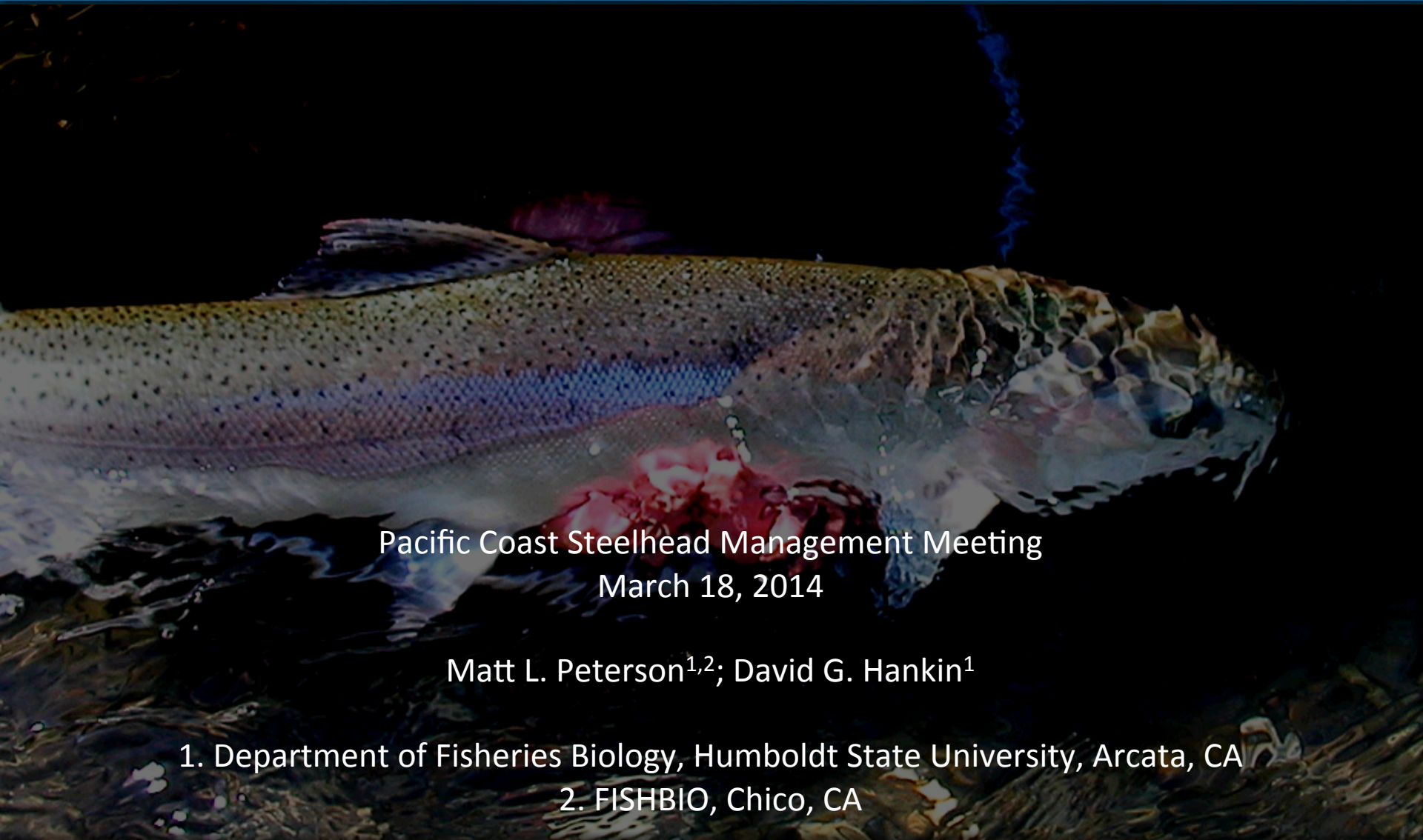


Influence of size at release on the half-pounder life history among Trinity River Steelhead



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Introduction

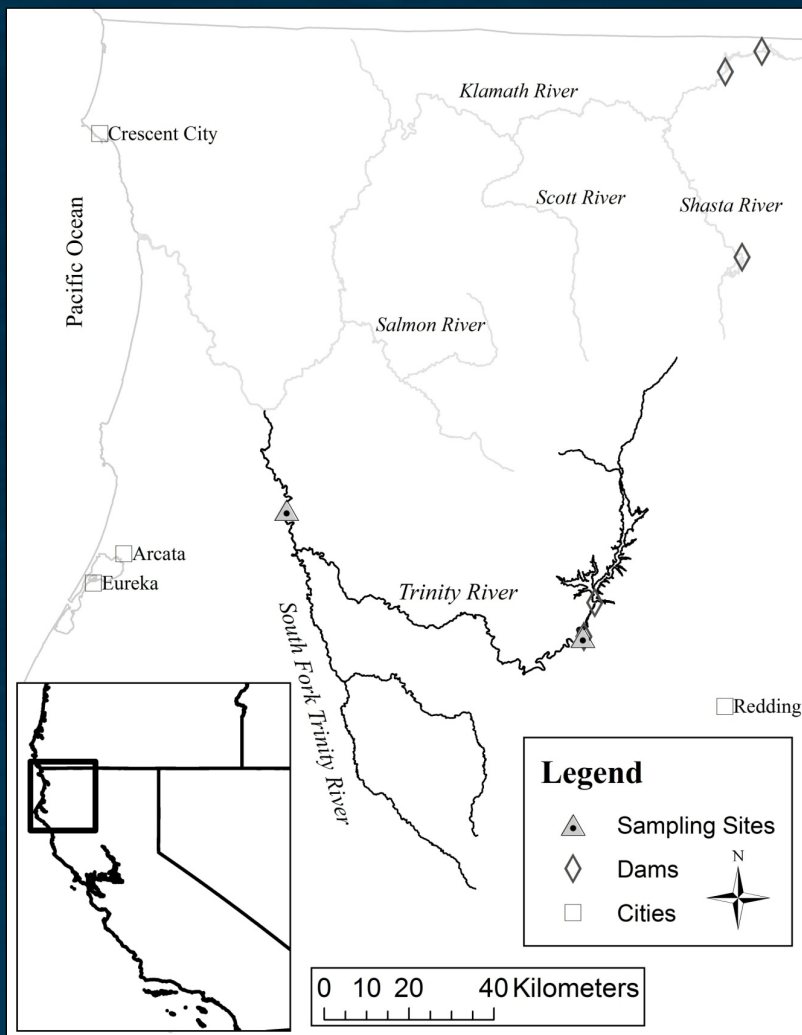
- Background Information
 - Description of half-pounder life history
 - Klamath - Trinity system
- Methods
 - Life history pathways
 - Scale analyses
 - Analysis
- Results
- Conclusions

Introduction

- Background Information
 - Steelhead / half-pounder life history



Study Site



- Trinity River Study Locations
 - Willow Creek Weir (Rkm 36.5 from confluence with Klamath River)
 - Trinity River Hatchery (Rkm 182.5)

Methods

- Archived and contemporary scale collections
- Archived scale samples from CDFW Arcata Office
 - Willow Creek weir (1982, 1991 – 1996, 2000)
- Contemporary scale samples
 - Willow Creek weir (Fall 2007, 2008, 2009)
 - Tributary sampling (Fall 2008)
 - Hook and Line sampling (Fall 2008 – Spring 2009)
 - Trinity River Hatchery broodstock (Spring 2009)



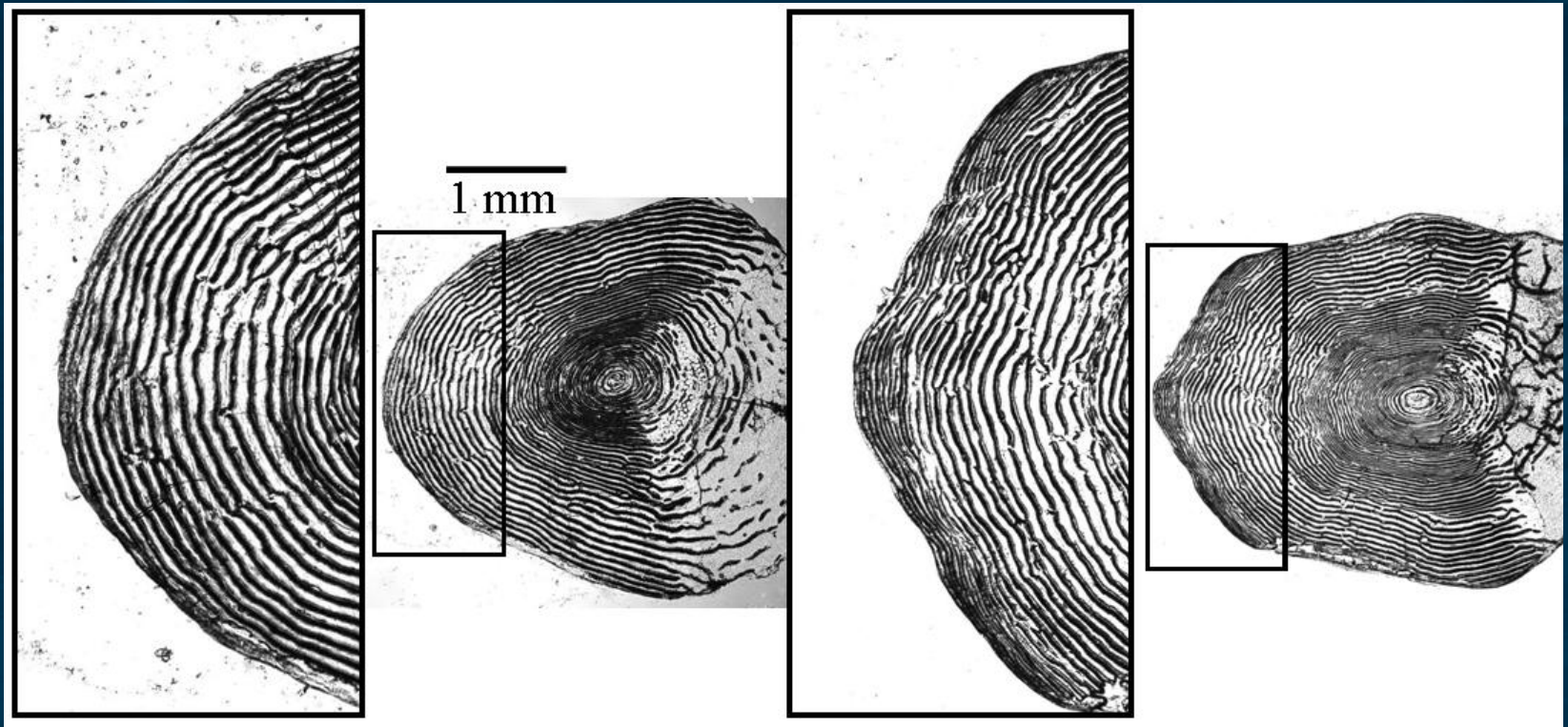
Methods

- Complex life history pathways associated with half-pounder life history
 - Cohort reconstruction



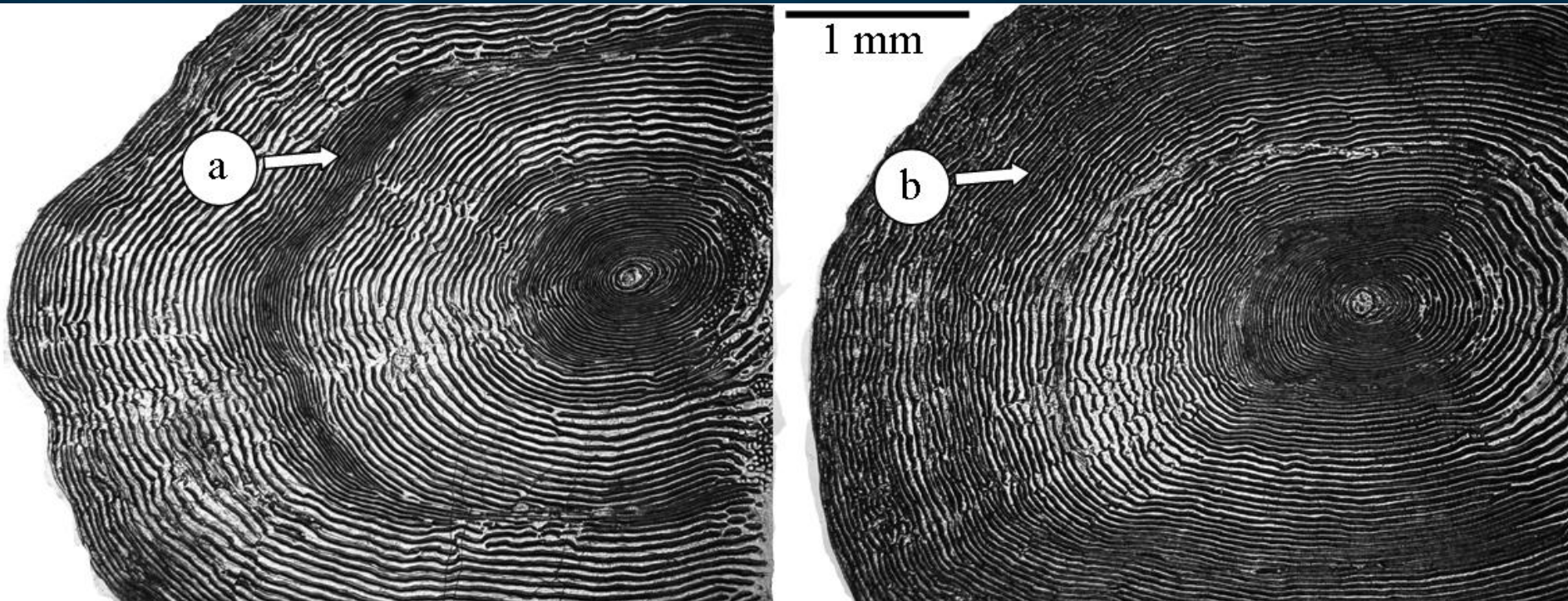
Methods

- Scale Analyses



Methods

- Scale Analyses



Methods

- Logistic Regression
 - Developed set of candidate logistic regression models to explain the presence or absence of half-pounder check
- Wild steelhead
 - Age at ocean entry, size (estimated back-calculated fork length [BCL]), and year of ocean entry
- Hatchery steelhead
 - BCL at ocean entry, year of ocean entry, and mean weight of release

Results

- Estimated Proportions of hatchery steelhead

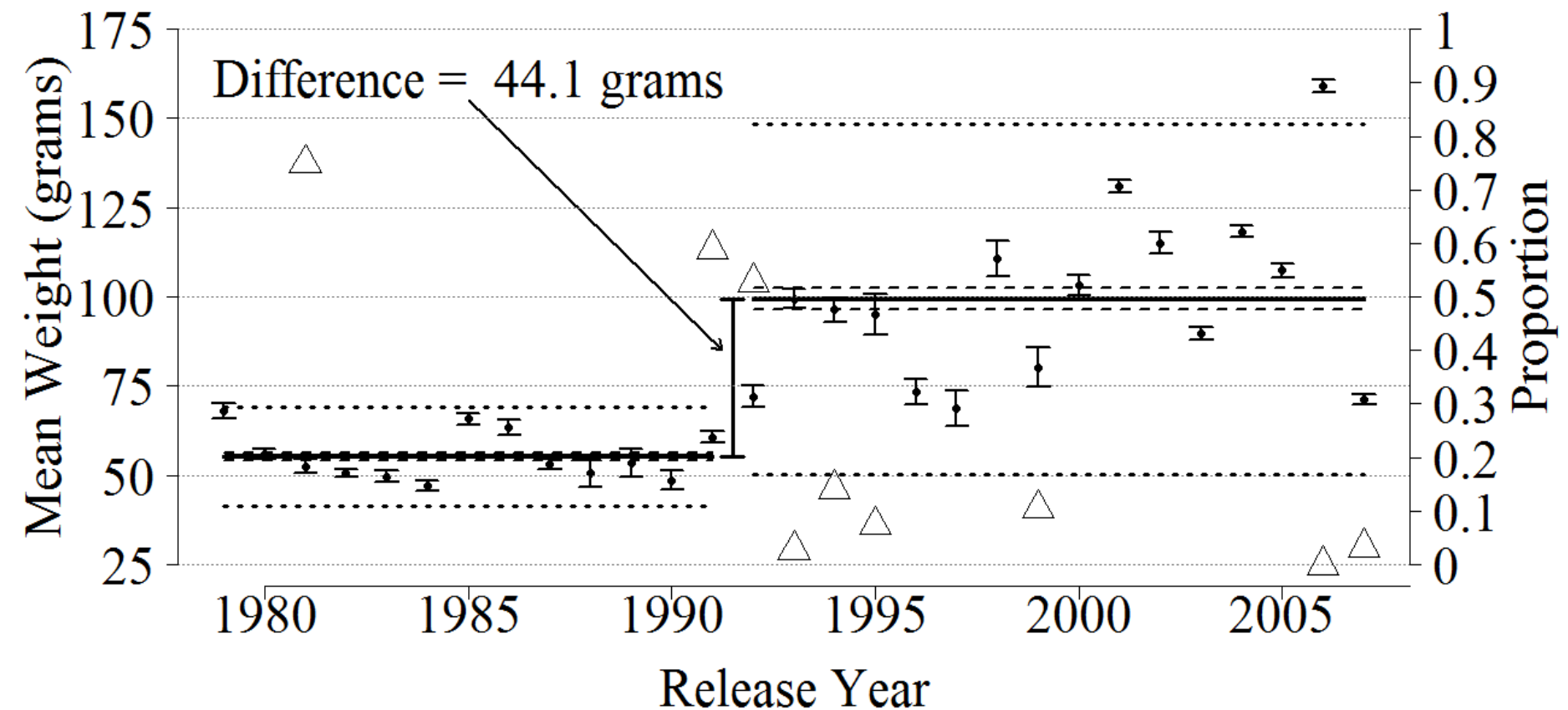
	Hatchery Adult Proportions (age 1 smolts)		
Smolt Year(s)	Number of that exhibited half-pounder life history	Total	Proportion
1981, 1990-1992	93	175	0.53
1993-1995, 1999, 2006-2008	44	692	0.06
Totals	137	867	0.16

Results

- Logistic regression results
 - Wild steelhead (n = 587)
 - Age (-)
 - Size at end of freshwater* (-) (n = 479)
 - Year of ocean entry
 - Hatchery steelhead (n = 741)
 - Age (Not evaluated)
 - Size at ocean entry (-)
 - Mean weight of release year* (-) (n = 497)
 - Year of ocean entry

Results

- Mean weight of TRH smolt releases

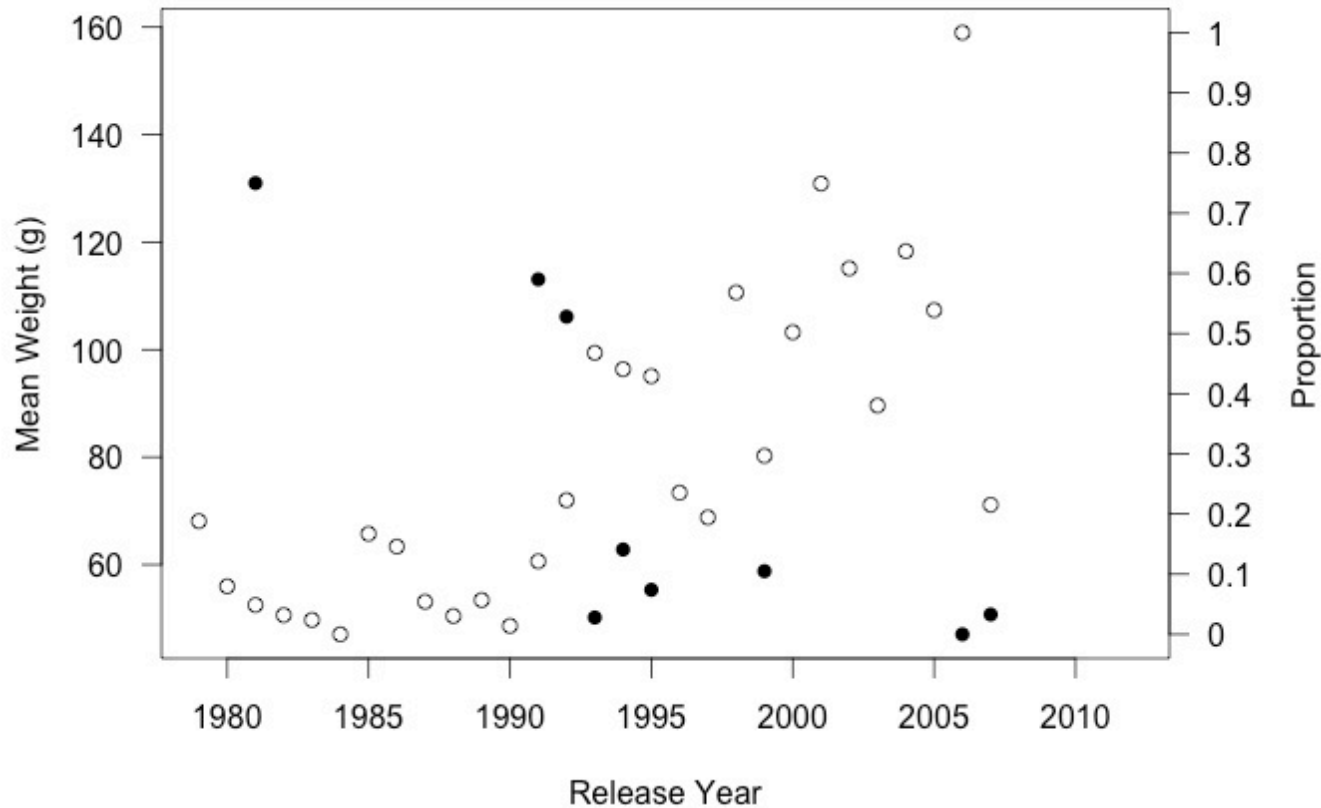


Summary

- Consistent pattern among hatchery and wild steelhead in the response
 - Steelhead smolts that entered the ocean at smaller sizes were more likely to exhibit the half-pounder life history
- Mark-recapture studies suggest that half-pounder proportions among hatchery steelhead in the early 1980s may have been quite high
 - Dennis Lee (unpublished draft report)
- Increased size at release of TRH steelhead smolts (1980 – 2007)
 - Potentially associated with decrease of half-pounder proportions over the same period

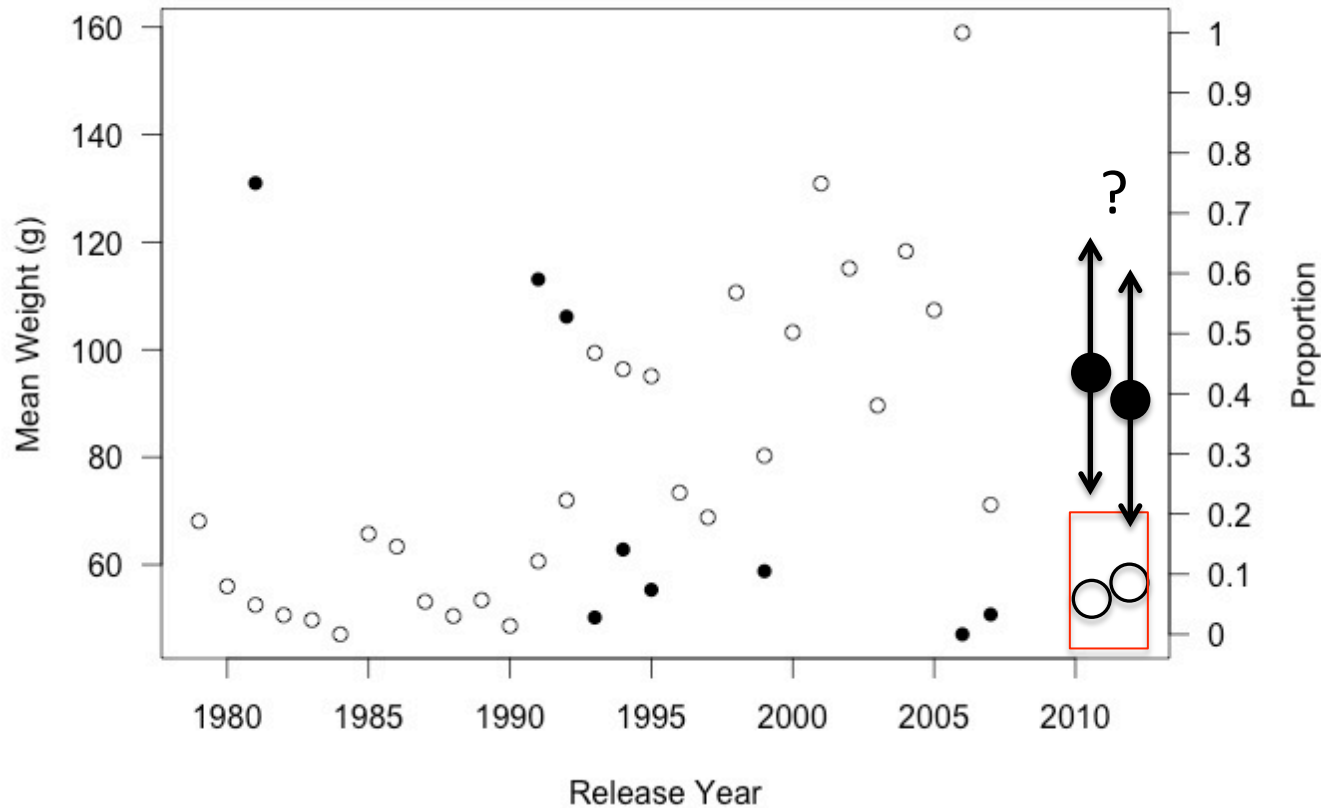
Further Research

- Unexpected opportunity
 - Releases of TRH smolts in 2011 and 2012 were unusually small (by weight)



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Acknowledgements

Funding provided by: California Department of Fish & Wildlife (Steelhead Fishing Report and Restoration Card), the Hoopa Valley Tribe, and by scholarships from the Granite Bay Flycasters and the Marin Rod & Gun Club

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Questions?

