

Slippery Slope: Documenting the Decline of Smelts in the San Francisco Estuary

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Delta and Longfin Smelt:
Is Extinction Inevitable?
UC Davis
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Take Home Messages

- Abundance of both smelts -> severe decline
- Both smelts exhibit resilience
- Shifts in distribution can influence abundance

Outline

- Briefly describe the monitoring surveys providing abundance data
- Review recent abundance patterns
- Identify some limitations
- Wrap up

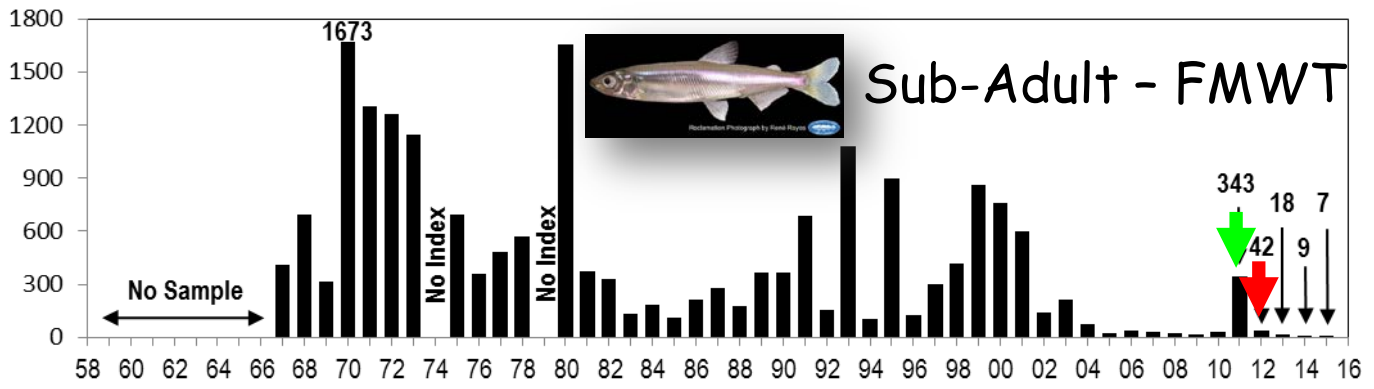
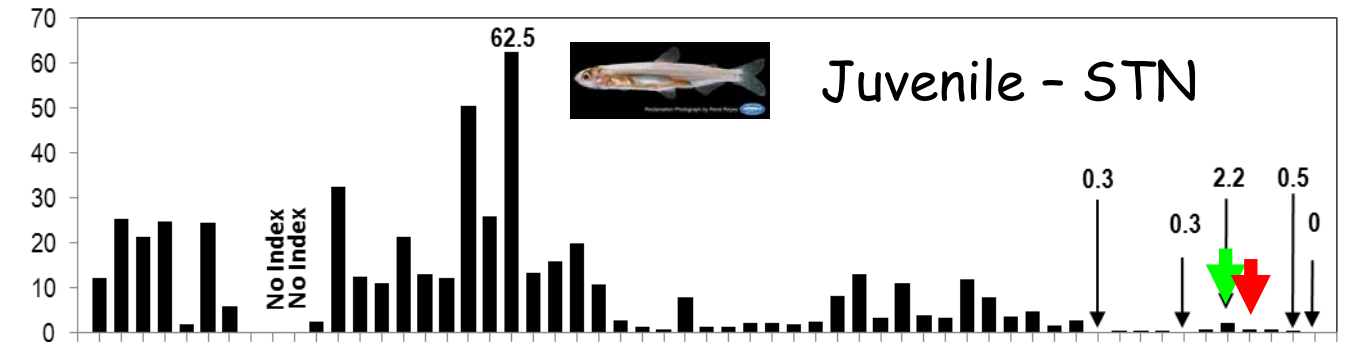
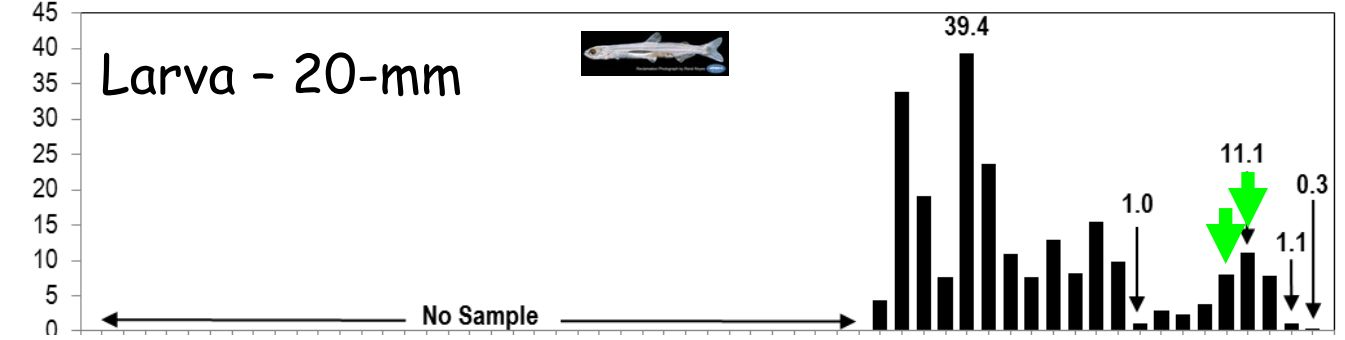
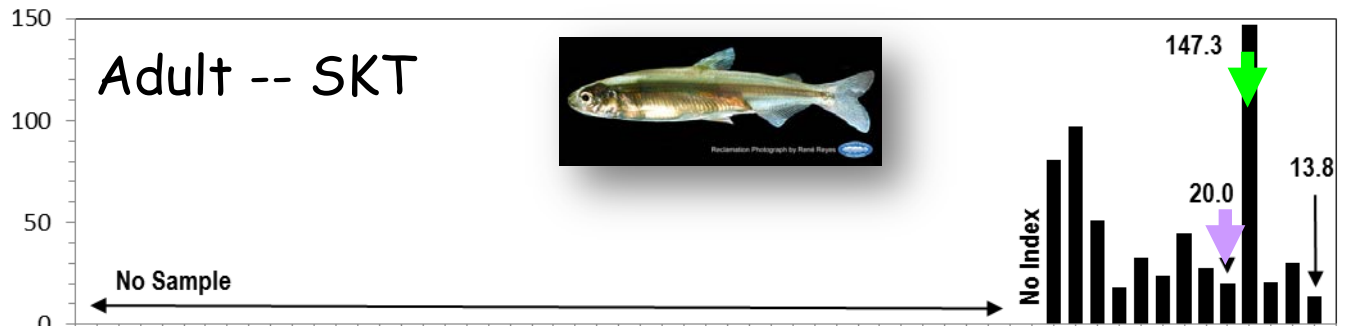
Fish Monitoring Surveys



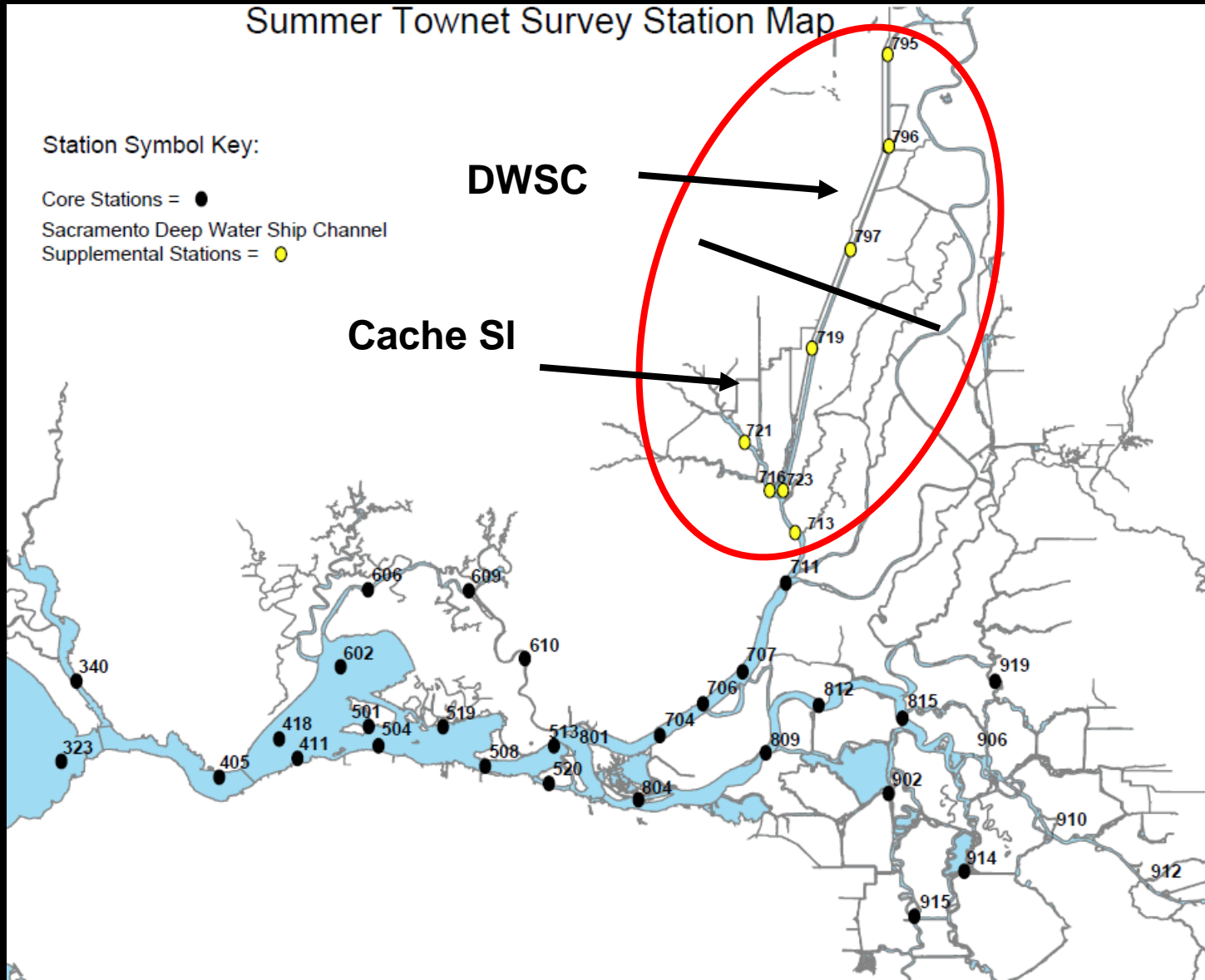
Delta Smelt - all sample ~ range of Delta Smelt

- Adults -> Spring Kodiak Trawl (SKT), single surface tow
- Larvae/small juveniles -> 20-mm (20-mm), 3 oblique tows
- Juveniles -> Summer Towner (STN), 3 oblique tows
- Sub-adults -> Fall Midwater Trawl (FMWT), single oblique tow

Abundance

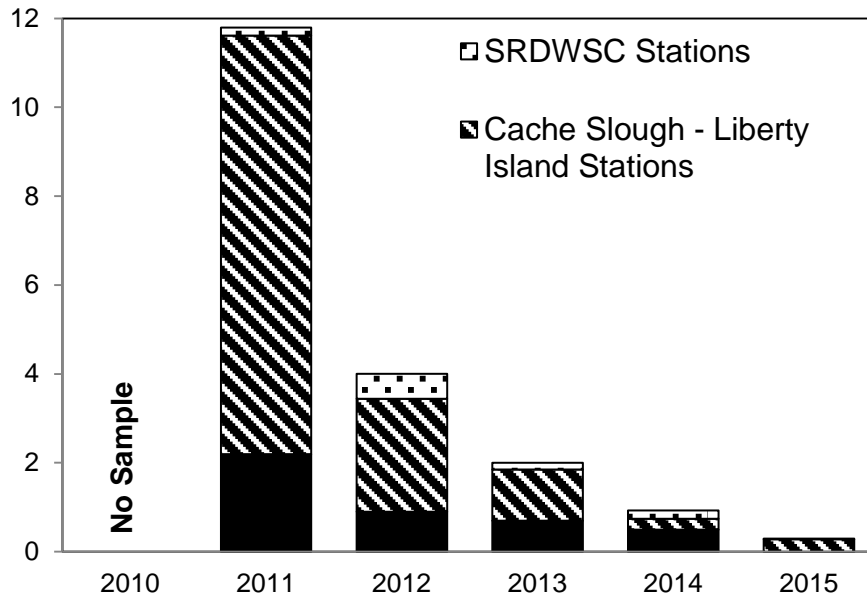


Delta Smelt - North Delta... Undiscovered Habitat?

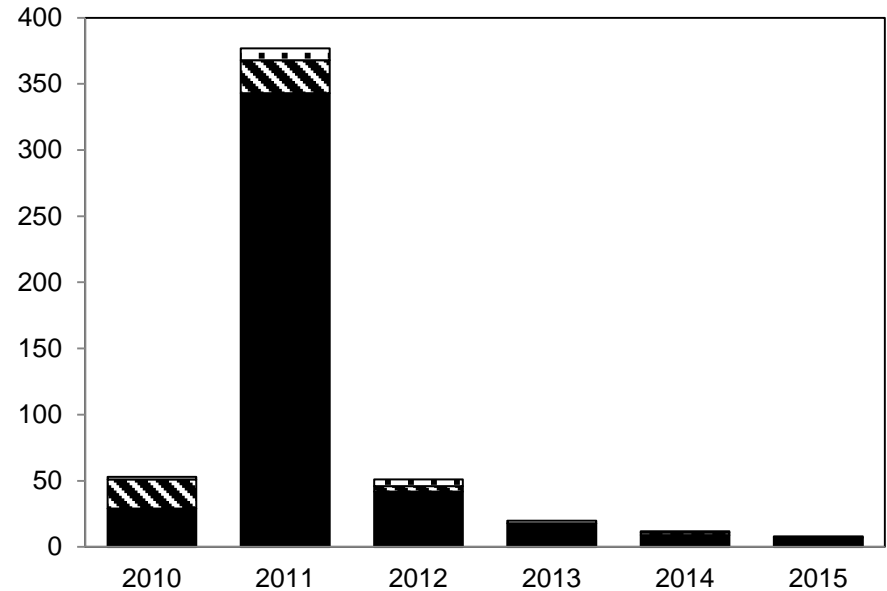


Delta Smelt - North Delta... Undiscovered Habitat?

Summer Abundance Summer Towntet



Fall Abundance Fall Midwater Trawl



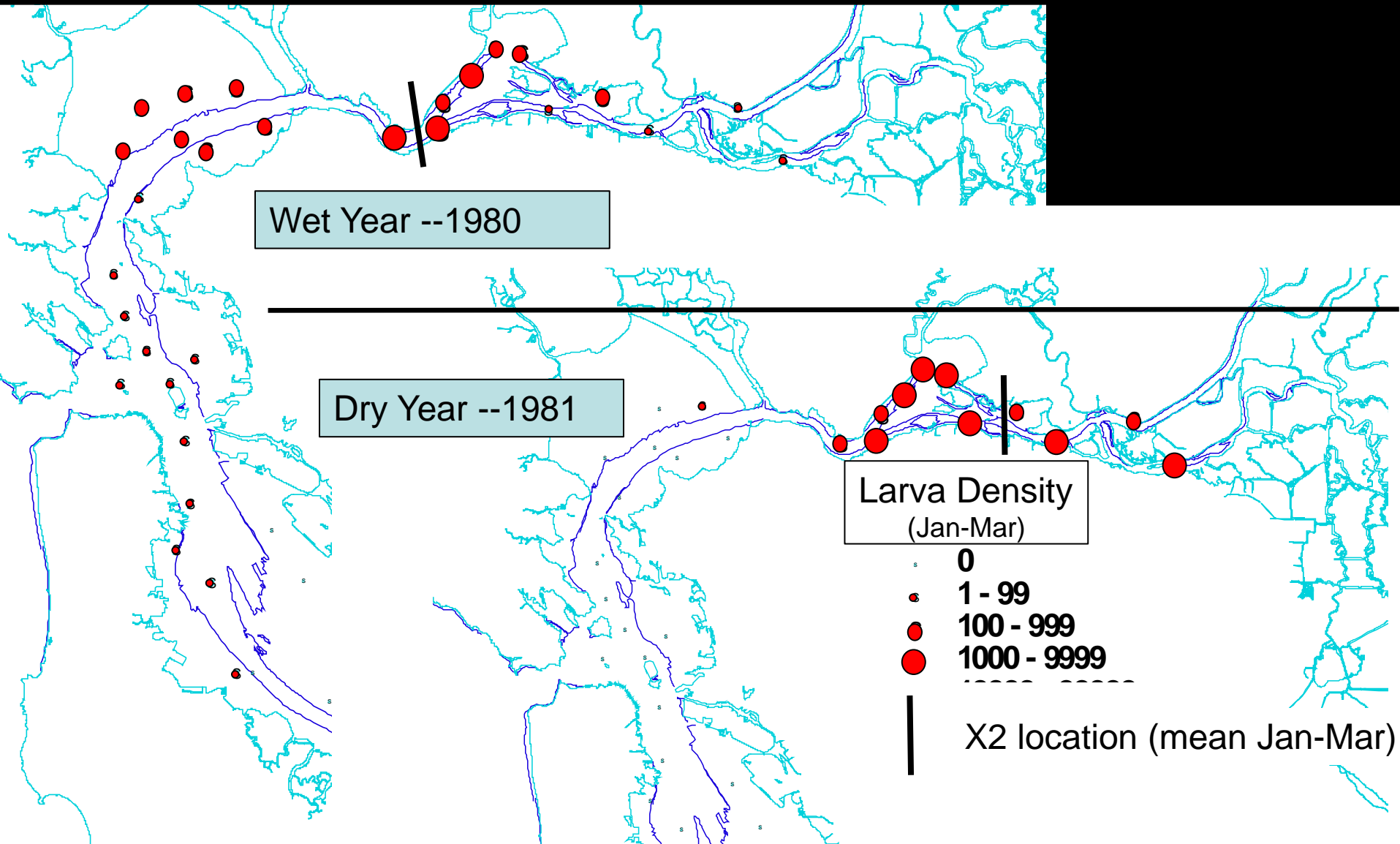
Fish Monitoring Surveys



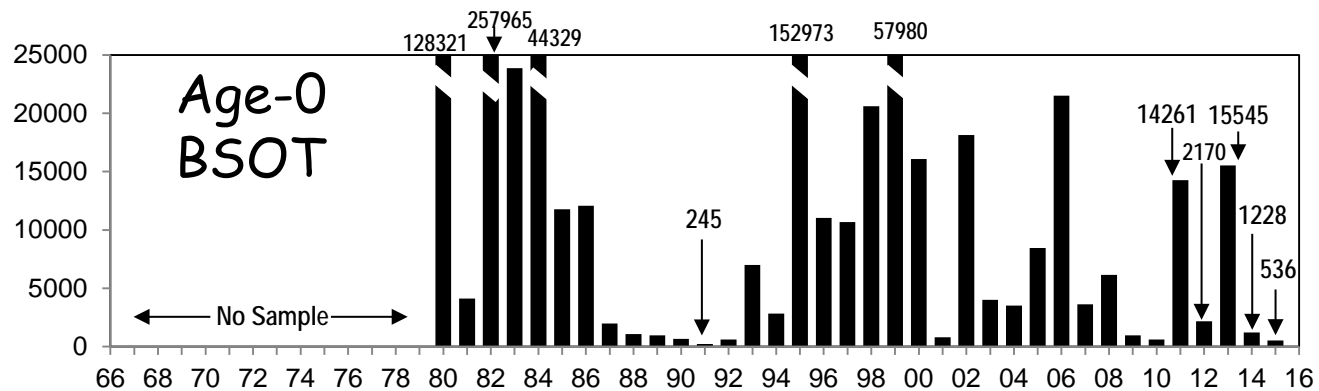
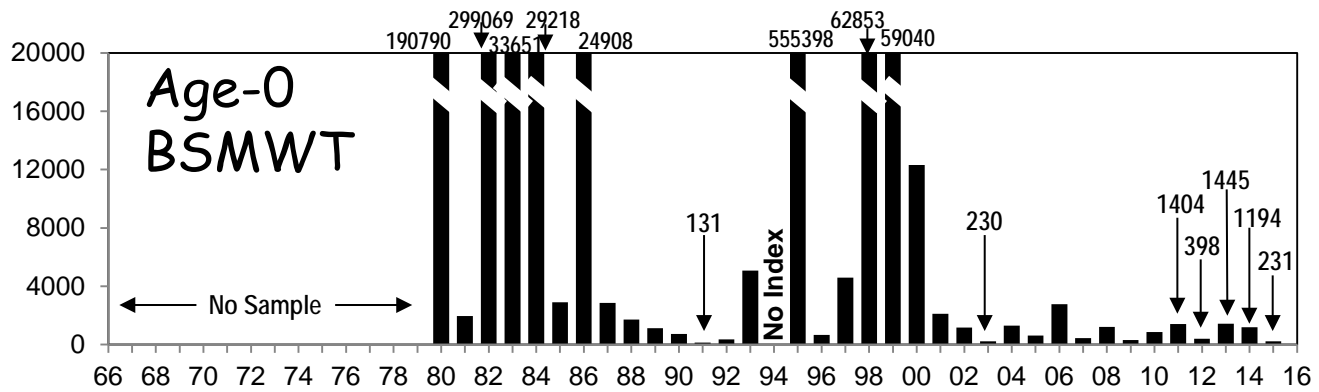
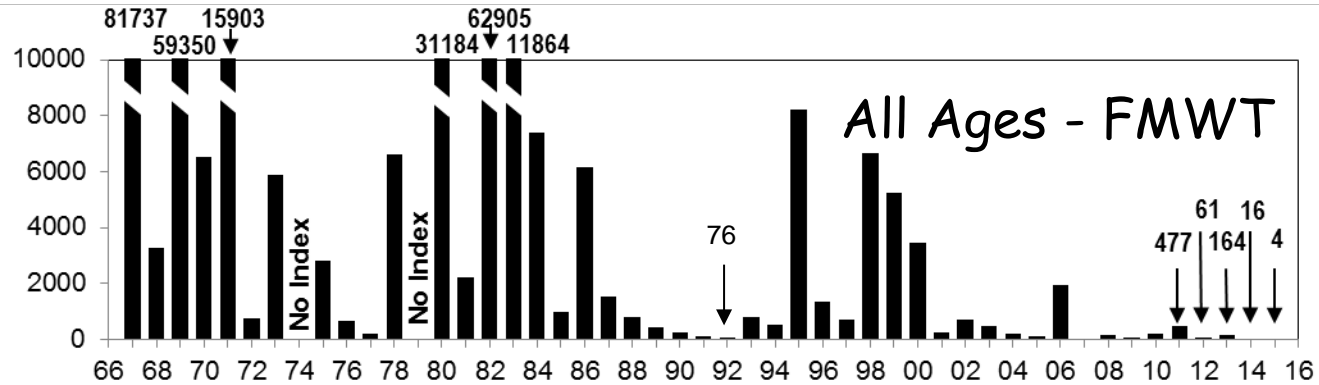
Longfin Smelt - only juvenile and to a lesser degree adults sampled well

- Fall Midwater Trawl (FMWT) -> September-December, oblique tow, *San Pablo Bay upstream*, juvenile and adult contribute
- Bay Study Trawls-> year-round, entire estuary, only juvenile
 - Midwater Trawl (Bay MW) -> oblique tow
 - Otter Trawl (Bay OT) -> bottom tow

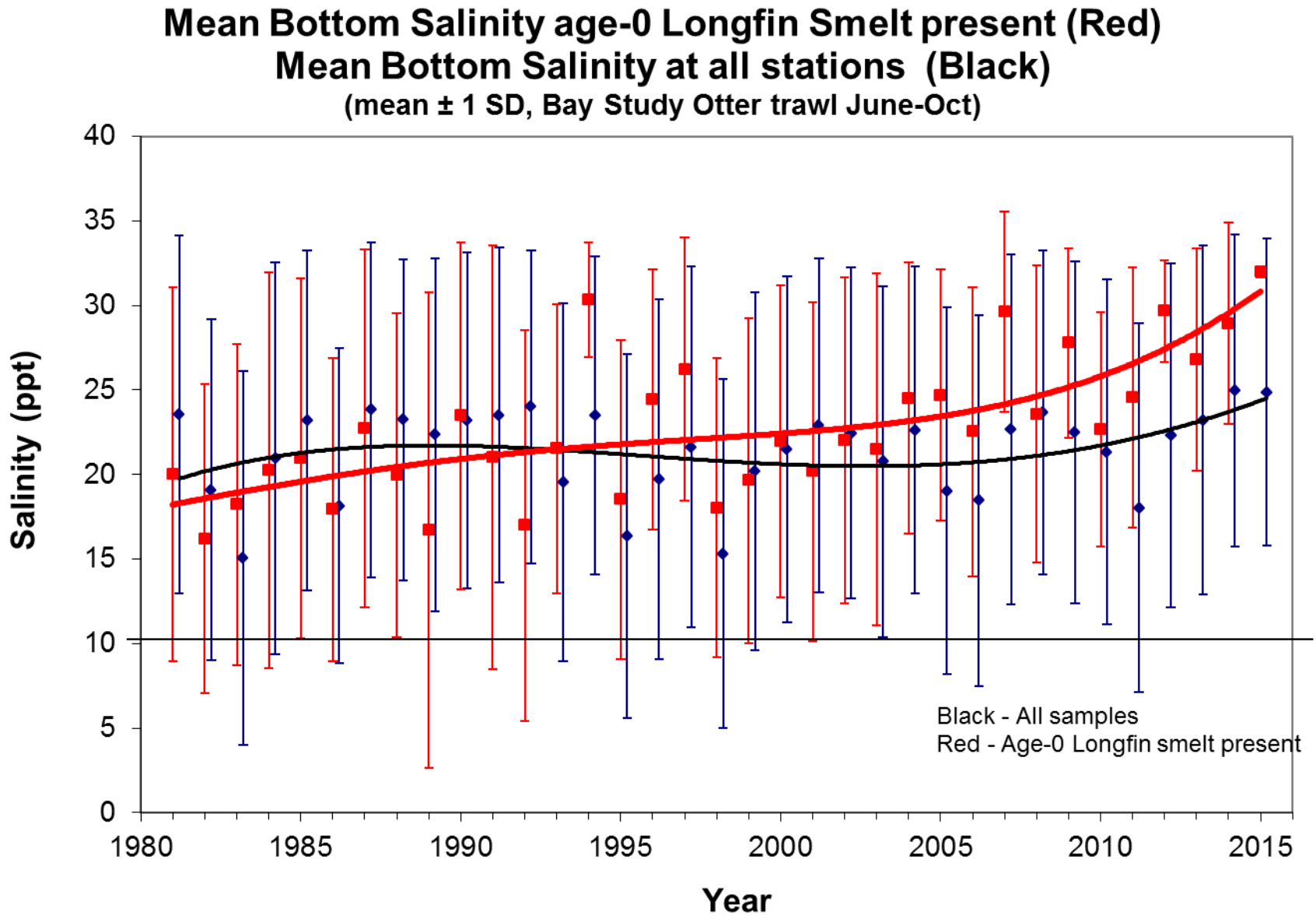
Longfin Smelt larva distribution shifts w/ outflow



Longfin Smelt Abundance



Longfin Distribution shifting downstream



Summary

- Abundance of both smelts is declining
- Multiple surveys for each substantiate pattern
- Some surveys result in low detections
- Hopeful that smelts have not lost resilience

Acknowledgements

- Jennifer Giannetta and Kathy Hieb updated Bay Study indices and the salinity-distribution.
- Felipe La Luz calculated STN indices historical and based on north Delta sampling.
- Sarah Finstad calculated FMWT indices, historical and based on north Delta sampling, and provided updated abundance graphics.
- Lauren Damon provided updated SKT indices.
- Rene Reyes (USBR) took smelt pictures.

The End

Look for Long-term Fish Monitoring
articles in the Spring IEP Newsletter

<http://www.water.ca.gov/iep/>