

Horsetail Creek

Thursday, November 29, 2012

9:13 AM

What is/are the site limiting factors?

Access

- Flow
- Temperature

Habitat

What restoration actions will be used to address the limiting factors?

- A. Eliminate Diversion of Oneonta Creek
- B. Retrofit I-84 Culvert to improve fish passage
- C. Install LWD structures and regrade constructed channels
- D. Construct Native vegetation marsh

What are the objectives for addressing these limiting factors through restoration actions?

Objective: Restore the Hydrologic Regime

Action A

H1- Oneonta Creek discharge should be roughly equal in reaches located upstream and downstream of existing diversion

- During the months of July and August, discharge downstream of current diversion should be at least 80% of that measured upstream of diversion

H2- Increases in Horsetail Creek temperatures between railroad and pond outlet stations should be roughly the equal to those observed between the pond outlet and Horsetail Creek outlet stations

- 7-day average maximum temperature measured at Horsetail Creek outlet should be 0.5 higher than 7-day average maximum temp. Measured upstream of confluence with pond outlet.

Objective: Enhance habit conditions to promote ecological processes

Action B

H3- Retrofit to culvert will improve flow through culvert by diverting majority of low flows into western-most barrel.

- During the months of July and August, discharge through the western-most culvert should be 75% or greater of combined discharge of Horsetail and Oneonta Creeks

H4- Constructed "swim-through" diversion riffle at culvert inlet will allow fish passage

- From November through June, constructed riffle should have surface water depths, slope, thalweg and water velocities suitable for passing adult and juvenile salmonids.

Action C

H5- Increase in channel complexity will provide habitat opportunity for juvenile salmonids

- Pool depth typically greater than 2ft in portions of Horsetail creek

Action D

H6- Restoration of fluvial and sediment processes will promote the establishment and propagation of natural plant community

- Plant community in constructed wetland should have no less than 28.58% native cover and no more than 26.36% non-native plant cover after 5 years.
- Seasonal inundation of constructed wetland should correspond with salmonid spawning and outmigration periods

What are the metrics for evaluating success of actions :

Performance Metrics for Objective A.

- 1) Measure low flow discharge (Annual)
- 2) Temp Probes (Continuous)

Performance Metrics for Objective B.

- 1) Measure low flow discharge (Annual)
- 2) Photo points (Annual)
- 3) Pit Tag Array (Continuous)

Performance Metrics for Objective C.

- 1) Channel Cross Section (Annual)
- 2) Photo points (Annual)
- 3) Temp (Continuous)

Performance Metrics for Objective D.

- 1) Water surface elevation and temp probes (Continuous)
- 2) Plant community composition transects (Annual)

Is there an identified Reference/Control Site? If there is no reference or control site, are there target values related to the restoration action?

No

Target restoration values for Flow and Temperature related to juvenile salmonids are established for ODEQ and ODFW. Vegetation restoration values are based on values for PNNL Reference Site study for marshes in reach H

Statistical Design: Accident Response

Critical Uncertainty: Fish passage through culverts, stock specific use

(Level 3)

Monitored Indicator	Data	
Photo Points	Discrete	
Latitude and longitude	Discrete	
Flow	Measurement x2 annually	
Temperature	Logger	Juvenile Salmon Presence
Channel (topography)	Measurement x1 annually	
Water-surface elevation	Logger	Wetland area -

Sediment accretion	Measurement	

Level 2

PIT tag Array - ID Types of Stocks

CU- Provide data to about fish passage through culverts

Vegetative Composition

Values Based on Reference Site Study Marsh site in Reach H