ODFW Aquatic Inventories

Methods Designed for Compatibility

Compatible with other stream habitat inventory and classification systems

- Rosgen 1985
- Fissell 1986
- USFS Level II 1992
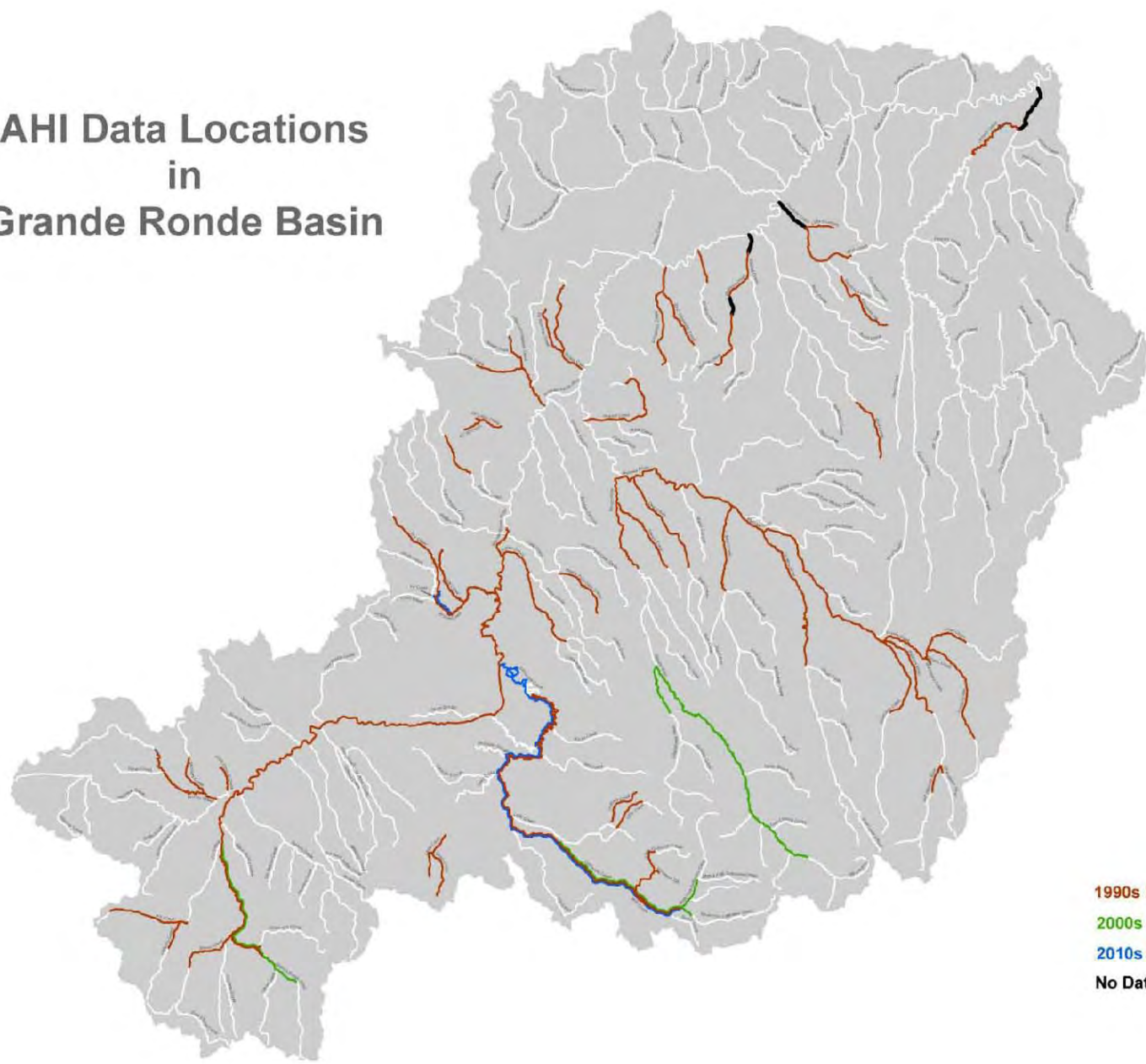- Hawkins et al. 1993

Summarized at Reach Level

- Valley width
- Channel type
- Slope
- Sinuosity
- Substrate
- Width/depth
- Eroding banks

AHI Data Locations
in
Grande Ronde Basin

1990s Data
2000s Data
2010s Data
No Date Data

2010 Fish Habitat Assessment in Catherine Creek
Kavanagh et al. 2011

Comparison of aquatic habitat 1991-1995 and 2010

- Secondary channels decreasing

- Fine sediment decreasing

- More large wood in upper sections (protocol change)

- Overall, little change

ODFW Aquatic Inventory's HabRate Model

Attributes used in HabRate for Chinook salmon life history stages
Spawning/incubation/emergence, Summer Rearing 0+, and Winter Rearing 0+

- Substrate (fines, gravel, cobble, boulders)

- Cover (undercut, large wood/100m, large boulders/100m)

- Gradient

- Channel morphology

- Interstices (substrate interstitial space)

- Pool area and residual pool depth

- Pool complexity (scour pool depth, large wood)

Catherine Creek (Reaches 5 – 11)
Chinook salmon HabRate Criteria for Summer Rearing 0+

Reach	Substrate	Pool area	Pool complexity	Cover	Gradient	Rating
5	2	1	3	2	3	2
6	2	2	3	2	3	2
7	2	2	3	2	3	2
8	2	1	3	2	3	2
9	2	2	2	1	3	2
10	2	2	3	2	3	2
11	2	2	3	2	3	2

1=poor, 2=fair, 3=good

Chinook Salmon Input Values

Spawning/incubation/emergence

Attribute	Criteria and Rating		
	3	**2**	**1**
Fines (%)	≤ 10	> 10 and ≤ 20	> 20
Gravel (%)	≥ 30	< 30 and > 15	≤ 15
Cobble (%)	≥ 20 and ≤ 40	< 20 and ≥ 10 > 40 and ≤ 70	< 10 or > 70
Pool Area (% pools)	≥ 40 and ≤ 60	< 40 and ≥ 20	< 20 or > 60
Residual Pool depth (m)	≥ 0.2		< 0.2
Gradient (%)	< 4		≥ 4

Summer rearing 0+

	3	2	1
Fines (%)	≤ 10	> 10 and ≤ 30	> 30
Gravel (%)	≥ 15	15 and ≥ 5	< 5
Cobble and boulders (%)	≥ 15	< 15 and ≥ 8	< 8
Pool Area (% pools)	≥ 40 and ≤ 60	< 40 and ≥ 20	< 20 or > 60
Pool complexity (*see below*)	3	2	1
Cover Undercut (%)	≥ 15	15 and ≥ 10	< 10
Pieces of large woody debris / 100m	≥ 20	20 and ≥ 10	< 10
Number of boulders / 100m	≥ 20	< 20 and ≥ 5	< 5
Gradient (%)	≤ 4		> 4

Aquatic Inventories Habitat Surveys
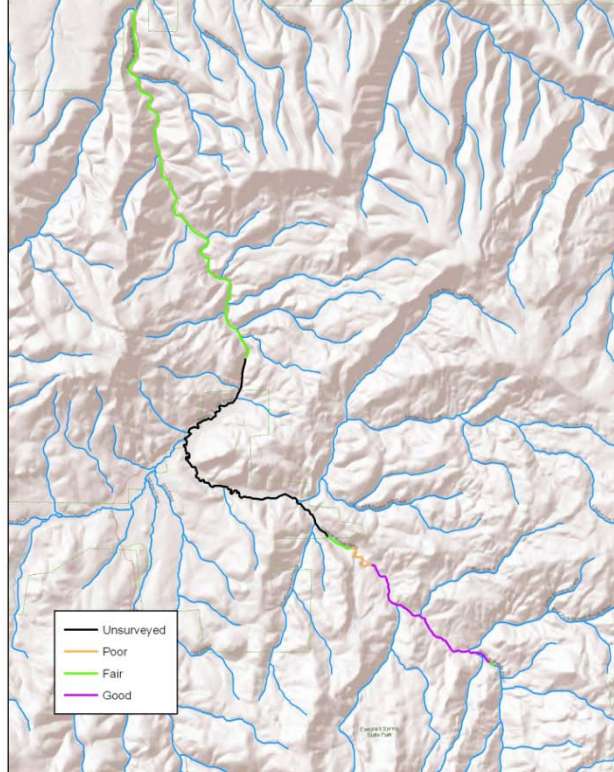# Catherine Creek HabRate Model
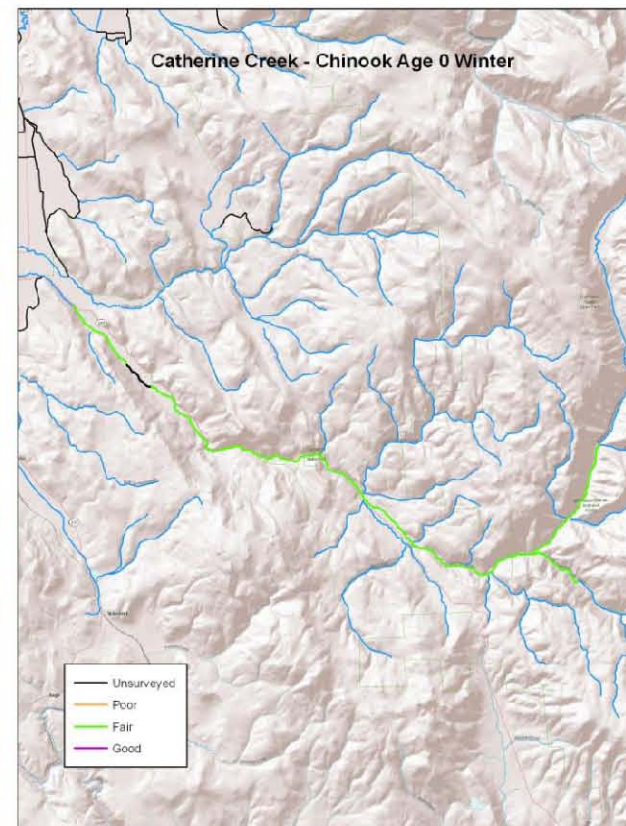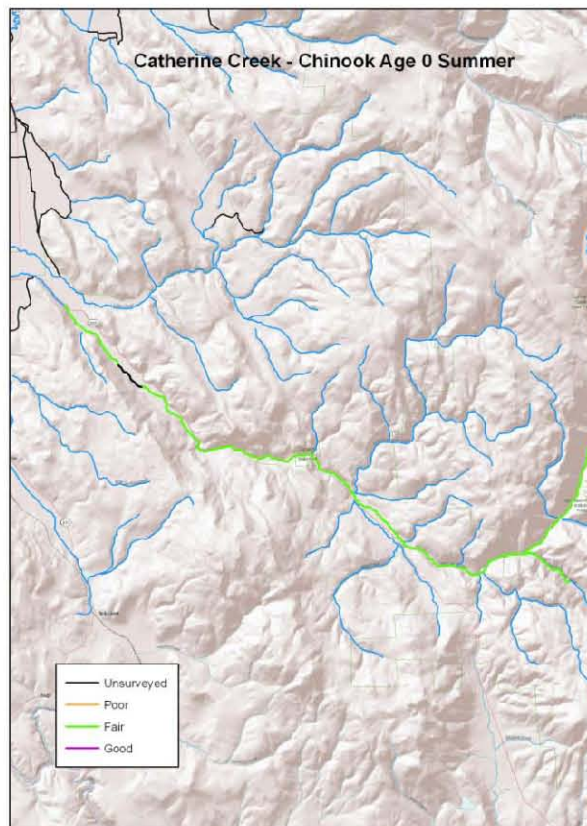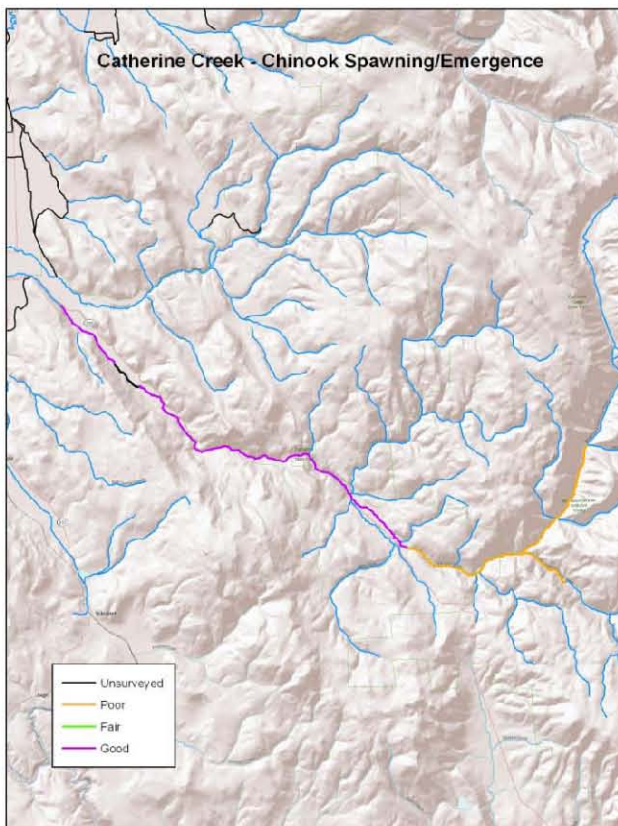
Aquatic Inventories Habitat Surveys
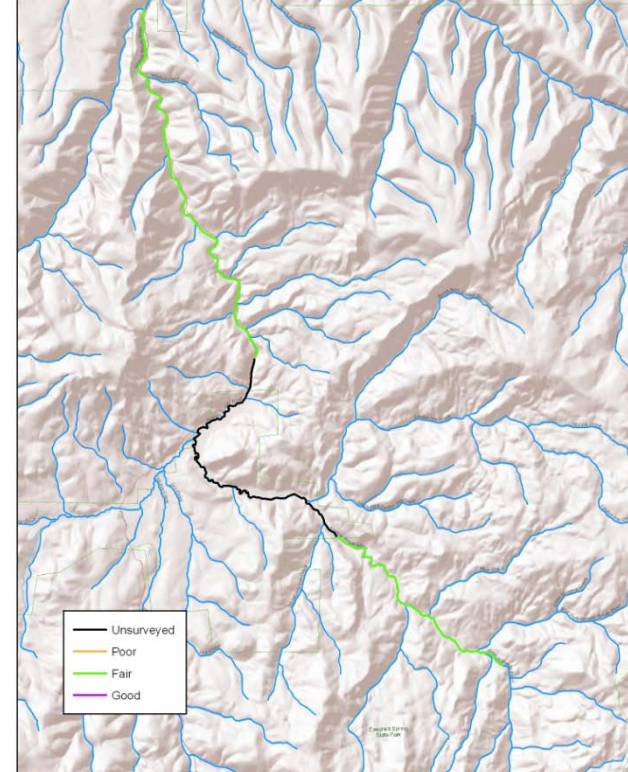# Upper Grande Ronde River
HabRate Model

CHaMP
Columbia Habitat Monitoring Program

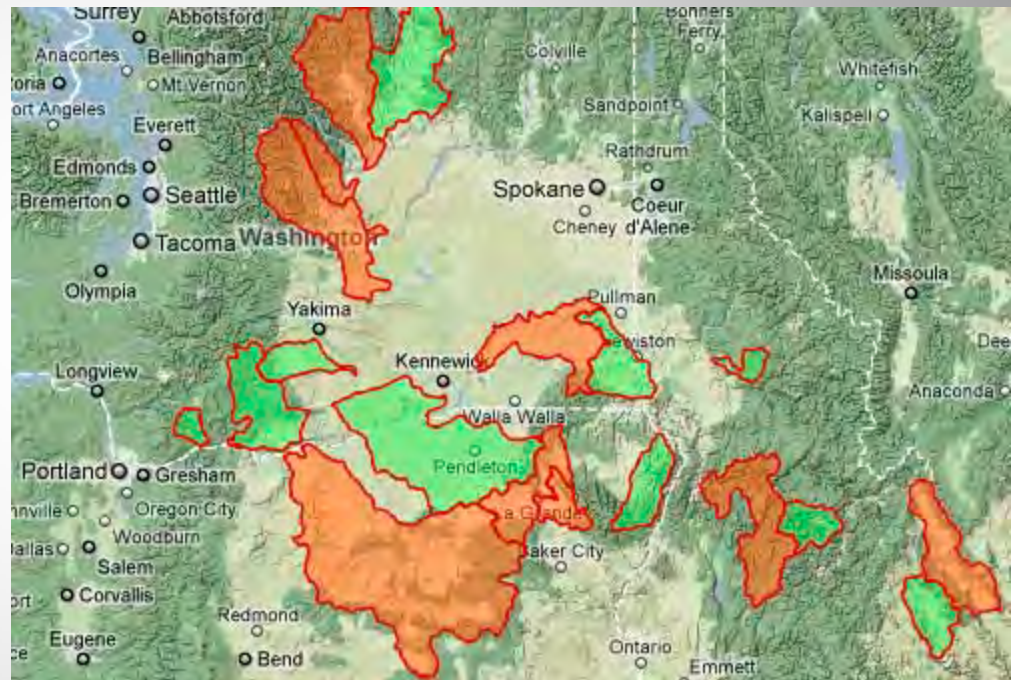http://www.champmonitoring.org

Scientific Protocol for Salmonid Habitat Surveys within the Columbia Habitat Monitoring Program (CHaMP)

The goal of CHaMP is to generate and implement a standard set of fish habitat monitoring (status and trend) methods in up to 26 watersheds across the Columbia River basin. The watersheds have been chosen to maximize the contrast in current habitat conditions and also represent a temporal gradient of expected change in condition through planned habitat actions. Surveys will be conducted in watersheds with perceived large juvenile life-stage survival gaps due to habitat impairments or that are home to existing high quality fish monitoring infrastructure. CHaMP implementation will occur on the spatial scale of the Technical Recovery Team (TRT) populations with the intention for inference on habitat quality and quantity at the fish population level.

Spatial Design – GRTS 55 Sites/year

Temporal Design

Spatial Strata
CRITFC – Chinook spawning & rearing
ODFW – Steelhead spawning & rearing

- Valley Class – Source, Transport, and Depositional
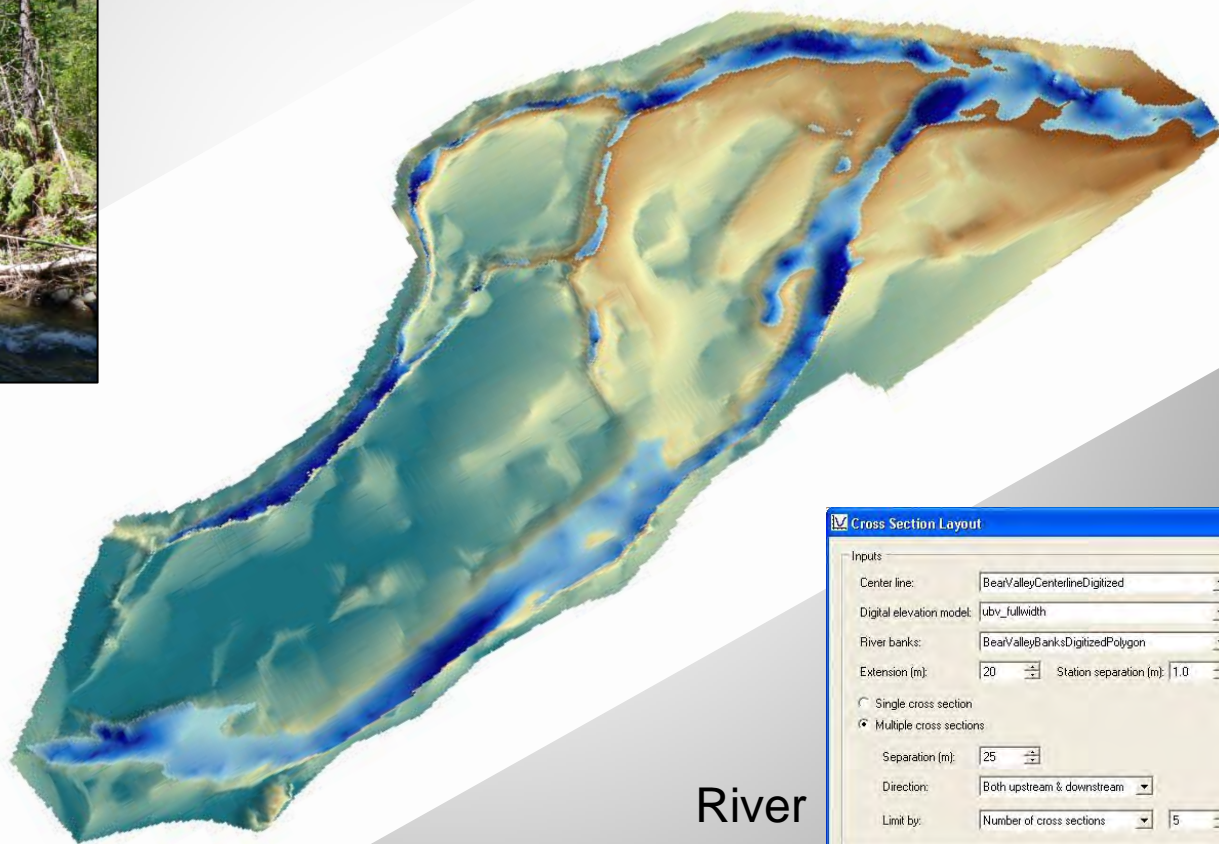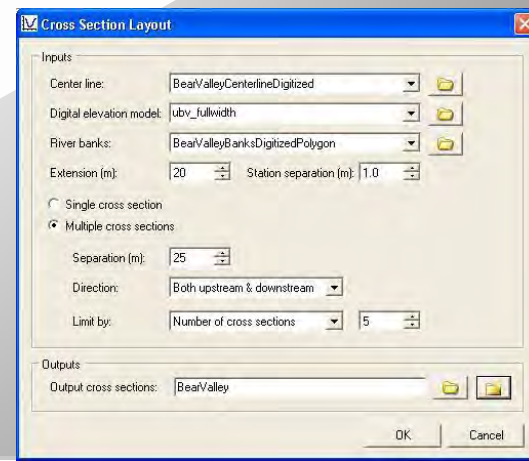
- Ownership – Private/Public
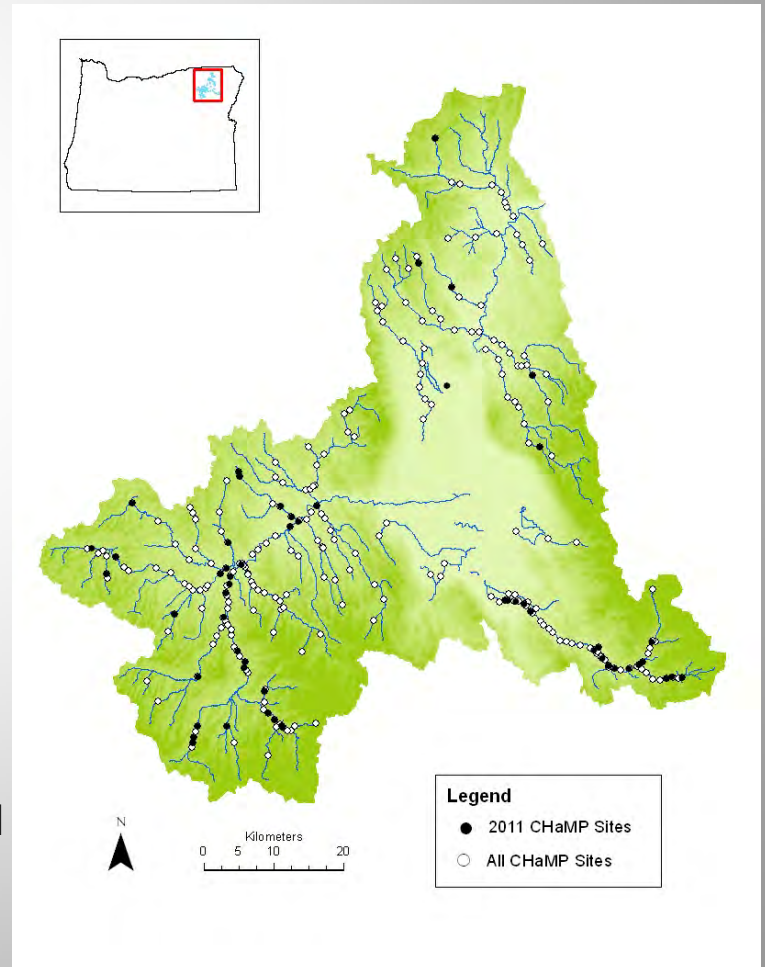
Digital Elevation Models (DEMs)

Field Survey

River
Bathymetry
Toolkit (RBT)

Cross Section Layout

Inputs

Center line: BearValleyCenterlineDigitized

Digital elevation model: ubv_fullwidth

River banks: BearValleyBanksDigitizedPolygon

Extension (m): 20   Station separation (m): 1.0

○ Single cross section
● Multiple cross sections

Separation (m): 25

Direction: Both upstream & downstream

Limit by: Number of cross sections   5

Outputs

Output cross sections: BearValley

OK   Cancel

Snorkel Surveys

- Estimates of relative abundance & density of salmonids by species & size class at channel unit scale

- Collaborating with CRITFC

- Data aggregated to reach scale (50 reaches for analysis)

Salmonids Observed

- Steelhead
- Chinook
- No Fish

0 5 10   20 Kilometers

N