

Life History and Abundance of Native Summer Steelhead in Lookingglass Creek, Oregon

Steve Boe, Carrie Crump, Aaron Bliesner

LSCRIP Steelhead Program Review
June 21, 2012

Outline

- Goal
- Objectives
- Background
- Watershed/Stream Description
- Life History Measures
- Methods
- Results
- Summary
- Recovery Implications
- Acknowledgements

Goal

- Describe life history and population trends of Lookingglass Creek wild summer steelhead (*O. mykiss*)

Objectives

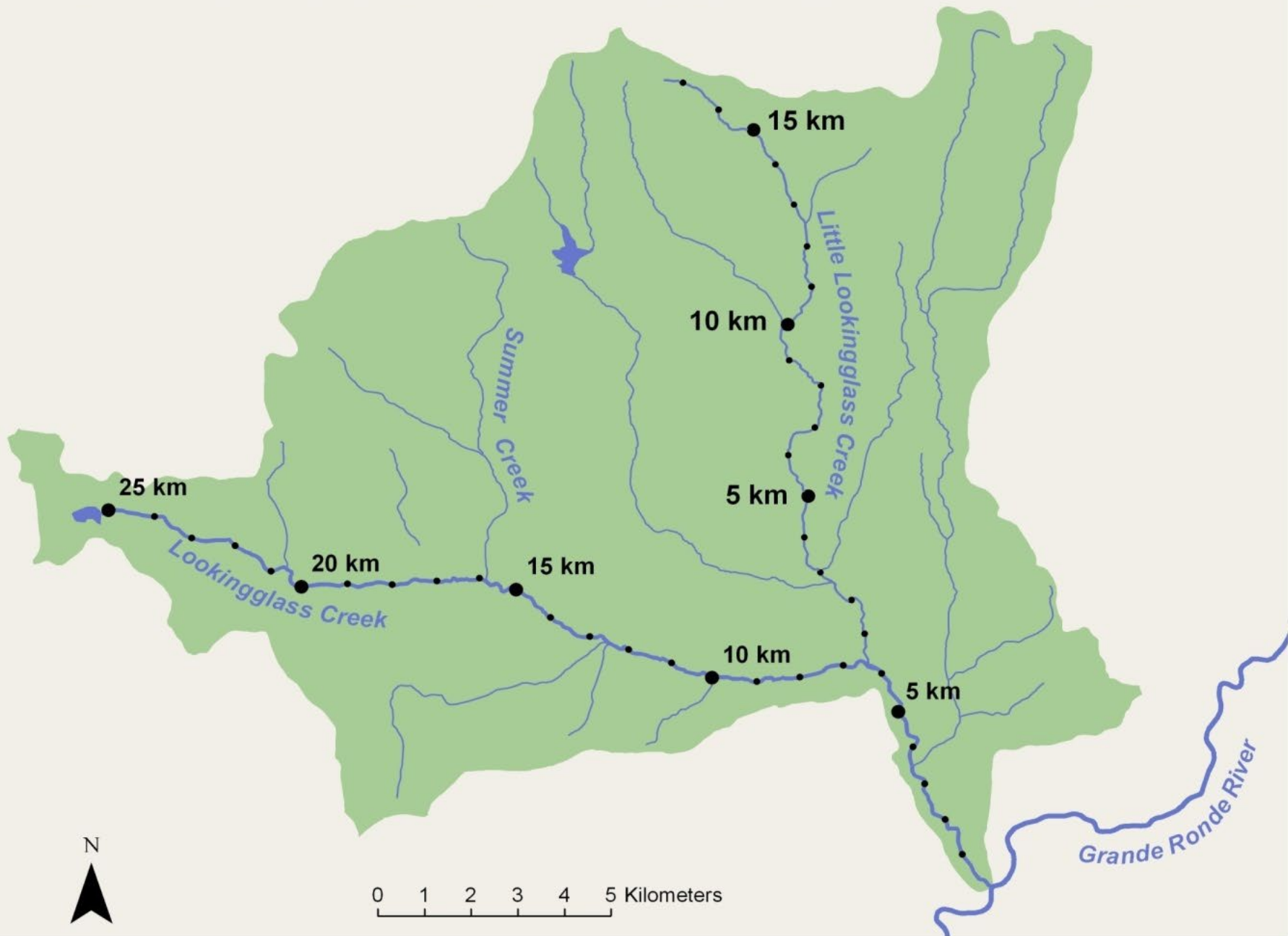
- Estimate abundance, arrival and migration timing, age composition, growth, survival and other characteristics of wild Lookingglass Creek summer steelhead
- A-run, ESA-listed Snake River ESU

Background

- Late '60s, early '70s -ODFW Research juvenile life history (Mullarkey)
adult escapement (Burck)
- CHS reintroduction - early 1990s
- Mid-1990s, data from screw trapping, adult trapping
- ESA listing in 1997- useful data for recovery planning, management
- No steelhead hatchery program for Lookingglass Creek, past or present



LOOKINGGLASS CREEK WATERSHED







Adult Life History Measures

- Escapement
- Sex Ratio
- Size Composition
- Age Composition (ocean)
- Length-at-Age
- Arrival Timing at trap
- % Hatchery
- Detections at trap of PIT-tagged returns

Methods

- Adult trapping
 - FL/sex/marks/scales/genetics
 - Scan for PIT tags
 - Fish released 0.6 km above weir

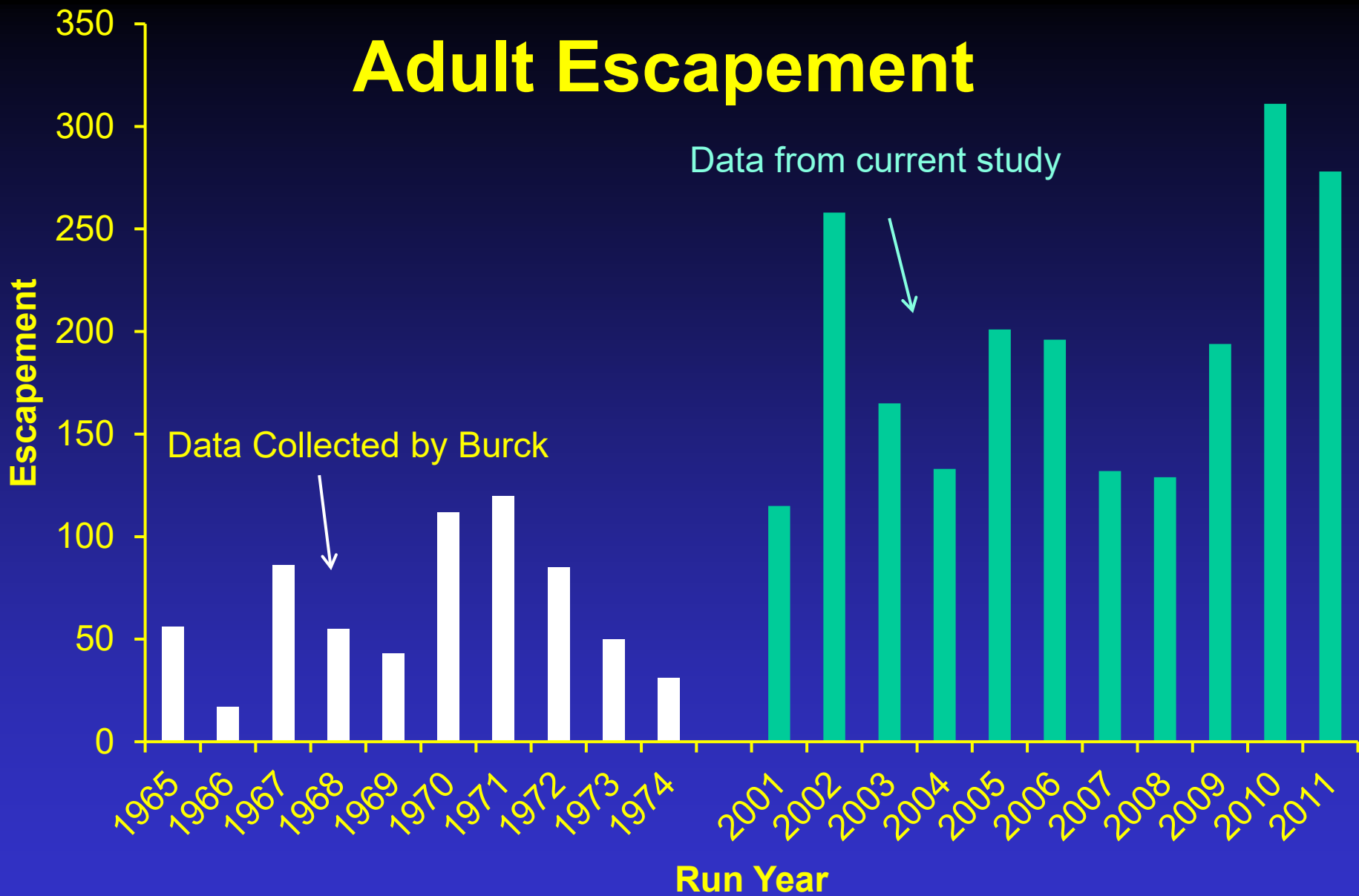




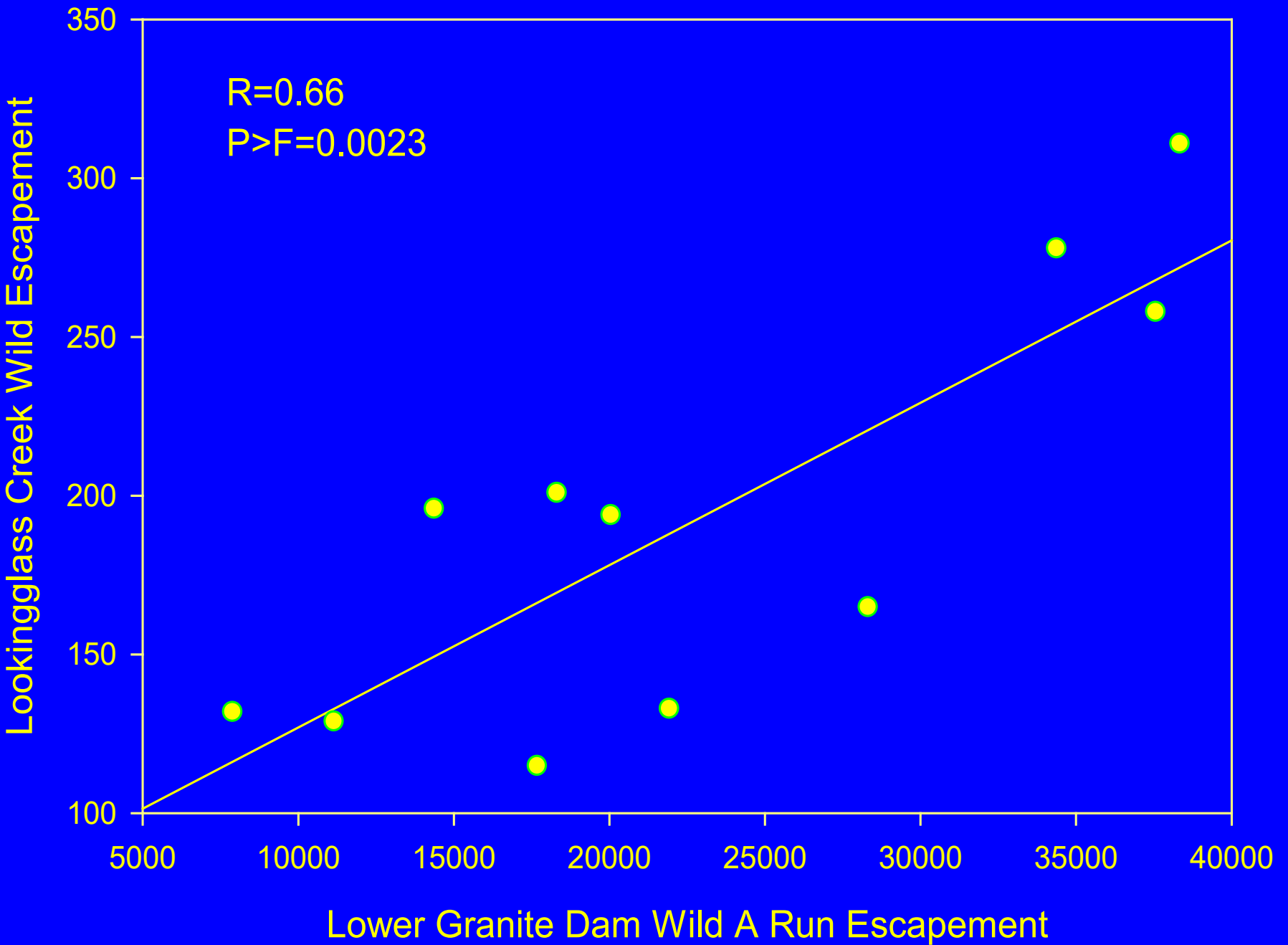
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“Fish In” Results

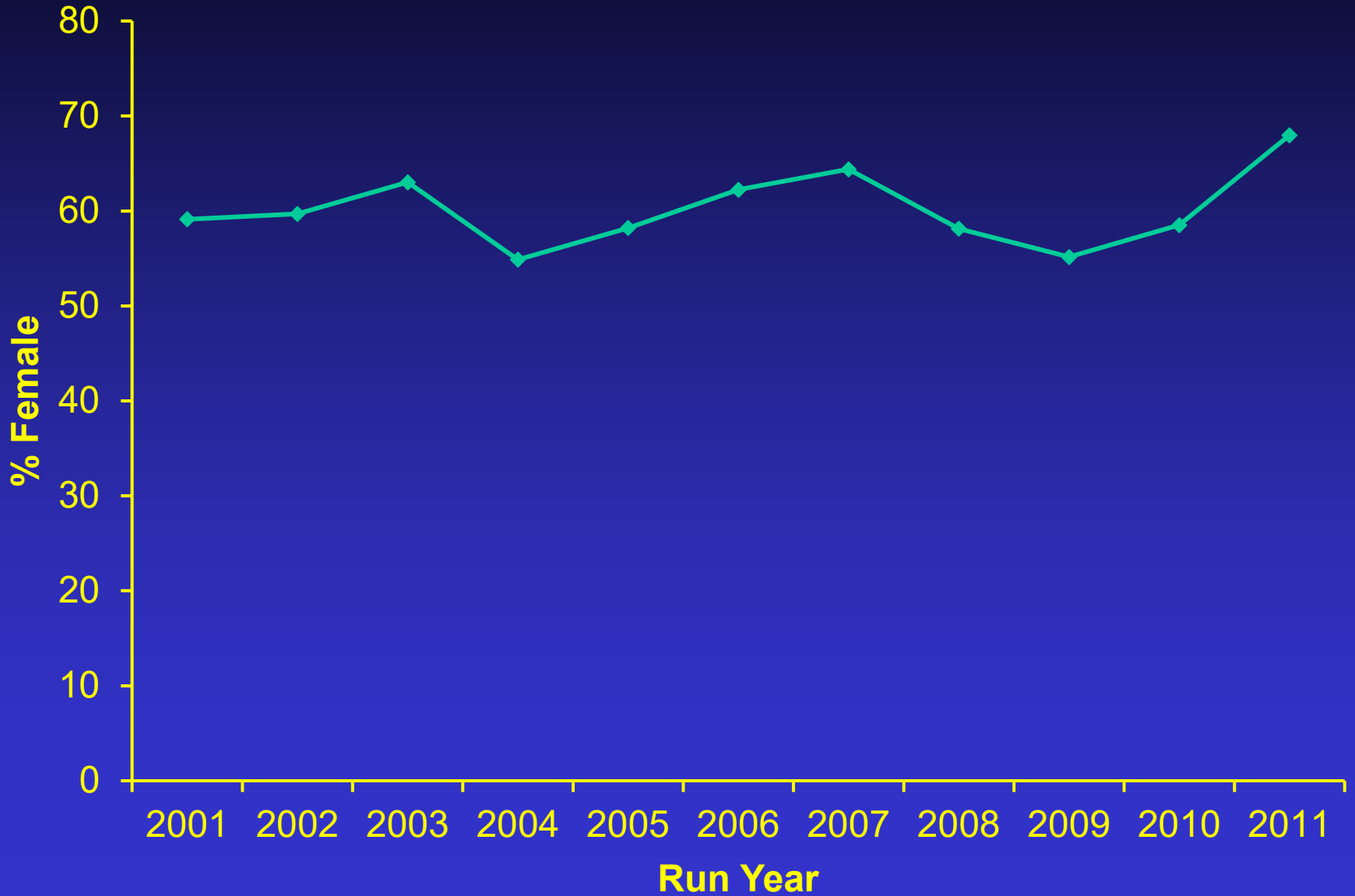
Adult Escapement



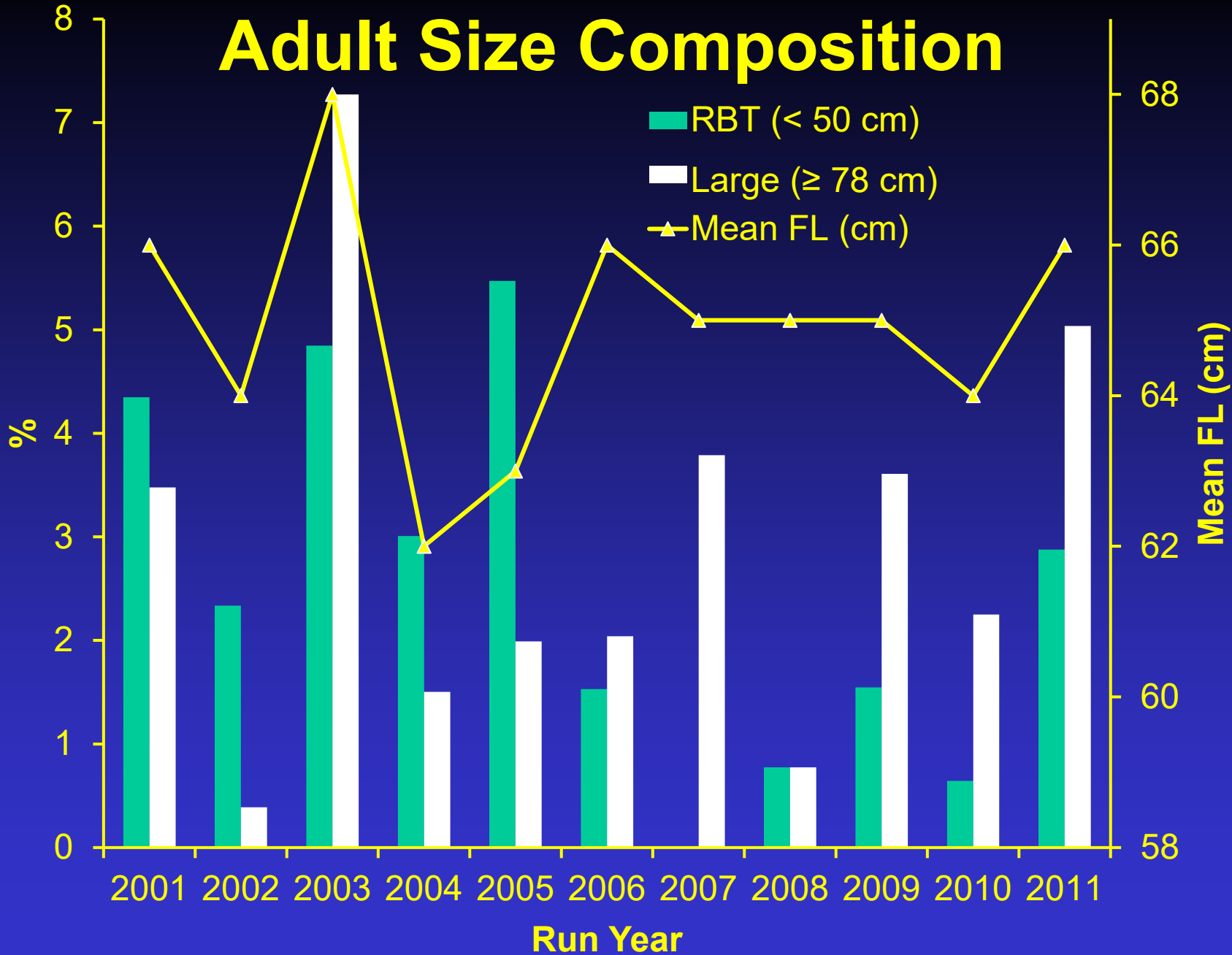
Lookingglass vs. Lower Granite Dam Escapement



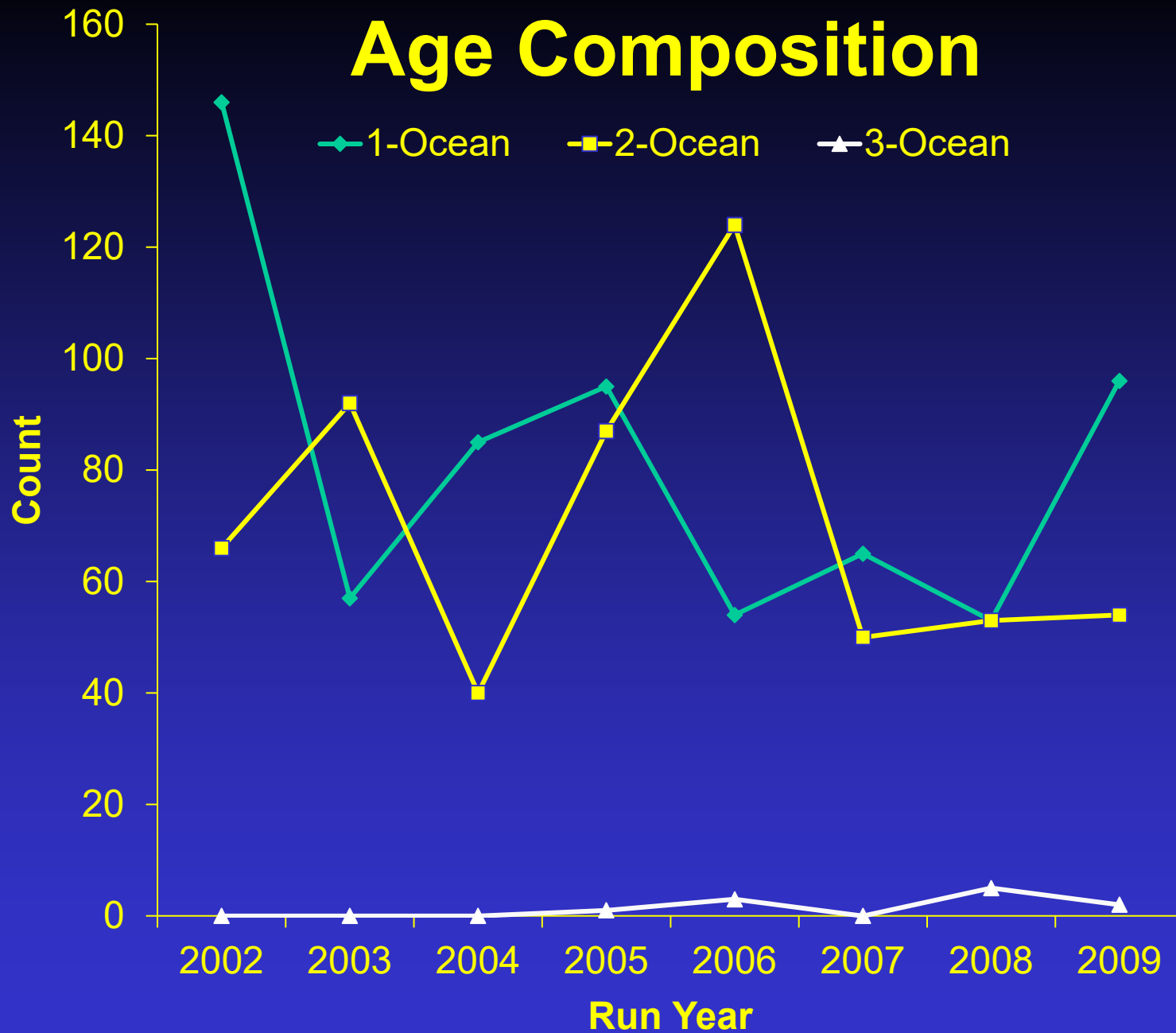
Sex Ratios



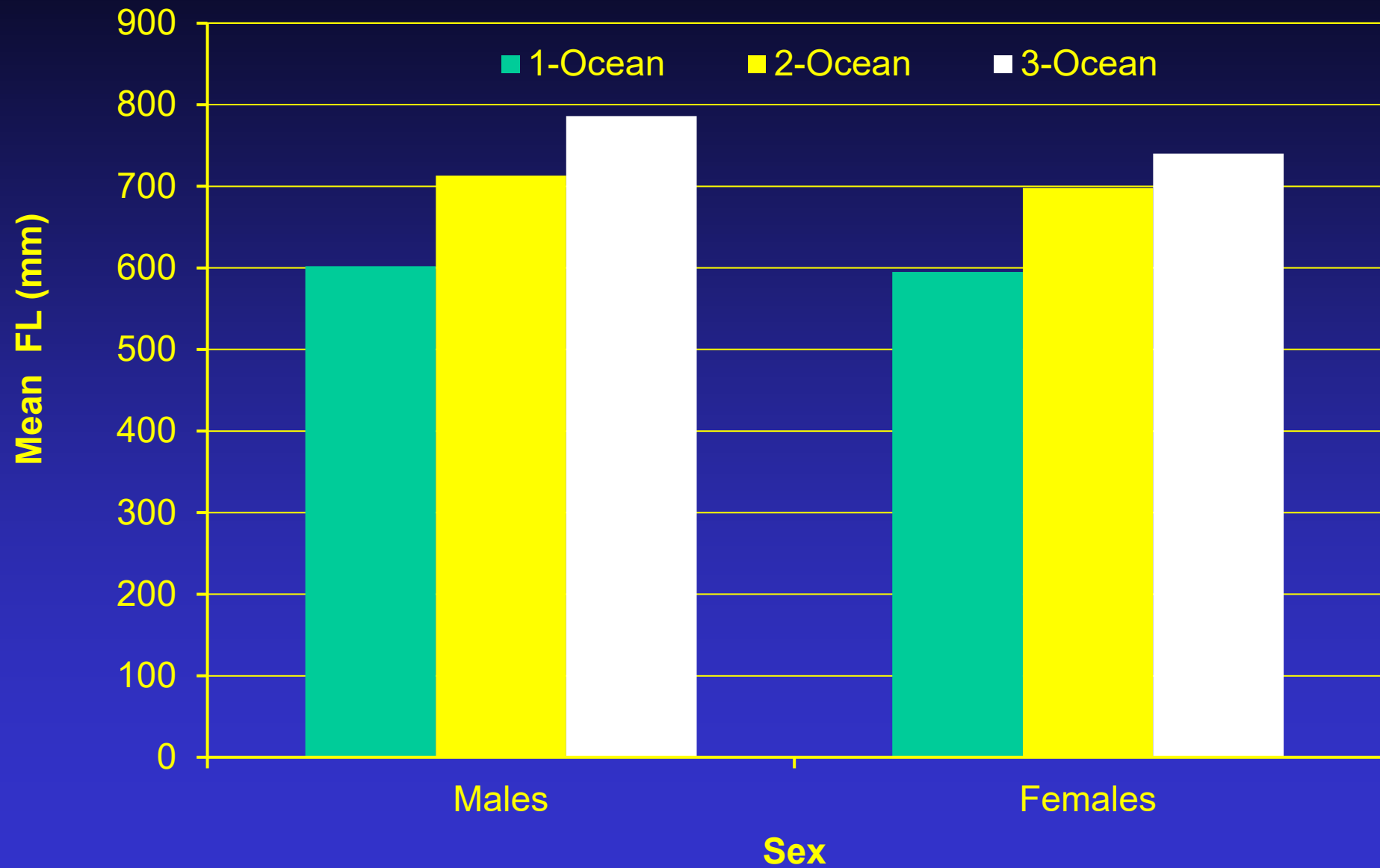
Adult Size Composition



Age Composition

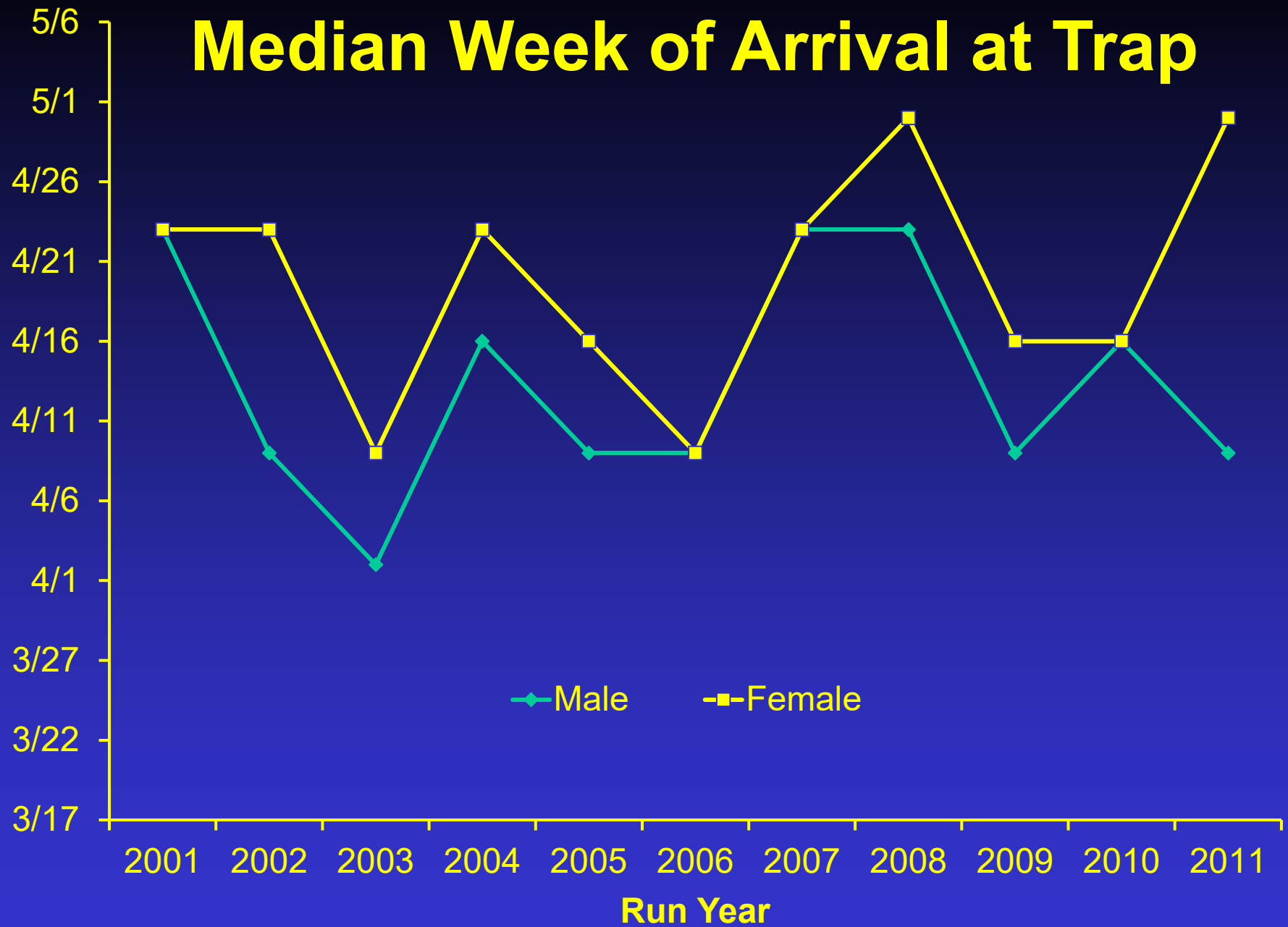


FL at Age



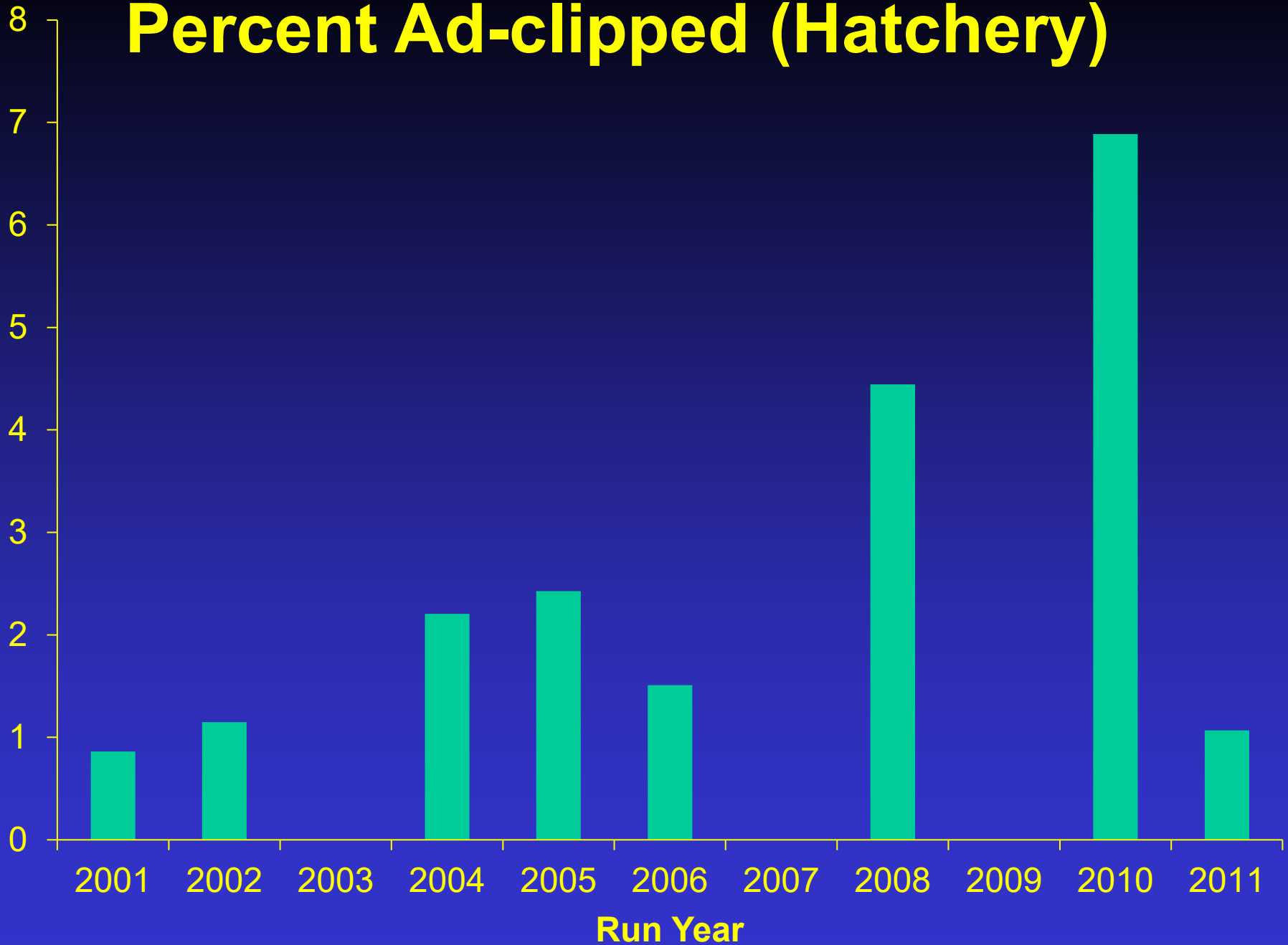
Median Week of Arrival at Trap

Median Week of Arrival



Percent Ad-clipped (Hatchery)

% Ad-clipped (Hatchery)



Adult Return History of Fish Tagged as Juveniles

Run Year(N)	Month of Detection at Bonneville	Month of Detection at Lower Granite
2008(7*)	Jul-3, Aug-3	Sep-1, Oct-4, Apr('08)-1
2009(8)	Jul-7, Aug-1	Jul-1, Aug-1, Sep-3, Oct-1, Nov-1, Mar('09)-1
2010(11*)	Jul-5, Aug-3, Oct-1	Aug-2, Sep-2, Oct-3, Nov-2
2011(5)	Jul-5	July-3, Oct-1, Nov-1

Adult Returns Tagged as Adults at Lower Granite Dam

Run Year	N	Month of Tagging
2010	14	Sep-6, Oct-4, Nov-2, Mar('10)-1
2011	17	Jul-1, Aug-2, Sept-8, Oct-4, Nov-1, March('11)-1

RY 2010 1 tagged at B'ville Adult Fish Facility ,
1 tagged at Priest Rapids

Juvenile Outmigrant Life History Metrics

- Abundance/Seasonal Outmigration
- Freshwater age
- Survival to Lower Granite Dam
- Detections of small outmigrants
- Arrival timing at Lower Granite Dam
- Travel time to Lower Granite
- Size at PIT-tagging of detections

Shall I go....or shall I stay?



Methods

1.5 m Rotary Screw Trap

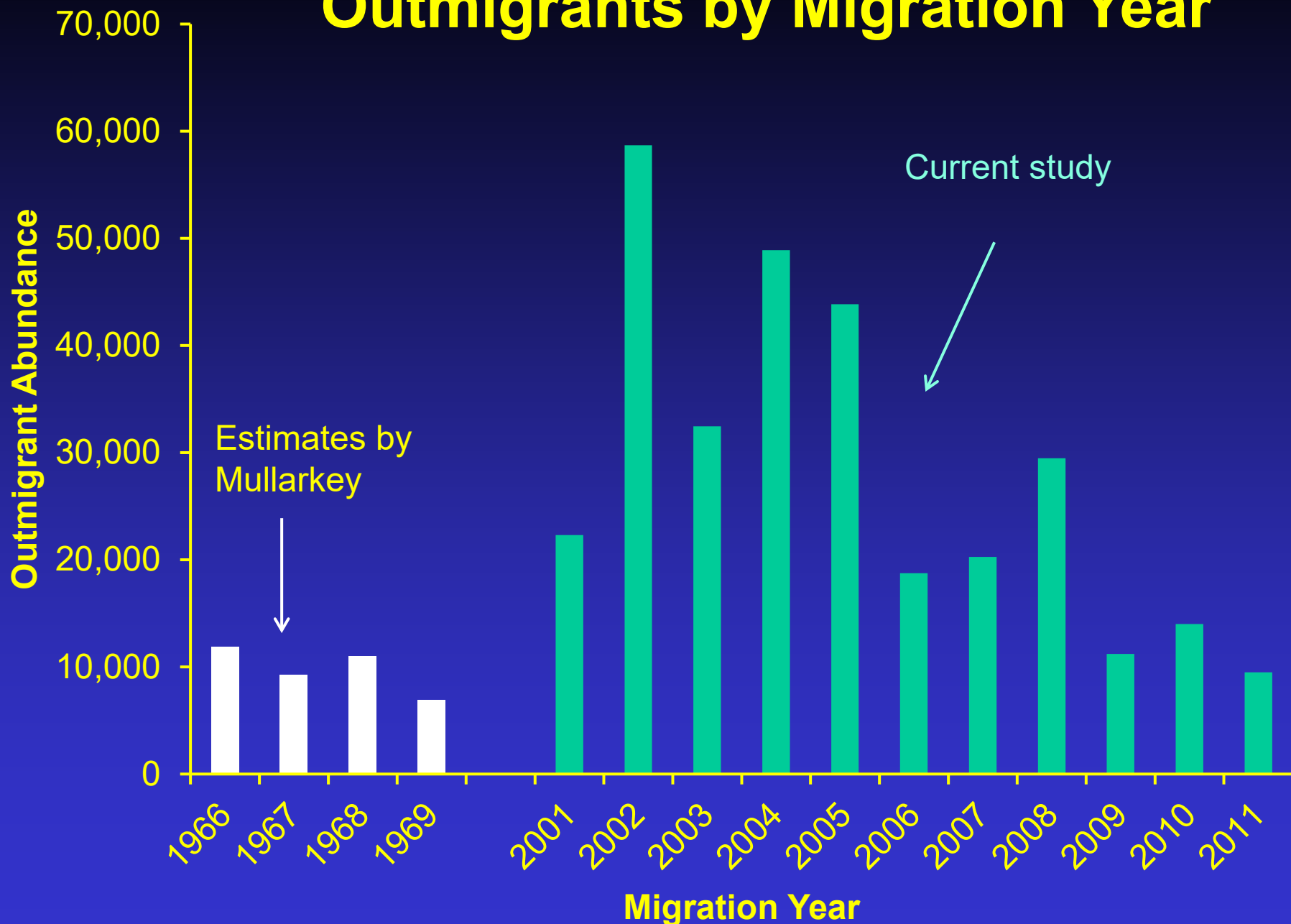
- Enumerate, FL/weight/tags
- Pit tag portion of catch
- DARR software to estimate abundance (M/R)
- PITPRO –survival, travel time to Lower Granite Dam
- Arrival timing to Lower Granite Dam
- Migration Year 1 July through following June 30 (Fall, Spring Groups)





“Fish Out” Results

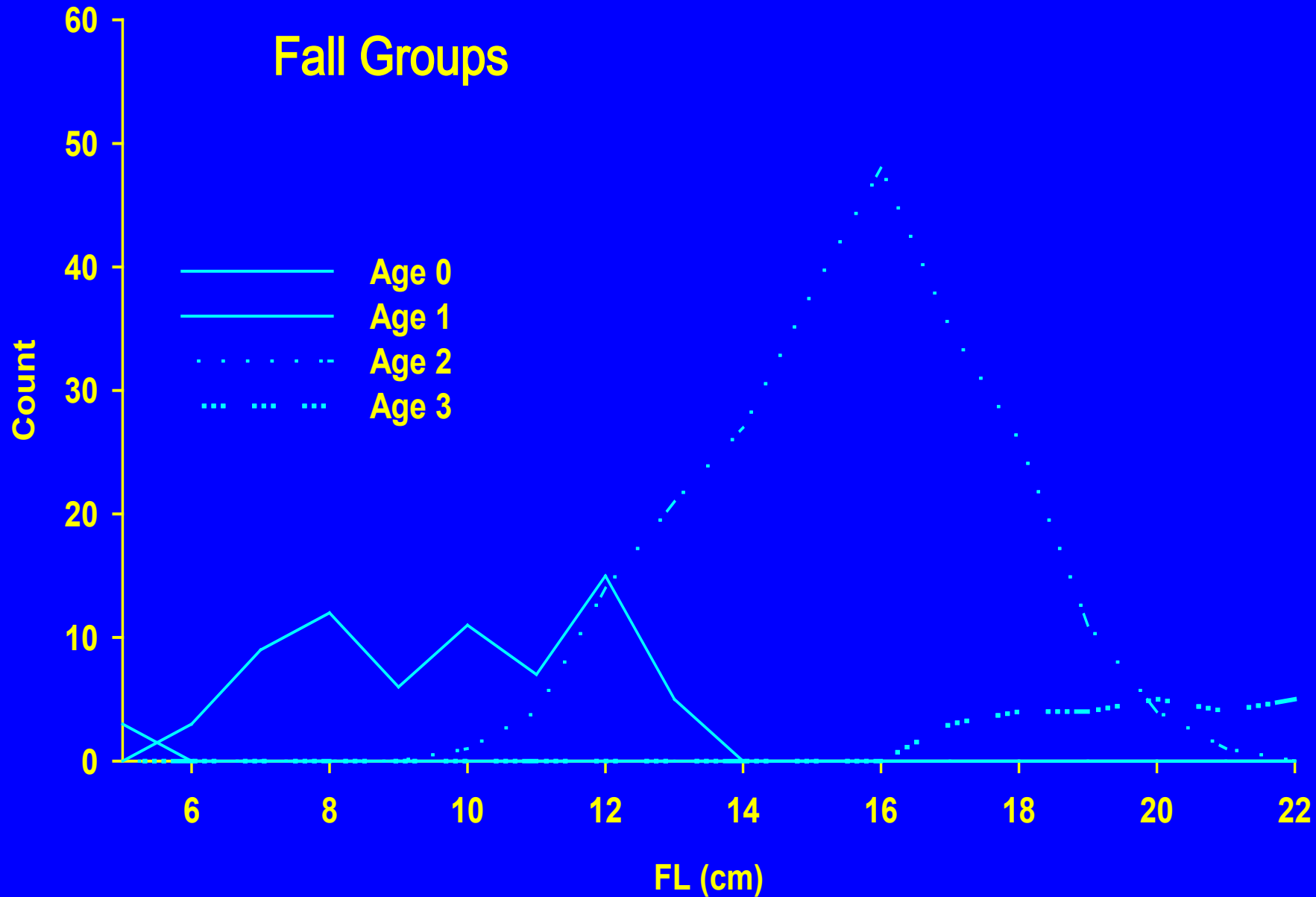
Outmigrants by Migration Year



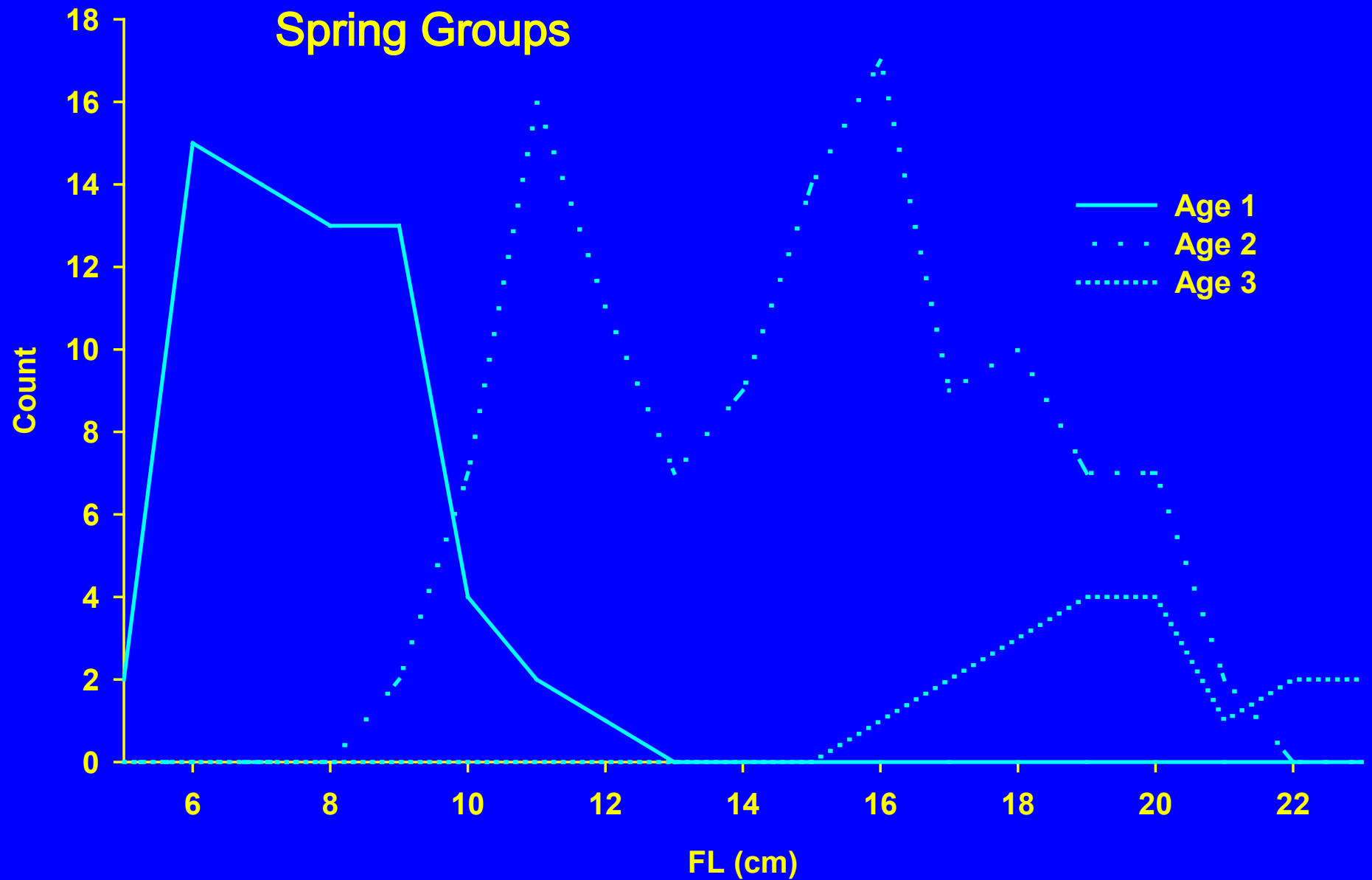
Mean FL of Outmigrants



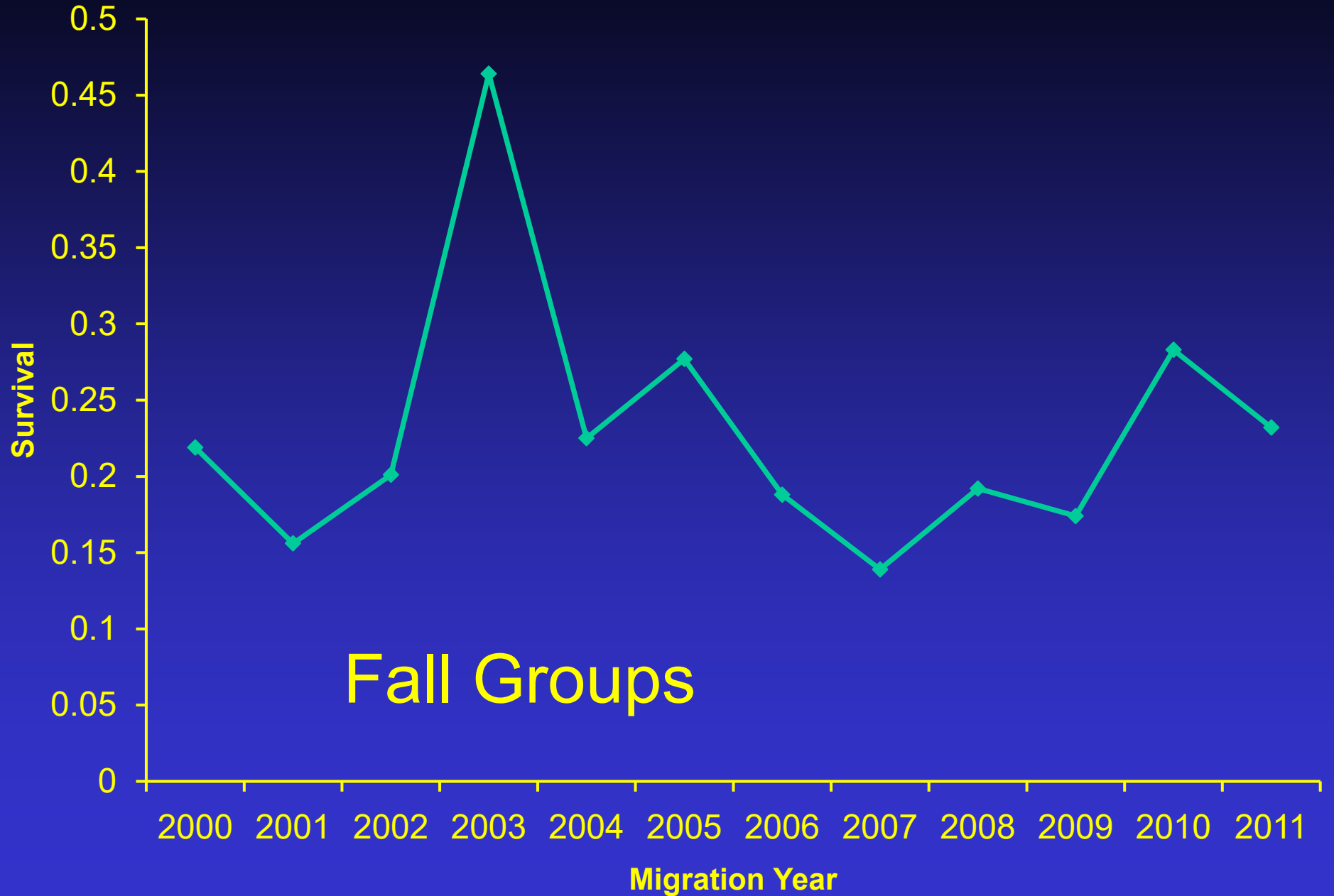
Freshwater Age Composition



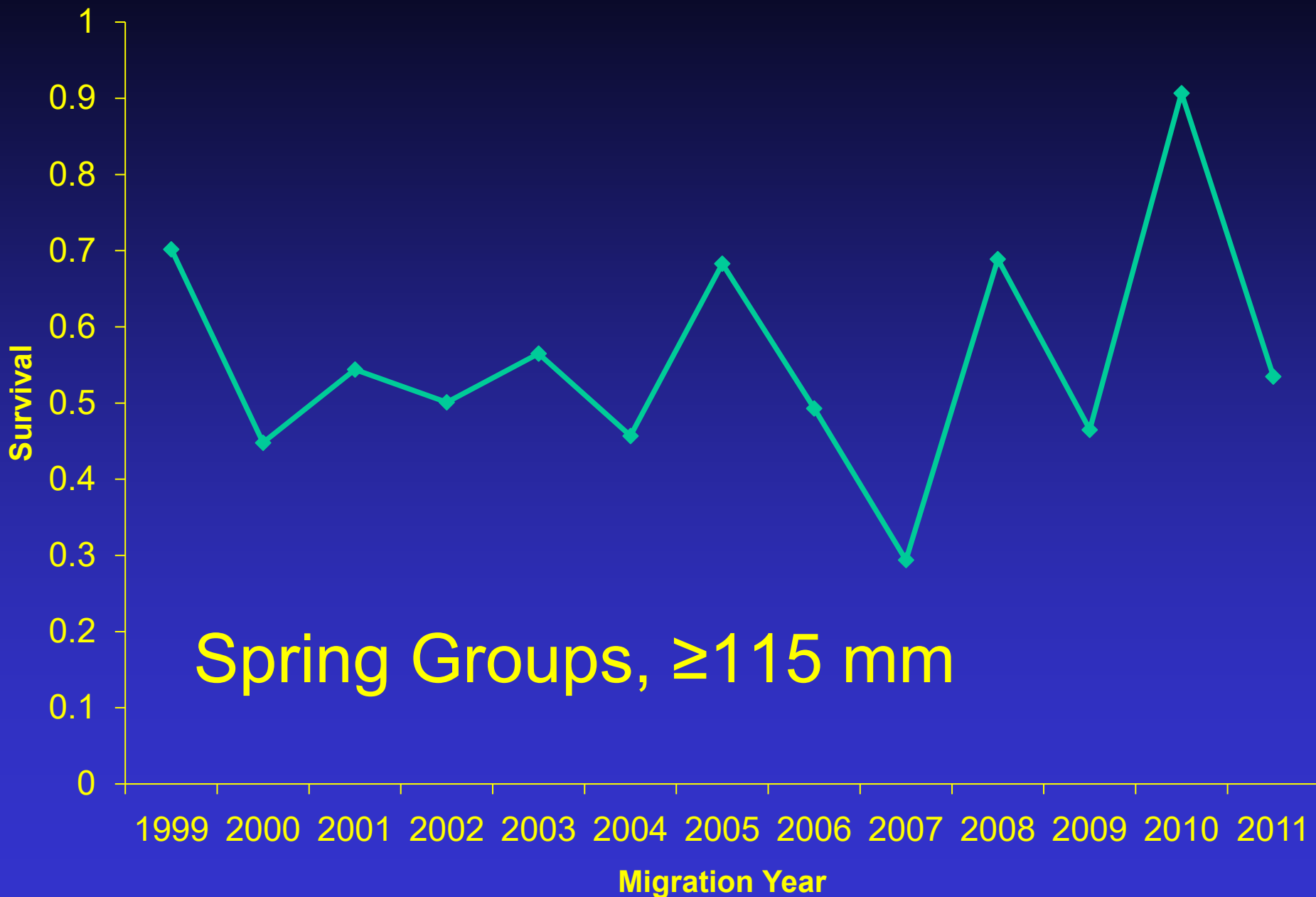
Freshwater Age Composition



SURVIVAL TO LOWER GRANITE DAM



SURVIVAL TO LOWER GRANITE DAM

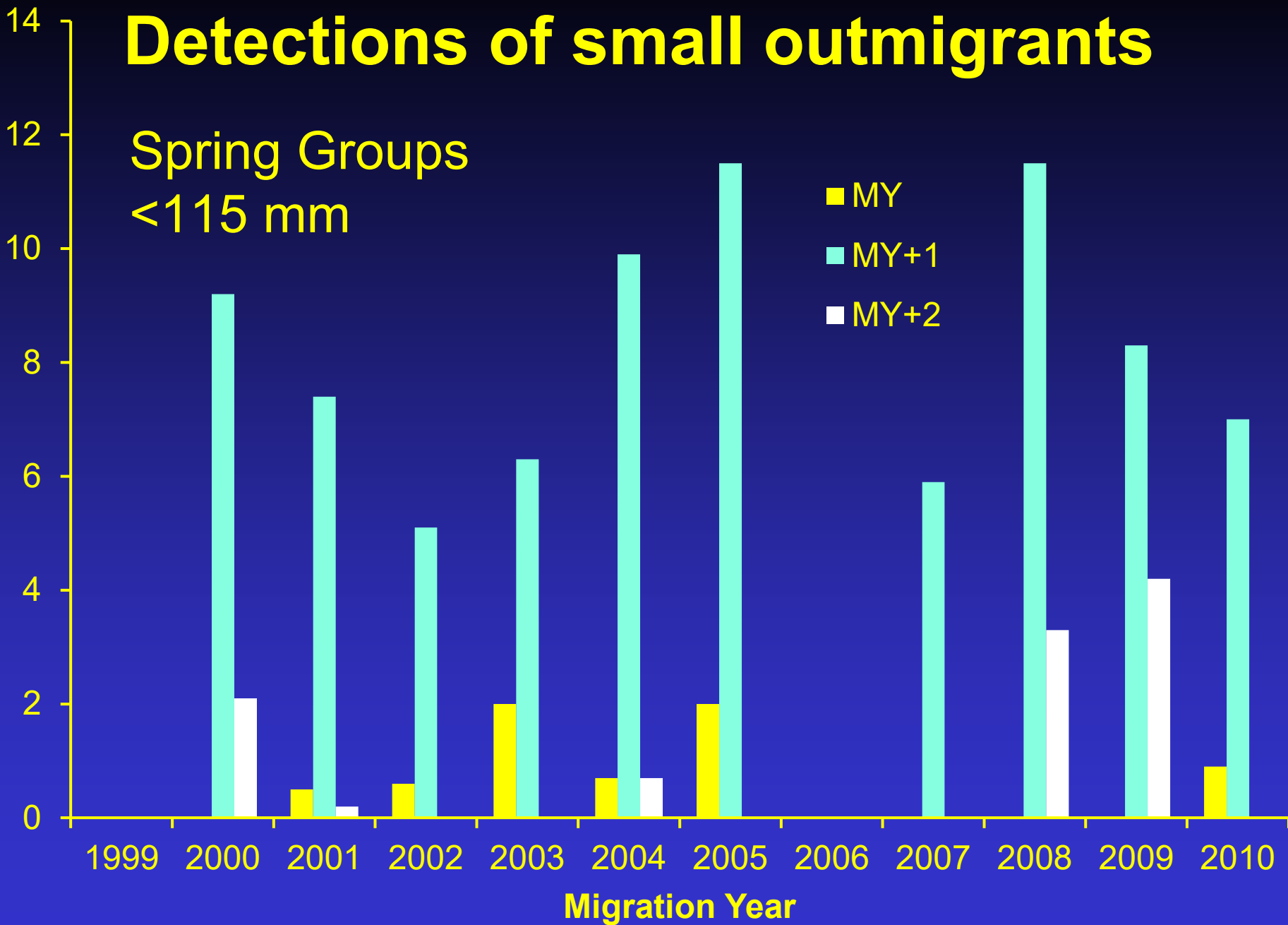


Detections of small outmigrants

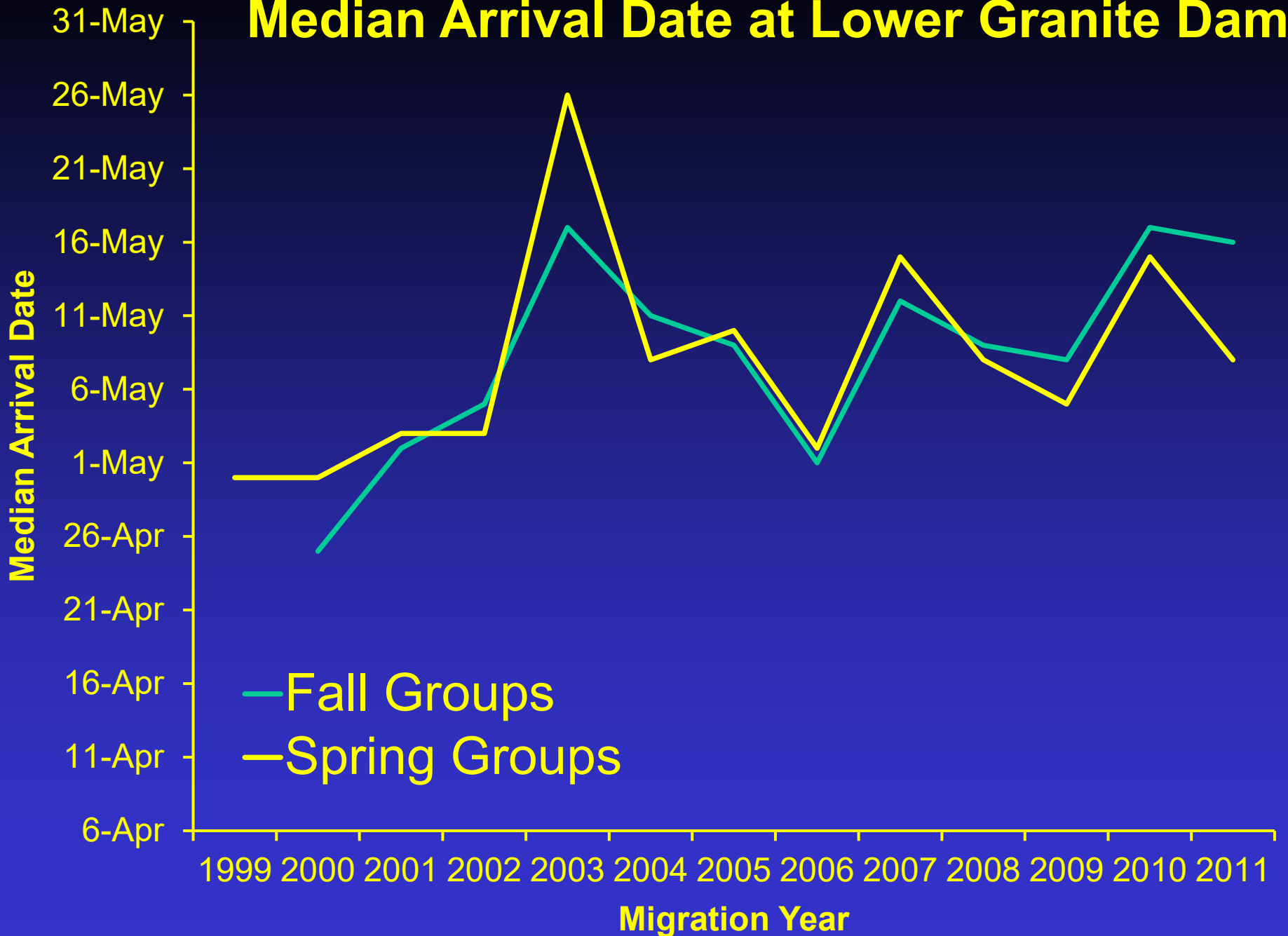
Spring Groups
<115 mm

Unique Detections

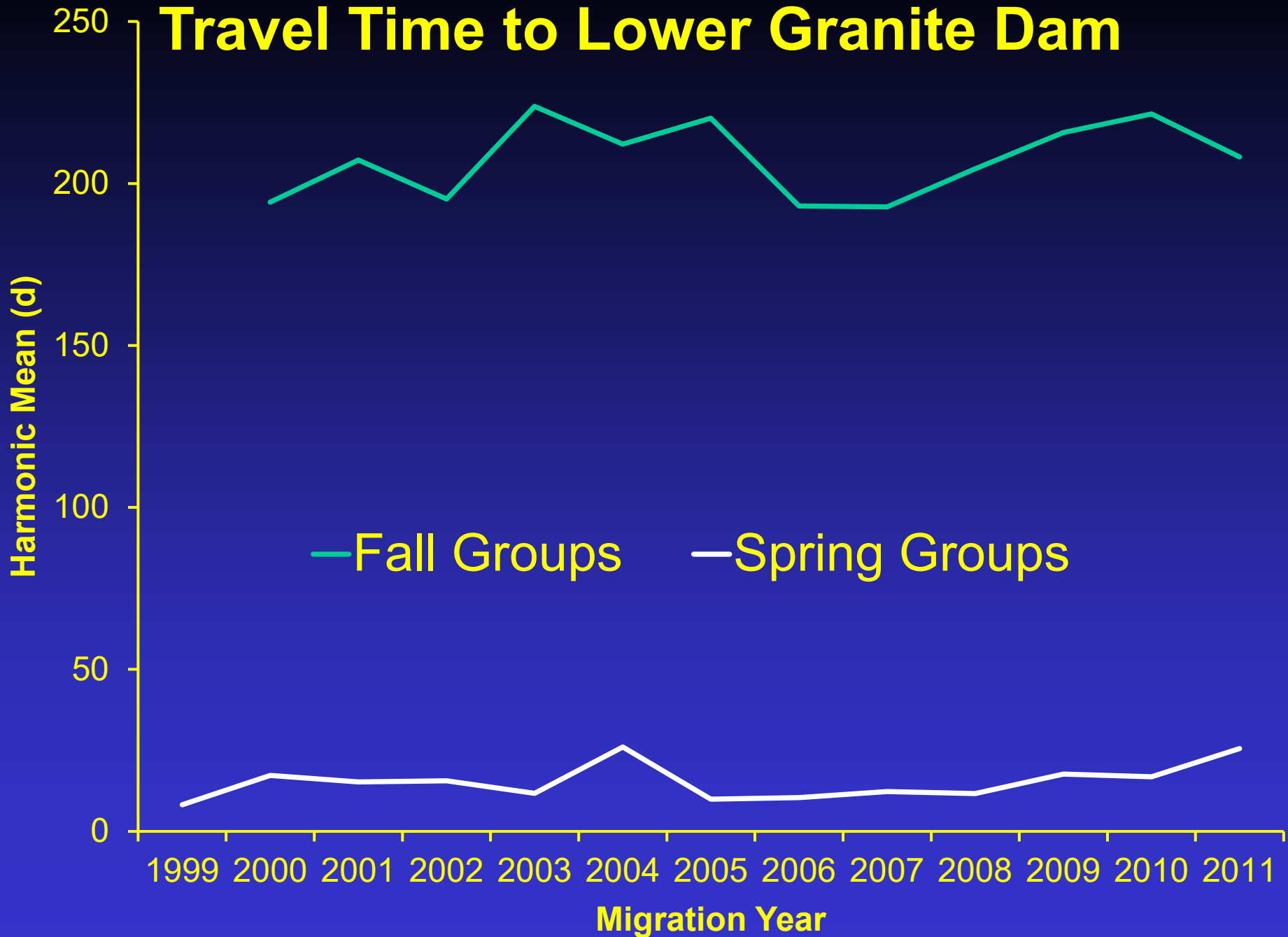
■ MY
■ MY+1
■ MY+2



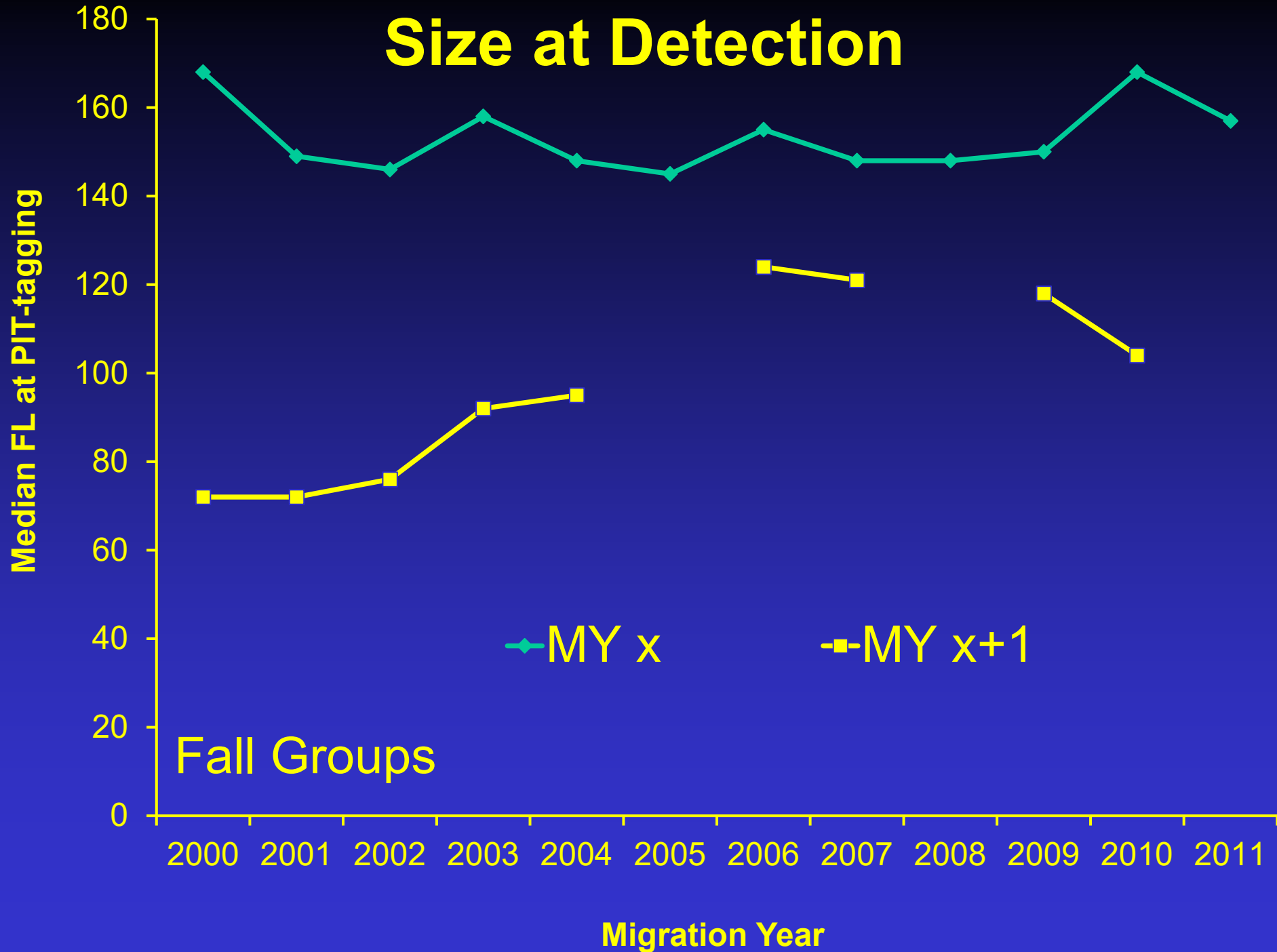
Median Arrival Date at Lower Granite Dam



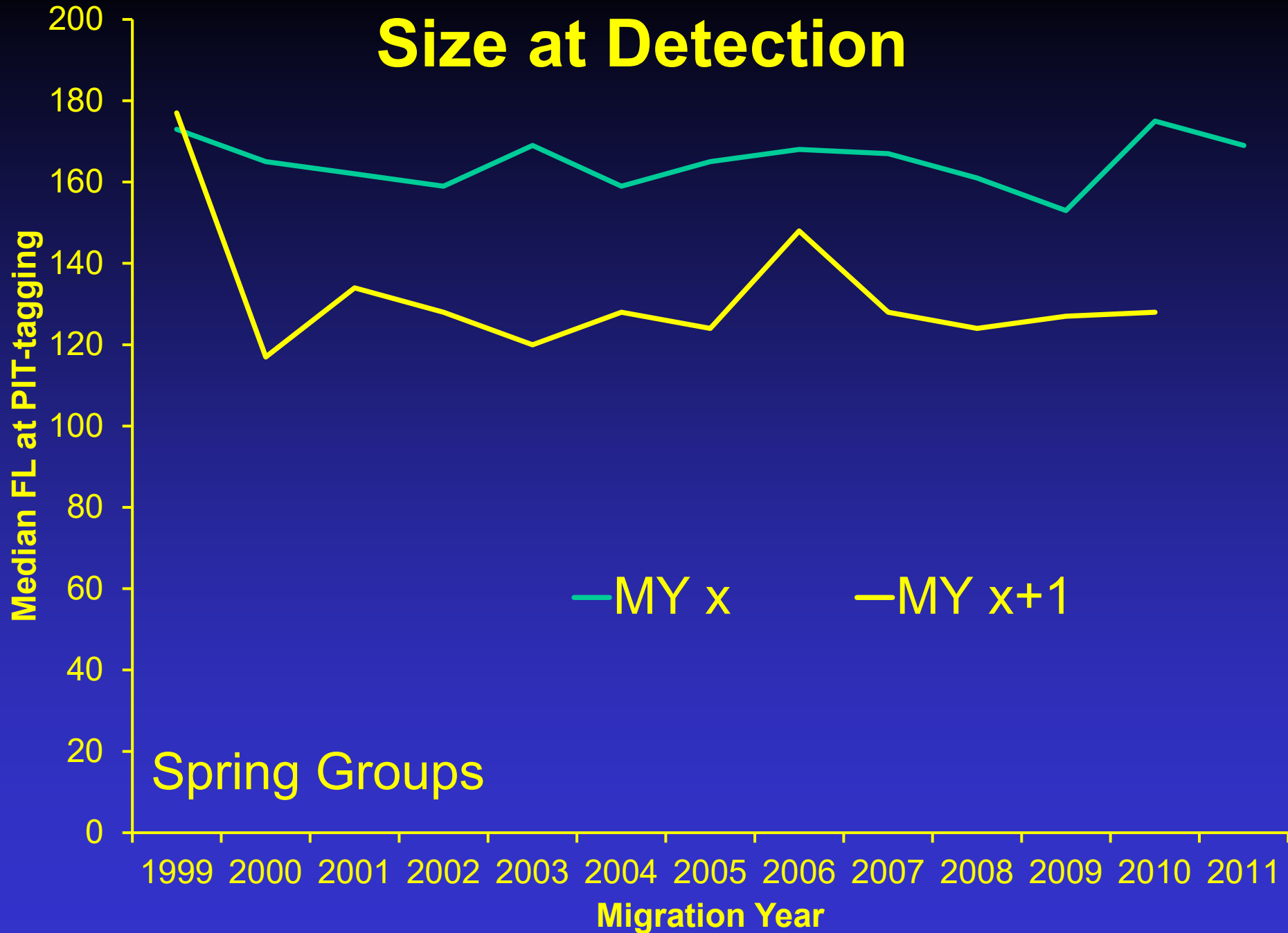
Travel Time to Lower Granite Dam



Size at Detection



Size at Detection



Summary

- Adult abundance 3X increase, stable last 11 years
- Outmigrant abundance increase, then decrease
- Other life history metrics similar to those for Catherine Creek, A-run wild fish over Lower Granite (ocean/FW age composition, sex ratio, outmigrant arrival timing)

Recovery Implications

- **Lookingglass Creek summer steelhead are within the Upper Grande Ronde population**
- **Upper Grande Ronde is one of 4 populations within the Grande Ronde MPG (others Lower Grande Ronde, Wallowa R., Joseph Creek)**
- **Minimum Abundance Threshold of 1,500 for Upper Grande Ronde population**
- **Gaps in understanding: anadromy/residency, survival, interactions**

Acknowledgments

CTUIR O&M

ODFW Lookingglass Hatchery/Fish

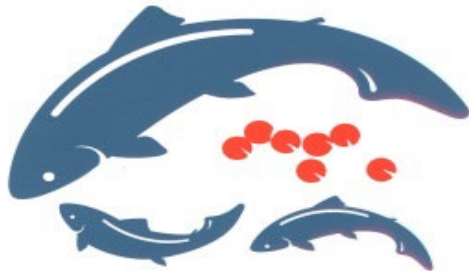
Research

LSRCP

CTUIR DNR

Nez Perce Tribe

Umatilla National Forest



LOWER SNAKE RIVER
COMPENSATION PLAN



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Questions