Reach Opportunities

Reach Name: UM1

Prioritization Tier: Tier 3

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Channel Reconstruction
4. Bank Shaping and Stabilization
5. Removal of Bank Armoring
6. Restore Banklines with LWD - Bioengineering
7. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
Reach-by-Reach Map Book

Reach UM1
Restoration Actions
**Reach Opportunities**

**Reach Name:** UM2

**Prioritization Tier:** Tier 2

**Restoration Actions:**
1. **Protection:** (Acquisitions, Easements, Coop. Agreements)
2. **Land Management:** (Grazing Plans, Fire management, etc.)
3. **Off-Site Water Developments**
4. **Restoration of Floodplain Topography and Vegetation**
5. **LWD Placements - Individual Whole Trees, Logjams, etc.**

**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Protect Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

**Umatilla River Assessment**

**Reach-by-Reach Map Book**

Reach UM2

Restoration Actions

*Based on NWI Existing Wetlands (2023)*
**Umatilla River Assessment**

**Reach-by-Reach Map Book**

**Reach UM3**

**Restoration Actions**

- (1) Protection: (Acquisitions, Easements, Coop. Agreements)
- (2) Land Management: (Grazing Plans, Fire management, etc.)
- (3) Beaver Re-introduction or Management
- (4) Bank Shaping and Stabilization
- (5) Removal of Bank Armoring
- (6) Restore Banklines with LWD - Bioengineering

**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- **** Restore Banklines with LWD
- LWD Placements
- Side Channel
- **H** Hyporheic Off-Channel Habitat
- **R** Riparian Fencing
- **B** Bank Shaping and Stabilization
- **R** Removal of Bank Armoring
- **L** Levee Modification
- **P** Protection
- **C** Channel Reconstruction
- **F** Floodplain Pond
- **R** Remove and/or Relocate Floodplain Infrastructure
- **W** Wetland Restoration
- **P** Riparian Buffer Planting
- **T** Restore Floodplain Topography and Vegetation
- **A** Upland Vegetation Treatment
- **E** Floodplain Excavation
- **A** Alcove

*Based on NWI Existing Wetlands (2023)*
**Reach Name:** UM4

**Prioritization Tier:** Tier 1

**Restoration Actions:**
1. Protection: (Acquisitions, Easements, Cooperating Agreements)
2. Land Management: (Grazing Plans, Fire Management, etc.)
3. Beaver Re-introduction or Management
4. Riparian Fencing
5. Boulder Placements
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Levee Modifications: Removal, Setback, Breach

**Legend**
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

**Umatilla River Assessment Reach-by-Reach Map Book**

Reach UM4

Restoration Actions

based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM5

Prioritization Tier: Tier 3

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Improve Thermal Refugia (reconnect cold springs, winter temps)

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
Reach-by-Reach Map Book

Reach UM5
Restoration Actions

*based on NWI Existing Wetlands (2023)*
### Reach Opportunities

**Reach Name:** UM6

**Prioritization Tier:** Tier 1

**Restoration Actions:**

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management: Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Riparian Buffer Strip, Planting
6. Beaver Re-introduction or Management

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**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
-  

- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification

- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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**Umatilla River Assessment**

Reach-by-Reach Map Book

**Reach UM6**

**Restoration Actions**

*Based on NWI Existing Wetlands (2023)*
Reach Opportunities

Reach Name: UM7

Prioritization Tier: Tier 2

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Beaver Re-introduction or Management
(6) Improve Thermal Refugia (reconnect cold springs, winter temps)
(7) Perennial Side Channel
(8) Secondary Channel (non-perennial)
Reach Opportunities

Reach Name: UM8

Prioritization Tier: Tier 2

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Beaver Re-introduction or Management
(4) Wetland
(5) Alcove
(6) Dam Removal or Breaching
Umatilla River Assessment
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Reach UM9
Restoration Actions

Prioritization Tier: Tier 2

Reach Opportunities

Reach Name: UM9

Restoration Actions:
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Structural Passage (Divisions, Screening)
4. Dam Removal or Breaching
5. Improve Thermal Refugia (reconnect cold springs, winter temps)
6. Floodplain Excavation: Benching
7. Wetland
8. Meander (Oxbow) Re-connect - Reconstruction
9. Alcove

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Removal of Bank Armoring
- Restored Banklines with LWD
- Bank Shaping and Stabilization
- Levee Modification

- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM10
Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Road Grading - Drainage Improvements
(4) Water Management-Improve Irrigation Efficiency
(5) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(6) Riparian Buffer Strip, Planting
(7) Riparian Fencing
(8) Wetland

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- ➡️的方向 Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach-by-Reach Map Book
Reach UM10
Restoration Actions

Prioritization Tier: Tier 1
Reach Opportunities

Reach Name: UM11

Prioritization Tier: Tier 1

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Levee Modifications: Removal, Setback, Breach
4. Remove and/or Relocate Floodplain Infrastructure
5. Restoration of Floodplain Topography and Vegetation
6. Restore Banklines with LWD - Bioengineering

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

- Restoration Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
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Reach UM11
Restoration Actions

*Based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM12

Prioritization Tier: Tier 3

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Removal of Bank Armoring
(4) Restore Banklines with LWD - Bioengineering
(5) Dam Removal or Breaching

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Reach UM12
Restoration Actions
Reach Opportunities

**Reach Name:** UM13

**Prioritization Tier:** Tier 1

**Restoration Actions:**
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Water Management-Improve Irrigation Efficiency
3. Restoration of Floodplain Topography and Vegetation
4. Levee Modifications: Removal, Setback, Breach
5. LWD Placements - Individual Whole Trees, Logjams, etc.
6. Perennial Side Channel
7. Secondary Channel (non-perennial)

**Legend**
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- **Restoration of Floodplain Topography and Vegetation**
- **Perennial Side Channel**
- **Secondary Channel (non-perennial)**
- **Protection**
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- **Restore Floodplain Topography and Vegetation**
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

**Umatilla River Assessment**
Reach-by-Reach Map Book

**Reach UM13**
 Restoration Actions

*based on NWI Existing Wetlands (2023)*
Reach Opportunities

**Reach Name:** UM14

**Prioritization Tier:** Tier 1

**Restoration Actions:**

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Levee Modifications: Removal, Setback, Breach
4. Remove and/or Relocate Floodplain Infrastructure
5. Restoration of Floodplain Topography and Vegetation
6. Structural Passage (Diversions, Screening)
7. Dam Removal or Breaching

**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- ⚠️ Restore Banklines with LWD
- ⚠️ LWD Placements
- ⚠️ Side Channel
- ⚡ Hyporheic Off-Channel Habitat
- ⚡ Riparian Fencing
- ⚠️ Bank Shaping and Stabilization
- ⚠️ Removal of Bank Armoring
- ⚠️ Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

*Based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM15

Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management: Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Structural Passage (Diversions, Screening)
(6) Riparian Buffer Strip, Planting
**Reach Opportunities**

**Reach Name:** UM16  
**Prioritization Tier:** Tier 3  

**Restoration Actions:**
(1) Protection: (Acquisitions, Easements, Coop. Agreements)  
(2) Land Management: (Grazing Plans, Fire management, etc.)  
(3) Off-Site Water Developments  
(4) Water Management-Improve Irrigation Efficiency  
(5) Acquire or Increase Instream Flow  
(Lease/Purchase; GW Storage)
**Reach Opportunities**

**Reach Name:** UM17

**Prioritization Tier:** Tier 3

**Restoration Actions:**

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management: Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Restore Banklines with LWD - Bioengineering
(6) Restoration of Floodplain Topography and Vegetation

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**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- **●** Restore Banklines with LWD
- **●** LWD Placements
- **●** Side Channel
- **●** Hyporheic Off-Channel Habitat
- **●** Riparian Fencing
- **●** Bank Shaping and Stabilization
- **●** Removal of Bank Armoring
- **●** Levee Modification
- **●** Protection
- **●** Channel Reconstruction
- **●** Floodplain Pond
- **●** Remove and/or Relocate Floodplain Infrastructure
- **●** Wetland Restoration
- **●** Riparian Buffer Planting
- **●** Restore Floodplain Topography and Vegetation
- **●** Upland Vegetation Treatment
- **●** Floodplain Excavation
- **●** Alcove

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**Umatilla River Assessment Reach-by-Reach Map Book**

**Reach UM17**

Restoration Actions

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*Legend based on NWI Existing Wetlands 2023.*
Reach Opportunities

Reach Name: UM18

Prioritization Tier: Tier 2

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Beaver Re-introduction or Management
6. Improve Thermal Refugia (reconnect cold springs, winter temps)
7. Restore Banklines with LWD - Bioengineering
8. Restoration of Floodplain Topography and Vegetation
9. Secondary Channel (non-perennial)
Reach Opportunities

Reach Name: UM19

Prioritization Tier: Tier 2

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Improve Thermal Refugia (reconnect cold springs, winter temps)
7. Channel Reconstruction
8. Removal of Bank Armoring
9. Restoration of Floodplain Topography and Vegetation
10. Perennial Side Channel
11. Wetland
12. LWD Placements - Individual Whole Trees, Logjams, etc.

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

Umatilla River Assessment
Reach-by-Reach Map Book

Reach UM19
Restoration Actions

*based on NWI Existing Wetlands (2023)
Umatilla River Assessment
Reach-by-Reach Map Book

Reach UM20
Restoration Actions

Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Bank Shaping and Stabilization
(4) Removal of Bank Armoring
(5) Levee Modifications: Removal, Setback, Breach
(6) Remove and/or Relocate Floodplain Infrastructure

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
Reach UM20
Restoration Actions

*based on NWI Existing Wetlands (2023)
**Reach Opportunities**

**Reach Name:** UM21

**Prioritization Tier:** Tier 1

**Restoration Actions:**

1. **Protection:** (Acquisitions, Easements, Coop. Agreements)
2. **Land Management:** (Grazing Plans, Fire management, etc.)
3. **Removal of Bank Armoring**
4. **Levee Modifications:** Removal, Setback, Breach
5. **Floodplain Excavation:** Benching
6. **Restore Banklines with LWD - Bioengineering**
7. **Perennial Side Channel**
8. **Secondary Channel (non-perennial)**

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**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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**Umatilla River Assessment Reach-by-Reach Map Book**

Reach UM21

Restoration Actions
Reach Opportunities

Reach Name: UM22

Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Remove and/or Relocate Floodplain Infrastructure
(4) Restoration of Floodplain Topography and Vegetation
(5) Improve Thermal Refugia (reconnect cold springs, winter temps)
(6) Levee Modifications: Removal, Setback, Breach

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

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Reach-by-Reach Map Book
Reach UM22
Restoration Actions

*Based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM23

Prioritization Tier: Tier 2

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Channel Reconstruction
(4) Hyporheic Off-Channel Habitat (Groundwater)
(5) Restoration of Floodplain Topography and Vegetation

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification

Protection
Channel Reconstruction
Floodplain Pond
Removal and/or Relocate Floodplain Infrastructure
Wetland Restoration*
Riparian Buffer Planting
Restore Floodplain Topography and Vegetation
Upland Vegetation Treatment
Floodplain Excavation
Alcove

Umatilla River Assessment
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Reach UM23
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM24

Prioritization Tier: Tier 1

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Beaver Re-introduction or Management
(4) Improve Thermal Refugia (reconnect cold springs, winter temps)
(5) Perennial Side Channel
(6) Floodplain Pond
(7) Wetland
(8) Levee Modifications: Removal, Setback, Breach
(9) Remove and/or Relocate Floodplain Infrastructure

Legend

• River Miles (1.0)
• River Miles (0.5)
• 2020 Centerline
• Reach Boundary
• Improve Thermal Refugia
• Dam Removal

(●●●●) Restore Banklines with LWD
(●●●) LWD Placements
(●●) Side Channel
(●●●) Hyporheic Off-Channel Habitat
(●●) Riparian Fencing
(●●●) Bank Shaping and Stabilization
(●●●) Removal of Bank Armoring
(●●●) Levee Modification

Protection
Channel Reconstruction
Floodplain Pond
Remove and/or Relocate Floodplain Infrastructure
Wetland Restoration*
Riparian Buffer Planting
Restore Floodplain Topography and Vegetation
Upland Vegetation Treatment
Floodplain Excavation
Alcove

Umatilla River Assessment
Reach-by-Reach Map Book
Reach UM24
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM25

Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Structural Passage (Diversion, Screening)
(4) Floodplain Pond
(5) Levee Modifications: Removal, Setback, Breach
(6) Remove and/or Relocate Floodplain Infrastructure
(7) Perennial Side Channel
(8) Secondary Channel (non-perennial)
Reach Opportunities

Reach Name: UM26

Prioritization Tier: Tier 1

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Upland Vegetation Treatment - Management
4. Beaver Re-introduction or Management
5. LWD Placements - Individual Whole Trees, Logjams, etc.
6. Restoration of Floodplain Topography and Vegetation
7. Perennial Side Channel
8. Hyporheic Off-Channel Habitat (Groundwater)
9. Meander (Oxbow) Re-connect - Reconstruction

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification

Protection
Channel Reconstruction
Floodplain Pond
Remove and/or Relocate Floodplain Infrastructure
Wetland Restoration
Riparian Buffer Planting
Restore Floodplain Topography and Vegetation
Upland Vegetation Treatment
Floodplain Excavation
Alcove

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Reach-by-Reach Map Book
Reach UM26
Restoration Actions
Reach Opportunities

Reach Name: UM27

Prioritization Tier: Tier 2

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Improve Thermal Refugia (reconnect cold springs, winter temps)
4. Water Management-Improve Irrigation Efficiency
5. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Perennial Side Channel

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- ( ) Restore Banklines with LWD
- ( ) LWD Placements
- ( ) Side Channel
- ( ) Hyporheic Off-Channel Habitat
- ( ) Riparian Fencing
- ( ) Bank Shaping and Stabilization
- ( ) Removal of Bank Armoring
- ( ) Levee Modification
- ( ) Protection
- ( ) Channel Reconstruction
- ( ) Floodplain Pond
- ( ) Remove and/or Relocate Floodplain Infrastructure
- ( ) Wetland Restoration*
- ( ) Riparian Buffer Planting
- ( ) Restore Floodplain Topography and Vegetation
- ( ) Upland Vegetation Treatment
- ( ) Floodplain Excavation
- ( ) Alcove

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM28

Prioritization Tier: Tier 1

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Improve Thermal Refugia (reconnect cold springs, winter temps)
(4) Water Management-Improve Irrigation Efficiency
(5) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(6) LWD Placements - Individual Whole Trees, Logjams, etc.
(7) Perennial Side Channel
(8) Levee Modifications: Removal, Setback, Breach

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- • Restore Banklines with LWD
- • LWD Placements
- • Side Channel
- • Hyporheic Off-Channel Habitat
- • Riparian Fencing
- • Bank Shaping and Stabilization
- • Removal of Bank Armoring
- • Levee Modification
- • Protection
- • Channel Reconstruction
- • Floodplain Pond
- • Remove and/or Relocate Floodplain Infrastructure
- • Wetland Restoration
- • Riparian Buffer Planting
- • Restore Floodplain Topography and Vegetation
- • Upland Vegetation Treatment
- • Floodplain Excavation
- • Alcove

Umatilla River Assessment
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Reach UM28
Restoration Actions
Reach Opportunities

Reach Name: UM29

Prioritization Tier: Tier 3

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Off-Site Water Developments
4. Beaver Re-introduction or Management
5. LWD Placements - Individual Whole Trees, Logjams, etc.

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment Reach-by-Reach Map Book

Reach UM29
Restoration Actions

*based on NWI Existing Wetlands (2023)
**Reach Opportunities**

**Reach Name:** UM30

**Prioritization Tier:** Tier 2

**Restoration Actions:**

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Improve Thermal Refugia (reconnect cold springs, winter temps)
4. Perennial Side Channel
5. Levee Modifications: Removal, Setback, Breach
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Restoration of Floodplain Topography and Vegetation
8. Secondary Channel (non-perennial)
9. Floodplain Pond

**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

**Umatilla River Assessment Reach-by-Reach Map Book**

Reach UM30 Restoration Actions

*based on NWI Existing Wetlands (2023)*
Reach Opportunities

**Reach Name:** UM31

**Prioritization Tier:** Tier 2

**Restoration Actions:**

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Levee Modifications: Removal, Setback, Breach
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Restore Banklines with LWD - Bioengineering
8. Restoration of Floodplain Topography and Vegetation
9. Perennial Side Channel

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Removal and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Wetland Restoration*
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Floodplain Excavation
- Upland Vegetation Treatment
- Restoration of Floodplain Topography and Vegetation
- Riparian Buffer Planting
- Riparian Buffer Planting

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM32

Prioritization Tier: Tier 3

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Restoration of Floodplain Topography and Vegetation
(6) LWD Placements - Individual Whole Trees, Logjams, etc.
(7) Perennial Side Channel
(8) Secondary Channel (non-perennial)
**Reach Opportunities**

**Reach Name:** UM33

**Prioritization Tier:** Tier 1

**Restoration Actions:**
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Improve Thermal Refugia (reconnect cold springs, winter temps)
(4) Perennial Side Channel
(5) Levee Modifications: Removal, Setback, Breach
(6) Restore Banklines with LWD - Bioengineering
Reach Name: UM34

Prioritization Tier: Tier 3

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) LWD Placements - Individual Whole Trees, Logjams, etc.
(6) Restoration of Floodplain Topography and Vegetation
(7) Perennial Side Channel

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach UM34
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: UM35

Prioritization Tier: Tier 2

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management - Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Secondary Channel (non-perennial)
7. Remove and/or Relocate Floodplain Infrastructure
8. LWD Placements - Individual Whole Trees, Logjams, etc.
9. Restore Banklines with LWD - Bioengineering

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

- River with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Levee Modification

- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach UM35
Restoration Actions

*based on NWI Existing Wetlands (2023)
### Reach Opportunities

**Reach Name:** UM36

**Prioritization Tier:** Tier 2

#### Restoration Actions:

1. **Protection:** (Acquisitions, Easements, Coop. Agreements)
2. **Land Management:** (Grazing Plans, Fire management, etc.)
3. **Water Management-Improve Irrigation Efficiency**
4. **Acquire or Increase Instream Flow** (Lease/Purchase; GW Storage)
5. **Improve Thermal Refugia** (reconnect cold springs, winter temps)
6. **Remove and/or Relocate Floodplain Infrastructure**
7. **LWD Placements - Individual Whole Trees, Logjams, etc.**

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**Legend**

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- 2020 Centerline
- Improve Thermal Refugia
- Protect
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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**Umatilla River Assessment**

**Reach-by-Reach Map Book**

Reach UM36

**Restoration Actions**

*based on NWI Existing Wetlands (2023)*
Reach Opportunities

Reach Name: UM37

Prioritization Tier: Tier 3

Restoration Actions:
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management: Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Off-Site Water Developments
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Restore Banklines with LWD - Bioengineering

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Contaminates
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove/Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Above

Umatilla River Assessment
Reach-by-Reach Map Book

Reach UM37
Restoration Actions

*Based on NFW Existing Wetlands (2023)*
Reaches Opportunities

Reach Name: UM38

Prioritization Tier: Tier 3

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management: Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Remove and/or Relocate Floodplain Infrastructure
(6) LWD Placements - Individual Whole Trees, Logjams, etc.
(7) Restore Banklines with LWD - Bioengineering

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centrifuge
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration*
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Above

Umatilla River Assessment
Reach-by-Reach Map Book
Reach UM38
Restoration Actions
Reach Opportunities

Reach Name: UM39

Prioritization Tier: Tier 3

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Remove and/or Relocate Floodplain Infrastructure
6. LWD Placements - Individual Whole Trees, Logjams, etc.
7. Restore Banklines with LWD - Bioengineering
Reach Opportunities

Reach Name: UM40

Prioritization Tier: Tier 3

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Remove and/or Relocate Floodplain Infrastructure
(6) LWD Placements - Individual Whole Trees, Logjams, etc.
(7) Restore Banklines with LWD - Bioengineering
Reach Opportunities

Reach Name: UM41

Prioritization Tier: Tier 3

Restoration Actions:

1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management: Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Levee Modifications: Removal, Setback, Breach
6. Restoration of Floodplain Topography and Vegetation
7. LWD Placements - Individual Whole Trees, Logjams, etc.
8. Restore Banklines with LWD - Bioengineering

Legend

- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Removal and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Wetland Buffer Planning
- Wetland Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
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Reach UM41
Restoration Actions

Prioritization Tier: Tier 3
Reach Opportunities

Reach Name: UM42

Prioritization Tier: Tier 1

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management: Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) LWD Placements - Individual Whole Trees, Logjams, etc.
(6) Levee Modifications: Removal, Setback, Breach
Reach Opportunities

Reach Name: UM43

Prioritization Tier: Tier 3

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) LWD Placements - Individual Whole Trees, Logjams, etc.
Reach Opportunities

Reach Name: NF1

Prioritization Tier: Conservation or Restoration

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Off-Site Water Developments
(4) LWD Placements - Individual Whole Trees, Logjams, etc.

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Medium
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
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Reach NF1
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: NF2

Prioritization Tier: Conservation or Restoration

Restoration Actions:

(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Off-Site Water Developments

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
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Reach NF2
Restoration Actions
Reach Opportunities

Reach Name: NF3

Prioritization Tier: Conservation or Restoration

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management - Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Off-Site Water Developments
(6) Beaver Re-introduction or Management

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Floodplain Restoration
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach NF3
Restoration Actions
Reach Opportunities

Reach Name: NF4

Prioritization Tier: Conservation or Restoration

Restoration Actions:
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management: Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Beaver Re-introduction or Management

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach NF4
Restoration Actions
Reach Opportunities

Reach Name: NF5

Prioritization Tier: Conservation or Restoration

Restoration Actions:
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Beaver Re-introduction or Management

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Levee Modification

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Reach NF5
Restoration Actions

*Based on NWI Existing Wetlands (2023)*
**Reach Name:** NF6

**Prioritization Tier:** Conservation or Restoration

**Restoration Actions:**
1. Protection: (Acquisitions, Easements, Coop. Agreements)
2. Land Management: (Grazing Plans, Fire management, etc.)
3. Water Management-Improve Irrigation Efficiency
4. Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
5. Beaver Re-introduction or Management

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**Legend**
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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**Umatilla River Assessment Reach-by-Reach Map Book**

Reach NF6

Restoration Actions

*Based on NWI Existing Wetlands (2023)*
Reach Opportunities

Reach Name: SF1

Prioritization Tier: Conservation or Restoration

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management-Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow (Lease/Purchase; GW Storage)
(5) Beaver Re-introduction or Management

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

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Reach SF1
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Name: SF2

Prioritization Tier: Conservation or Restoration

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Water Management: Improve Irrigation Efficiency
(4) Acquire or Increase Instream Flow
(5) Beaver Re-introduction or Management

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

*Based on NWI Existing Wetlands (2023)
Reach Name: SF3

Prioritization Tier: Conservation or Restoration

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Beaver Re-introduction or Management

Legend:
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal
- Restore Banklines with LWD
- LWD Placements
- Side Channel
- Hyporheic Off-Channel Habitat
- Riparian Fencing
- Bank Shaping and Stabilization
- Removal of Bank Armoring
- Levee Modification
- Protection
- Channel Reconstruction
- Floodplain Pond
- Remove and/or Relocate Floodplain Infrastructure
- Wetland Restoration
- Riparian Buffer Planting
- Restore Floodplain Topography and Vegetation
- Upland Vegetation Treatment
- Floodplain Excavation
- Alcove

Umatilla River Assessment
Reach-by-Reach Map Book
Reach SF3
Restoration Actions

*based on NWI Existing Wetlands (2023)
Reach Opportunities

Reach Name: SF4

Prioritization Tier: Conservation or Restoration

Restoration Actions:
(1) Protection: (Acquisitions, Easements, Coop. Agreements)
(2) Land Management: (Grazing Plans, Fire management, etc.)
(3) Beaver Re-introduction or Management
(4) LWD Placements - Individual Whole Trees, Logjams, etc.

Legend
- River Miles (1.0)
- River Miles (0.5)
- 2020 Centerline
- Reach Boundary
- Improve Thermal Refugia
- Dam Removal

Umatilla River Assessment
Reach-by-Reach Map Book

Reach SF4
Restoration Actions

Based on NWI Existing Wetlands (2023)