

Lake Creek Instream Flow Study
Status Update
Fish/Aquatics Meeting
December 2006



Instream Flow Study Methods

- Physical Habitat Survey (2004)
- Study Site Selection (2004)
 - Lake Creek from Drop Structure to Confluence with Cowlitz River
 - Four Study Sites Selected
 - 34 Transects Measured

Preference Curve Selection

- WDFW/WDOE Habitat Suitability Index (HSI) Curves to be used (spawning and rearing)
 - Steelhead trout
 - Chinook salmon
 - Coho salmon
 - Rainbow trout
 - Cutthroat trout

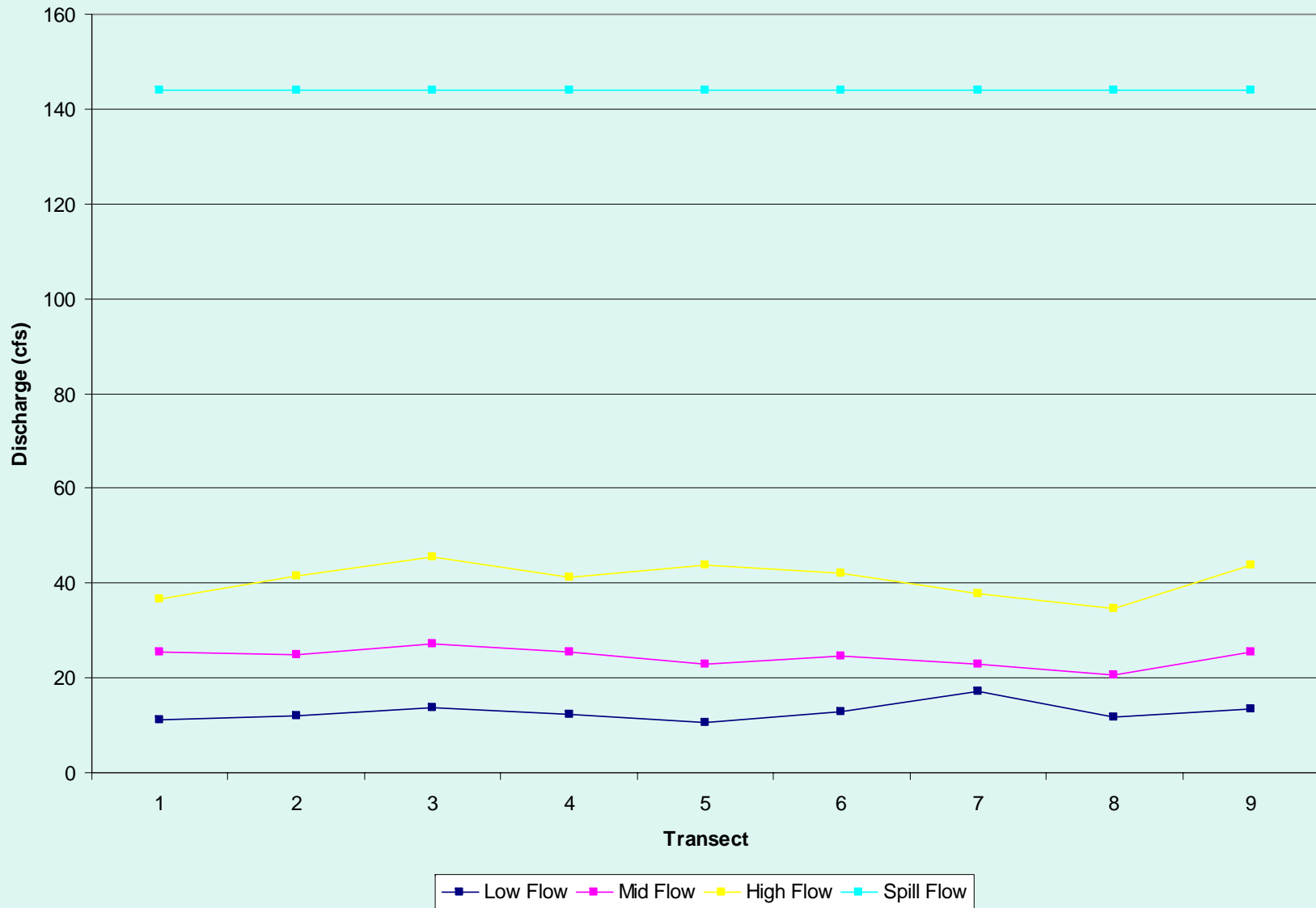
Preference Curve Utilization

- Below RM 1.03
 - Steelhead, Chinook, Coho, Rainbow and Cutthroat Trout
- Between RM 1.03 and 1.95
 - Steelhead (if $C_f=1.0$; if $C_f=0.5$, N/A)
 - Rainbow and Cutthroat Trout (?)
- RM 1.95 – 5.4
 - Rainbow Trout
 - Cutthroat Trout (?)

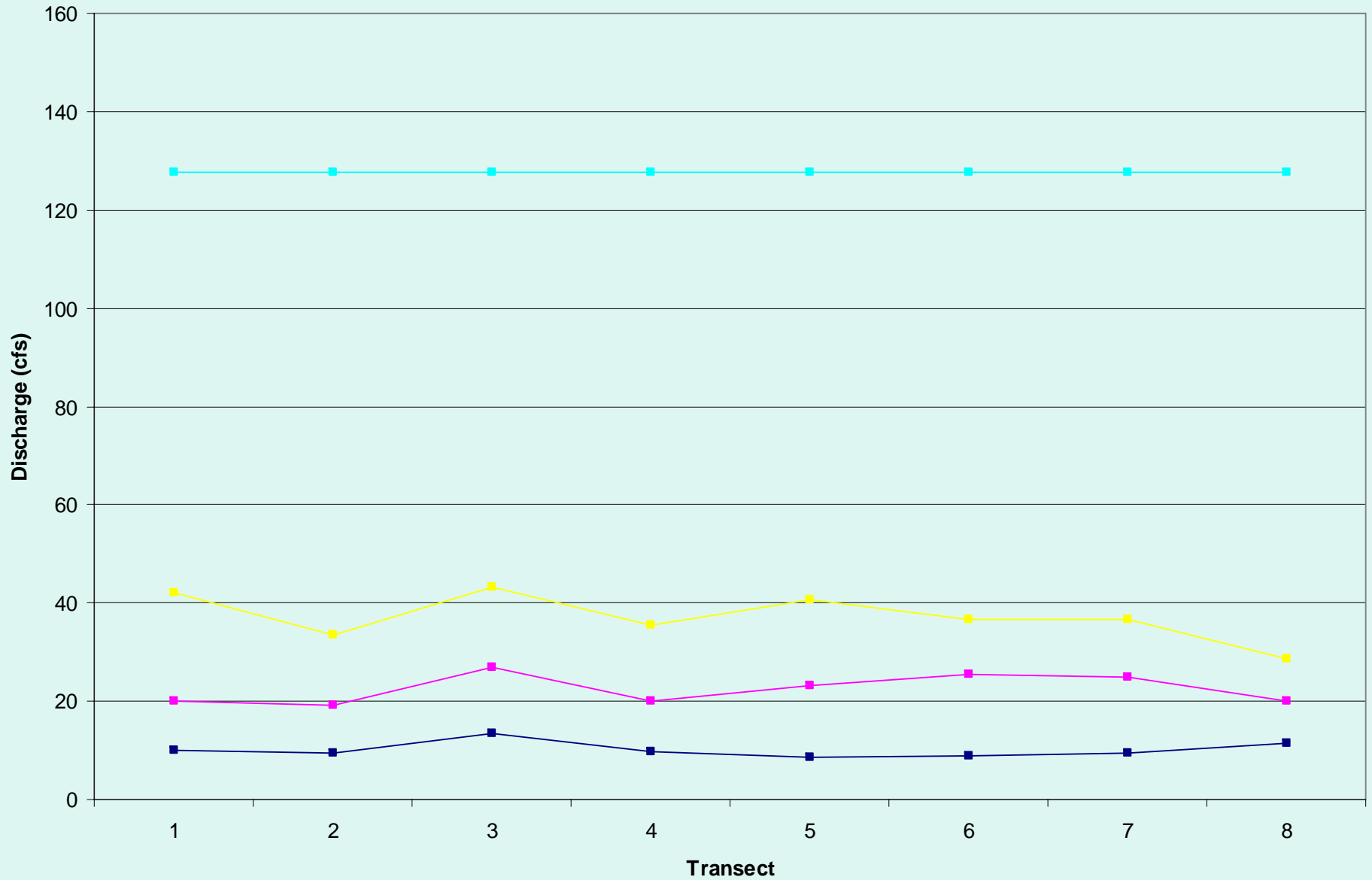
Calibration Flows

- 2004
 - Spill Releases
 - 3 cfs base flow
 - 15 – 17 cfs middle flow release
 - 33 – 35 cfs high flow release
- 2006
 - Overtopping Release
 - 130 cfs

Lake Creek Study Site 1

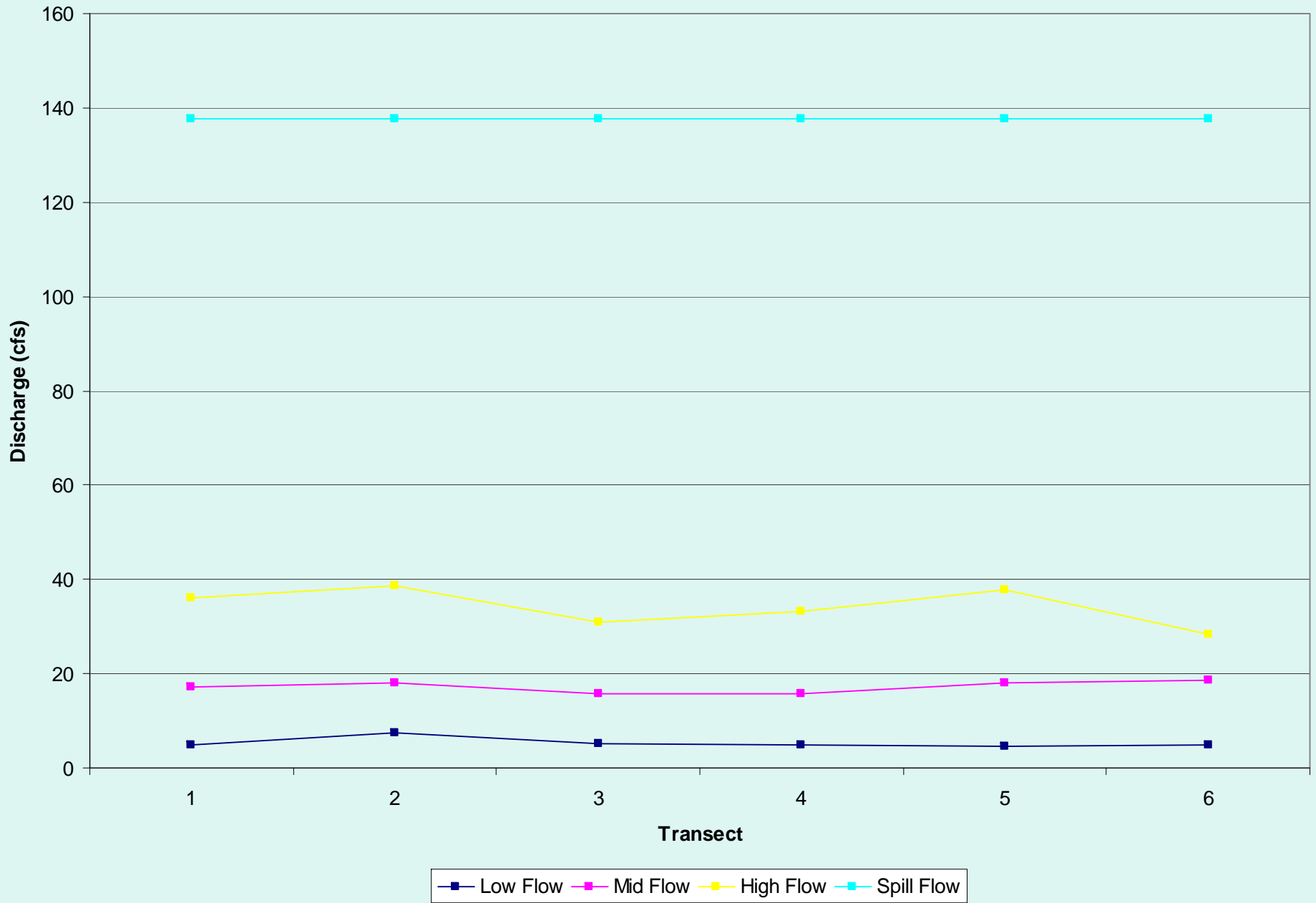


Lake Creek Study Site 2

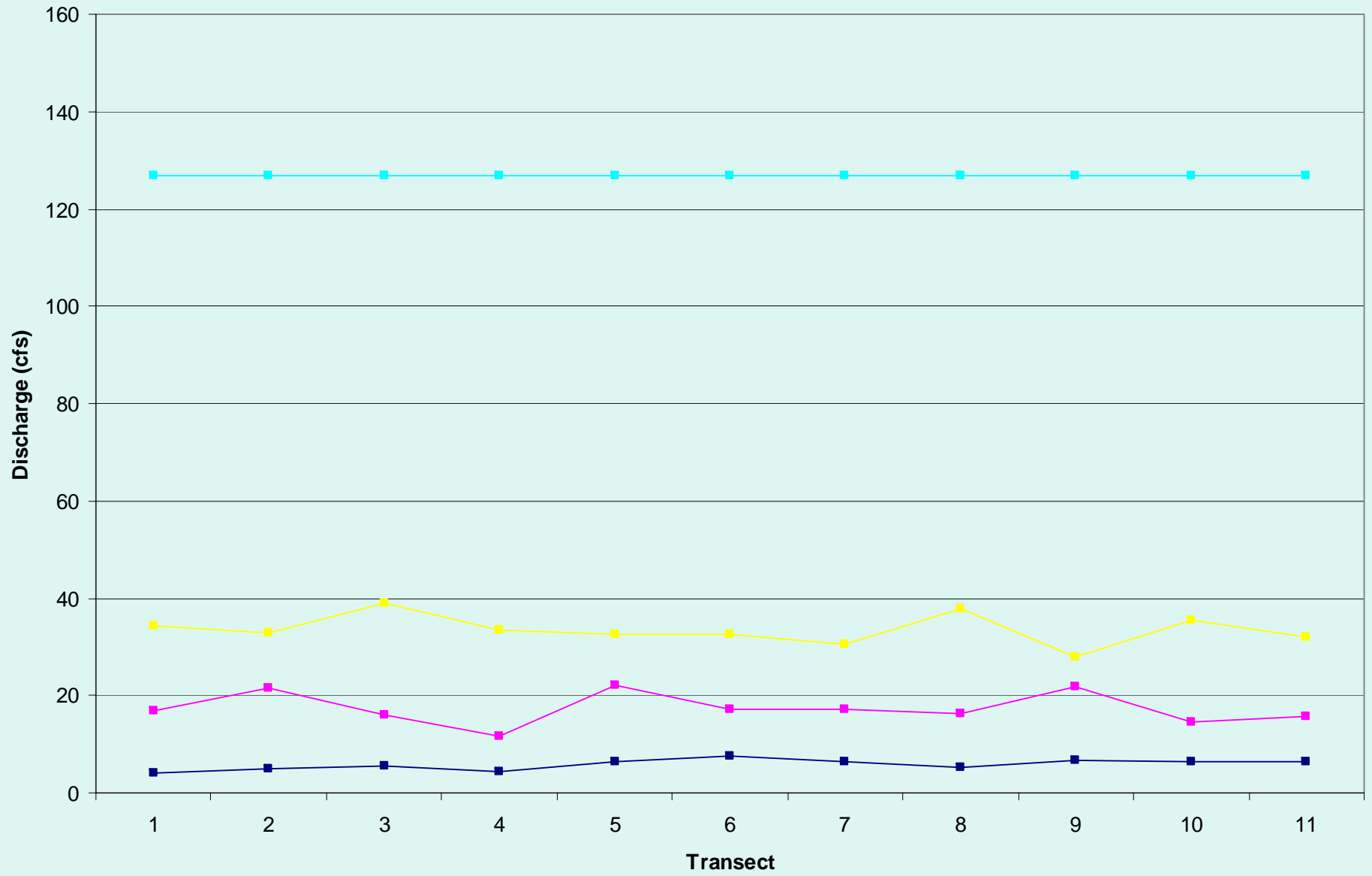


—■— Low Flow —■— Mid Flow —■— High Flow —■— Spill Flow

Lake Creek Study Site 3

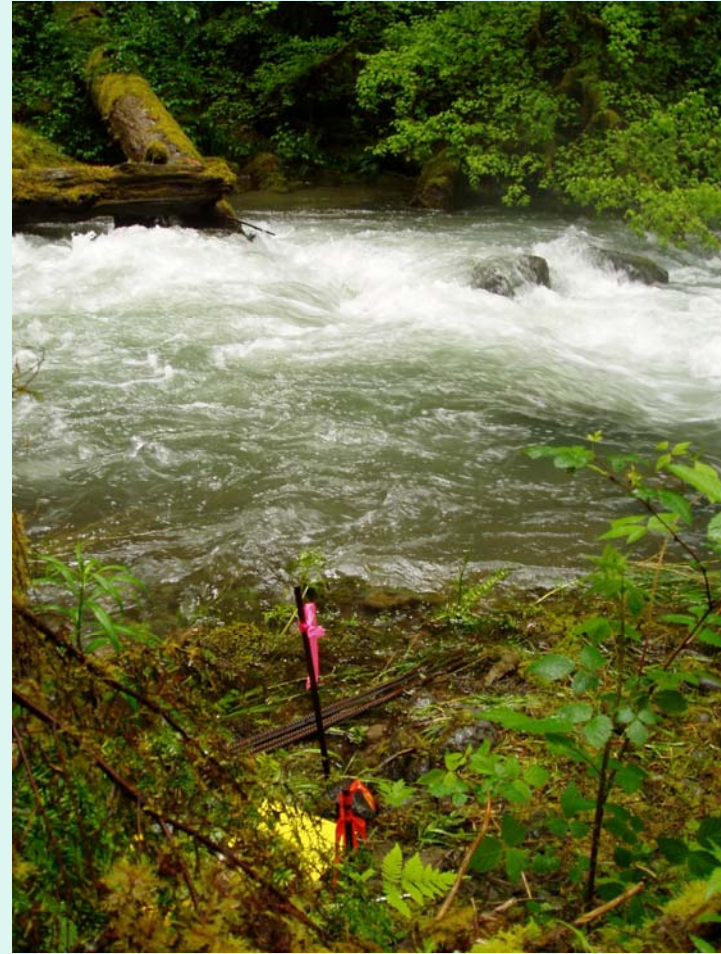


Lake Creek Study Site 4

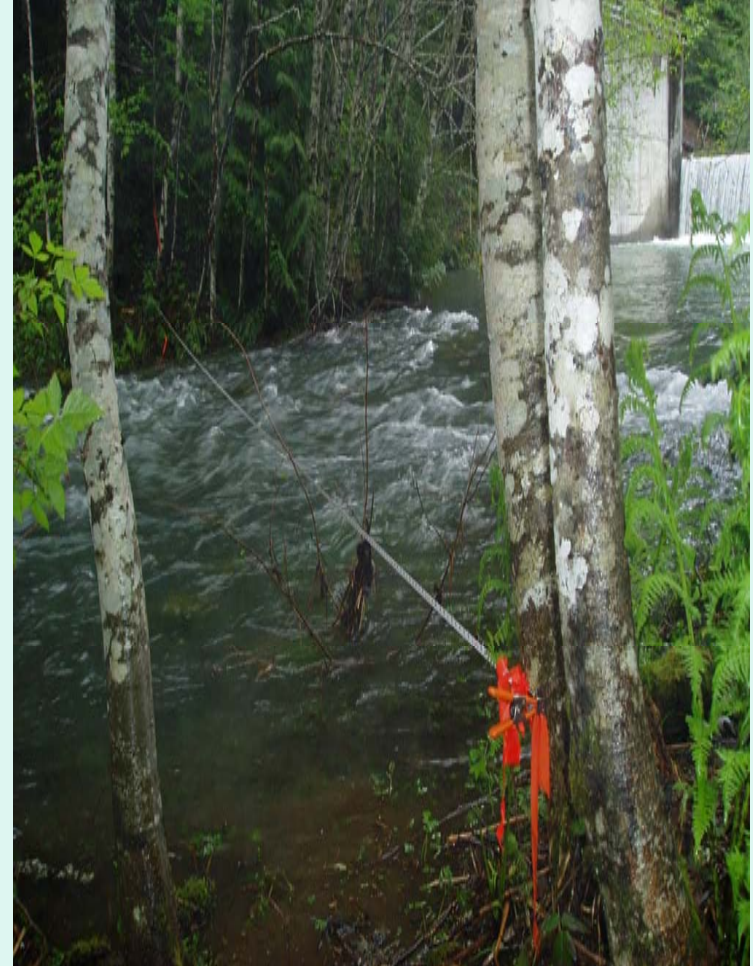


—■— Low Flow —■— Mid Flow —■— High Flow —■— Spill Flow

Study Sites 1 and 2 – 130 cfs Release



Study Sites 3 and 4 – 130 cfs Release



Next Steps

- Model Calibration (December – February)
- Input Transect Weighting
- Input Study Site Weighting
- Develop Inflow Relationship for Study Sites
- Input Preference Curves