Tucannon River Model Watershed Habitat Projects

Annual Report
1997 - 1998

DOE/BP-36266-1

December 1998

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P.O. Box 3621
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TUCANNON MODEL WATERSHED
1997 HABITAT PROJECTS

ANNUAL PROGRESS REPORT

Project Period:
January 1, 1997 to March 31, 1998

Prepared by:

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Tucannon Model Watershed
Columbia County Conservation District
Dayton, WA 99328

Funded by:

U.S. Department of Energy
Bonneville Power Administration
Environment, Fish and Wildlife
P.O. Box 3621
Portland, OR 97208-3621

Project Number 97-081-00
Contract Number 97AP36266

TUCANNON RIVER MODEL WATERSHED PROGRAM
1997 HABITAT PROJECTS ABSTRACT

The Tucannon River is home to Spring Chinook, Fall Chinook, Summer Steelhead, and Bulltrout. All species are currently ESA listed weak stocks or are pending listing. In an effort to restore, protect, and enhance salmonid habitat from a grass root base the Columbia Conservation District continues to implement the Tucannon River Model Watershed Plan through the Tucannon River Model Watershed Program.

1997 projects, funded by Bonneville Power Administration contract #97AP36266, included 12 new projects and 6 O&M projects on 1996 project sites. An additional 1996 carry over project, BPA contract #96AP96537, was also constructed. BPA funding was supplemented with funds from Columbia County, Washington, Washington State Conservation Commission, and private landowners. Total project cost was $238,672.59.

Projects were designed to address critical limiting factors identified through the watershed assessment and Plan development. Construction elements were composed of bioengineering techniques designed to increase salmonid habitat complexity, insure stream bank and geomorphic stability, and reduce stream temperature and sediments in spawning gravels. Structural elements included 31 barbs with rootwads, 67 rootwads designed in revetment complexes, 6 vortex rock weirs with rootwads, extensive LWD placement, 1 irrigation culvert placement, 4 back water and/or off channel rearing areas, over 6 acres of DSP, and shaping and securing of 6828 ft. of river.

Cooperation and agreement between landowners and resource agencies for restoring resource conditions has grown due to project success and is expected to continue for the benefit of all.

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implenmentor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): BLC Site (RM 14)
Subsite Name (i.e. specific location, legal description): SE1/4, Sec29, T12N, S39E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Tucannon

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 7 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $23,415.50

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

328 ft. fish stream improvement
2 mini rock deflectors

LWD/conifer along bank
shaped back fill area
culvert placed for off site irrigation
33 rootwad revetment complex
point bar shaped

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Reduce direct water withdrawal
Develop shad, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.
Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity & performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implenmentor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Dahm Site (RM 33)
Subsite Name (i.e. specific location, legal description): NE1/4, Sec16, T10N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Hopkins Ridge

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 5 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
Added additional materials to meet NRCS engineered specifications. Additional labor and materials were need to secure LWD was needed.

What was the overall cost of the project? $10,677.00

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

250 ft. fish stream improvement
Anchor several county constructed rootwads place in gravel berm constructed for emergency protection of property
2 rock barbs with rootwads
LWD throughout length of project

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?

Directed flow to stabilize river system
Habitat complexity and cover
Reduced sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Howard Pit Site
Subsite Name (i.e. specific location, legal description): NE1/4, Sec25 T11N, S40E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 2 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $6,052.30

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

Develop a source of rip rap and graded rock for habitat improvement

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Provide a close source for rock
Minimize rock expenses

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Materials used on instream habitat enhancement projects.
Were monitoring and evaluation activities undertaken in association with the project?

Yes: **No**:..X

If Yes, list types and duration of monitoring:

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Ducharme Site (RM 11)
Subsite Name (i.e. specific location, legal description): SE1/4, Sec23, T12N, S38E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Kellogg Creek & Starbuck East

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 4 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
Additional time and materials were needed to meet NRCS engineered specifications.

What was the overall cost of the project? $12,339.96

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

400 ft. fish stream improvement

7 rootwad revetment complex
400 ft Large Wood Debris

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Develop shade, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implenmentor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Hovrud-Marengo Bridge (RM 25)
Subsite Name (i.e. specific location, legal description): NW1/4, Sec13, T11N, R40E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Turner

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 3 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $7,569.43

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

350 ft. fish stream improvement
Backwater area established

2 rock barbs with rootwads
180 ft. LWD
Gravel Bar removed

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Off channel rearing & resting site
Directed flow to stabilize river system
Habitat complexity and cover
Reduced sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Hovrud Sediment Basin O&M (RM 23.3)
Subsite Name (i.e. specific location, legal description): SW1/4, Sec11 T11N, S40E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Turner

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 4 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
Additional excavator time and rock was needed to meet NRCS engineered specifications.

What was the overall cost of the project? $10,337.38

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

Secure 1996 project structure security

repair to cobble berm on rootwad revetment complex
repair both upper and lower vortex rock weirs
re-key corners
replace lost scour rocks

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Project O& M designed to maintain project benefits of:
Direct thalwag to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pools
Lower width to depth ratio
Facilitate sorting of gravels
Reduce destruction of bank vegetation and trees
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Howard/Hovrud Phase 2 Site (RM 24)
Subsite Name (i.e. specific location, legal description): NE1/4, Sec14, T11N, S40E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Turner

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 7 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
Additional material was needed to meet NRCS engineered specifications. Additional time was also required to place material and to prep the site.

What was the overall cost of the project? $36,916.20

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

1200 ft. fish stream improvement
3 vortex rock weir with 2 large rootwads each in plunge pool
5 rock barbs with root wads
LWD along banks

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pool with LWD for cover and bio-diversity
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Howard Lower Feeder Site O&M (RM 26.2)
Subsite Name (i.e. specific location, legal description): SE1/4, Sec18 T11N, S41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 6 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
O&M estimates were done in early spring when snow melt & runoff were not finished, making O&M estimates incomplete as needs were better identified when flows receded.

What was the overall cost of the project? $8,736.69

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

Secure 1996 project structure security
repair to cobble berm on rootwad revetment complex
repair both upper and lower vortex rock weirs
reshape head cut
construct spillway shoot and line with rock

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Project O& M designed to maintain project benefits of:
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pools
Lower width to depth ratio
Facilitate sorting of gravels
Reduce destruction of bank vegetation and trees
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structures integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Howard Bosley Site O&M (RM 28.1)
Subsite Name (i.e. specific location, legal description): NW1/4, Sec30 T11N, S41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 1 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
O&M estimates were done in early spring when snow melt and runoff were not finished, making L&M estimates incomplete as needs were better identified when flows receded.

What was the overall cost of the project? $5,370.70

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

Secure 1996 project structure security
added rock to barbs with rootwads
repair both upper and lower vortex rock weirs

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Project O& M designed to maintain project benefits of:
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pools
Lower width to depth ratio
Facilitate sorting of gravels
Reduce destruction of bank vegetation and trees
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Jacob-Corey Site (RM 32)
Subsite Name (i.e. specific location, legal description): SW1//4, Sec4, T10N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Hopkins Ridge & Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 12 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $18,646.95

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

720 ft. fish stream improvement
5 rock barbs/root wads

7 rootwad revetment
LWD cabled

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Small to medium pools with shade for rearing and resting
Maintain current stream bank vegetation
Add bio-diversity and habitat complexity
Develop pockets of sorted gravels
Direct thalweg to stabilize river system
Reduce sedimentation in gravels
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.
Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Janet Howard Site (RM 25.7)
Subsite Name (i.e. specific location, legal description): SW1/4, Sec18, T11N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 4 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $9,948.65

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

560 ft. fish stream improvement
5 rootwad revetment

1 rock deflectors
140 ft. LWD

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct flow to stabilize river system
Habitat complexity and cover
Reduce sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Janet Howard Site (RM 25.7)
Subsite Name (i.e. specific location, legal description): SW1/4, Sec18, T11N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 2 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
O&M estimates were done in early spring before snow melt and runoff were finished, making O&M estimates incomplete as needs were better identified when flows receded.

What was the overall cost of the project? $5,643.75

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

1 rock deflectors repaired
Re-key corners of vortex rock weir
Reshape backwater area
Armor lower corner of backwater area

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct flow to stabilize river system
Habitat complexity and cover
Reduce sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Janet Howard Site (RM 25.7)
Subsite Name (i.e. specific location, legal description): SW1/4, Sec18, T11N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Zumwalt

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 2 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
O&M estimates were done in early spring before snow melt and runoff were finished, making O&M estimates incomplete as needs were better identified when flows receded.

What was the overall cost of the project? $5,643.75

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

1 rock deflectors repaired
Re-key corners of vortex rock weir
Reshape backwater area
Armor lower corner of backwater area

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct flow to stabilize river system
Habitat complexity and cover
Reduce sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Morper Site (RM 14)
Subsite Name (i.e. specific location, legal description): NE1/4, Sec32, T12N, S39E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Tucannon

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 12 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $22,678.12

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

750 ft. fish stream improvement
5 rock deflectors with root wads

700 ft Large Wood Debris
point bar shaped

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Develop shade, stream bank stability, and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): O'Shaughnessy (RM 34)
Subsite Name (i.e. specific location, legal description): SE1/4, Sec16, T10N, R41E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Hopkins Ridge

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 2 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $7,674.25

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

500 ft. fish stream improvement
Anchor existing log jam to stabilize meander

2 rock barbs with rootwads
7 rootwad revetment

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?

Directed flow to stabilize river system
Habitat complexity and cover
Reduced sediment in gravels
Small to medium pools with cover for rearing and resting
Develop shade, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Watershed Fish Habitat Restoration
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Robertson Site (RM 17)
Subsite Name (i.e. specific location, legal description): NW1/4, Sec2, T11N, S39E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Tucannon

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 3 days

Was the project completed within the original budget? Yes: No: X

If no, what caused cost overruns?
Time estimate for site preparation and project completion were low, however county in-kind contribution accounted for most of the over run.

What was the overall cost of the project? $13,261.71

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

550 ft. fish stream improvement
preserved spring water channel & backwater for juvenile rearing area
2 rock deflectors with root wads
10 rootwad revetment
100 ft Large Wood Debris
gravel bar shaped

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Stabilize off channel site for rearing and resting
Develop shade, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structural integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 96-065-00
BPA Contract Number: 96AP96537
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Rubenser Site #2 (RM 6)
Subsite Name (i.e. specific location, legal description): NE1/4, Sec20, T12N, S38E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Starbuck East

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 7 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $29,712.00

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

900 ft. fish stream improvement
27 rootwad revetment complex

1 rock barb with rootwad
2 small rock deflectors
2 vortex rock weirs
Off channel rearing area

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pools
Lower width to depth ratio
Facilitate sorting of gravels
Reduce destruction of bank vegetation and trees
Develop shade, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No:

1997 TUCANNON RIVER MODEL WATERSHED PROJECTS PROJECT REVIEW

Project Name: Tucannon River Early Action Projects Project
BPA Project Number: 97-81
BPA Contract Number: 97AP36266
Project Implementor and Address: Columbia Conservation District
202 South Second Street
Dayton, WA 99328-1327

Project Leader(s): Terry R. Bruegman, District Coordinator

Project Description (Short): Restore, protect, & enhance fish habitat and riparian areas by increasing habitat complexity, re-establishing geomorphic stability, and increase riparian vegetation.

Location Information:

Site Name (i.e. creek, hatchery): Rubenser Site #1 O&M (RM 6.5)
Subsite Name (i.e. specific location, legal description): SE1/4, Sec20, T12N, S38E
County & State: Columbia County, Washington
Hydrounit Number: 17060107
Quad Map(s): Starbuck East & Kellogg Creek

Site Type Description (See Attachment 1): F, S

Work Type Description (See Attachment 2): C

Is project completed? Yes: X No:

If no, when is the project scheduled to be completed?

If yes, how long did the project take from start to finish (not including ongoing monitoring & evaluation activities)? 1 days

Was the project completed within the original budget? Yes: X No:

If no, what caused cost overruns?

What was the overall cost of the project? $2,780.00

What was actually produced/built/accomplished by the project (please quantify if possible--e.g., 5 miles of fence constructed, 2 miles of streambank stabilized, 20 acres of land acquired, etc.)?

Secure 1996 project structure security
repair to cobble berm on rootwad revetment complex

Are salmon production/supplementation activities planned or currently being implemented in this watershed? Yes, through the Lower Snake River Comp Plan administered through the WDF&W.

What will be the benefits of the products described above for anadromous fish?
Project O& M designed to maintain project benefits of:
Direct thalweg to stabilize river system
Reduce sediment in gravels
Add bio-diversity and habitat complexity
Small to medium pools for rearing and resting
Create large plunge pools
Lower width to depth ratio
Facilitate sorting of gravels
Reduce destruction of bank vegetation and trees
Develop shade, stream bank stability and canopy cover with DSP

When will these benefits become available (immediately, next summer, 5 years, 10 years)?
Instream habitat structures provide immediate and long term benefits.

Were monitoring and evaluation activities undertaken in association with the project?

Yes: X **No**:

If Yes, list types and duration of monitoring:
Habitat cross-sections
Habitat complexity evaluation
Structure integrity and performance
Geomorphic stability

Are "before and after" photographs of the project site available? Yes: X No: