

Yakima River Adult Steelhead Life History Characteristics

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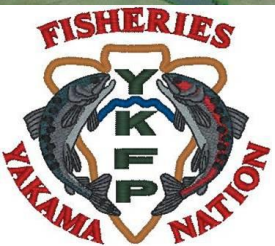


Photo: Zack Mays

Project acknowledgements:

Alex Conley-YFWRB
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Thomas Arden-USBR
Tim Ressigue-YN
Todd Newsome-YN
Yuki Reiss-YFWRB
Zack Mays-WDFW

Yakima River Summer Run Steelhead

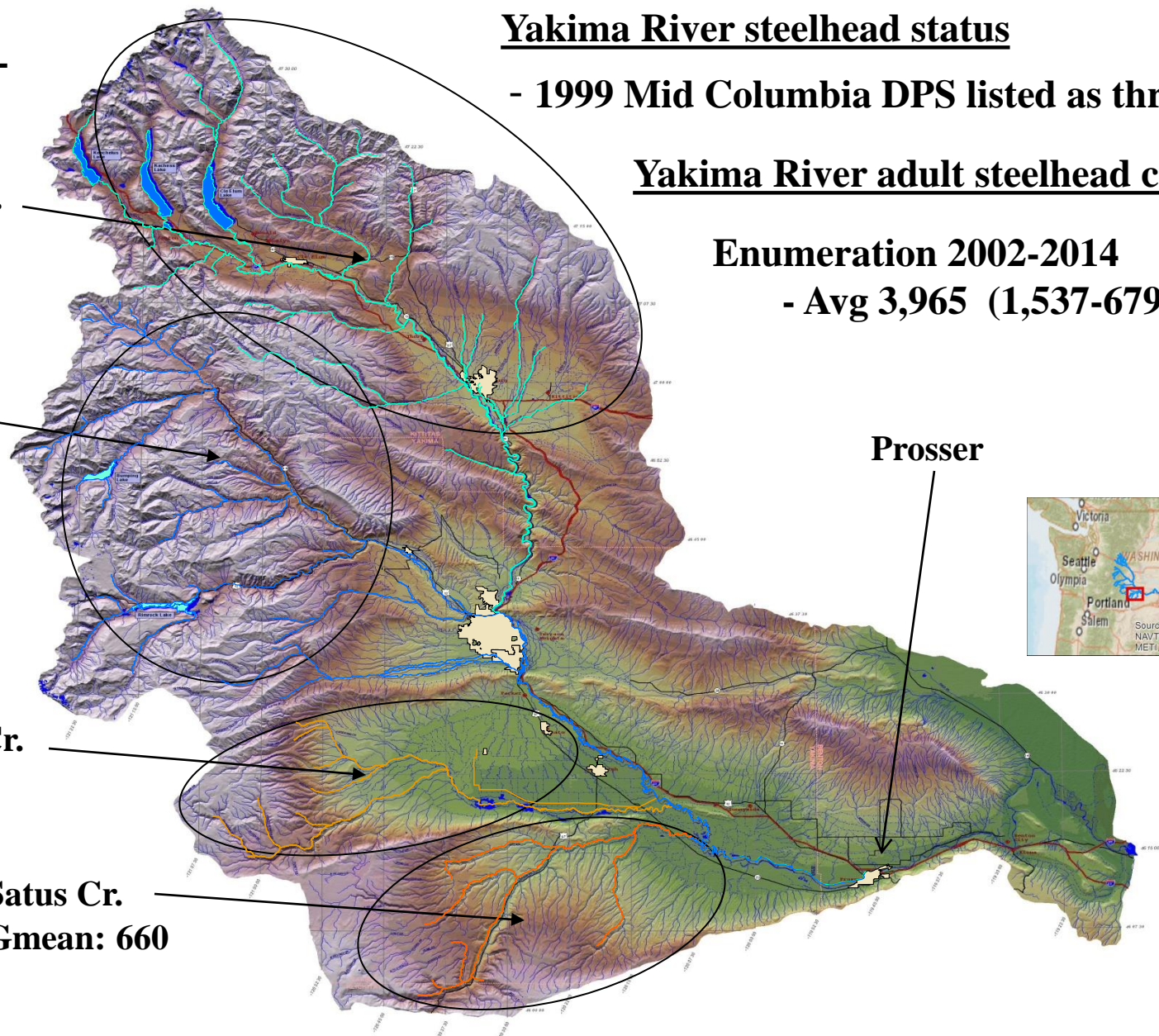
Populations

upper Yakima R.
Gmean: 151

Naches R.
Gmean: 840

Toppenish Cr.
Gmean: 599

Satus Cr.
Gmean: 660



Yakima River steelhead status

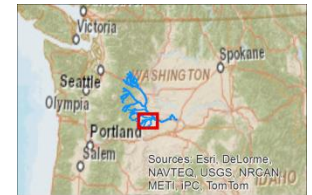
- 1999 Mid Columbia DPS listed as threatened

Yakima River adult steelhead counts

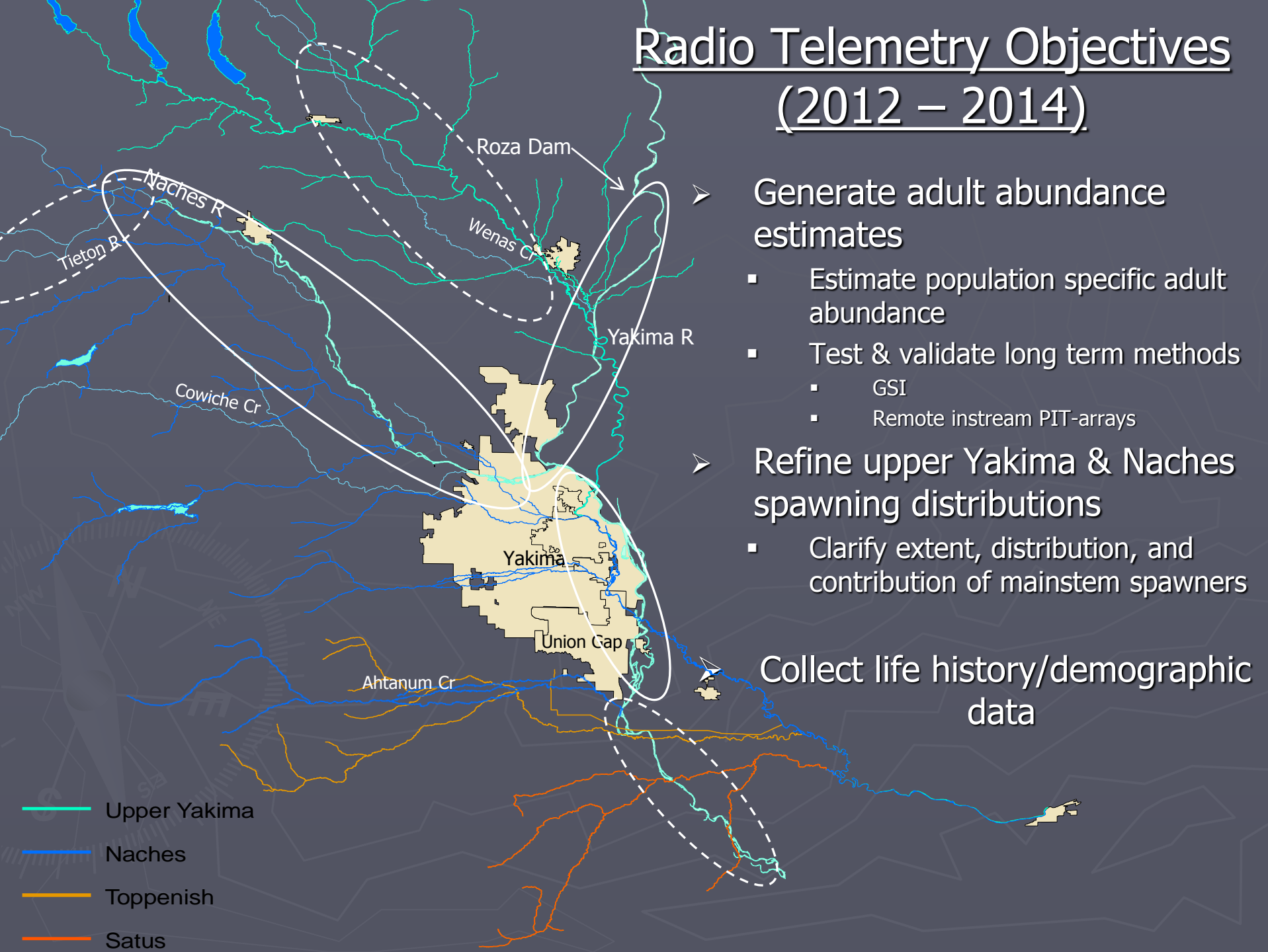
Enumeration 2002-2014

- Avg 3,965 (1,537-6796)

Prosser

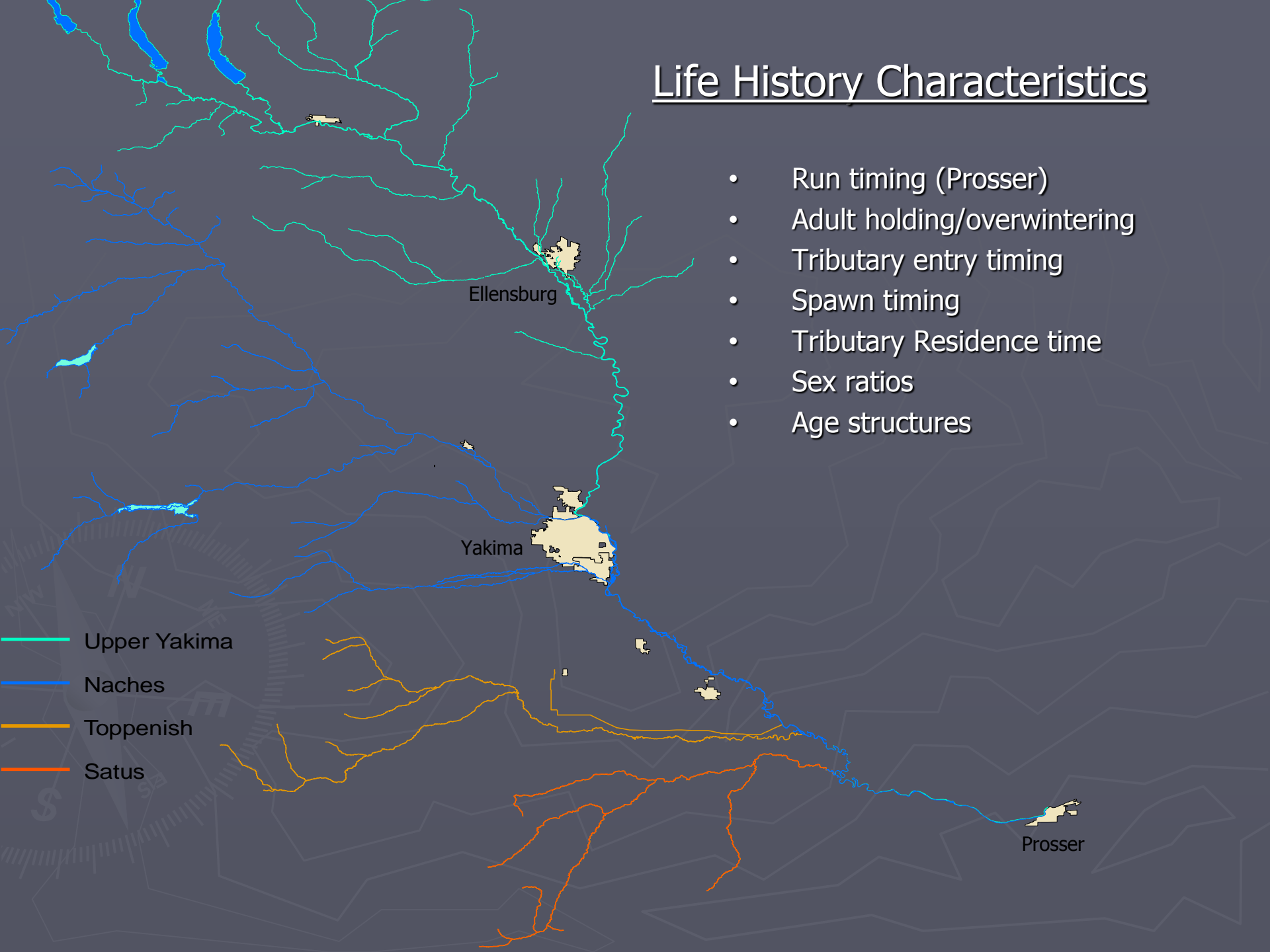


Radio Telemetry Objectives (2012 – 2014)

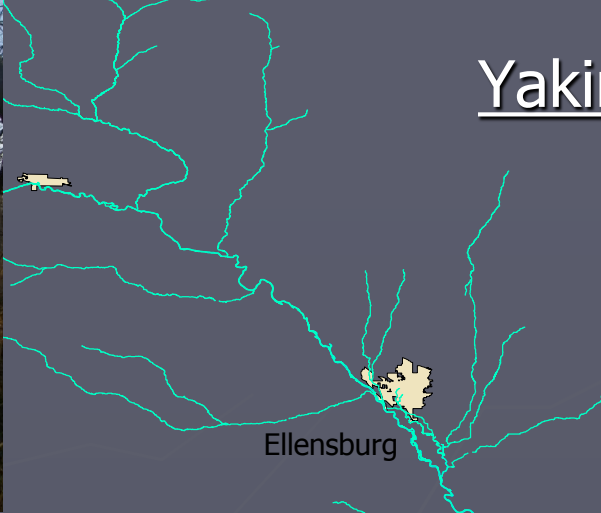


Life History Characteristics

- Run timing (Prosser)
- Adult holding/overwintering
- Tributary entry timing
- Spawn timing
- Tributary Residence time
- Sex ratios
- Age structures

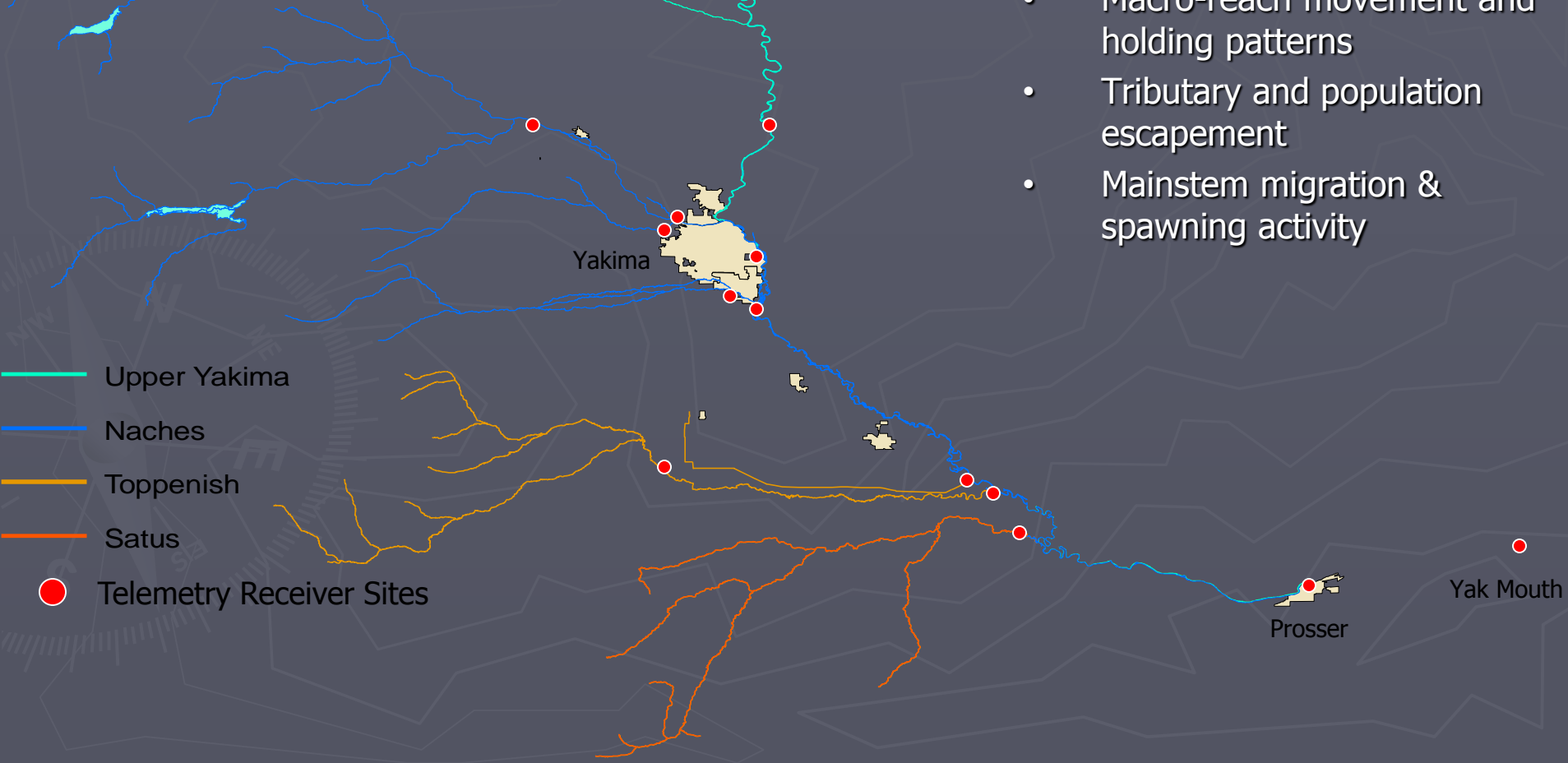


Yakima River Telemetry Study: Detection Methods



Fixed site receivers:

- Placed for monitoring:
 - Macro-reach movement and holding patterns
 - Tributary and population escapement
 - Mainstem migration & spawning activity



Yakima River Telemetry Study: Detection Methods

❖ Mobile Tracking:

➤ Planes & Helicopters

- Entire Basin
- Natal/headwater spawning reaches

➤ Boats

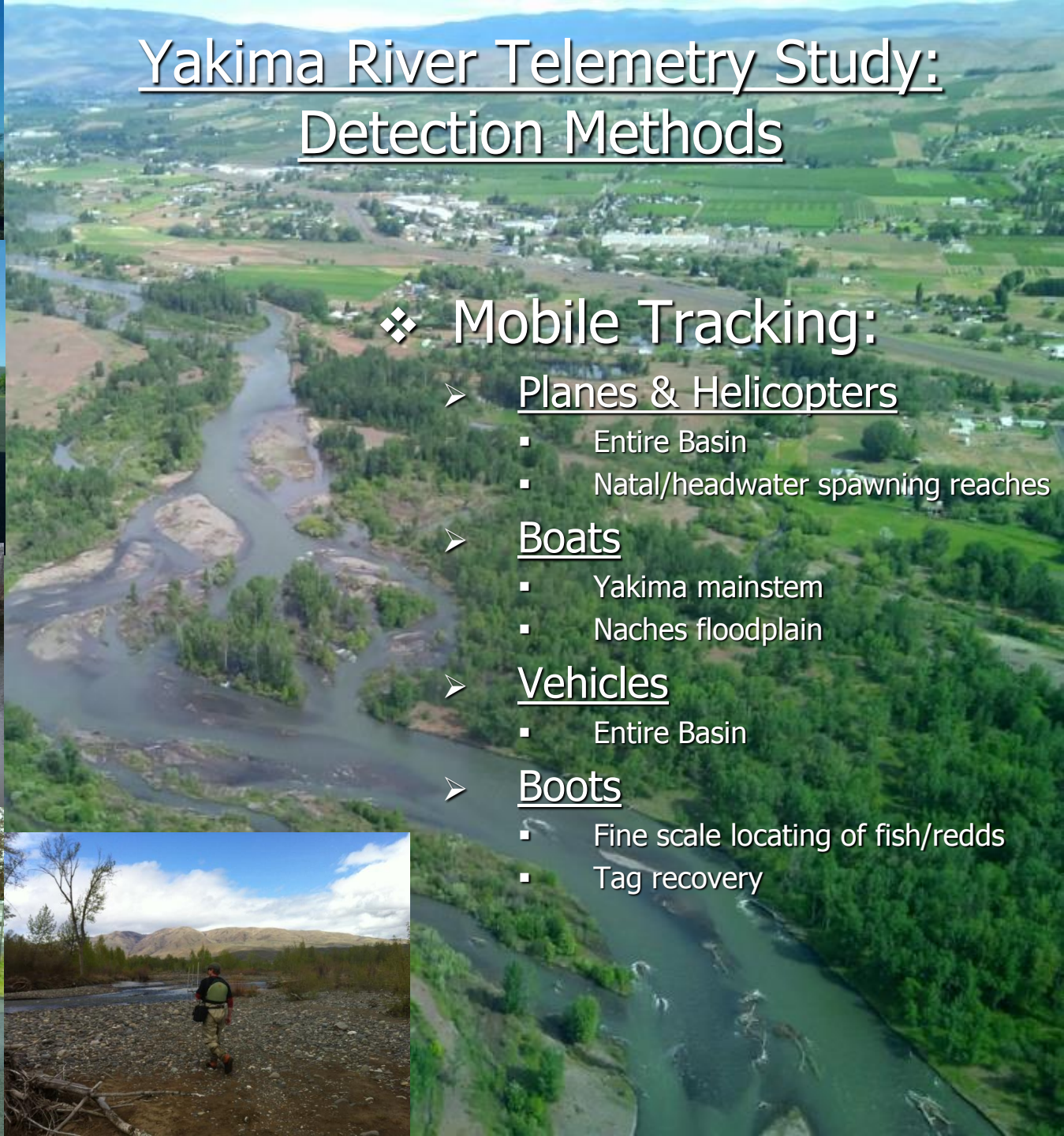
- Yakima mainstem
- Naches floodplain

➤ Vehicles

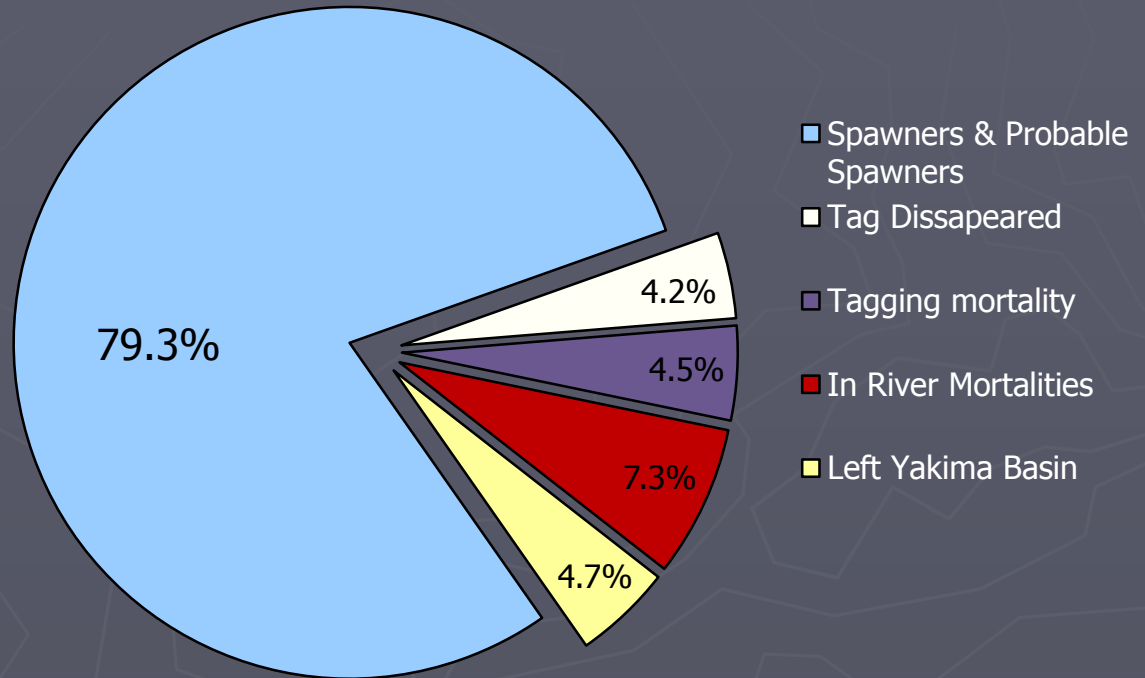
- Entire Basin

➤ Boots

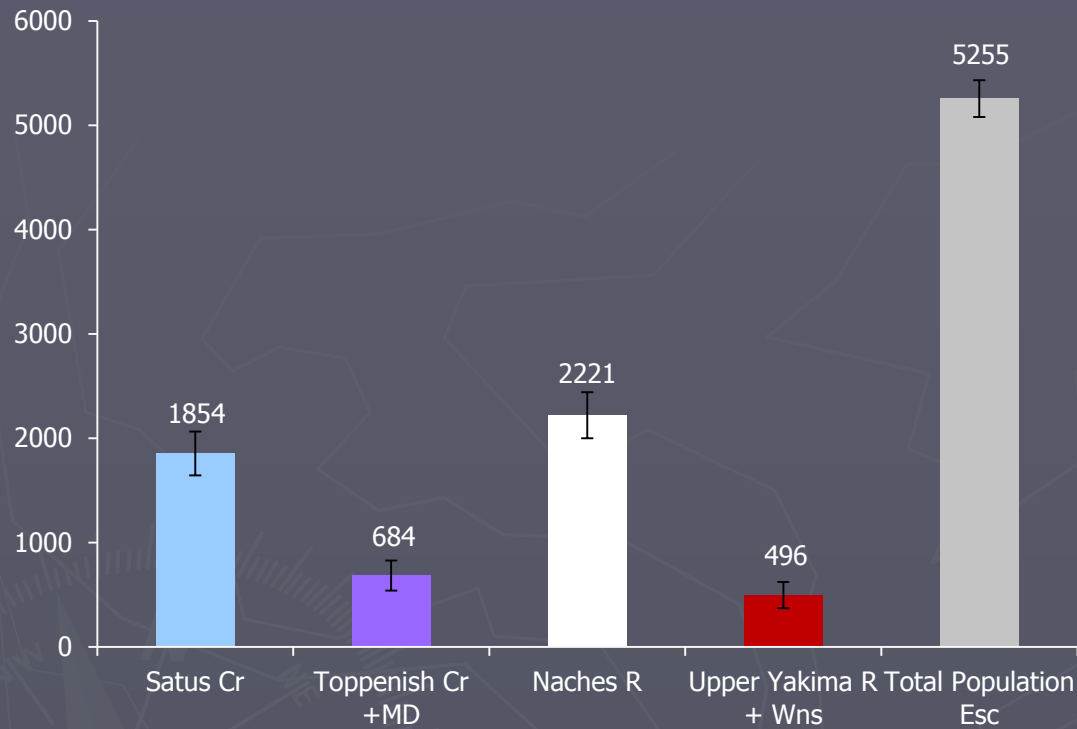
- Fine scale locating of fish/redds
- Tag recovery



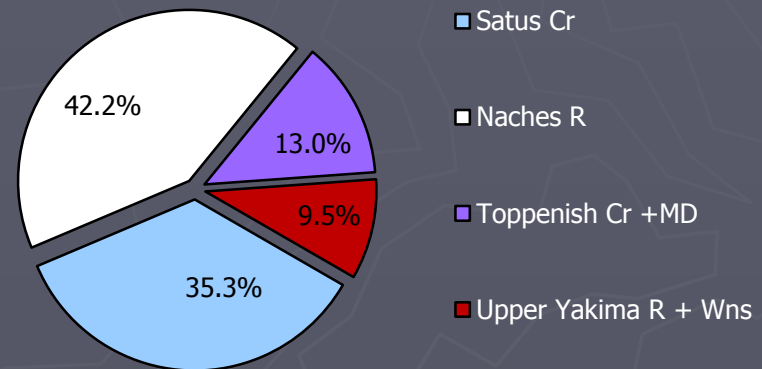
Fate of Radio Tagged Steelhead (N=507)



Population Estimates: Expanded w/ TR +TM



% of Total Spawners by Population



Population	Abundance	CI ($\alpha = .10$)
Satus Cr	1854	+/- 211
Toppenish Cr +MD	684	+/- 144
Naches R	2221	+/- 221
Upper Yakima R + Wns	496	+/- 125
Total Population Esc	5255	+/- 176

Run Size and Distribution (2011-12)

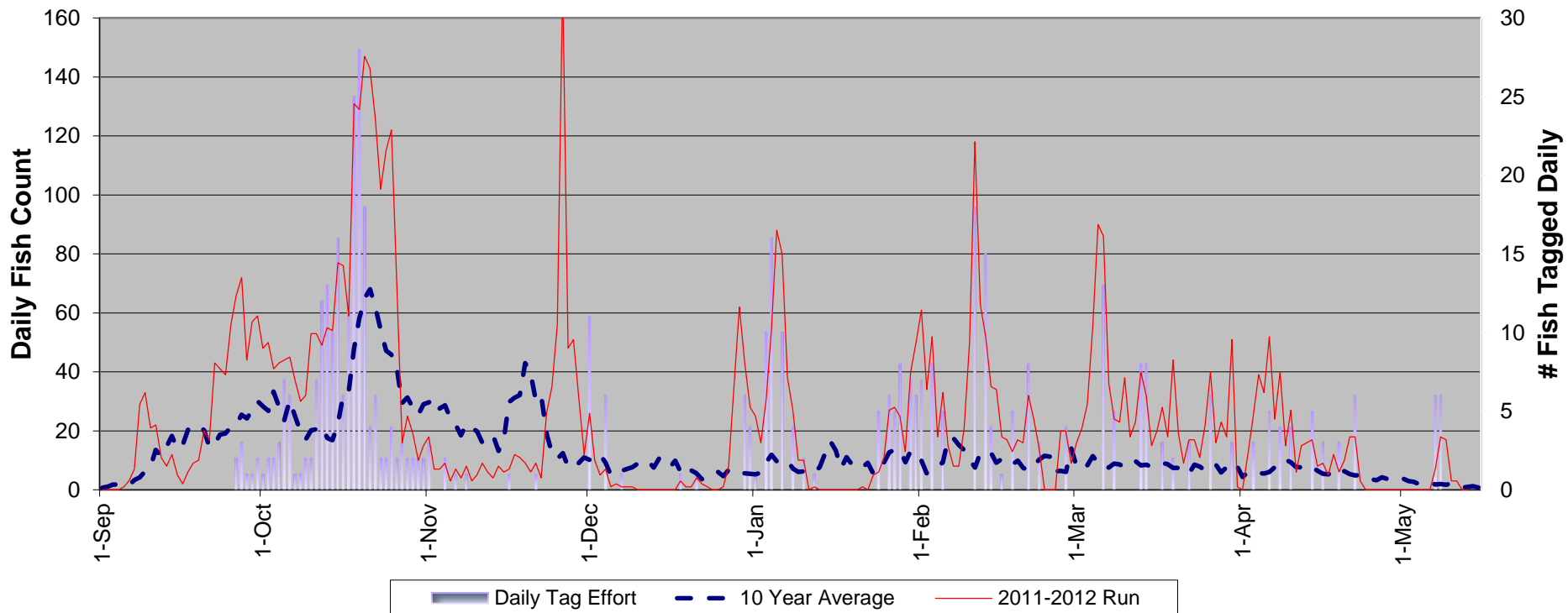
Prosser statistics (rkm 75.6)

- 6359 total steelhead
 - 6208 wild (97.6%)
 - 151 hatchery (2.4%)
 - ▶ 66.5% F
 - ▶ 33.5% M

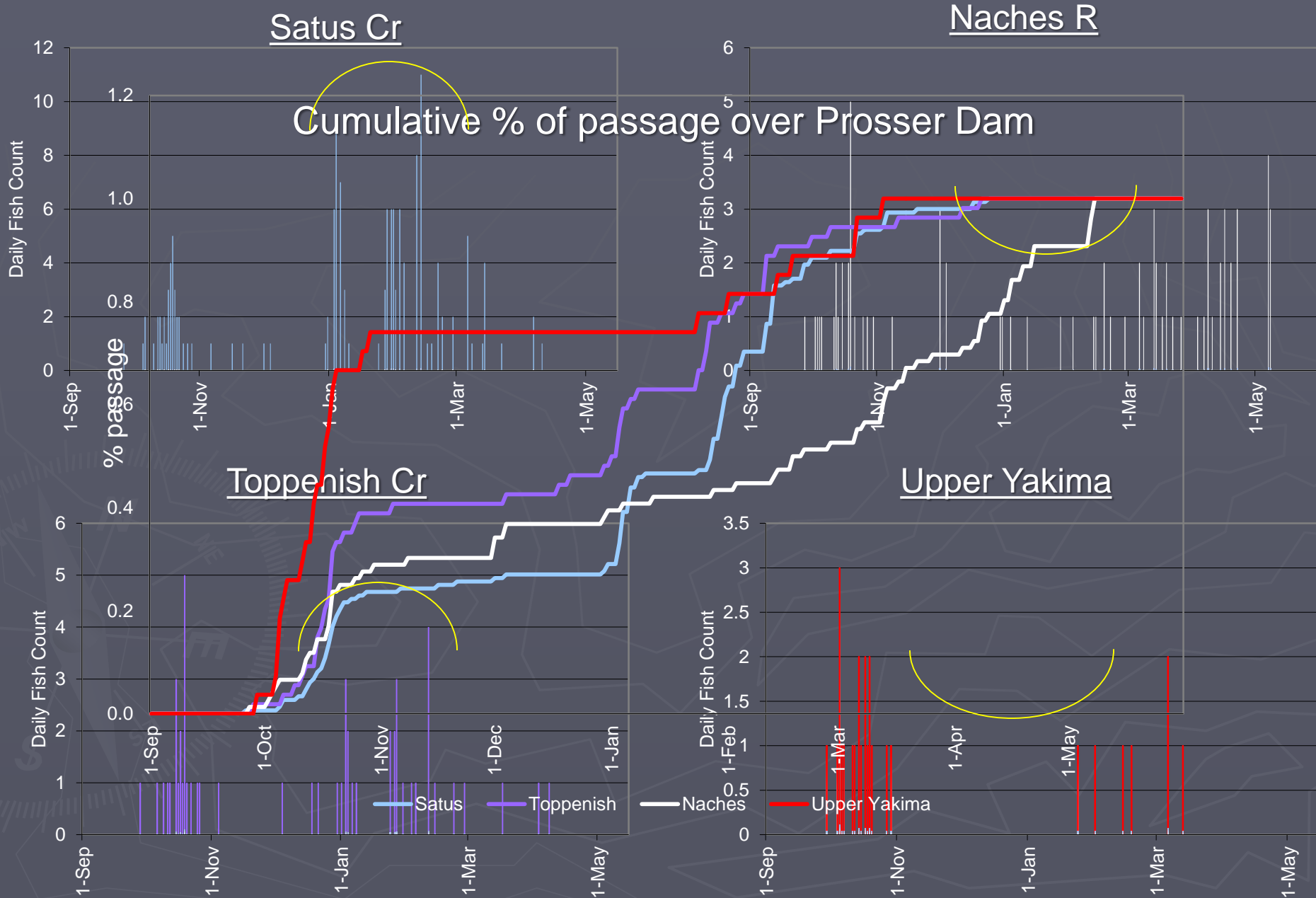
Tagging statistics (715 Sampled)

- 507 radio tagged
 - 493 wild (97.2%)
 - 14 hatchery (2.8%)
 - ▶ 65.8% F
 - ▶ 34.2% M

Yakima Steelhead Run-Timing at Prosser Dam: Recent 10-Year Average vs 2011-12 Run

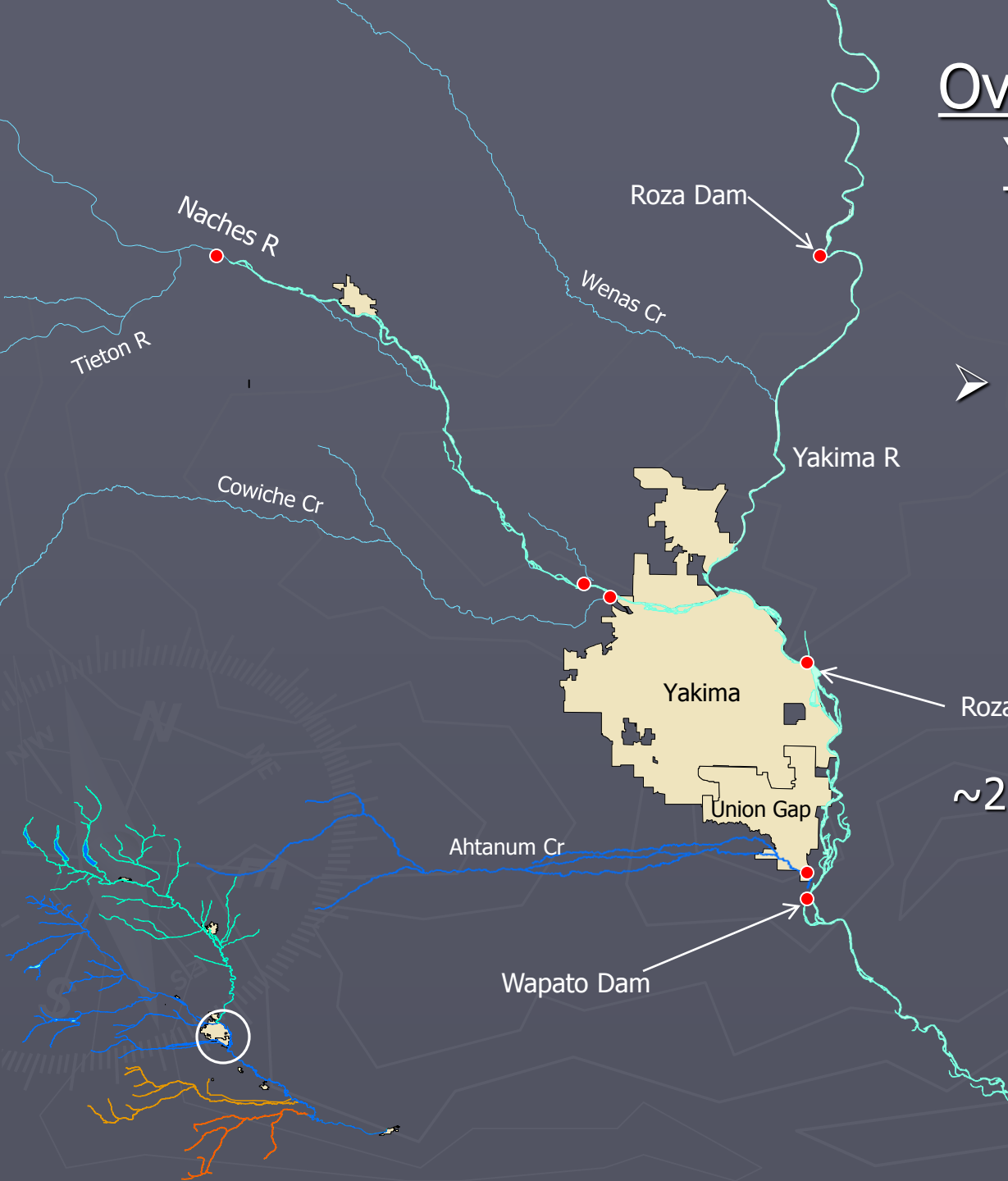


Population Run-timing: Prosser Dam



Over-wintering: Upper Yakima Mainstem

(11/01-02/01)



➤ Mid-Basin detections

- 5 steelhead detected above Wapato Dam
 - 3 (5) detected at Roza outfall
 - 1 (5) detected at Roza Dam

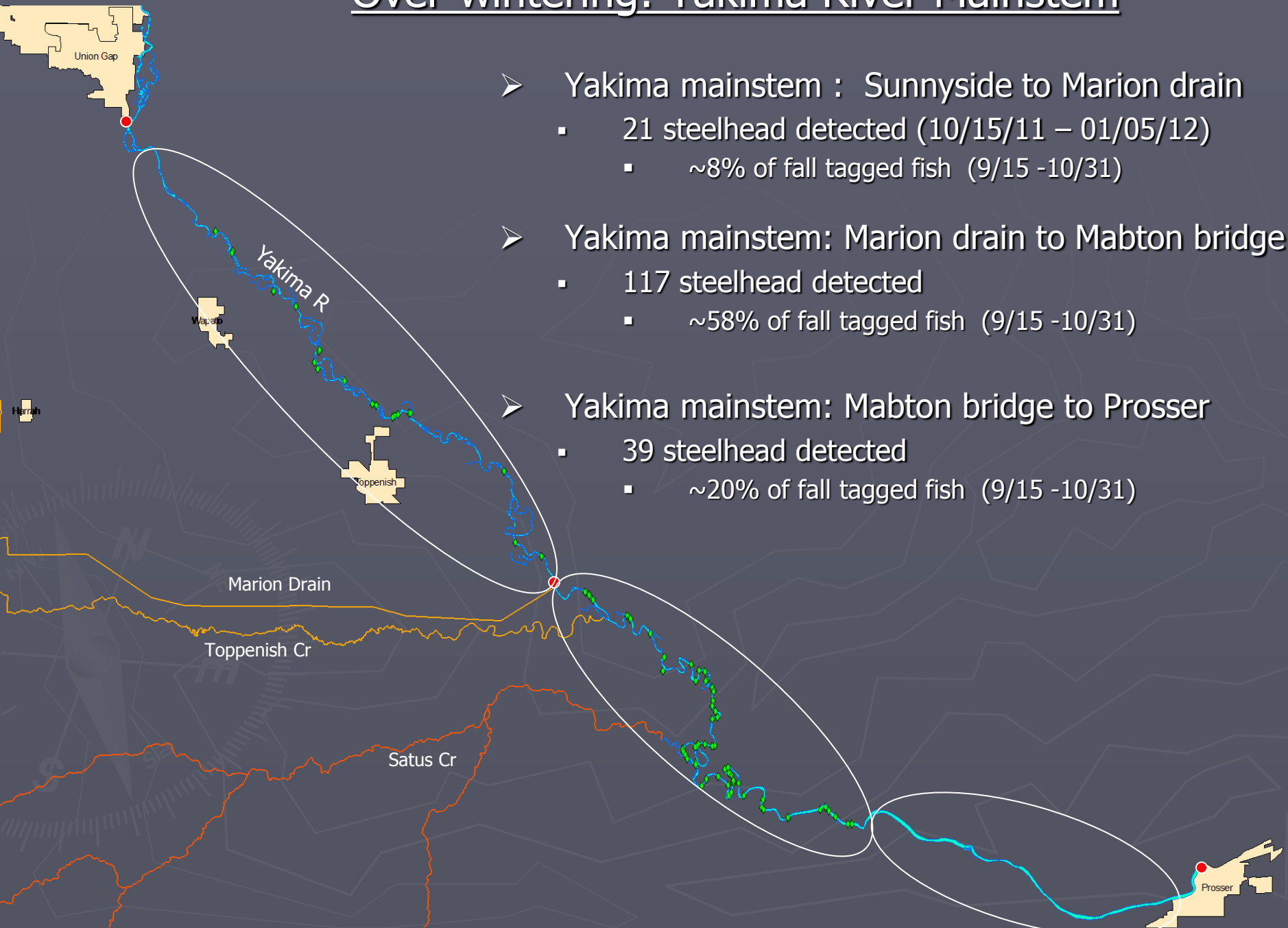
~2.5% of Radio-tagged steelhead

(9/15 -10/31)

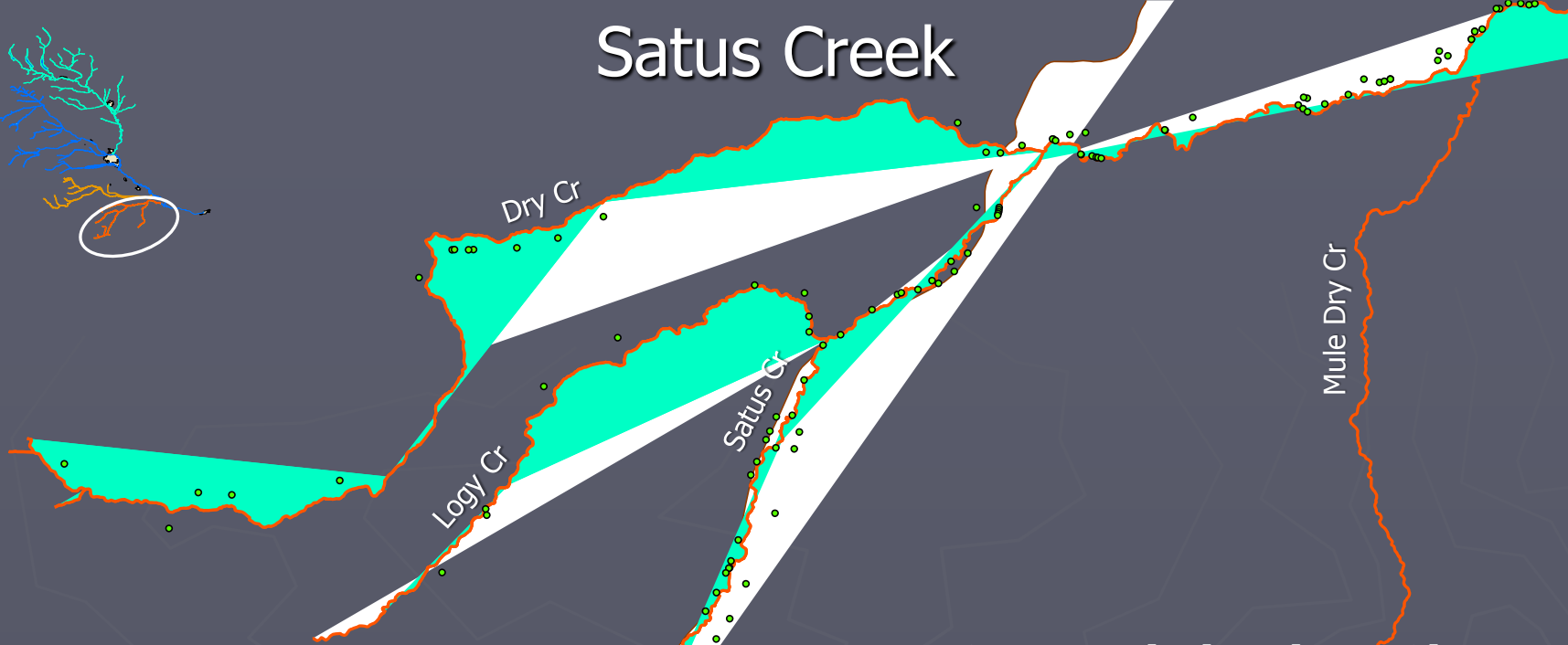
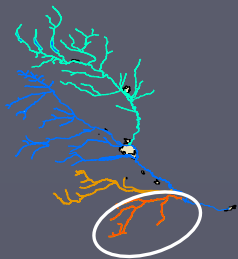
-1 Naches

- 4 upper Yakima

Over-wintering: Yakima River Mainstem



Satus Creek

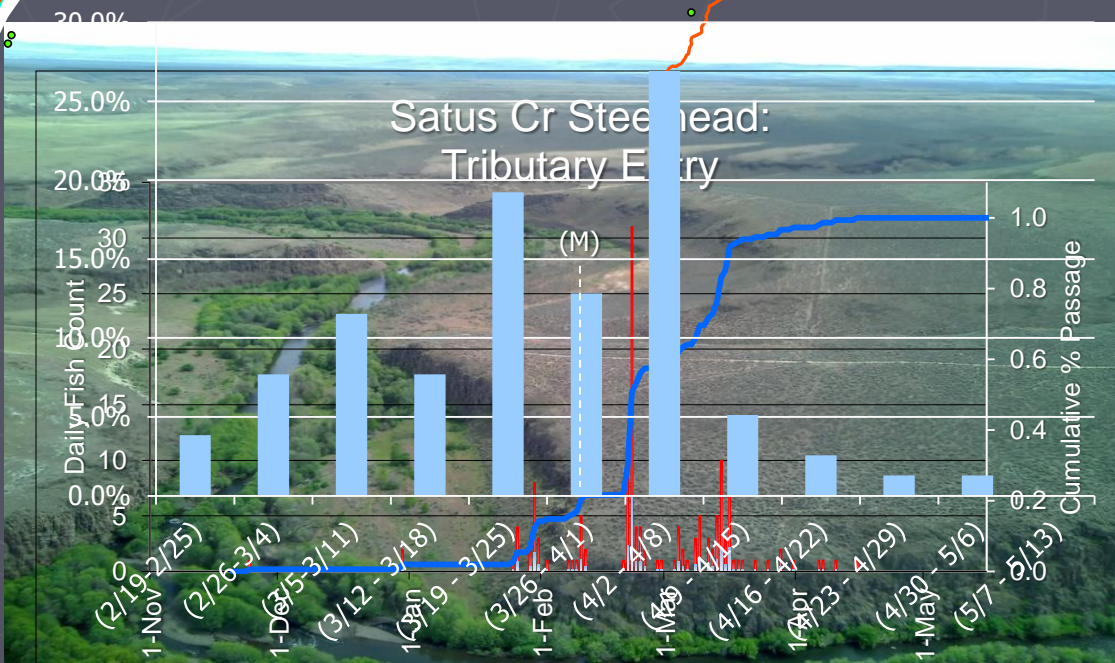


F = 64.8% 33 days
M = 35.2% 55 days

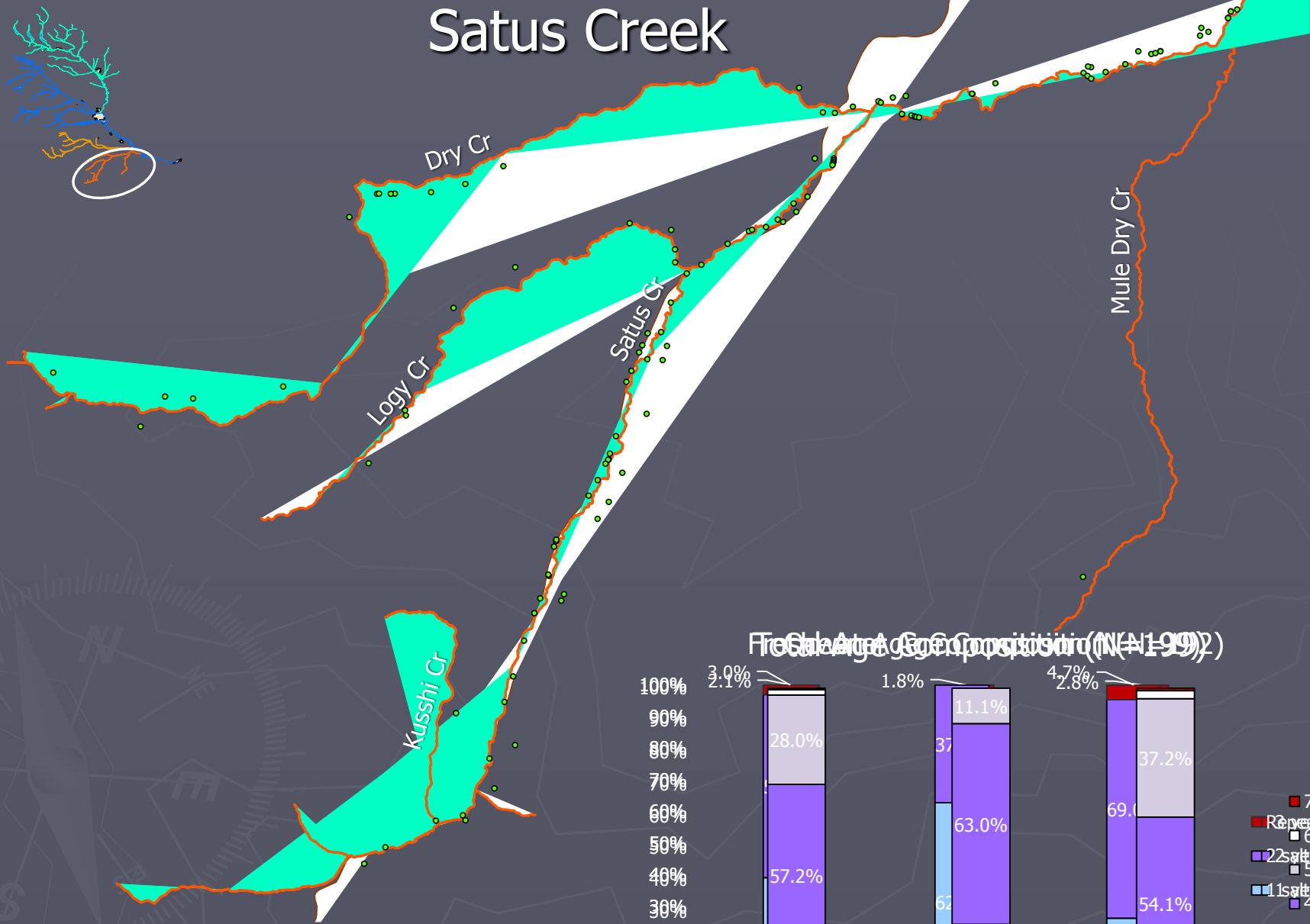
Spawn Timing (N=78)



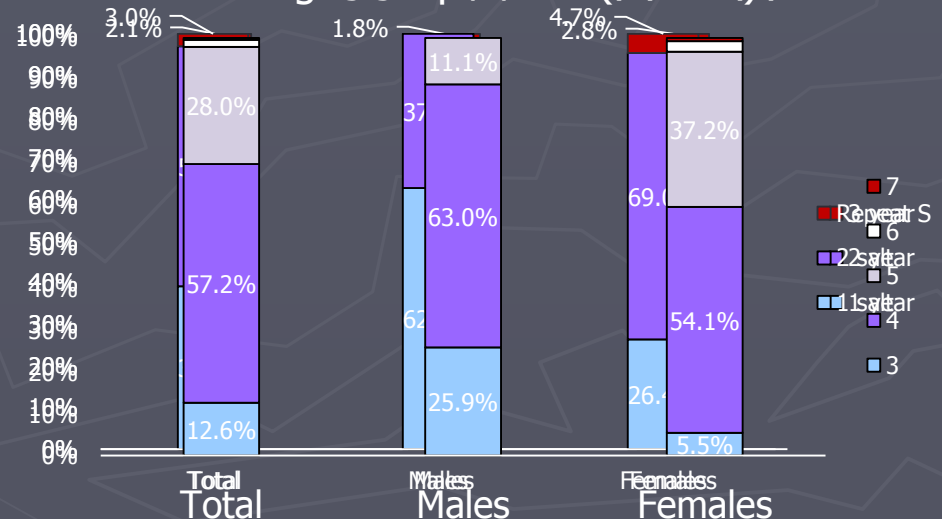
Kusshi Cr



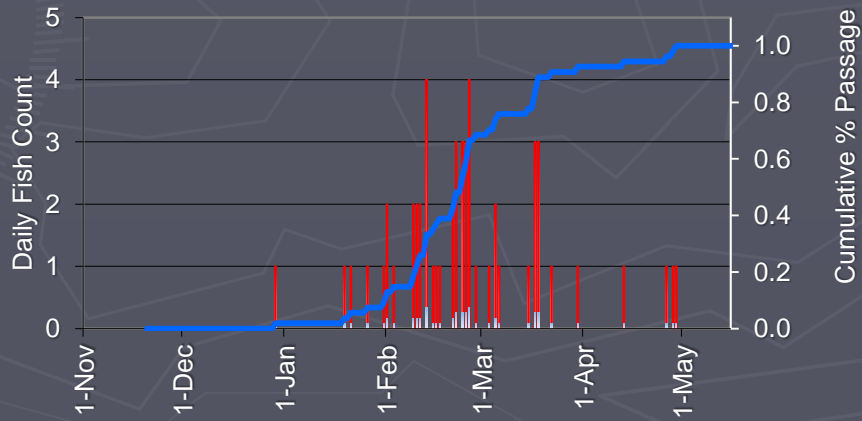
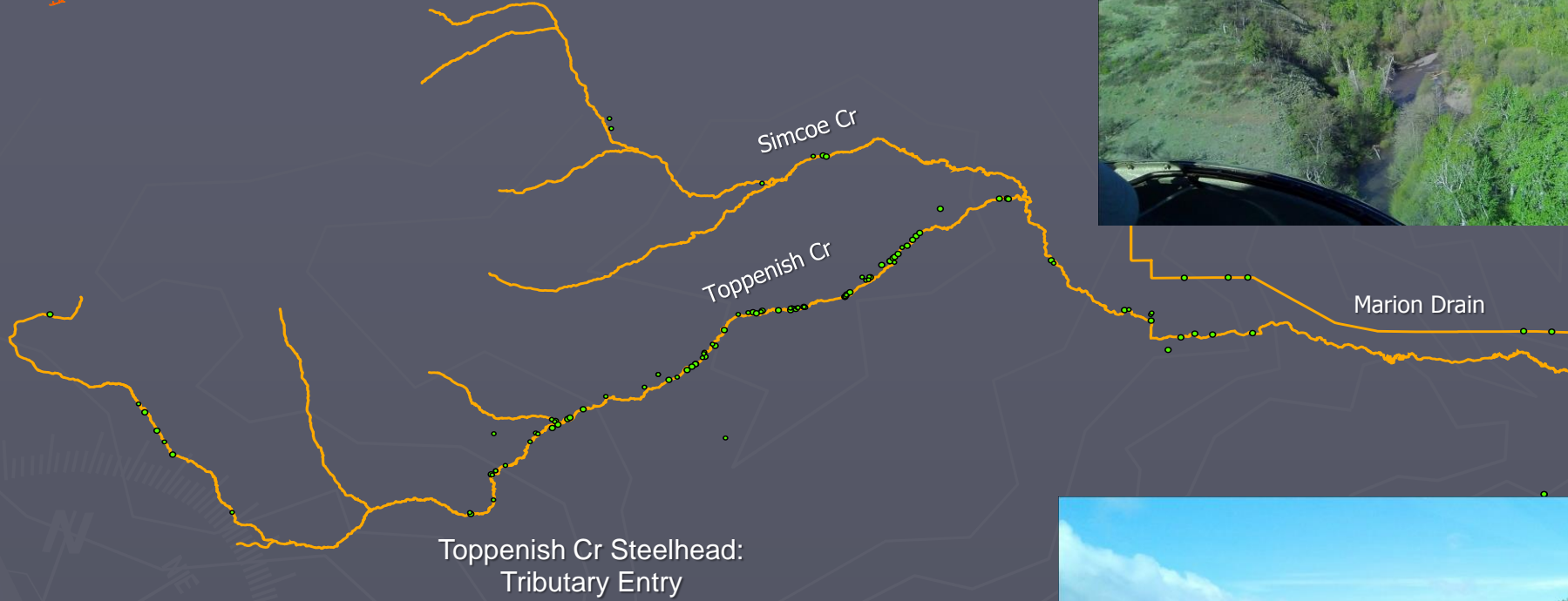
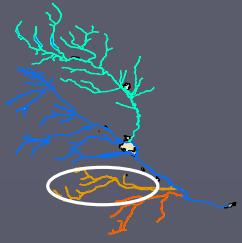
Satus Creek



Frequency of Site Composition (N=199)

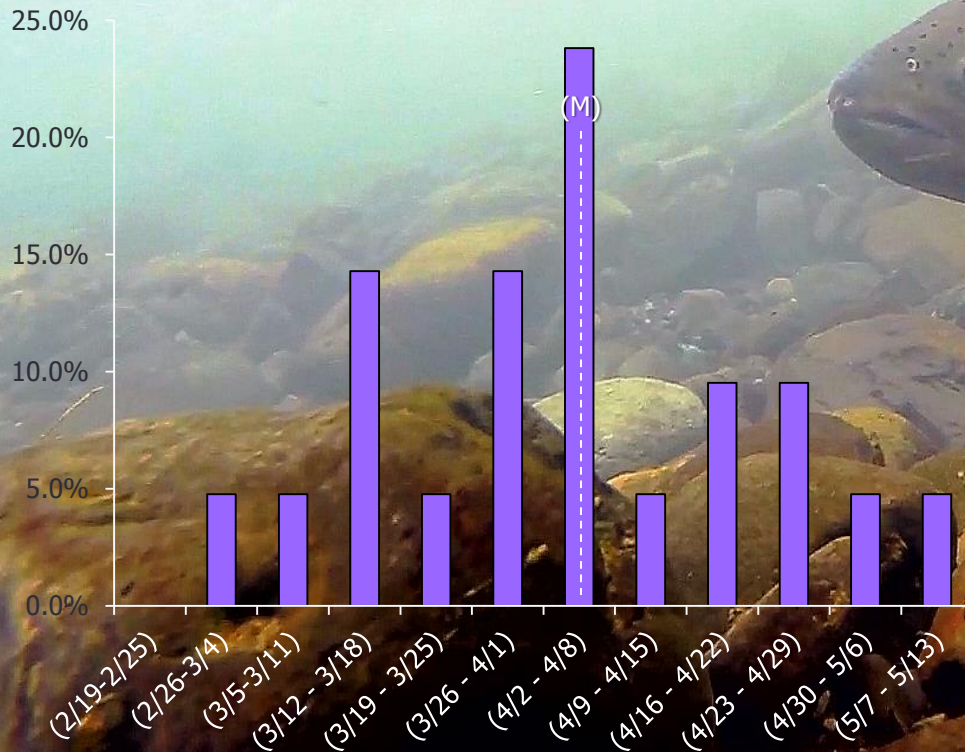


Toppenish Creek



Toppenish Creek

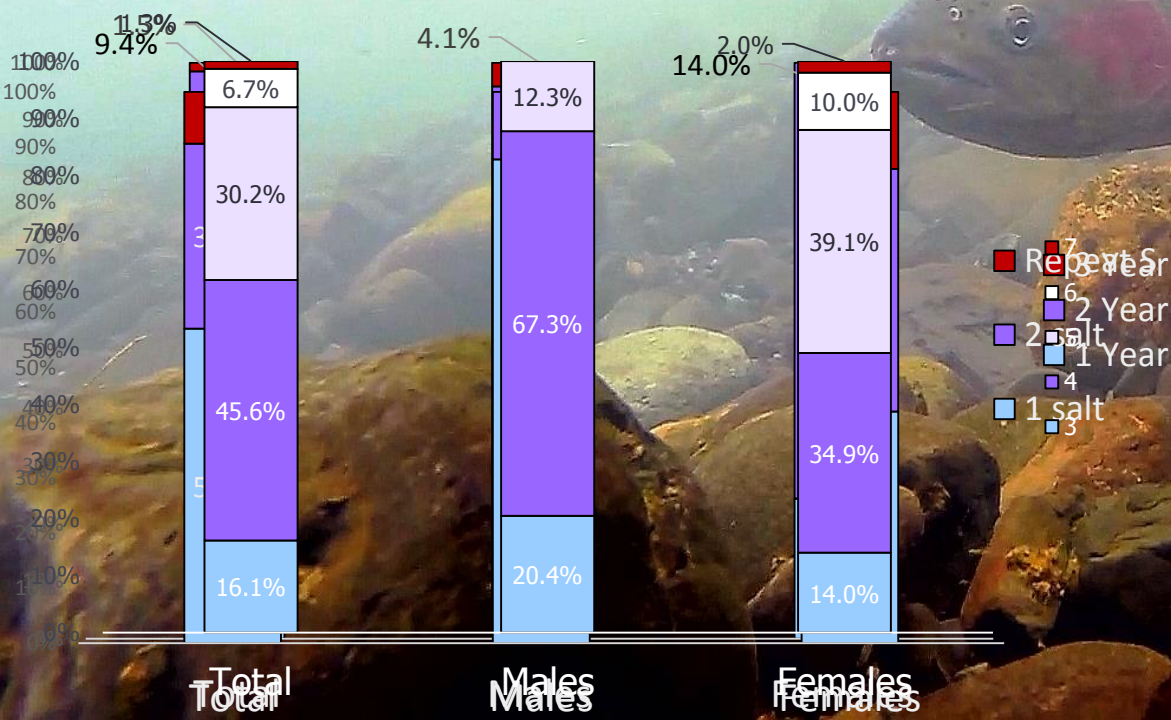
Spawn Timing (N=21)



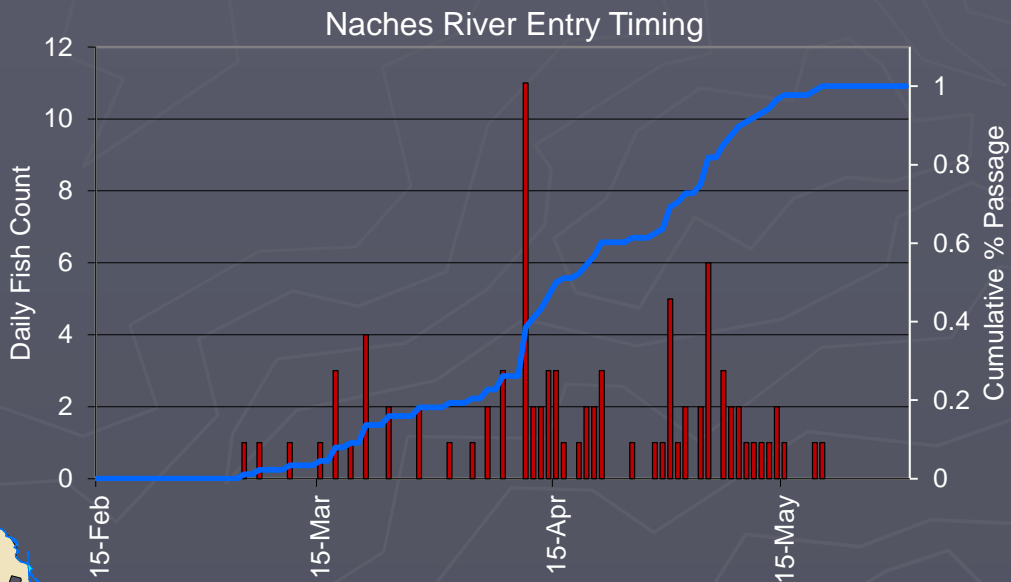
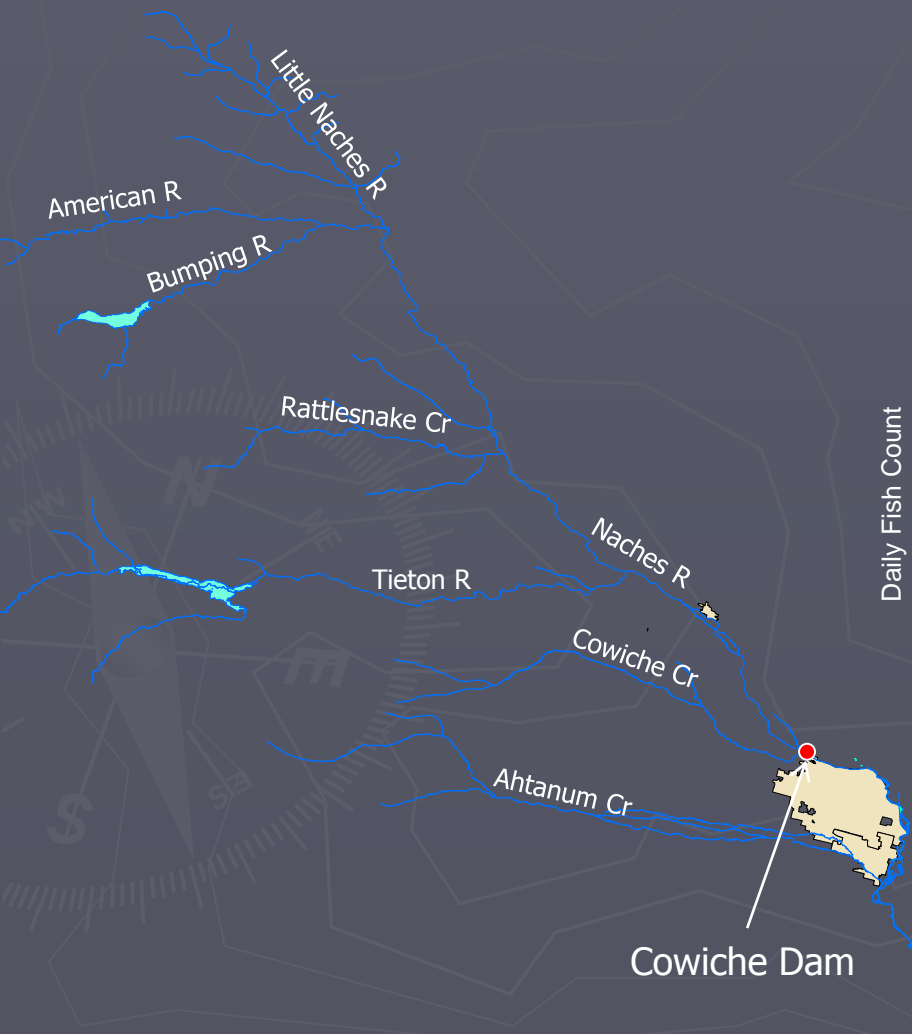
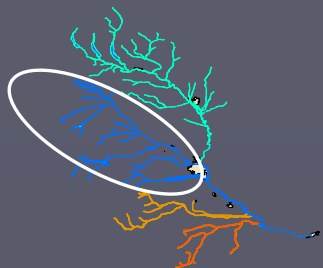
F = 67.6% 32.5 days
M = 32.4% 52.5 days

Toppenish Creek

Freshwater Age Composition (N=74)
 Ocean Age Composition (N=74)



Naches River

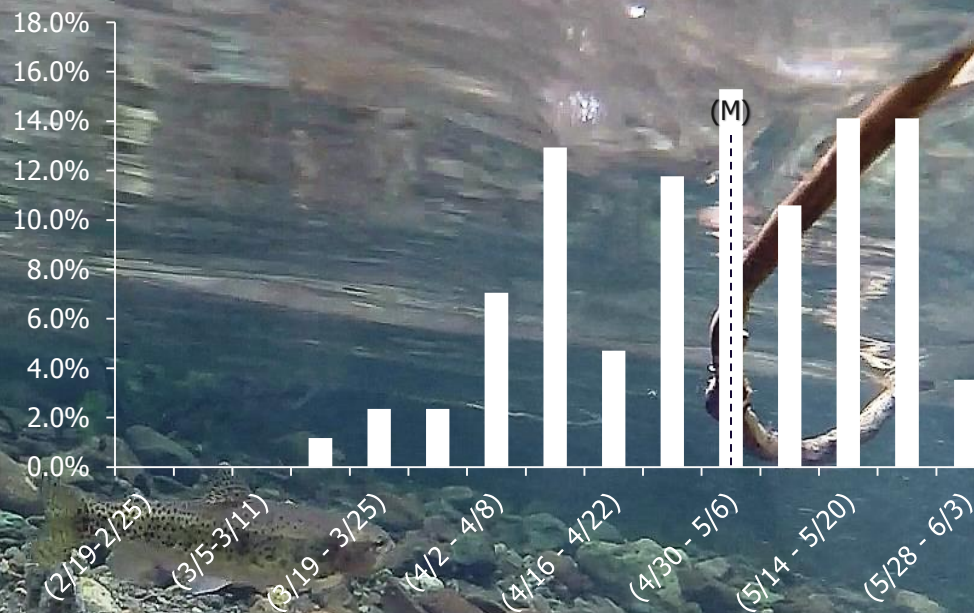


Naches River

Spawn Timing (N=85)

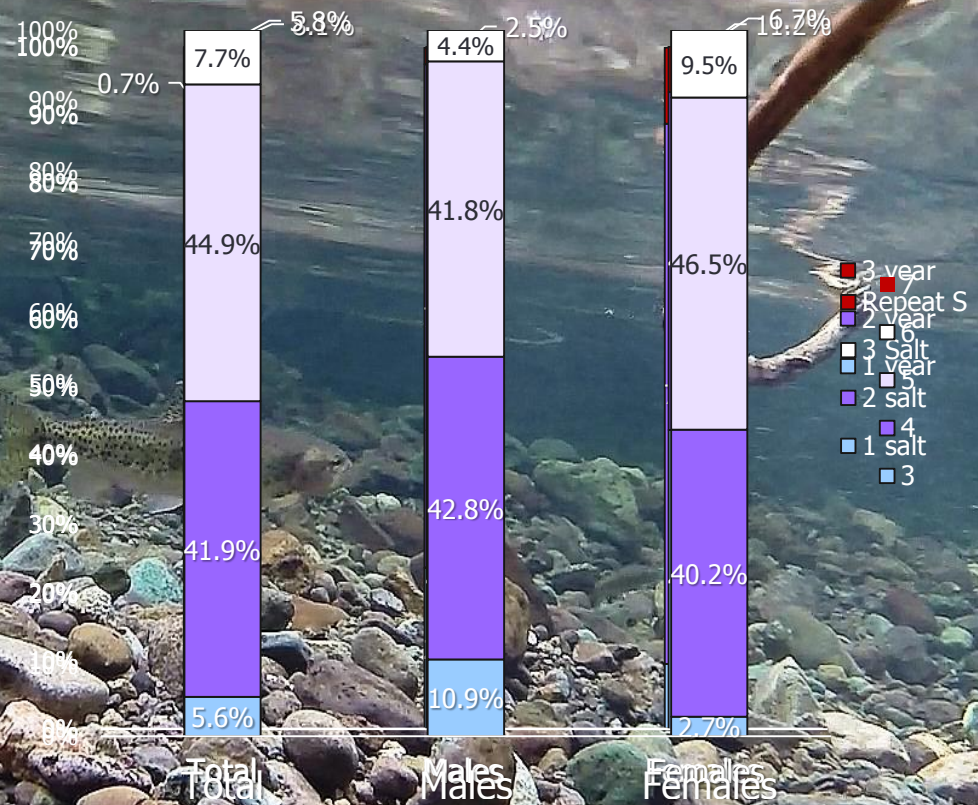
F = 65.2% 17.1 days

M = 34.8% 29.4 days



Naches River

Total Age Composition (N=138,380)



Upper Yakima River

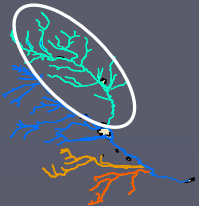
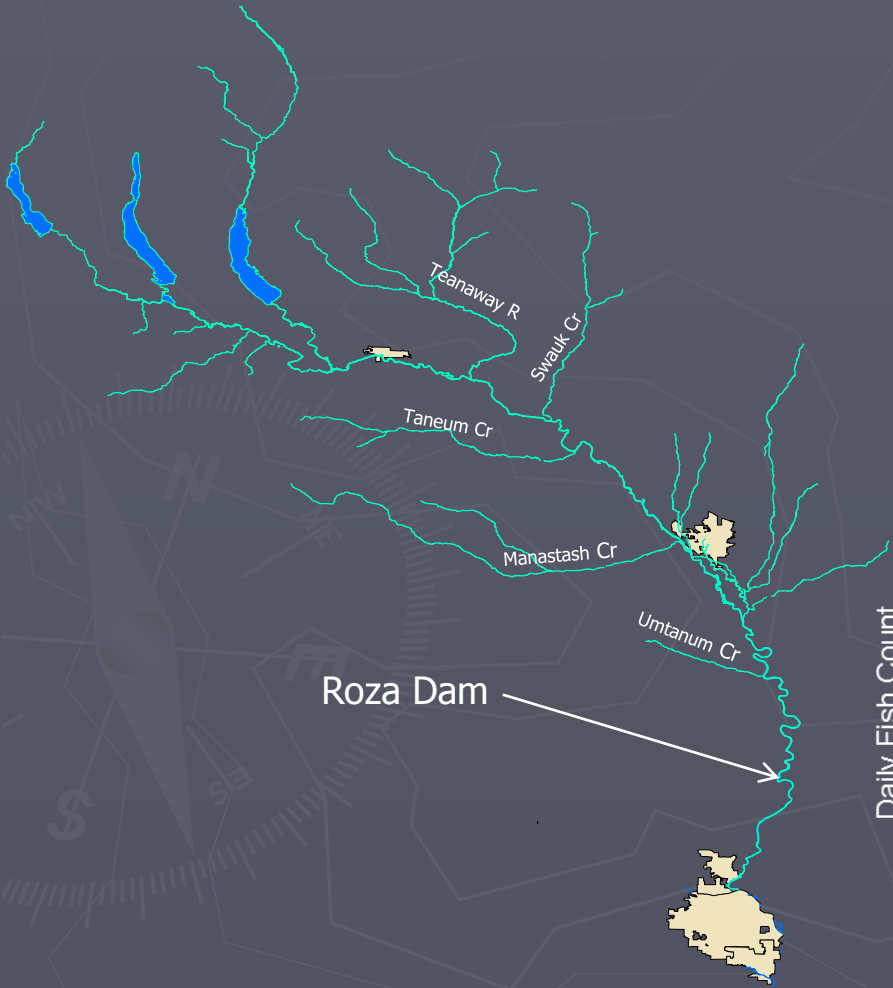
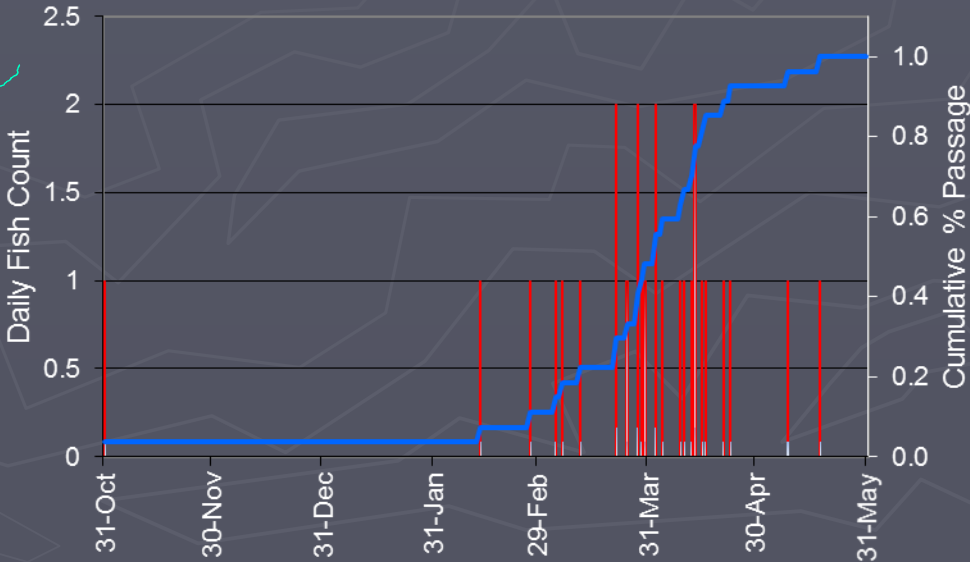


Photo: Zack Mays

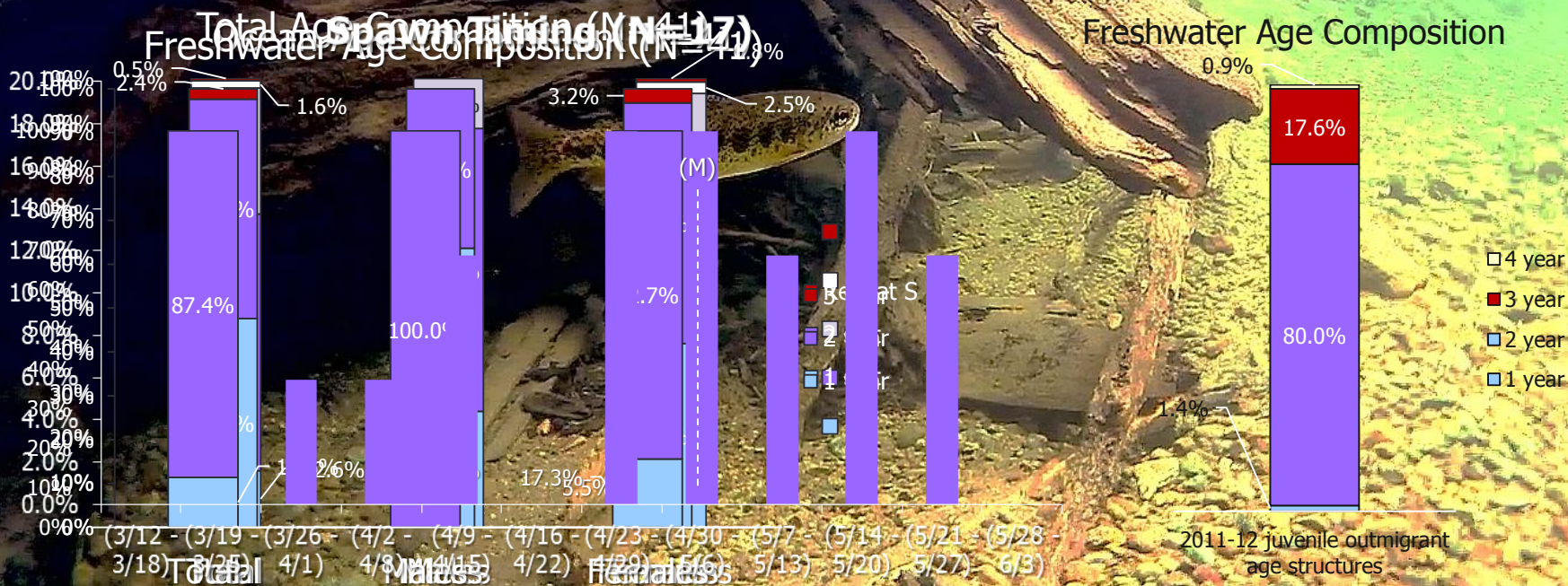


Upper Yakima Entry Timing

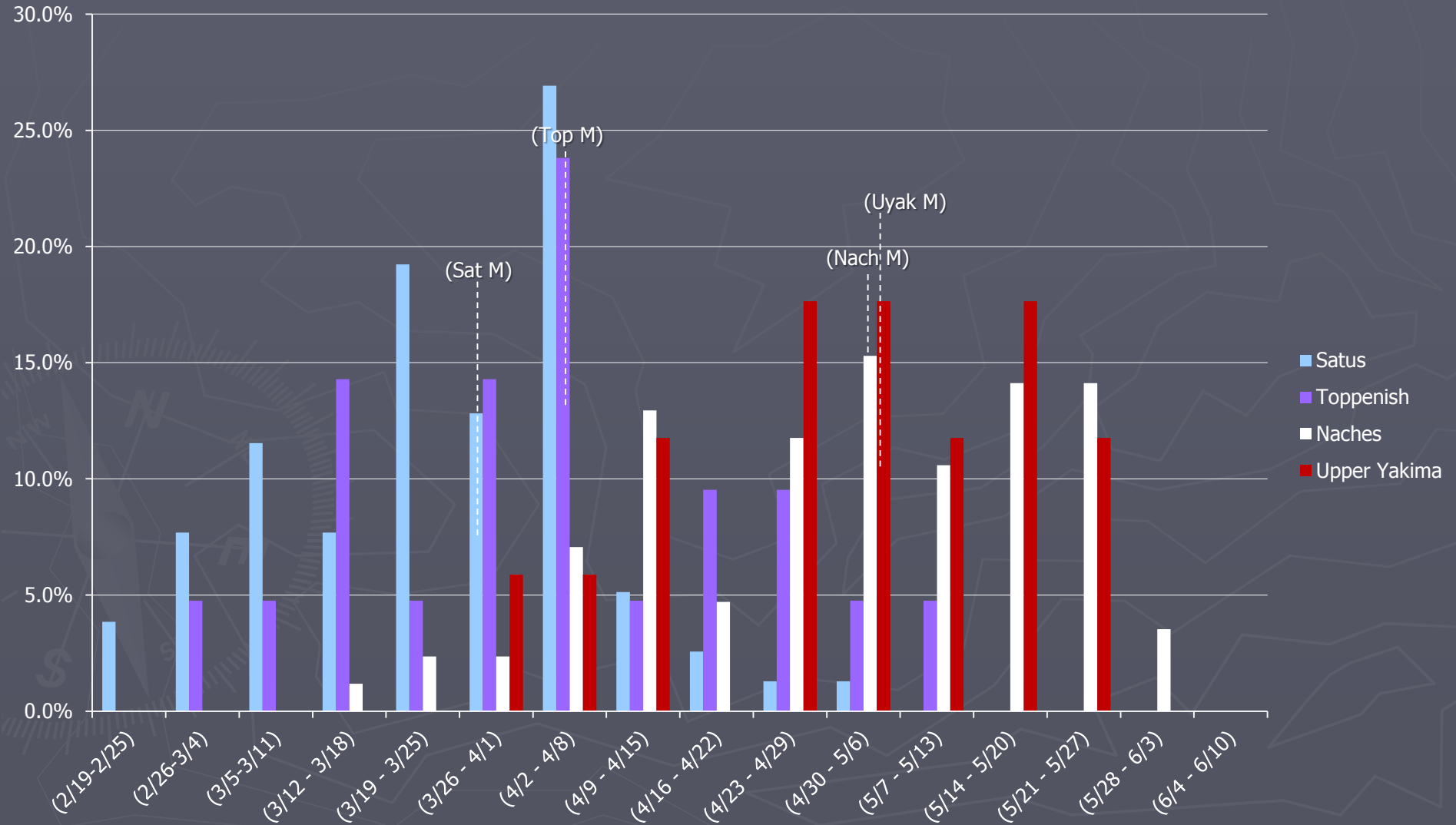


Upper Yakima River

F = 73.9% 25.6 days
 M = 26.1% 62.7 days

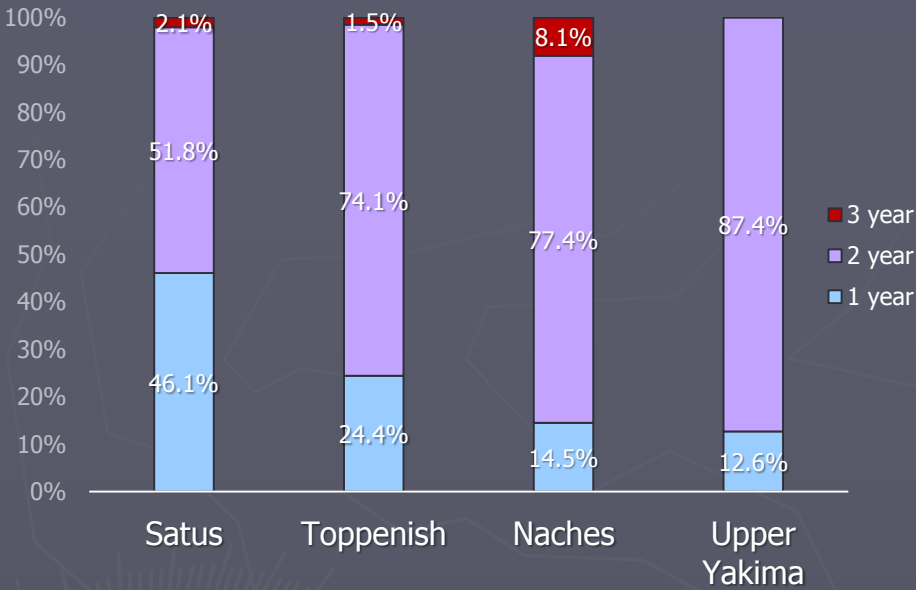


Yakima Steelhead: Spawn Timing

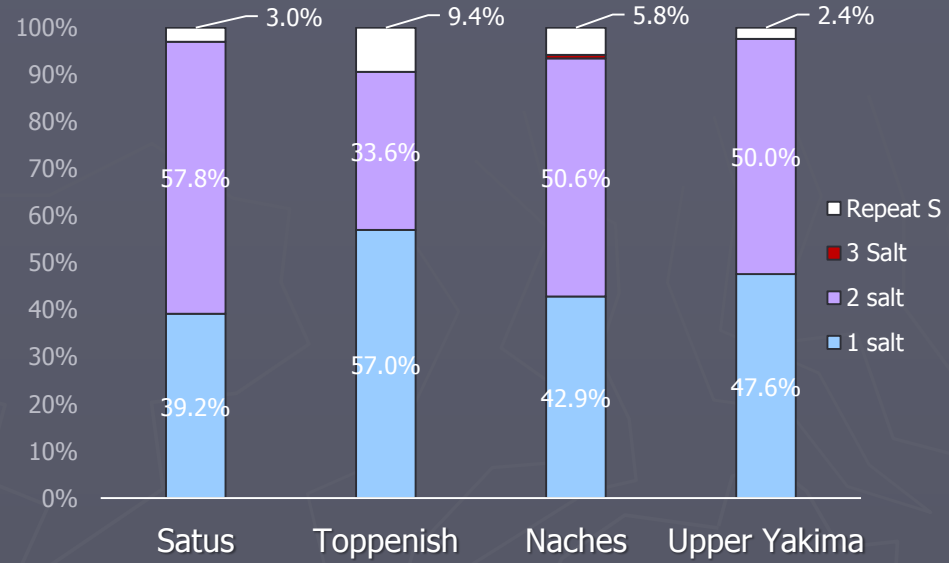


Population Age Structures

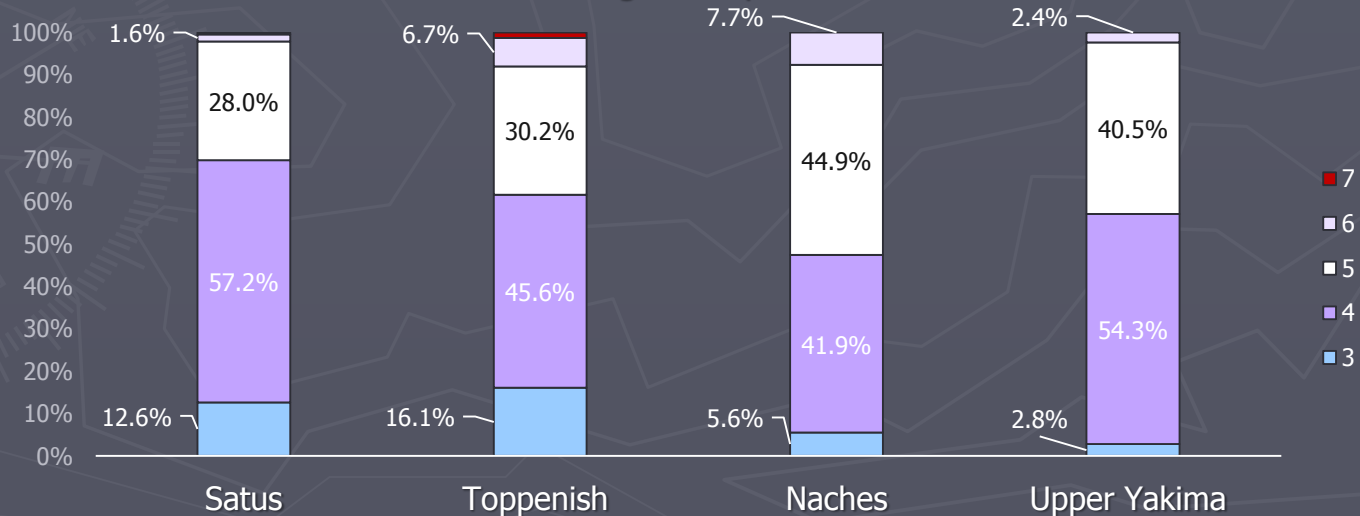
Freshwater Age Composition



Ocean Age Composition



Total Age Composition



Questions?

