 2.8 miles to the south	
SR 1d: Extends 3.8 miles to the southeast to upstream of Savage Island	
SR 1e: Extends 4 miles to the southeast to downstream of Savage Island	
CHARACTERISTICS	
Ownership: Reach 1 is entirely owned by the U.S. Department of Energy (USDOE; Hanford Reach National Monument).	

Columbia River – Reach 1	Franklin County
<p>Land Use/Current Shoreline Master Program (SMP):</p> <p>Land Use Designation:</p> <ul style="list-style-type: none"> • Current land use is Federal Reserve • Zoning – Agricultural Production 20 <p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Conservancy 	
<p>Existing Land Cover/Development:</p> <p>Reach 1 primarily comprises open space and vacant unimproved land, with two boat launches; one boat launch is in SR 1a, and one is in SR 1d. Access roads to the boat launches are also present.</p>	
<p>Geomorphic Character:</p> <p>Description – The shoreline consists of alluvium with adjacent bluffs consisting of the Ringold Formation, mass wasting deposits, and outburst flood deposits. Mass wasting is prevalent throughout much of this reach. Sediment deposited in the channel has formed large mid-channel bars (islands) creating a multi-thread channel flow pattern along the alignment.</p> <p>Hardened Banks – No artificial hardened banks are known to exist along the Reach 1 extent.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in the lower portion of this reach. The 100-year floodplain is very narrow in this reach. Base flood elevations have not been determined and no floodway exists.</p> <p>Geological Hazards – SR 1b, SR 1c, and SR 1e contain active landslide hazard areas and are associated with the Ringold Formation and mass wasting deposits on the bluffs adjacent to the river.</p>	

Columbia River – Reach 1	Franklin County
<p>Existing Public Access: – The Columbia River shoreline is owned by USDOE as part of the Hanford Reach National Monument Wahluke Unit and Ringold Unit. This area provides safety and a security buffer zone for the Hanford site's operations. The U.S. Fish and Wildlife Service (USFWS) administers this area under a USDOE permit to provide sports fishing on the Columbia River (USFWS 2008). The Washington Department of Fish and Wildlife (WDFW) manages the White Bluff boat launch located on the northern corner of the reach. Another boat launch is located on the southern side near Ringold River Road.</p> <p>Identified Public Access Improvements – The Hanford Reach National Monument Comprehensive Conservation Plan evaluates options for public access and recreation, such as opening this area to public for hunting and fishing. Proposed projects are at a conceptual level and no specific project sites or developments have been identified in this Plan.</p> <p>The Preferred Alternative (Alternative C-1) maintains the White Bluff boat launch without closing it for public use. This alternative provides facilities such as boat-in campsites along the Hanford Reach, but this would be developed after inventories of resources are conducted and sensitive areas are identified in the area under consideration (USFWS 2008).</p> <p>Public Access Opportunities – Public access opportunities will depend on the implementation of the Hanford Reach National Monument Comprehensive Conservation Plan.</p>	
ECOLOGICAL CONDITIONS	
<p>Water Quantity and Sediment:</p> <p>The major contributors to water quantity within this reach include flow from irrigation wasteways (primarily, Wahluke Branch 10 Wasteway in SR 1a and Wahluke Branch Five K Wasteway in SR 1e).</p> <p>Sediment can generally freely move in this reach. Sediment input is restricted by upstream dams, but tributary inflow from irrigation wasteways and landslide potential in this reach may cause sediment input.</p>	
<p>Water Quality:</p> <p>The Columbia River in this reach at the border of Grant County is on the 303(d) list (Category 5) for 4,4'-DDE, polychlorinated biphenyls (PCBs), and dioxins, and is a water of concern (Category 2) for pH. The Wahluke Branch 5 Wasteway #1 that flows into the Columbia in this reach is on the 303(d) list (Category 5) for temperature and pH and is a water of concern (Category 2) for dissolved oxygen.</p>	

Columbia River – Reach 1	Franklin County
Habitat Characteristics and Priority Habitat Species (PHS) Presence:	
<p>SRs 1a through 1d – These subreaches are entirely within the zone managed by USFWS as part of the Hanford Reserve, and shorelines are generally erosional and flood deposit bluffs, with adjacent undeveloped shrub-steppe habitat. Vegetation is sparse within the riparian zone, except where noted in the subreach descriptions below. SR 1e is adjacent to the shoreline of a similar nature, includes the side channel and shoreline of Savage Island, and the uplands are privately owned and in agricultural use. Habitats in this subreach on the PHS list include cliffs/bluffs, instream habitat, and shrub-steppe habitat. Species noted throughout the subreach include high concentrations of waterfowl and mule deer; SRs 1c, 1d, and 1e are located within critical habitat for the Endangered Species Act-listed threatened white-bluffs bladderpod (<i>Physaria douglasii</i> subsp. <i>tuplashensis</i>). The Columbia River in these subreaches support a number of Endangered Species Act-listed fish species, as identified in the main text of the Inventory, Analysis, and Characterization (IAC) Report.</p>	
<p>SR 1a – This subreach includes a broad, relatively flat area of alluvial deposit between the river and the bluffs and is subject to partial inundation due to water level fluctuations. Located at the upstream end of the county boundary, this flat area is the discharge outlet of an irrigation wasteway, which created a small embayment with significant vegetation and wetland conditions. Great Blue Heron nesting areas are noted at the western-most edge of the county line in this subreach, near the wasteway outlet. Adjacent to this is a primitive boat launch, and the area between the wasteway and boat launch appears to support a number of user-defined trails leading at various locations to the water.</p>	
<p>SR 1b – This subreach begins in a small cove with significant riparian and wetland vegetation, beginning where the flat alluvial deposit recedes and shoreline transitions back to bluffs adjacent to the water. The bluffs consist of flood-based deposits with variable slopes and notable erosion, and are characterized by significantly more vegetation due to flat table-like areas where water collects seasonally and then continues downslope to discharge into the river.</p>	
<p>SR 1c – The upstream third of this subreach includes erosive cliffs and bluffs, immediately adjacent to the river, with very minimal amounts of vegetation present due to steepness of slopes, as well as erosivity of the bluffs. The middle portion transitions to an area where the steep-sloped bluffs are interspersed with more gradually sloped bluffs capable of sustaining shrub-steppe type vegetation and some stands of more dense trees and shrubs at certain locations that remain wet much of the year. Near the end of the subreach, the habitat becomes more similar to the area of SR 1a with a relatively flat broad area between the bluffs and waterway.</p>	
<p>SR 1d – The habitat along the shoreline of SR 1d is more similar to the area of SR 1a, with a relatively flat broad area between the bluffs and waterway, with significantly more consistent stretches of riparian vegetation, including trees, shrubs, and grasses/forbs. Some ponding occurs pending water levels within the river, which likely supports additional variety of vegetation along the shoreline in this subreach. There is a small, informal boat launch site in the middle of this reach, and the presence of Ringold/River Road combined with less steep terrain likely facilitate recreational access to the river. Ferruginous Hawk presence is noted in this subreach.</p>	

Columbia River – Reach 1	Franklin County
<p>SR 1e – The shoreline along this subreach is similar to that described in SR 1d, but SR 1e also includes the shoreline of Savage Island. The shoreline is adjacent to the small off-channel distributary formed by Savage Island. There is significant agricultural land use in the uplands. There is vegetation along both shorelines. The channel between the upland and the island may not be a complete channel, but more analogous to a mosaic wetland with patches that may dry out more completely than others. There are discharge points on either end of this subreach; one is a more natural elevation-based drainage that conveys upland agricultural runoff, and the other is a more formal irrigation wasteway. There are a number of informal recreational access points along this reach and a number of user-defined trails. Ferruginous Hawk presence is noted in this subreach.</p>	
ECOLOGICAL FUNCTIONS ANALYSIS	
SR 1a	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <p>Upland development:</p> <ul style="list-style-type: none"> • Overhead utility corridor • Irrigation wasteway outlet (water quality) <p>Recreational use:</p> <ul style="list-style-type: none"> • Gravel parking lots associated with paved boat ramp • Gravel road to boat ramp/trailhead and dirt roads outside of shoreline jurisdiction • Informal trails from parking lots to shoreline • Motorized boat use 	
<p>Potential Restoration Opportunities – Consolidate water access trails and replant degraded riparian areas with native vegetation, and re-establish a functional riparian shoreline. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, particularly to support habitat substrate and water access opportunities.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	

Columbia River – Reach 1	Franklin County
SR 1b	
Level of Existing Function – Functioning	
Stressors:	
Recreational use:	
<ul style="list-style-type: none"> • Motorized boat use 	
Potential Restoration Opportunities – None	
Potential Protection Opportunities – None	
SR 1c	
Level of Existing Function – Functioning	
Stressors:	
<ul style="list-style-type: none"> • Informal trails, predominately outside of shoreline jurisdiction • Road and water access trails within jurisdiction boundary, near southern end of the subreach 	
Potential Restoration Opportunities – Consolidate water access and upland trails in southern portion of the subreach, in this area replant degraded riparian and shrub-steppe areas with native vegetation, and re-establish a functional riparian shoreline.	
Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.	
SR 1d	
Level of Existing Function – Partially Functioning	
Stressors:	
Recreational use:	
<ul style="list-style-type: none"> • Two gravel roads serving boat ramp, one gravel road possibly serving a trailhead • Informal trails, mostly upland of riparian areas • Motorized boat use 	
Potential Restoration Opportunities – Formalize upland trail access; replant degraded shrub-steppe areas with native plants. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, if modifications to the boat ramp are implemented.	
Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access to within intact riparian and shrub-steppe areas. Make stormwater controls for new development that are consistent with the Eastern	

Columbia River – Reach 1	Franklin County
Washington Stormwater Manual.	
SR 1e	
Level of Existing Function – Island – Functioning; Mainland – Partially Functioning	
Stressors:	
Upland development:	
<ul style="list-style-type: none"> • Gravel roads for wasteway maintenance • Check dams within wasteway • Irrigation wasteway outlet (water quality) • Paved road very close to water’s edge at southern portion of the subreach • Agricultural fields without vegetated buffers (located outside of shoreline jurisdiction, but draining into it) 	
Recreational use:	
<ul style="list-style-type: none"> • Gravel access roads leading to trail heads and water access areas • Informal trails within mainland portion of the subreach, multiple water access points cutting through riparian vegetation 	
Potential Restoration Opportunities – Consolidate water access trails and replant degraded riparian areas with native vegetation, and re-establish a functional riparian shoreline.	
Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.	

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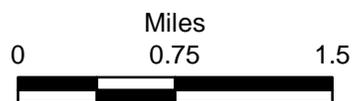


LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 1
Columbia River Subreaches 1a-1c
Franklin County Shoreline Master Program
Franklin County, WA

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LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

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2. Aerial image courtesy of USDA NAIP (2013).



Columbia River – Reach 2 Franklin County

Reach Description: Columbia River from the downstream end of Savage Island to Baxter Canyon

Shoreline Jurisdiction: 897 acres



Source: <https://fortress.wa.gov/ecy/coastalatlus/UICoastalAtlas/Tools/ShorePhotos.aspx>

Subreaches (SRs); see Figure 3:

- SR 2a: Begins at the downstream of Savage Island extending 0.8 miles to the south
- SR 2b: Extends 1 mile to the south
- SR 2c: Extends 1.7 miles to the south to near Ringold Wasteway
- SR 2d: Extends 2.5 miles to the south ending at Baxter Canyon

CHARACTERISTICS

Ownership – SR 2a is owned by U.S. Department of Energy (Hanford Reach National Monument). SR 2b and the most of SR 2d are owned by federal and state agencies (Department of Fish and Wildlife). SR 2c is mostly private, with a small amount (less than 10%) of public ownership.

Columbia River – Reach 2	Franklin County
<p>Land Use/Current SMP:</p> <p>Land Use Designation:</p> <ul style="list-style-type: none"> • Current land use is Agricultural • Zoning – Agricultural Production 20 <p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Conservancy and Rural 	
<p>Existing Land Cover/Development:</p> <p>Reach 2 primarily comprises unimproved land. Riparian vegetation exists on the north side in SR 2a and SR 2b. Agricultural uses are in SR 2c. The southern half of this reach (SR 2d) has high bank and less vegetation. Access roads exist at multiple locations.</p>	
<p>Geomorphic Character:</p> <p>Description – The shoreline consists of wide, flat terraces or flats (e.g., Ringold Flat) with adjacent bluffs consisting of the Ringold Formation, outburst flood deposits, and mass wasting deposits. Mass wasting is present throughout some of this reach. The abundant sediments deposited in the channel have formed large, unvegetated mid-channel bars creating a multi-thread channel flow pattern along the reach alignment, including Homestead Island.</p> <p>Hardened Banks – No artificial hardened banks are known to exist along the Reach 2 extent.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in this reach. The 100-year floodplain is very narrow in this reach. Base flood elevations have not been determined and no floodway exists.</p> <p>Geological Hazards – SR 2d contains a simultaneous occurrence of Ringgold fine soils, water erosion soils, and slopes greater than 15%, which makes them a designated geologically hazardous area. Sections of SR 2d have slopes greater than 40%.</p>	
<p>Existing Public Access – No major public access opportunities are available in this reach. One boat launch is located in SR 2c. Land in this reach is primarily under private ownership with some areas having agricultural use. Additionally, the high bank on the southern side of the reach prohibits public access to the shoreline. North Columbia Road parallels the shoreline below the steep slope in SR 2d.</p> <p>Identified Public Access Improvements – No public access improvements have been identified for this reach.</p> <p>Public Access Opportunities – Public access opportunities are limited due to agricultural use and steep slope.</p>	

Columbia River – Reach 2	Franklin County
ECOLOGICAL CONDITIONS	
Water Quantity and Sediment:	
<p>Water quantity in this reach is specifically impacted from inputs from irrigation drainage, including the Potholes East 16.4 Wasteway in SR 2b and the Ringold Wasteway in SR 2d, as well as a hatchery in SR 2b.</p> <p>Sediment can generally freely move in this reach. Sediment input is restricted by upstream dams, but tributary inflow and landslide potential in this reach may cause sediment input. Direct runoff from bordering agricultural land may also add sediment to this reach.</p>	
Water Quality:	
<p>This reach was not listed on Ecology’s 303d water quality assessment, but the PE 16.4 Wasteway that flows into the Columbia in this reach is on the 303(d) list (Category 5) for temperature.</p>	
Habitat Characteristics and PHS Presence:	
<p>Reach 2 is adjacent to uplands that are predominantly in agricultural use. It is noted for presence of priority in-stream habitat. The shoreline vegetation is much more pronounced along SR 2a though 2c, transitioning at the end of the Reach to conditions more similar to those of Reach 1. The reach includes shorelines of several islands, although several of these are located on the other side of the County line and not under Franklin County jurisdiction. The Columbia River in this reach supports a number of Endangered Species Act-listed fish species, as identified in the main text of the IAC Report.</p> <p>SR 2a – The habitat is characterized by significant shoreline vegetation generally spanning the entire 300-foot shoreline zone. Uplands are a combination of undeveloped and agriculture, separated from the bluffs by Ringold River Road. Habitat suitable for ring-necked pheasant (<i>Phasianus colchicus</i>), a WDFW-managed non-native game species, may be present in this reach.</p> <p>SR 2b – This reach includes three informal boat access areas and three agricultural drainages, one of which is also discharging excess water from Ringold Springs Fish Ponds. The vegetation along the shoreline is significant, including a community of water-dependent trees, shrubs, and forbs/grasses that span the 300-foot shoreline zone, but do not likely often overhang into the river. Habitat suitable for ring-necked pheasant may be present in this reach.</p> <p>SR 2c – The shoreline vegetation in this subreach is constrained by the presence of agricultural fields (orchards), slope of the shoreline, or both. Some portions of the reach have riparian vegetation consisting of taller trees that overhang into the river under certain water levels. There are four boating access areas, although these are likely accessible only via private property and most appear to be part of orchard operations. The shoreline at the end of this subreach transitions to upland bluffs with little vegetation and the agricultural land use occurs farther away from the shoreline. This end of the subreach also includes three significant upland drainage discharge points, where vegetation extends from the water up into the upland/bluffs along a canyon in a continuous canopy ranging in length from approximately 200 to 600 feet. Mule deer (<i>Odocoileus hemionus hemionus</i>) presence in this reach has been identified, particularly the fawning areas located on Hanford Reach Islands on the opposite side of the County line.</p>	

Columbia River – Reach 2 Franklin County

SR 2d – The bluffs along the shoreline in SR 2d are steeper, with numerous points where upland runoff drains into the river in small creeks or gullies. The islands in this reach provide additional shoreline complexity and potential off-channel habitat with significant riparian and wetland or emergent vegetation along the shoreline of the islands. One of the islands is accessible via Columbia River Road, and appears to be significantly utilized for recreation. There are medium sized trees scattered in small clusters along the shoreline that provide some overhanging vegetation, but the width of the vegetative zone is limited by slope of the bluffs and the presence of Columbia River Road, NW, which is gravel and unimproved. Mule deer presence in this reach has been identified, particularly the fawning areas located on Hanford Reach Islands, which are within the shoreline jurisdiction of Franklin County.

ECOLOGICAL FUNCTIONS ANALYSIS

SR 2a

Level of Existing Function – Partially Functioning

Stressors:

Upland development:

- Irrigated agricultural fields, though mostly surrounded by vegetative buffers
- Degraded areas from historical recreation trails

Potential Restoration Opportunities – Replant degraded shrub-steppe areas with native vegetation to improve historically degraded areas.

Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.

SR 2b

Level of Existing Function – Partially Functioning

Stressors:

- Wasteway outlet
- Invasive riparian species (Russian-Olive)

Recreational use:

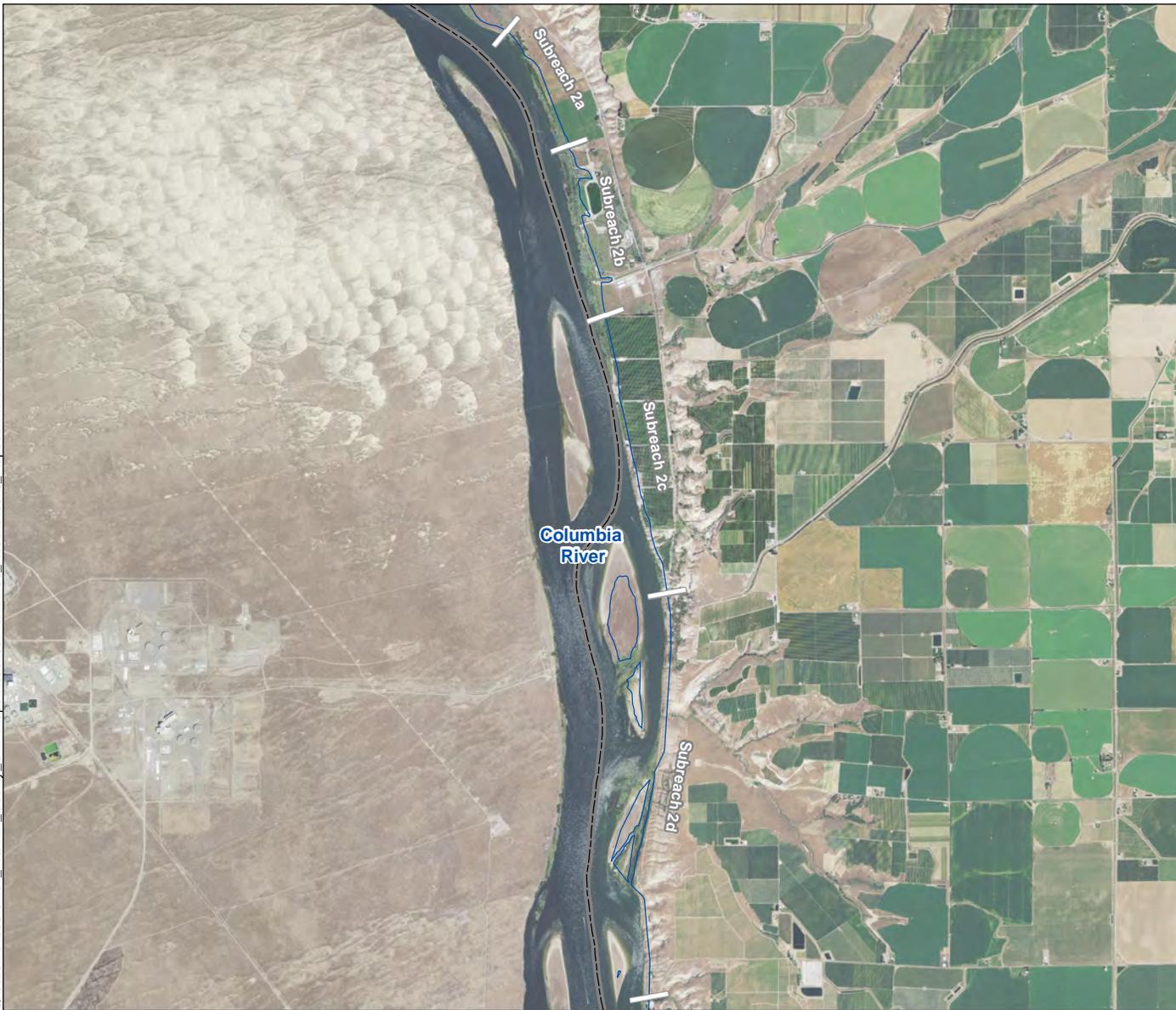
- Informal roads near water’s edge
- Multiple boat ramps or water access points and associated unpaved access roads
- Motorized boat use

Potential Restoration Opportunities – Consolidate water access ramps and trails in one location. Consider removal or relocation of road parallel with shore to allow for riparian buffer restoration. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques.

Columbia River – Reach 2	Franklin County
<p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	
<p>SR 2c</p>	
<p>Level of Existing Function: Impaired</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Irrigated orchards with limited adjacent riparian areas • Overhead utility corridors • Paved areas and development near water’s edge <p>Recreational use:</p> <ul style="list-style-type: none"> • Many water access areas with degraded and narrow (one-tree) riparian buffer <p>Potential Restoration Opportunities – Consolidate water access areas and expand riparian habitat through native plantings.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
<p>SR 2d</p>	
<p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <p>Recreational use:</p> <ul style="list-style-type: none"> • Two gravel roads serving boat ramp, one gravel road possibly serving a trailhead • Informal trails, mostly upland of riparian areas • Motorized boat use <p>Potential Restoration Opportunities – Formalize upland trail access and replant degraded shrub-steppe areas with native plants. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	

Columbia River – Reach 2	Franklin County
SR 2e	
Level of Existing Function – Partially Functioning	
Stressors:	
<ul style="list-style-type: none">• Dirt roads where topography allows• Overhead utility corridor• One residential development at the south end of the subreach	
Recreational use:	
<ul style="list-style-type: none">• Informal access roads to the water	
Potential Restoration Opportunities – Consolidate water access trails and replant degraded shrub-steppe areas with native vegetation.	
Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.	

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LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

- NOTES:**
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 2. Aerial image courtesy of USDA NAIP (2013).



Map 3
 Columbia River Subreaches 2a-2d
 Franklin County Shoreline Master Program
 Franklin County, WA

Columbia River – Reach 3 Franklin County

Reach Description: Columbia River from Baxter Canyon to Sagemoor Road

Shoreline Jurisdiction: 603 acres



Source: <https://fortress.wa.gov/ecy/coastalatlantlas/UICoastalAtlas/Tools/ShorePhotos.aspx>

Subreaches (SRs); see Figure 4:

- SR 3a: Begins at Baxter Canyon extending 1.4 miles to the south ending at Rankin Canyon
- SR 3b: Extends 1.4 miles to the south
- SR 3c: Extends 1.6 miles to the south ending at the end of bluff area
- SR 3d: Extends 0.7 miles to the south ending at Sagemoor Road

CHARACTERISTICS

Ownership – SR 3a and SR 3b are privately owned. SR 3c and SR 3d are publicly owned.

Columbia River – Reach 3	Franklin County
<p>Land Use/Current SMP:</p> <p>Land Use Designation:</p> <ul style="list-style-type: none"> • Current land use is Agricultural and Rural Remote • Zoning is Agricultural Production 20 and Rural Residential 5 <p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Conservancy 	
<p>Existing Land Cover/Development:</p> <p>Reach 3 includes agricultural land in SR 3a and SR 3d with riparian vegetation near the water, and there are parallel roads and access roads throughout the reach. Additionally, there are steep slopes in SR 3b and SR 3c, an access road for Residential developments in SR 3b, and an irrigation outfall in SR 3d.</p>	
<p>Geomorphic Character:</p> <p>Description – The shoreline consists of wide areas of flat terraces (e.g., Taylor Flat) and steep bluffs that consist of the Ringold Formation or mass wasting deposits. Mass wasting is prevalent throughout this reach and is associated with the Ringold Formation. A large island has formed (Johnson Island) mid-channel.</p> <p>Hardened Banks – No artificial hardened banks are known to exist along the Reach 3 extent.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in this reach. The 100-year floodplain is very narrow in this reach. Base flood elevations have not been determined and no floodway exists.</p> <p>Geological Hazards – SR 3b contains the simultaneous occurrence of Ringgold fine soils, water erosion soils, and slopes greater than 15%, which make it a designated geologically hazardous area. Sections of SR 3b and SR 3c have slopes greater than 40%. SR 3c contains an active landslide hazard area mostly associated with the Ringold Formation.</p>	
<p>Existing Public Access – North Columbia River Road parallels the shoreline on the north side at SR 3a and SR 3b and on the south side at SR 3d offering shoreline access. Public access is unavailable at SR 3c due to steep slopes.</p> <p>Identified Public Access Improvements – No public access improvement has been identified for this reach.</p> <p>Public Access Opportunities – Public access opportunities are limited due to agricultural use and the steep slope.</p>	

Columbia River – Reach 3	Franklin County
ECOLOGICAL CONDITIONS	
<p>Water Quantity and Sediment:</p> <p>Water quantity is specifically impacted in this reach by stormwater runoff from Baxter Canyon in SR 3a, Rankin Canyon in SR 3b, and irrigation water from the Potholes Canal.</p> <p>Sediment can generally freely move in this reach. Sediment input is restricted by upstream dams, but tributary inflow and landslide potential in this reach may cause sediment input. Agricultural use throughout the reach may also provide sediment input.</p>	
<p>Water Quality:</p> <p>The confluence of the Columbia and the Esquatzel Diversion Channel is on the 303(d) list (Category 5) for pH and is a water of concern (Category 2) for dissolved oxygen and temperature.</p>	
<p>Habitat Characteristics and PHS Presence:</p> <p>Priority habitats present throughout this reach include Instream Habitat and Rural Natural Open Space. North Columbia River Road runs adjacent to the shoreline for much of this reach, although some areas were washed out through upland erosion off the bluffs. The Columbia River in this reach supports a number of Endangered Species Act-listed fish species, as identified in the main text of the IAC Report.</p> <p>SR 1a – This subreach is bounded by discharge areas of two small creeks. Riparian vegetation along the shoreline is contiguous from the water to the edge of North Columbia River Road, varying in width from about 150 to 300 feet, and consisting mostly of shrubs and fobs, and small clusters of trees that may overhang. There is a small embayment with an irrigation pump in the middle of this subreach, which may provide some off-channel refugia. On the opposite side of the road, the uplands are flat and include planted orchards and other crops.</p> <p>SR 3b – This subreach is adjacent to steeper bluffs, with some orchards and residential land use on the opposite side of Columbia River Road. The riparian zone is very narrow (less than 100 feet wide) and consists of small shrubs, trees, and grasses that provide overhanging cover along the shoreline, which may support improved shoreline function for aquatic species. Drainage from the upland bluffs may enter the river as runoff across the road, or may be conveyed via piping, and likely conveys excess runoff from agricultural fields on the plateaus on top of the bluffs.</p> <p>SR 3c – This subreach is adjacent to steeply sloped erosive bluffs, which significantly affect the width and condition of the riparian vegetation. In some locations, the riparian vegetation corridor is very narrow and limited. There are substantial drainage areas that connect shoreline and riparian vegetation to other vegetated areas where waters pond on upslope shelves. Drainage from upland plateau orchards and spring seeps from shallow groundwater likely contributes to these seasonal and intermittent waterways. Recreational use along the bluffs may contribute to erosion.</p> <p>SR 3d – The shoreline along this subreach is adjacent to Columbia River Road and vegetation consists of trees, shrubs, and grasses that overhang the rivers’ edge, but the riparian vegetation zone is constrained approximately 100 to 150 feet. Shorelines are moderately sloped. Between the edge of the vegetated area and the road is a shrub-steppe habitat strip. On the other side of the roadway are agricultural fields and</p>	

Columbia River – Reach 3 Franklin County

orchards. This reach includes an irrigation water wasteway discharge location, as well as several informal river access trails branching off from Columbia River Road. American white pelican (*Pelecanus erythrorhynchos*) and Chukar (*Alectoris chukar*) are noted for presence in this reach.

ECOLOGICAL FUNCTIONS ANALYSIS

SR 3a

Level of Existing Function – Partially Functioning

Stressors:

Upland development:

- Residential development
- Agricultural fields (orchards)
- Paved road, limiting riparian habitat width

Recreational use:

- Motorized boat use
- One or two water access points

Potential Restoration Opportunities – Consolidate water access points into one location and replant degraded riparian areas with native vegetation. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, particularly to support habitat substrate and water access opportunities.

Potential Protection Opportunities – Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.

SR 3b

Level of Existing Function – Partially Functioning

Stressors:

- Residential development
- Agricultural fields outside of jurisdiction, but little vegetated filter between fields and drainage areas
- Paved road, limiting riparian habitat width

Potential Restoration Opportunities – Create incentives for developing vegetated filters adjacent to upland agricultural fields. Incentives for residents to replace lawn areas with native vegetation.

Potential Protection Opportunities – Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.

Columbia River – Reach 3	Franklin County
SR 3c	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Abandoned segments of road, cut-off through a landslide area • Columbia River Road begins again at south end of the subreach <p>Recreation:</p> <ul style="list-style-type: none"> • Upland trail • Multiple water access points • Informal boat ramps • Boat camping <p>Potential Restoration Opportunities – Fully abandon road and replant area with native shrub-steppe vegetation and riparian habitat species. Consolidate water access point into one location and replant degraded riparian areas with native vegetation. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, particularly to support habitat substrate and water access opportunities.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	
SR 3d	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Road and structures near water’s edge • Wasteway outlet (water quality) • Agricultural fields (orchards) <p>Potential Restoration Opportunities – Create incentives for developing vegetated filters adjacent to agricultural fields.</p> <p>Potential Protection Opportunities – Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	



LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Columbia River – Reach 4 Franklin County

Reach Description: Columbia River from Sagemoor Road to Interstate 182 Bridge

Shoreline Jurisdiction: 866 acres



Source: <https://fortress.wa.gov/ecy/coastalatl/UICoastalAtlas/Tools/ShorePhotos.aspx>

Subreaches (SRs); see Figures 5 and 6:

SR 4a: Begins at Sagemoor Road extending 4.4 miles to the south

SR 4b: Extends 0.5 miles to the southwest

SR 4c: Extends 0.65 miles to the southwest ending at the edge of residential developments

SR 4d: Extends 1.3 miles to the south

SR 4e: Extends 1.1 miles to southeast ending at the Interstate 182 Bridge

CHARACTERISTICS

Ownership: Reach 4 is mostly private ownership with a small amount (less than 10%) of public lands.

Land Use/Current SMP:

Land Use Designation:

- Current land use is Rural Shoreline Development with no designation for the urban growth area (UGA)
- Zoning – Agricultural Production 20, Rural Community 5, Rural Community 1, Residential Suburban District 40, and Residential Transition

Columbia River – Reach 4 Franklin County
<p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Rural
<p>Existing Land Cover/Development:</p> <p>Riparian vegetation exists throughout Reach 4. Additionally, SR 4b is dominated by agricultural land; agricultural land is mixed in with other land cover in SR 4a and SR 4d. An irrigation canal and accessory structure exist in SR 4a, and residential and accessory structures exist in SR 4a, SR 4c, and SR 4e. Private docks and access roads exist near residential structures.</p>
<p>Geomorphic Character:</p> <p>Description – The shoreline throughout the reach consists of outburst flood deposits with relatively steep, erodible banks. Sediment deposited in the channel has formed large mid-channel bars (islands) creating a multi-thread channel flow pattern along much of this reach.</p> <p>Hardened Banks – A minor amount of hardened banks is known to exist along the Reach 4 extent and is associated with the I-182 and I-12 Bridge extent.</p>
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in this reach. The 100-year floodplain is very narrow. Base flood elevations have not been determined and no floodway exists.</p> <p>Around SR 4d and SR 4e, water elevations are controlled by a downstream dam.</p> <p>Geological Hazards – Some areas in SR 4a have slopes greater than 40% and occur in the outburst flood deposits.</p>
<p>Existing Public Access – Columbia River Road parallels the shoreline to the north. Selph Landing Road provides public access at its terminus. W. Court Street within the UGA parallels the shoreline.</p> <p>Identified Public Access Improvements – No improvement has been identified for this reach.</p> <p>Public Access Opportunities – Public access opportunities exist for future residential development with joint community docks.</p>
ECOLOGICAL CONDITIONS
<p>Water Quantity and Sediment:</p> <p>Water quantity in this specific reach is impacted by outflow from the Esquatzel Diversion Canal in SR 4a.</p> <p>The draft of Lake Wallula levels may cause movement of some sediment, but sediment can generally freely move in this reach up to SR 4e, where Lake Wallula begins and sediment may slow due to reduced velocities. Sediment input is restricted by upstream dams, but tributary inflow and/or landslide potential in this reach may cause sediment input.</p>

Columbia River – Reach 4	Franklin County
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Water Quality:

The Columbia River in this reach near I-182 is on the 303(d) list (Category 5) for temperature and has a total maximum daily load in place (Category 4A) for total dissolved gas.

Habitat Characteristics and PHS Presence:

This reach has minimal undeveloped habitat and is noted for presence of Chukar, Urban Natural Open Space, waterfowl concentrations, and specifically, Grebe (*Aechmophorus*) species. The Columbia River in this reach supports a number of Endangered Species Act-listed fish species, as identified in the main text of the IAC Report.

SR 4a – This reach is characterized by moderately sloped shorelines with a narrow band (10 to 100 feet) of riparian vegetation bordered by shrub-steppe type vegetation. It includes an island in the upper end of the reach, which creates a side channel of the river that may provide some lower energy refugia for aquatic species. Two other islands are within this reach, but are on the other side of the County line, and the distance to those islands from the Franklin County shoreline is much greater. This reach includes one discharge for irrigation drainage at the upstream end. Just downstream from that site is a strip of residential development with many houses within the 300-foot shoreline zone, with approximately eight to ten boat docks or launching areas associated with these homes along approximately 3,000 linear feet of shoreline. Selph Landing Road provides another boat launch access area, and there are seven to nine additional boat docks or access areas scattered along the remaining length of this subreach, also primarily associated with upland residences. The shoreline includes a number of runoff drainage discharge points that convey water seasonally from the uplands, and many of these drainages may convey rain and stormwater that is mixed with some agricultural runoff.

SR 4b – The shoreline in this reach is much flatter, and the land is used for orchards or otherwise cultivated to within 30 to 60 feet of the water’s edge. A 30- to 50-foot zone of riparian vegetation grows along this subreach, with tall trees that overhang the water’s edge, providing shade and forage and rearing habitat along the shoreline. This reach ends at the edge of the UGA boundary for the City of Pasco.

SR 4c – This reach is adjacent to a low-density residential area with landscaped vegetation extending almost to the water’s edge on several parcels. Some parcels maintain 30-foot band of vegetation, including larger trees along the shoreline edge of their property, although some have significantly more tree cover. This reach does not include any residential docks.

Columbia River – Reach 4 Franklin County

SR 4d – This reach is also within the UGA, and topographically similar to SR 4c, but the upland lands are in agricultural use, and shorelines in some limited locations are protected with riprap adjacent to water supply infrastructure. The River makes a bend along this reach and the riparian vegetation zone along the inside of this bend is wider at the end of this subreach, and may be partially flooded subject to changes in water levels, as there is evidence in aerial images of standing water and potential off-channel habitat. There is a small manmade/dredged off-channel area adjacent to Court Street, which may provide private access for the upland land owners. This reach also includes a small embayment that is used as an intake water supply, another small, protected embayment that contains a residential small craft boat dock. This subreach ends at the boundary of the UGA.

SR 4e – The riparian vegetation zone is wider at the beginning of this subreach and may be partially flooded subject to changes in water levels, as there is evidence in aerial images of standing water and potential off-channel habitat. Farther downstream, the riparian vegetation becomes more confined and sparse where it is adjacent to upland aggregate sorting operations. Half of this subreach is adjacent to low-density residential development and includes another small portion of land within the UGA near the I-182 Bridge. Along the residential area are five visible residential boat docks with two other informal river access points. The riparian vegetation is thin and patchy, but does include overhanging trees and shrubs.

ECOLOGICAL FUNCTIONS ANALYSIS

SR 4a

Level of Existing Function – Impaired

Stressors:

Upland development:

- Columbia River Road
- Canal outfall
- Utility structures
- Residential development with overwater structure docks and absent riparian habitat
- Irrigated landscaping associated with residences
- Irrigated agricultural field with no vegetated buffer

Recreational use:

- Trails fragmenting shrub-steppe habitat

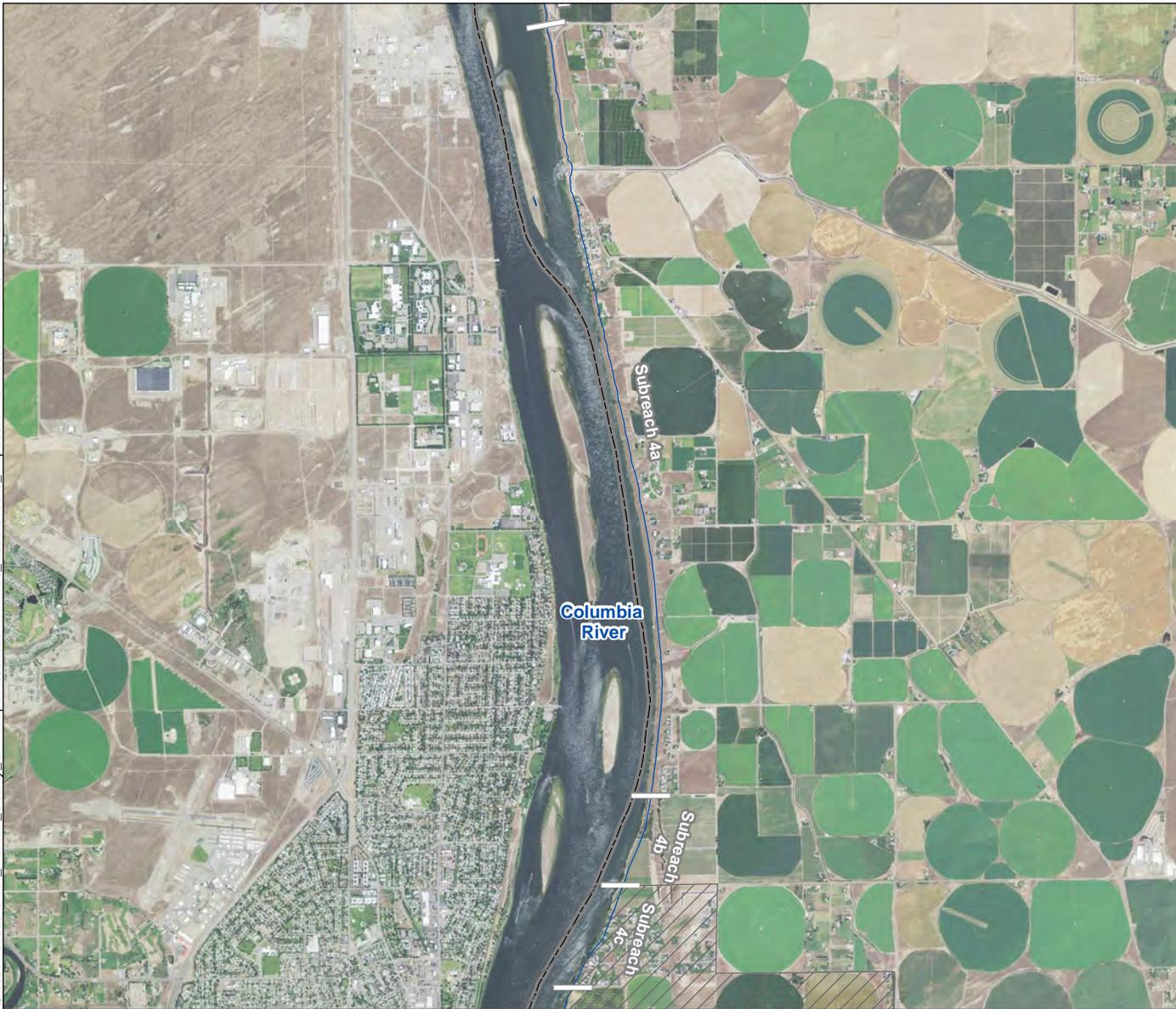
Potential Restoration Opportunities – Educate landowners on riparian vegetation best management practices and explore the feasibility of creating incentives to develop functional riparian habitat on residential lots. Create incentives for vegetated filter strip restoration surrounding agricultural fields. Consolidate and formalize upland trails and replant degraded shrub-steppe habitat areas.

Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.

Columbia River – Reach 4	Franklin County
SR 4b	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Orchard • Dirt access road near water’s edge, narrow riparian buffer <p>Potential Restoration Opportunities – Create incentives for widening riparian buffer in between water’s edge and agricultural fields.</p> <p>Potential Protection Opportunities – None</p>	
SR 4c	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <p>Upland development:</p> <ul style="list-style-type: none"> • Residential development (no docks) • Irrigated landscaping associated with residences • Non-native species (Russian-olive) <p>Potential Restoration Opportunities – Create incentives toward developing functional riparian habitat on residential lots. Replace non-native tree species with native alternatives.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	

Columbia River – Reach 4	Franklin County
SR 4d	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <p>Upland development:</p> <ul style="list-style-type: none"> • Columbia River Road • Residential development and associated irrigated landscaping • Non-native species (Russian-olive) <p>Potential Restoration Opportunities – Incentives toward developing functional riparian habitat on residential lots. Replace non-native tree species with native alternatives.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	
SR 4e	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <p>Upland development:</p> <ul style="list-style-type: none"> • Gravel pit operations in uplands (outside of shoreline jurisdiction) • Dirt road toward water and water access ramp • Residential development with irrigated landscaping and over-water structures • Livestock or recreation trails <p>Potential Restoration Opportunities – Consolidate water access trails and replant degraded riparian areas with native vegetation, and re-establish a functional riparian shoreline. Create incentives toward developing functional riparian habitat on residential lots.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls for new development consistent with Eastern Washington Stormwater Manual.</p>	

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LEGEND

-  Reach Break
-  Urban Growth Area
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 5
 Columbia River Subreaches 4a-4c
 Franklin County Shoreline Master Program
 Franklin County, WA

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LEGEND

-  Reach Break
-  Incorporated City
-  Urban Growth Area
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 6
 Columbia River Subreaches 4d-4e
 Franklin County Shoreline Master Program
 Franklin County, WA

Palouse River – Reach 1	Franklin County
<p>Land Use/Current SMP:</p> <p>Land use designation:</p> <ul style="list-style-type: none"> • Current land use is Agricultural • Zoning - Agricultural Production 40 <p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Natural 	
<p>Existing Land Cover/Development:</p> <p>Reach 1 consists primarily of unimproved vacant land, agriculture, riparian vegetation, trail, parking, access road, and campsites. SR 1a contains agricultural land within shoreline, and trails and parking are located on the high bank of SR 1b (Palouse Falls State Park), and the southern portion of SR 1a (Lyons Ferry State Park).</p>	
<p>Geomorphic Character:</p> <p>Description: In the upper extent of the reach, the Palouse River flows in an unconfined, relatively low gradient valley consisting of alluvial deposits. Downstream of Little Palouse Falls, the river flows in an incised, deep bedrock canyon that consists mostly of Basalt (Grande Ronde and Wanapum Units). An area of mass wasting deposits is located along an inner-canyon area below Palouse Falls. Upstream of its confluence with the Snake River, the river consists of a wide backwater area of Lake West created by the Lower Monumental Dam located downstream on the Snake River.</p> <p>Hardened Banks – No hardened banks are known to exist along the Reach 1 extent.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in SR 1a, and the lower portion of SR 1b, both these 100-year floodplains are very narrow. There is floodplain established all through SR 1c and SR 1d that is also very narrow in relation to the width of the river. Base flood elevations have not been determined and no floodway exists.</p> <p>Geological Hazards – Sections of SR 1b, SR 1c, and SR 1d have slopes greater than 40%. SR 1b, SR 1c, and SR 1d contain active landslide hazard area. Reach 1 contains active landslide hazard areas particularly in the steep, inner gorge areas between the upper and lower falls.</p>	
<p>Existing Public Access – Public access is available from Palouse Falls State Park. The park offers recreational opportunities such as hiking, fishing, bird watching, picnicking, and a fully accessible hiking trail that overlooks the falls from an observation shelter with historical displays.</p> <p>Lyons Ferry State Park has a boat launch, parking, and recreation opportunities. However, the park is currently closed to public.</p> <p>Much of the shoreline has steep slope that is prohibitive of easy access to shoreline.</p> <p>Identified Public Access Improvements – No additional public access improvements have been identified.</p> <p>Public Access Opportunities – Public access opportunities exist at Lyons Ferry State Park.</p>	

Palouse River – Reach 1	Franklin County
ECOLOGICAL CONDITIONS	
<p>Water Quantity and Sediment:</p> <p>Water quantity in this reach does not appear to be impacted by surface inputs but would be impacted by precipitation events.</p> <p>Landslide potential in this reach may cause sediment input. Some sediment may be input into this reach during high precipitation events; sediments can generally move freely throughout the reach to its confluence with the Snake River in SR 1d.</p>	
<p>Water Quality:</p> <p>In the middle of the reach, between the border of Adams County and the Snake River, the Palouse River is on the 303(d) list (Category 5) for pH. It is also a water of concern (Category 2) for temperature.</p>	
<p>Habitat Characteristics and PHS Presence:</p> <p>Much of the extent of the Palouse River within Franklin County is generally constrained within the Palouse River canyon, characterized by steeply sloped banks and a very narrow floodplain. The River in this reach is unconstrained by dams, and includes Palouse Falls within Palouse Falls State Park. Shorelines along SR 1c and SR 1d are under Washington State Department of Natural Resources or federal ownership. There is a minimal amount of agricultural land within this reach. The reach of the Palouse River within Franklin County is noted for presence of or habitat supporting mule deer, and, waterfowl concentrations, and habitat suitable for ring-necked pheasant, a WDFW-managed non-native game species, may be present in this reach.</p>	

Palouse River – Reach 1	Franklin County
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SR 1a – This subreach flows through a wider floodplain, and provides water for irrigation of nearby fields, although more of these lands are within boundaries of other surrounding county jurisdictions. Cattle utilize the shoreline in this subreach for access to the river for watering, and in these areas the shoreline vegetation is non-existent. Generally, shoreline vegetation is managed adjacent to the agricultural areas, or consists of constrained bands of grasses, forbs and rushes, shrubs, and small trees within about 10- to 30-feet of the water. The remainder of the shoreline zone consists of shrub-steppe vegetation or agricultural lands. Along some bends in this reach the channel has a wider migration zone, and the channel bed is rougher, resulting in rapids, and a mosaic of wetland vegetation.

SR 1b – This subreach enters the Palouse River Canyon, and runs through a very constrained channel. There are several bends in the initial extent of this subreach, where the floodplain expands and includes wider zone of riparian vegetation with more complex community structure of several layers. After these bends, the channel continues along a very straight, narrow alignment with minimal vegetation. The vegetation that does exist in this area is in bands (10 to 30 feet wide) along the shoreline for significant stretches, interspersed with pockets where shoreline vegetation may be substantially more prevalent – these areas may co-exist with areas of discharge from the surrounding uplands. In some locations of this subreach, the county line includes the full river channel and both shorelines. Within this subreach there is a small island with wetland type vegetation, and the river flows under a bridge train crossing. In an area where the canyon walls allow for a broader floodplain, a small farm is established in the flatter part of the upland area. The subreach ends at Palouse Falls.

SR 1c – This subreach begins in the pool of Palouse Falls, and the shoreline conditions are similar to those of the upper river in terms of the vegetation characteristics; however, within this reach there are a vegetated islands and flat areas of the floodplain which are subject to water level fluctuations that support more significant riparian/wetland vegetation. There are more access points and opportunities for recreational access to the river within this subreach.

SR 1d – This subreach is at the juncture of the mouth of the Palouse with the Snake River, and is characterized by widening of the floodplain. The shoreline riparian vegetation characteristics are more similar to SR 1b, as a narrow band of shrubs, grasses and reeds, with some larger trees. There are few tall trees except in the landscaped areas near the mouth of the river. The aquatic habitat and riparian vegetation in this subreach is likely more defined by seasonal water fluctuations driven by the management of the Snake River Dams. There is a more developed launch within this reach with a large beach and pool protected by an artificial dike/berm. An informal boat launch is located just upstream of this site. There are other recreational access areas, primarily informal, and several user-defined trails.

ECOLOGICAL FUNCTIONS ANALYSIS

SR 1a

Level of Existing Function – Partially Functioning

Stressors:

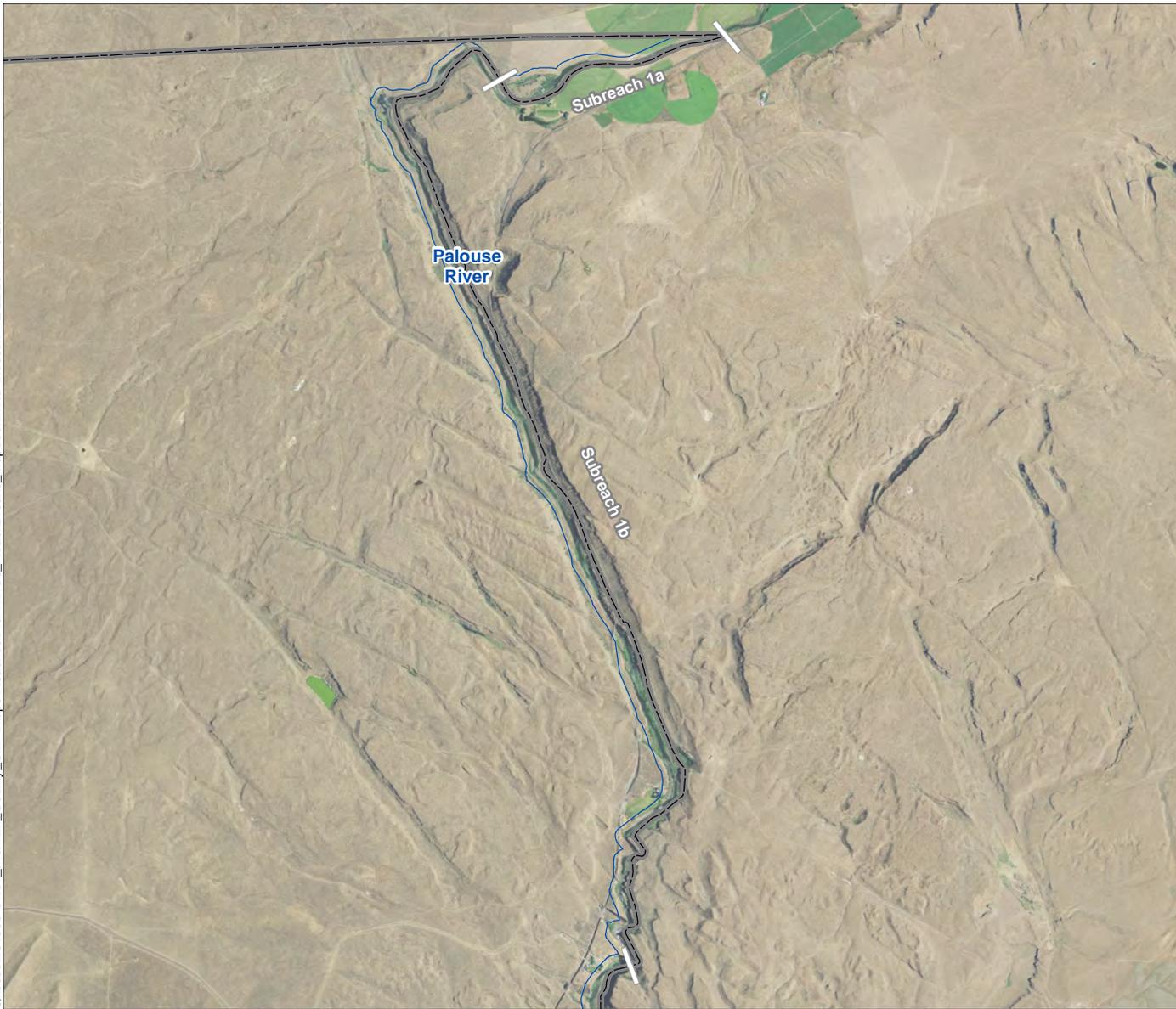
- Irrigated agricultural fields with no vegetated buffer

Potential Restoration Opportunities – Provide incentives to plant vegetated filter strip adjacent to agriculture fields.

Palouse River – Reach 1	Franklin County
<p>Potential Protection Opportunities – Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
<p>SR 1b</p>	
<p>Level of Existing Function – Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Wasteway outlet • Invasive riparian species (Russian-olive) <p>Recreational use:</p> <ul style="list-style-type: none"> • Railroad crossing • Out structures in one small area <p>Potential Restoration Opportunities – Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques.</p> <p>Potential Protection Opportunities – Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
<p>SR 1c</p>	
<p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Railroad corridor • Palouse Falls Road <p>Recreational use:</p> <ul style="list-style-type: none"> • Palouse Falls Viewpoint Park with parking lot, irrigated landscaping, trails, and non-native Russian-olive trees <p>Potential Restoration Opportunities – Replace non-native tree species with native alternatives. Reduce irrigated landscape areas and replacing turf with native species.</p> <p>Potential Protection Opportunities – Protect shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian shrub-steppe areas. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

Palouse River – Reach 1	Franklin County
SR 1d	
<p>Level of Existing Function: Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none">• Reservoir• Road and outbuilding• Access road around reservoir, no riparian buffer <p>Recreational Use:</p> <ul style="list-style-type: none">• Breakwater• Park with boat ramp• Irrigated landscaping and no riparian buffer• Parking lot <p>Potential Restoration Opportunities – Reduce irrigated landscape areas within park and replacing turf with native species, establishing a riparian buffer. Plant areas adjacent to reservoir to provide a riparian buffer area.</p> <p>Potential Protection Opportunities – Protect shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

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LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 7
Palouse River Subreaches 1a-1b
Franklin County Shoreline Master Program
Franklin County, WA

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LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 8
 Palouse River Subreach 1c - Snake River Subreach 1a
 Franklin County Shoreline Master Program
 Franklin County, WA

Snake River – Reach 1 Franklin County

Reach Description: Snake River from the Confluence with Palouse River to Lower Monumental Dam

Shoreline Jurisdiction: 2,660 acres



Source: <https://fortress.wa.gov/ecy/coastalatlus/UICoastalAtlas/Tools/ShorePhotos.aspx>

Subreaches (SRs); see Figures 8, 9, and 10:

- SR 1a: Begins at the confluence with Palouse River extending 3 miles to the west
- SR 1b: Extends 1.2 miles to the west to the end of federal recreation and mitigation area
- SR 1c: Extends 1.5 miles to the west
- SR 1d: Extends 3.6 miles to the west to the end of bluff
- SR 1e: Extends 2.1 miles to the west
- SR 1f: Extends 1 mile to the west to the end of federal recreation and mitigation area
- SR 1g: Extends 5.1 miles to the southwest
- SR 1h: Extends 0.9 miles to the southwest to the Lower Monumental Dam

CHARACTERISTICS

Ownership: Reach 1 is entirely in public ownership, divided between federal and municipal ownership (Port of Kahlotus).

Snake River – Reach 1	Franklin County
<p>Land Use/Current SMP:</p> <p>Land use designation:</p> <ul style="list-style-type: none"> • Current land use is Agricultural • Zoning - Agricultural Production 40 <p>Current SMP Environment Designation:</p> <ul style="list-style-type: none"> • Conservancy 	
<p>Existing Land Cover/Development:</p> <p>Reach 1 contains primarily unimproved, vacant land. SR 1a includes a State route, access road, parking, railroad, fish hatchery, and accessory structures and some riparian vegetation. Riparian and upland vegetation also exists in SR 1b and SR 1f. SR 1h includes grain elevators and hydroelectric structures.</p>	
<p>Geomorphic Character:</p> <p>Description – Lake West is an artificial lake formed by Lower Monumental Dam. The lake shoreline and adjacent valley walls consist of Grande Ronde Basalt, Wanapum Basalt, and outburst flood deposits. The lake is managed as a run-of-the-river reservoir. Lake levels are managed to fluctuate with river flows.</p> <p>Hardened Banks – No hardened banks are known to exist along the Reach 1 extent.</p>	
<p>Flooding and Geological Hazards:</p> <p>Flooding – There is a floodplain established in this reach. The 100-year floodplain is very narrow. Base flood elevations have not been determined and no floodway exists.</p> <p>Geological Hazards – Steep slopes greater than 40% present throughout Reach 1, most notably along the bluffs of SR 1a, SR 1d, and SR 1g. These steep slopes lie mostly within the Grand Ronde Basalt.</p>	
<p>Existing Public Access – State Route 261 crosses the Snake River providing visual access to the water. Lyons Ferry State Park is located at the confluence of the Snake River and Palouse River. However, the park is currently closed. The Lower Monument Dam area has boat launch and parking facilities. Public access is not available for the most part due to high banks and steep slopes.</p> <p>Identified Public Access Improvements – No improvement has been identified.</p> <p>Public Access Opportunities – Public access opportunities exist at Lyons Ferry State Park and on publicly owned land.</p>	

Snake River – Reach 1	Franklin County
ECOLOGICAL CONDITIONS	
<p>Water Quantity and Sediment:</p> <p>Water quantity in this reach specifically includes inputs from Skookum Canyon in SR 1f. Water quantity is generally controlled by dam and reservoir operations.</p> <p>The draft of West Lake levels may cause movement of some sediment. As the elevation in a lake drops, mobile sediment may aggrade along the banks. This sediment may become mobile again upon lake elevation increase. Sediment input is restricted by upstream dams, but tributary inflow and/or landslide potential in this reach may cause sediment input.</p>	
<p>Water Quality:</p> <p>The beginning of this reach (SR 1a) of the Snake River is impaired (Category 4C) by invasive exotic species and is a water of concern (Category 2) for temperature, dissolved oxygen, and pH.</p> <p>A middle portion of this reach (SR 1e and SR 1f) of the Snake River is a water of concern (Category 2) for temperature, dissolved oxygen, and pH.</p> <p>The end of this reach (SR 1h) of the Snake River is on the 303(d) list (Category 5) for temperature, is impaired (Category 4C) by invasive exotic species, and has a total maximum daily load in place (Category 4A) for total dissolved gas. This overlaps into portions of Snake River Reach 2 (SR 2a and SR 2b).</p>	
<p>Habitat Characteristics and PHS Presence:</p> <p>This reach begins at the confluence with the Palouse River and ends at Lower Monumental Dam; the river in this reach is not free-flowing. Riparian vegetation is confined to a narrow strip along the waterway due to steep slopes of the river shoreline. Much of the shoreline area is under federal ownership and managed as part of the Snake River dam system. This reach includes feeding, resting, and nesting habitat for migratory waterfowl and has seasonally high concentrations of waterfowl use. Habitat in this reach may support bald eagle wintering and great blue heron foraging in the associated riparian area and wetlands found intermittently along this reach. The riparian zone, including willows, cattails, and associated shrub-steppe habitat, may provide habitat for mule deer, and habitat suitable for ring-necked pheasant, a WDFW-managed non-native game species, may be present in this reach. The Snake River in this reach supports a number of Endangered Species Act-listed fish species, as identified in the main text of the IAC Report.</p> <p>SR 1a – This subreach includes a number of boat launch and access areas near the confluence with the Palouse River ranging from formal to informal and potentially user-defined. Lyons Ferry State Park, located at the confluence, is currently closed. The riparian vegetation is typically very narrow or sparse in some spots due to ongoing erosion of the shoreline cliff slopes and somewhat more robust in others where upland drainage is conveyed to the river in small embayments or coves.</p> <p>SR 1b – This subreach includes the Lyons Ferry Natural Areas and is managed by the U.S. Army Corps of Engineers (USACE) to mitigate impacts from dam operations. There is a significant embayment at the downstream end of the reach with a boat launch. Riparian vegetation is intact along the entire length of the subreach, but relatively narrow at 30 to 80 feet in width. The uplands are planted with grasses and small trees, maintained via irrigation. In between the irrigated areas, the vegetation is shrub-steppe sagebrush vegetation.</p>	

Snake River – Reach 1	Franklin County
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SR 1c – The riparian vegetation is very narrow throughout this subreach due to the steeply sloped bluffs along the shoreline, with the exception of more developed habitat within small coves and small embayments. There is an informal gravel trail or road adjacent to the river in this subreach.

SR 1d – The riparian vegetation is almost non-existent throughout this subreach, primarily due to the steeply sloped bluffs along the shoreline, with the exception of more developed habitat within small coves and larger embayments.

SR 1e – The riparian vegetation is confined to a narrow band throughout this reach, but is more consistently present in this subreach compared to the subreaches upstream, because the shoreline is less steeply sloped. The riparian vegetation community in this subreach is more diverse compared to adjacent subreaches with some shrubs and smaller trees present in locations adjacent to embayments or coves. The shoreline is more undulating throughout this reach, providing a more diverse habitat for aquatic species compared to the adjacent subreach shorelines.

SR 1f – This reach includes the Skookum Habitat Management Unit, managed by USACE to mitigate impacts from dam operations, including a recreational boat dock and upland trails. There is a significant embayment at the downstream end of this subreach with wetland habitat and significant tree cover. Riparian vegetation is intact along the entire length of the subreach, but relatively narrow at 30 to 80 feet in width. The uplands are planted with grasses and small trees, maintained via irrigation. In between the irrigated areas, the vegetation is shrub-steppe sagebrush vegetation

SR 1g – The riparian vegetation is confined to a narrow band throughout this reach, but is more consistently present as the shoreline is less steeply sloped. The riparian vegetation community is reasonably diverse with some shrubs and smaller trees present in locations adjacent to embayments or coves and the shoreline more undulating throughout this reach, providing a more diverse habitat for aquatic species than the steeply sloped shorelines of other subreaches in this reach.

SR 1h – This subreach includes a grain terminal near the Lower Monumental Dam, a formal boat launch area with parking, and an informal and potentially user-defined boat launch area. The uplands are less steeply sloped, but the riparian vegetation is typically very narrow or sparse in some spots due to ongoing erosion of the shoreline.

ECOLOGICAL FUNCTIONS ANALYSIS

SR 1a

Level of Existing Function – Impaired (eastern half), Functioning (western half)

Stressors:

Upland development:

- Highway 261 crossing with road under-crossing limiting riparian buffer areas
- Railroad crossing
- Hatchery infrastructure
- Irrigated landscaping
- Over-water structures, possibly hatchery nets

Snake River – Reach 1	Franklin County
<p>Potential Restoration Opportunities – Consider replacing irrigated turf areas with non-irrigated native shrub-steppe vegetation.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 1b	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Small irrigated agricultural fields • Dirt roads within jurisdiction • Invasive riparian species (Russian-olive) • Two overwater structures <p>Potential Restoration Opportunities – Create incentives to provide vegetated buffer strips around all agricultural fields. Replace non-native tree species with native alternatives.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 1c	
<p>Level of Existing Function – Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Dirt road (limited area) <p>Potential Restoration Opportunities – Relocate access roads outside of jurisdiction boundary and replant area with native species.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

Snake River – Reach 1	Franklin County
SR 1d	
<p>Level of Existing Function – Partially functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Grazing trails, fairly extensive at coves <p>Potential Restoration Opportunities – Consolidate water access trails and replant degraded areas.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type.</p>	
SR 1e	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Reservoir effects from downstream hydroelectric dam • Grazing trails, fairly extensive at coves <p>Potential Restoration Opportunities – Consolidate water access trails and replant degraded areas.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type.</p>	
SR 1f	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Reservoir effects from downstream hydroelectric dam • Irrigated agricultural fields, though mostly surrounded by vegetative buffers • Grazing trails • Dirt road (limited area) • Non-native trees: Russian-olive <p>Potential Restoration Opportunities – Incentives to provide vegetated buffer strips around all agricultural fields. Replace non-native tree species with native alternatives.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

Snake River – Reach 1	Franklin County
SR 1g	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Reservoir effects from downstream hydroelectric dam • Grazing trails, fairly extensive at coves • Informal boat ramp and dirt road <p>Potential Restoration Opportunities – Consolidate water access trails and replant degraded areas. Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, if modifications to boat ramp are implemented.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	
SR 1h	
<p>Level of Existing Function – Partially Functioning</p> <p>Stressors:</p> <ul style="list-style-type: none"> • Hydroelectric dam infrastructure and reservoir • Roads • Trails <p>Potential Restoration Opportunities – Evaluate opportunities to incorporate aquatic habitat complexity (substrate, organic material, structural elements [e.g., large woody debris], and aquatic and riparian vegetation) along with soft bank stabilization techniques, if modifications to dam infrastructure are implemented.</p> <p>Potential Protection Opportunities – Protect native riparian and shrub-steppe vegetation to preserve and support re-establishment of this land cover type. Limit recreation access within intact riparian and shrub-steppe areas. Make stormwater controls consistent with Eastern Washington Stormwater Manual.</p>	

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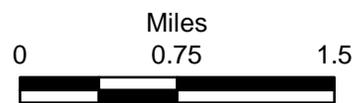


LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Aerial image courtesy of USDA NAIP (2013).



Map 8
 Palouse River Subreach 1c - Snake River Subreach 1a
 Franklin County Shoreline Master Program
 Franklin County, WA

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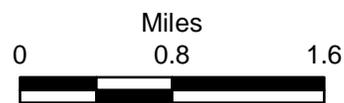


LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

NOTES:

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2. Aerial image courtesy of USDA NAIP (2013).



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LEGEND

-  Reach Break
-  County Boundary
-  SMA Jurisdiction

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2. Aerial image courtesy of USDA NAIP (2013).

