East Fork Owyhee River Retains the Capacity to Support Salmon and Steelhead Runs

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Acknowledgments

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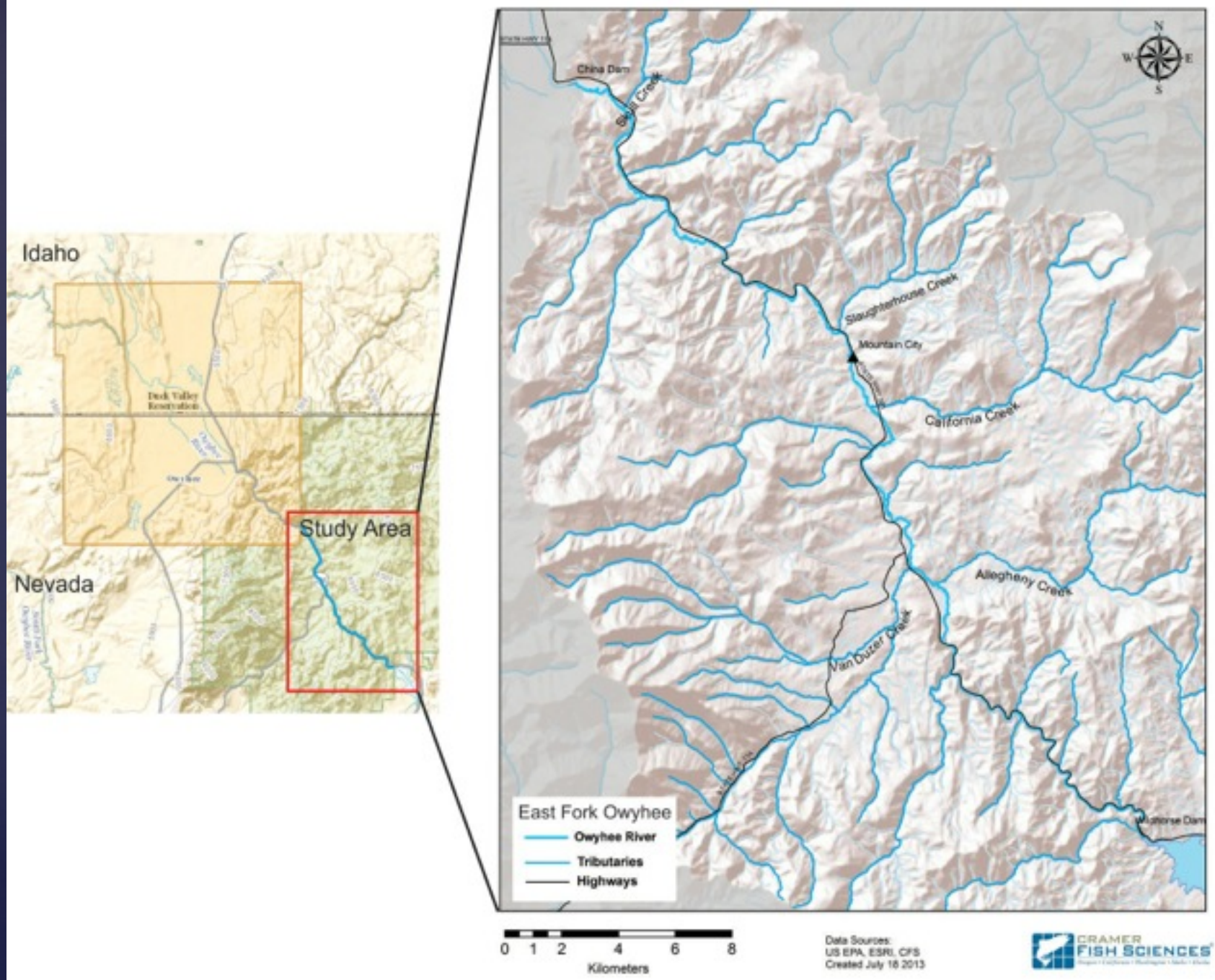
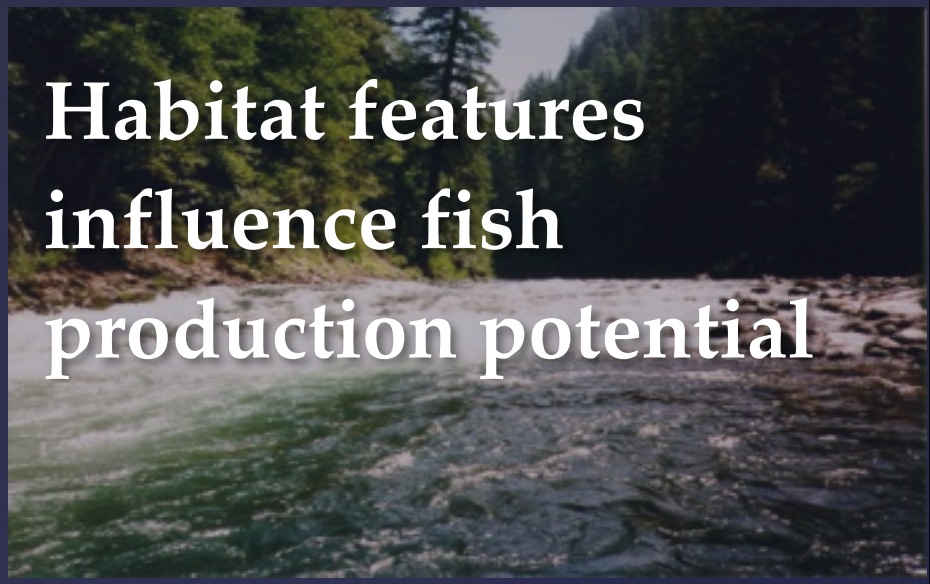
Data Source Acknowledgments

- Nevada Department of Environmental Protection
- Nevada Department of Wildlife
- Nevada Department of Water Resources
- Idaho Department of Water Resources
- Trout Unlimited

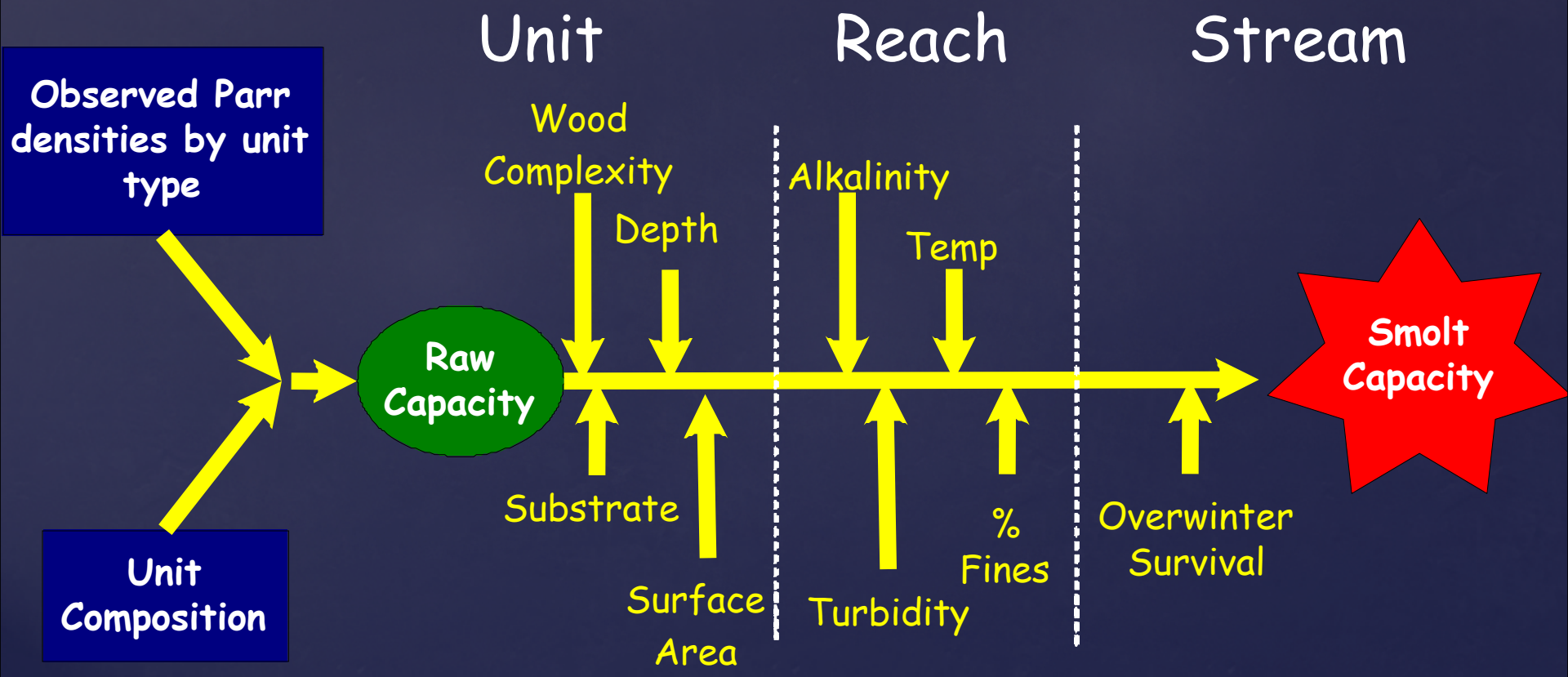
EF Owyhee Salmon and Steelhead Reintroduction

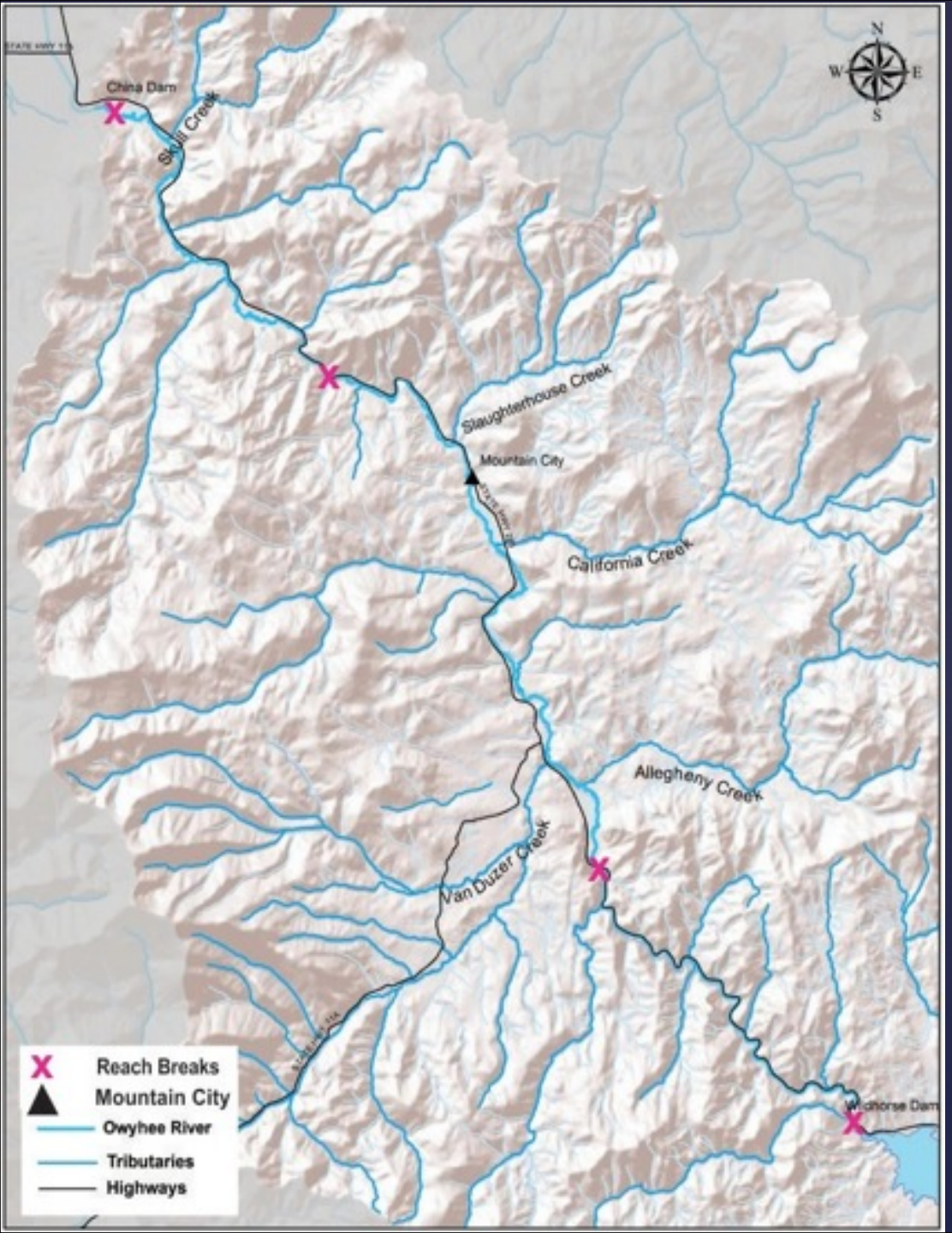

Idaho
Duck Valley Reservation
Study Area
Nevada
China Dam
Slaughterhouse Creek
Mountain City
California Creek
Allegheny Creek
Van Duzer Creek
East Fork Owyhee
Owyhee River
Tributaries
Highways
0 1 2 4 6 8
Kilometers
Data Sources:
US EPA, ESRI, CFS
Created July 18 2013
CRAMER FISH SCIENCES



Habitat features influence fish production potential

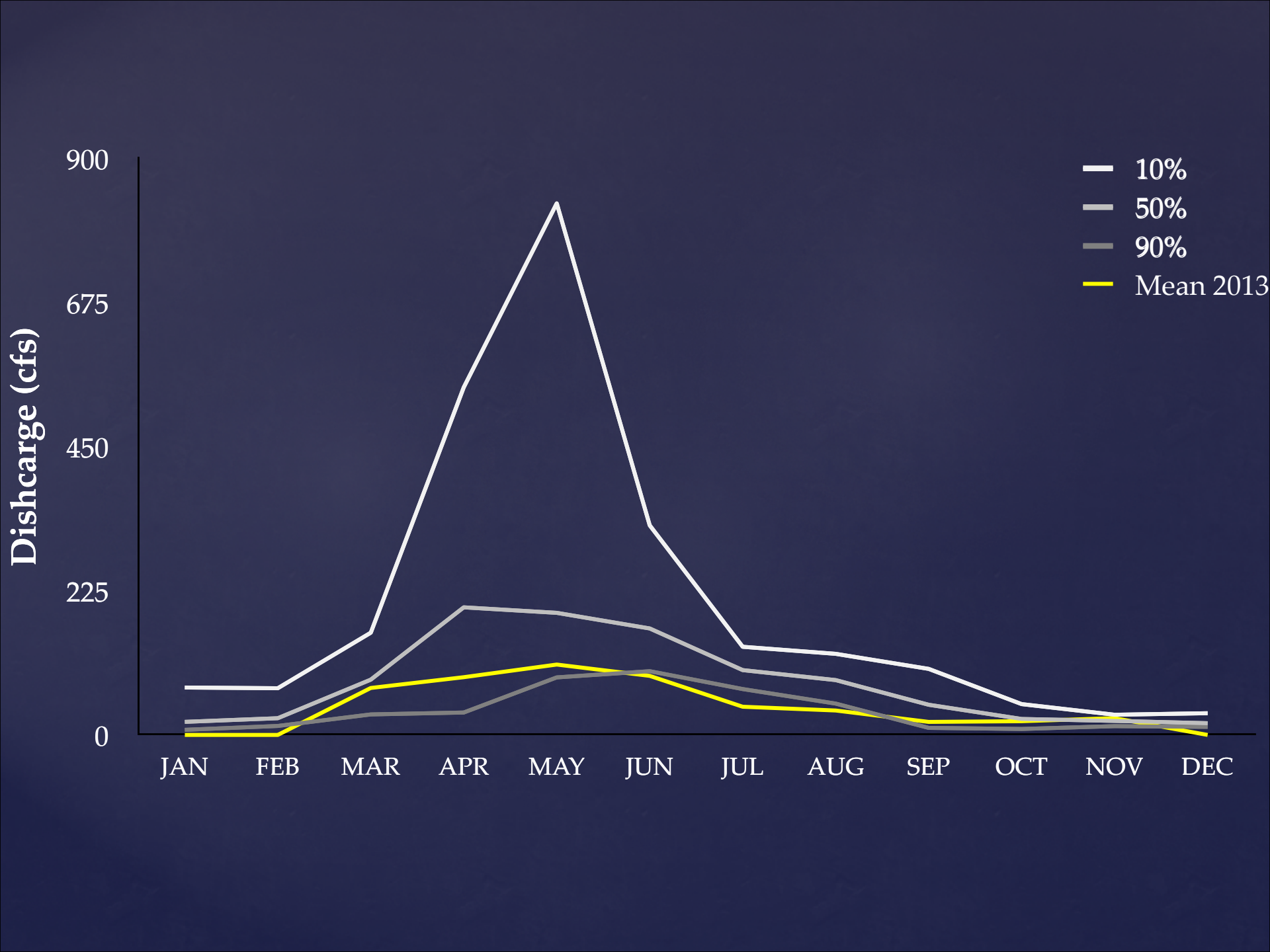
The Unit Characteristic Method

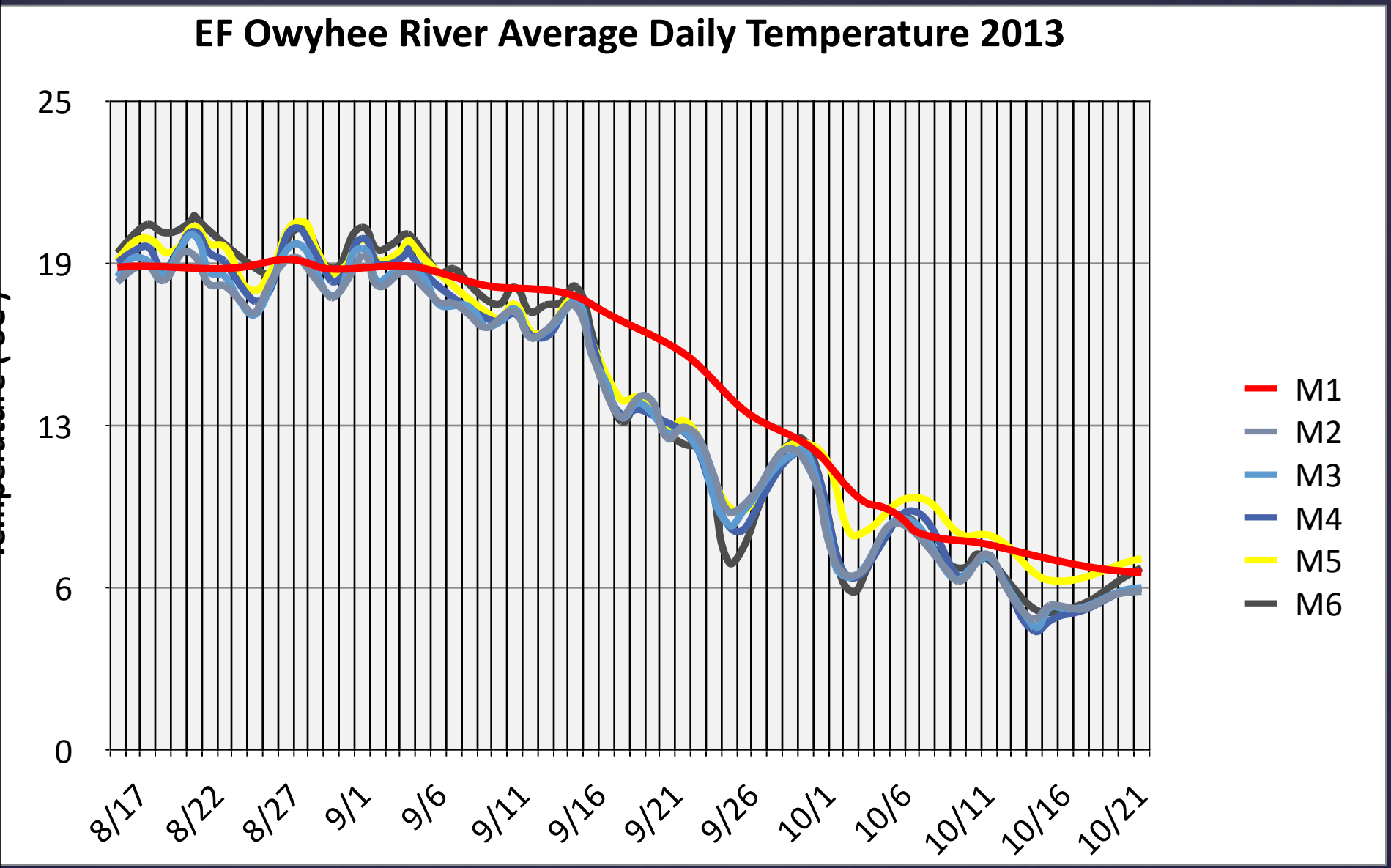


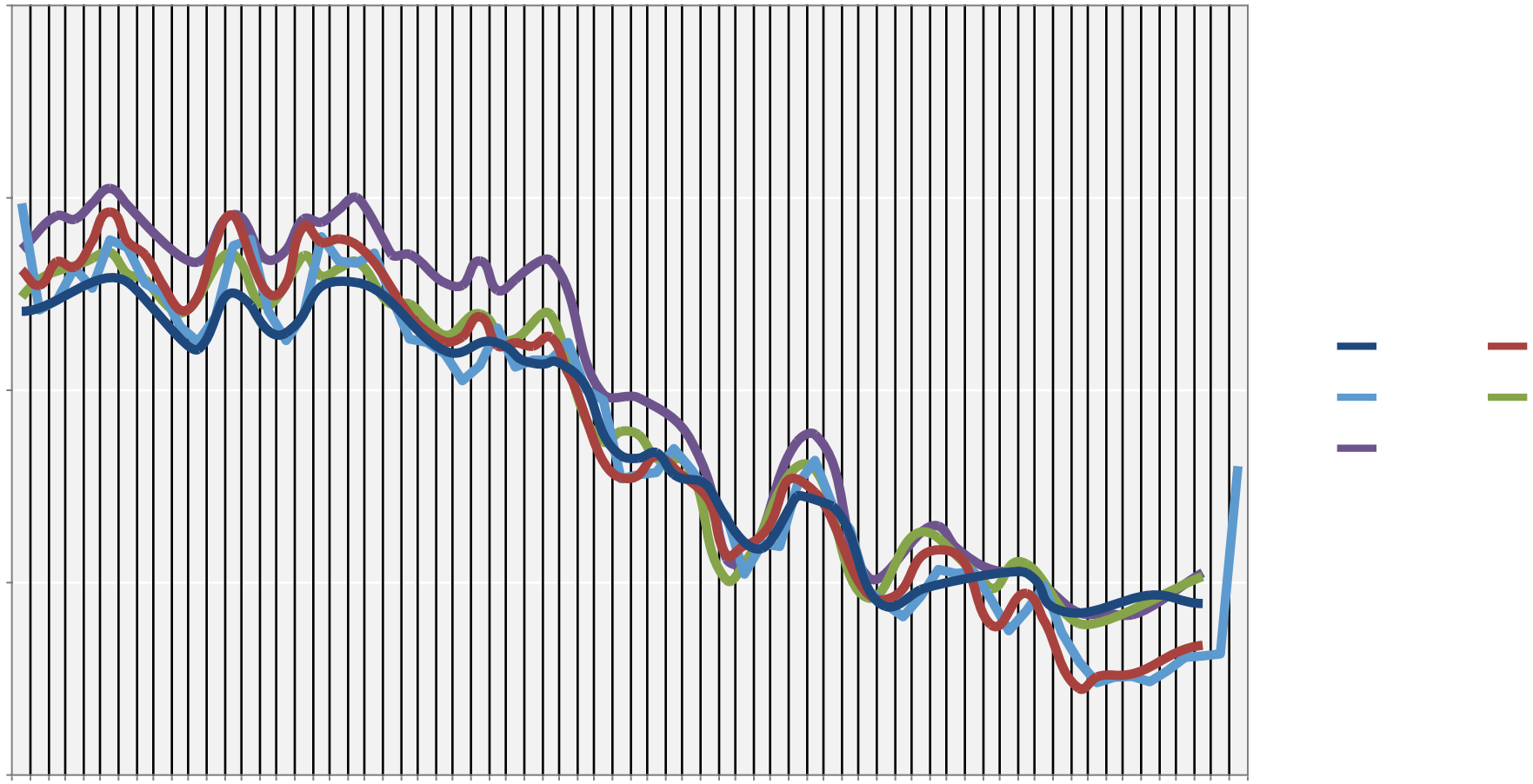


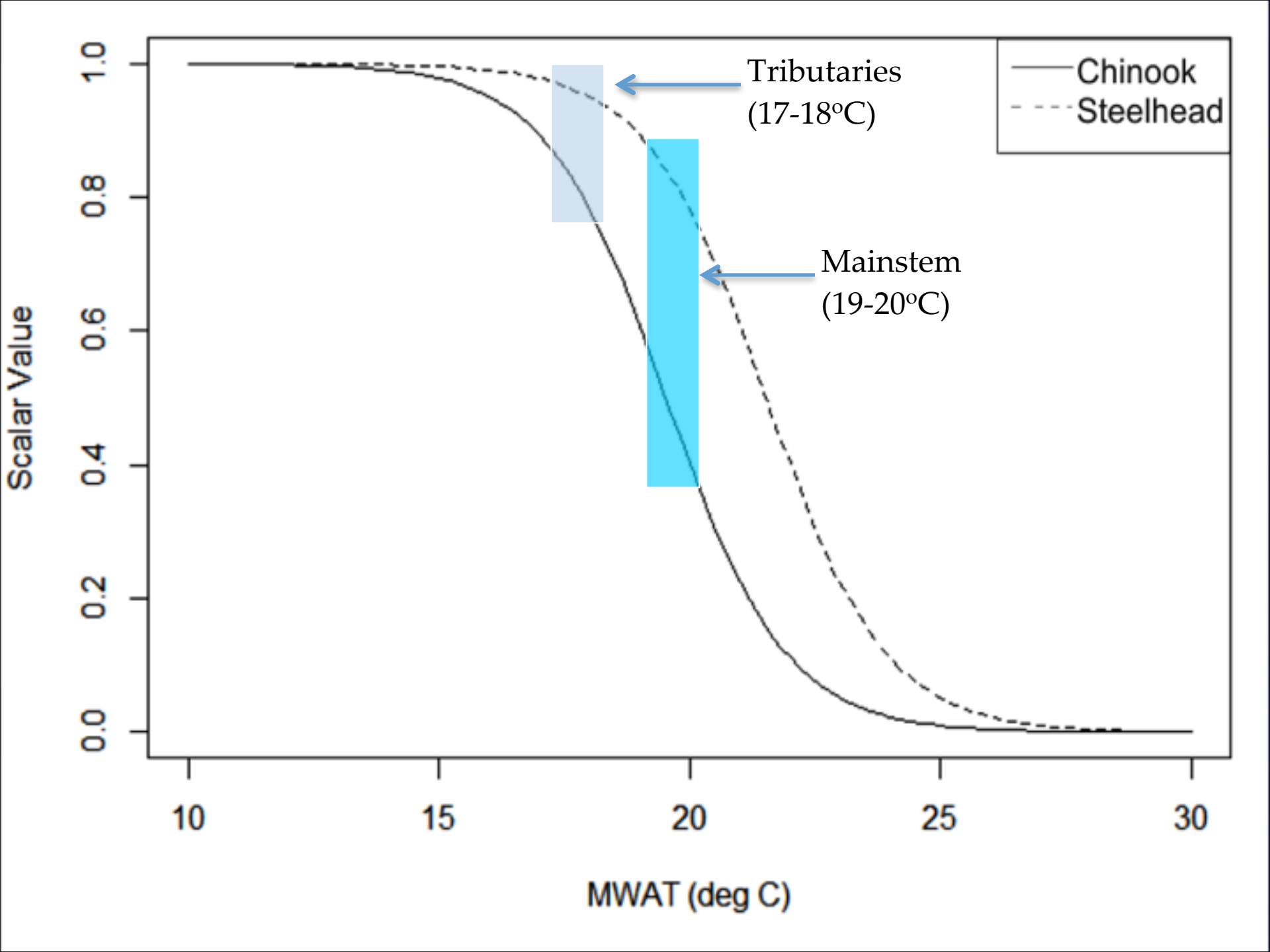
- 3 Mainstem Reaches
- 5 Tributaries
- ~15% (12 Miles) of Total Habitat Area Surveyed

Mill Creek, Summer 2013


900
675
450
225
0
Dishcarge (cfs)
10%
50%
90%
Mean 2013
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC

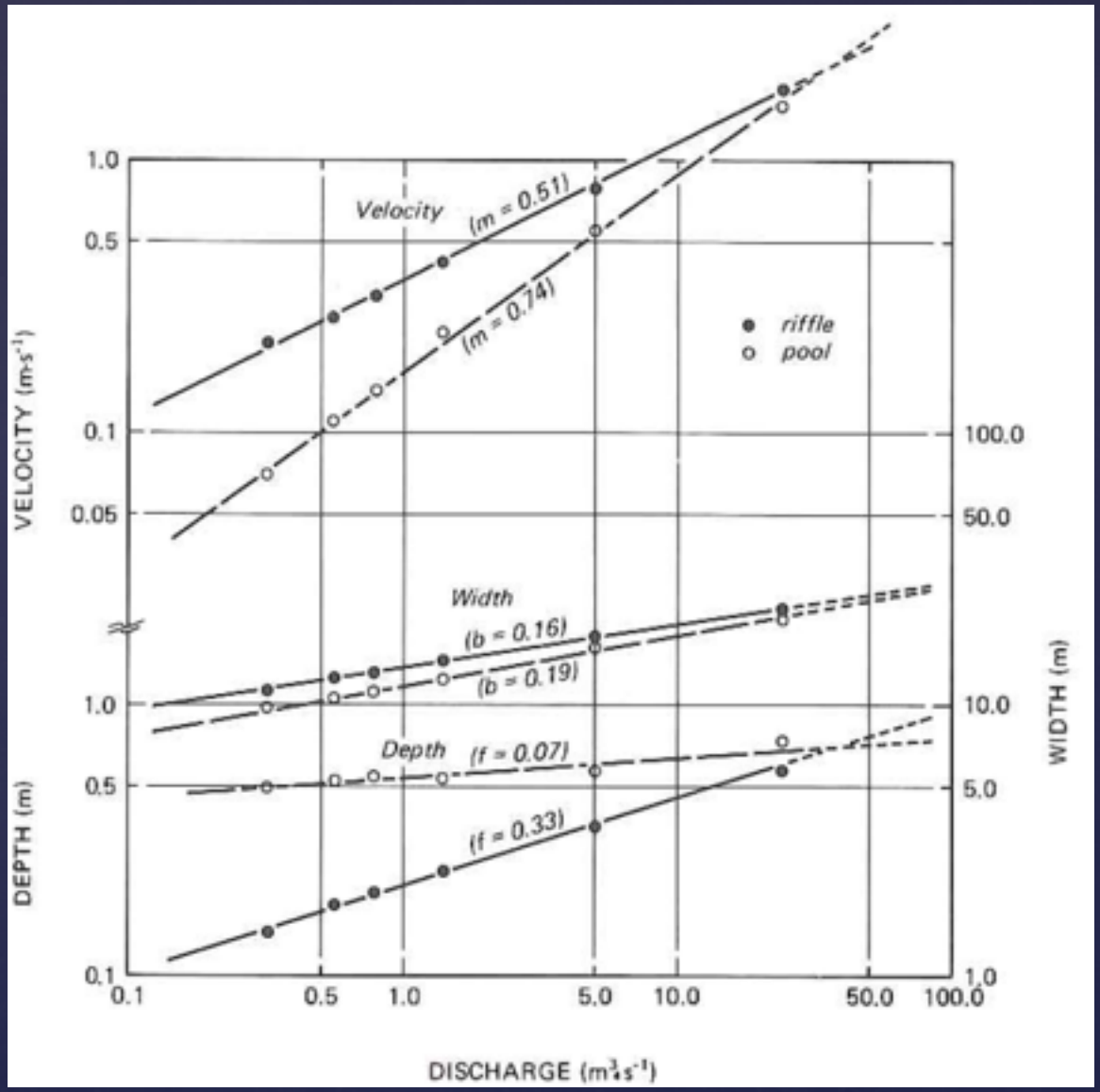

EF Owyhee River Average Daily Temperature 2013
25
19
13
6
0
8/17
8/22
8/27
9/1
9/6
9/11
9/16
9/21
9/26
10/1
10/6
10/11
10/16
10/21
M1
M2
M3
M4
M5
M6




Tributaries
(17-18°C)
Mainstem
(19-20°C)
Chinook
Steelhead
Scalar Value
0.0
0.2
0.4
0.6
0.8
1.0
10
15
20
25
30
MWAT (deg C)

Rearing Capacity		
	Redband/Steelhead	*Spring Chinook*
Mainstem 1	*17,510*	*11,440*
Mainstem 2	*6,110*	*5,280*
Mainstem 3	*2,650*	*1,820*
Skull	*1,320*	*2,760*
Slaughterhouse	*190*	*490*
Van Duzer	*130*	*320*
Total	*27,910*	*22,110*

Flow Influence on Habitat Conditions

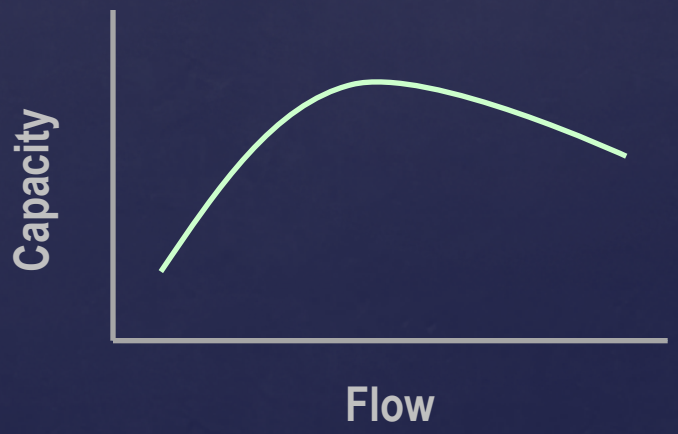


Hogan and Church (1989)

Habitat Data

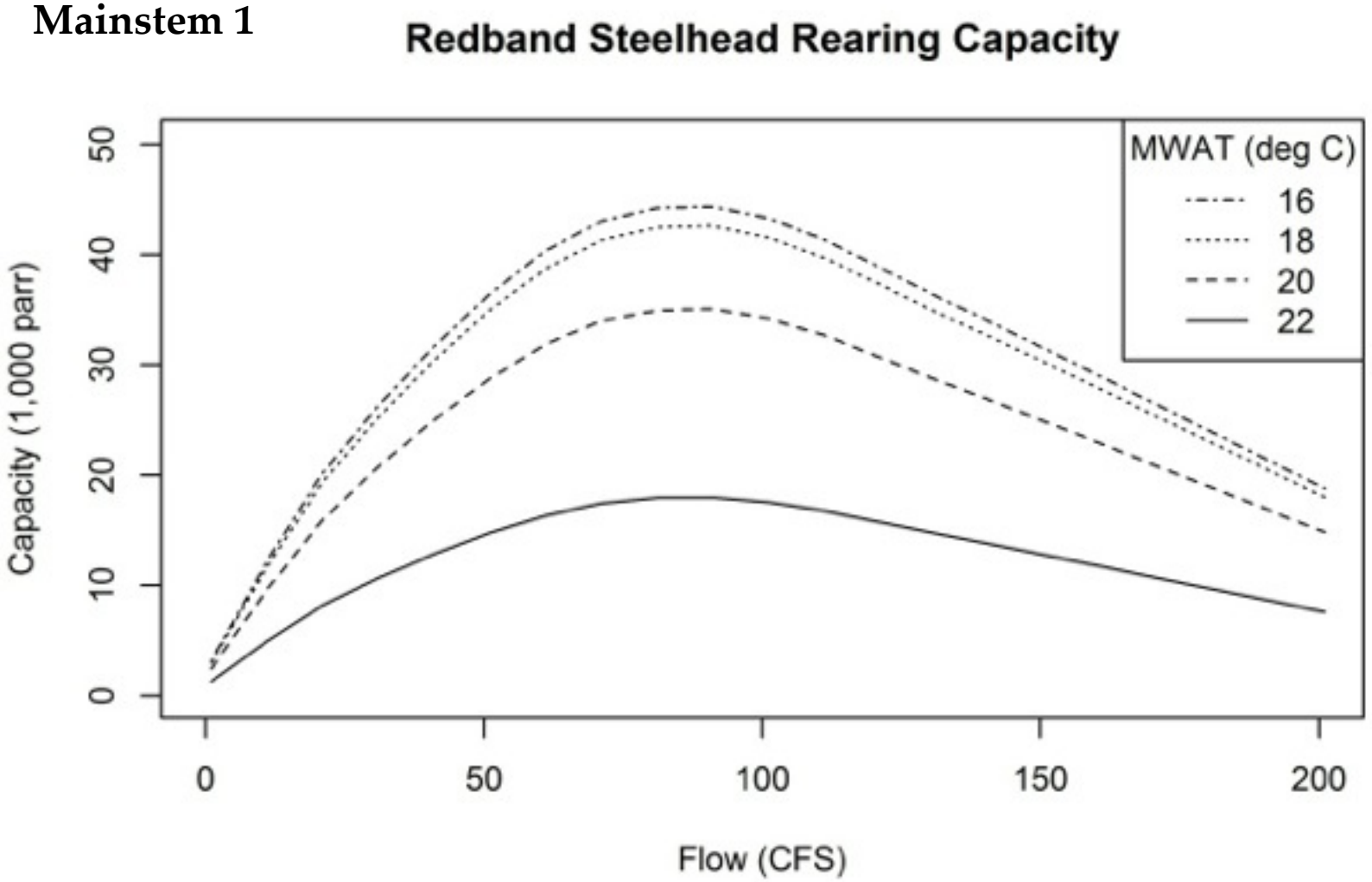
Hydraulic Model

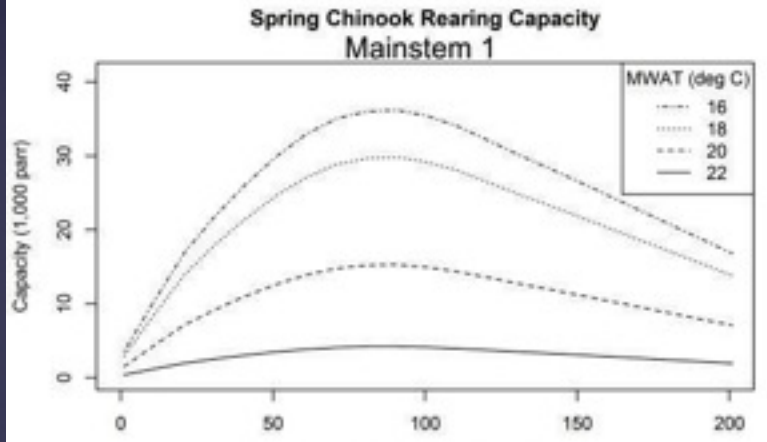
UCM

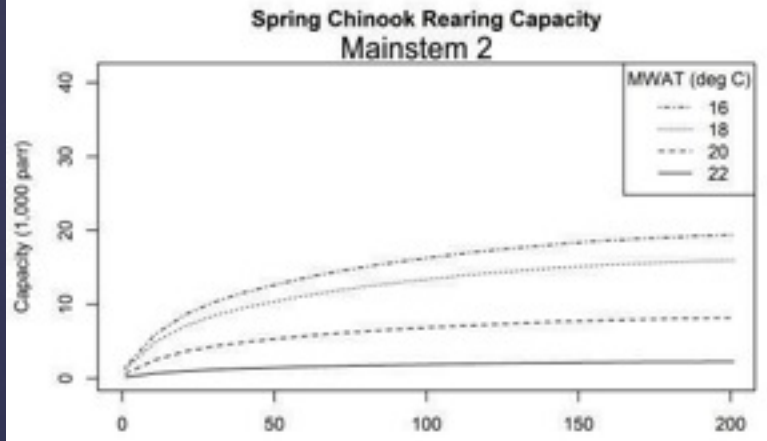


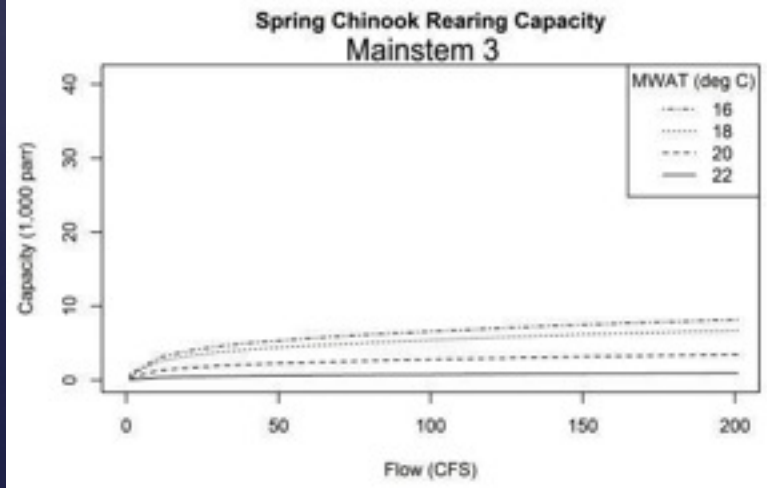
Flow Effects on Carrying Capacity

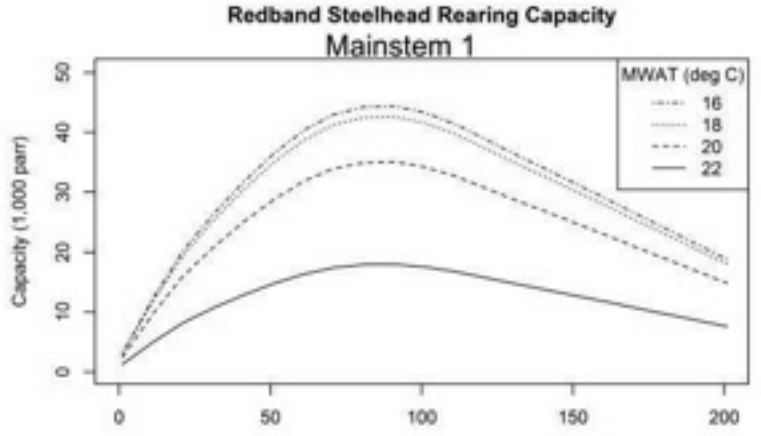
Mainstem 1

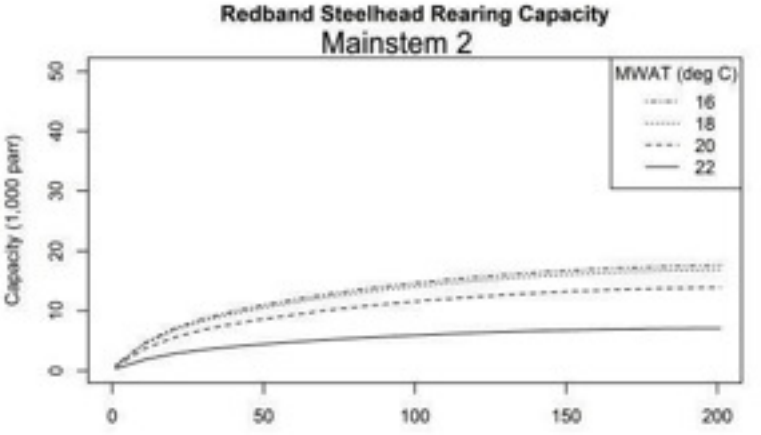


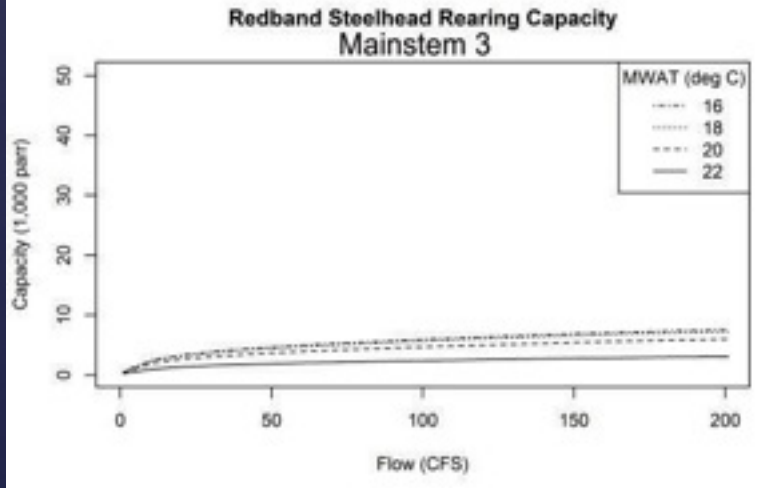

Spring Chinook Rearing Capacity
Mainstem 1
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
0
50
100
150
200


Spring Chinook Rearing Capacity
Mainstem 2
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
0
50
100
150
200


Spring Chinook Rearing Capacity
Mainstem 3
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
0
50
100
150
200
Flow (CFS)


Redband Steelhead Rearing Capacity
Mainstem 1
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
50
0
50
100
150
200


Redband Steelhead Rearing Capacity
Mainstem 2
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
50
0
50
100
150
200


Redband Steelhead Rearing Capacity
Mainstem 3
MWAT (deg C)
16
18
20
22
Capacity (1,000 parr)
0
10
20
30
40
50
0
50
100
150
200
Flow (CFS)

Water Year Effects

Wet Year		
	Redband/steelhead	Chinook
Mainstem	55,360	51,330

Dry Year (2013)		
	Redband/steelhead	Chinook
Mainstem	26,510	18,530
Tributaries	1,640	3,570

Habitat Limiting Factors

- **High summer water temperature**
- **Low summer flow**
- **High volume of fine sediments**
- **Impaired water quality**
- **Passage impediments**

Ongoing Research/Assessment

- Resident redband trout genetics
- Evidence of migratory life-histories
- Population abundance of native redband trout
- Continued temperature monitoring
- Tributary flow monitoring

Photo Credit: http://idahoalpinezone.com