

CENTRAL VALLEY CHINOOK SPAWNER ESCAPEMENT MONITORING PROGRAMS

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EXISTING MONITORING PROGRAM OVERVIEW

- Annual Spawner Escapement Estimated Since 1950's
- Current Programs:
 - 18 Streams/ 35 Monitoring Programs
 - Over 44 PY Biologist/Technician Time
 - Total Cost - \$ 2.6 million
 - Funded by - DFG, CALFED, USFWS, USBR,
DWR, EBMUD, YCWA, City/Co SF, TID, MID

SACRAMENTO RIVER



**Map of the
Central Valley's
major fall-run
spawning rivers**

SAN JOAQUIN RIVER

SURVEY METHODS

- Mark-Recapture Carcass Surveys
(Fall, late fall, winter, spring-run)
- Ladder/weir counts
(Fall, winter, spring-run)
- Redd Counts
(Late-fall, spring-run)
- Snorkel Surveys
(Spring-run)



ADDITIONAL DATA COLLECTION



- Biological data: fork length, sex, spawning condition
- CWT recovery
 - Analysis by OSP/data to RMIS
- Tissue samples – genetic analysis
 - Transferred to DFG tissue archive
- Scale/otolith collection

WEIR/VAKI INFRARED MONITORING LOWER STANISLAUS RIVER



VAKI MONITORING SYSTEM COMPONENTS



Solar Power



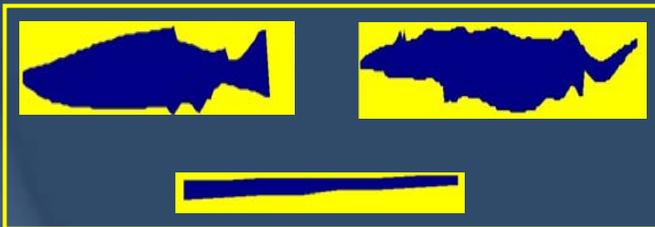
Computer and Battery Power



Infrared Scanner

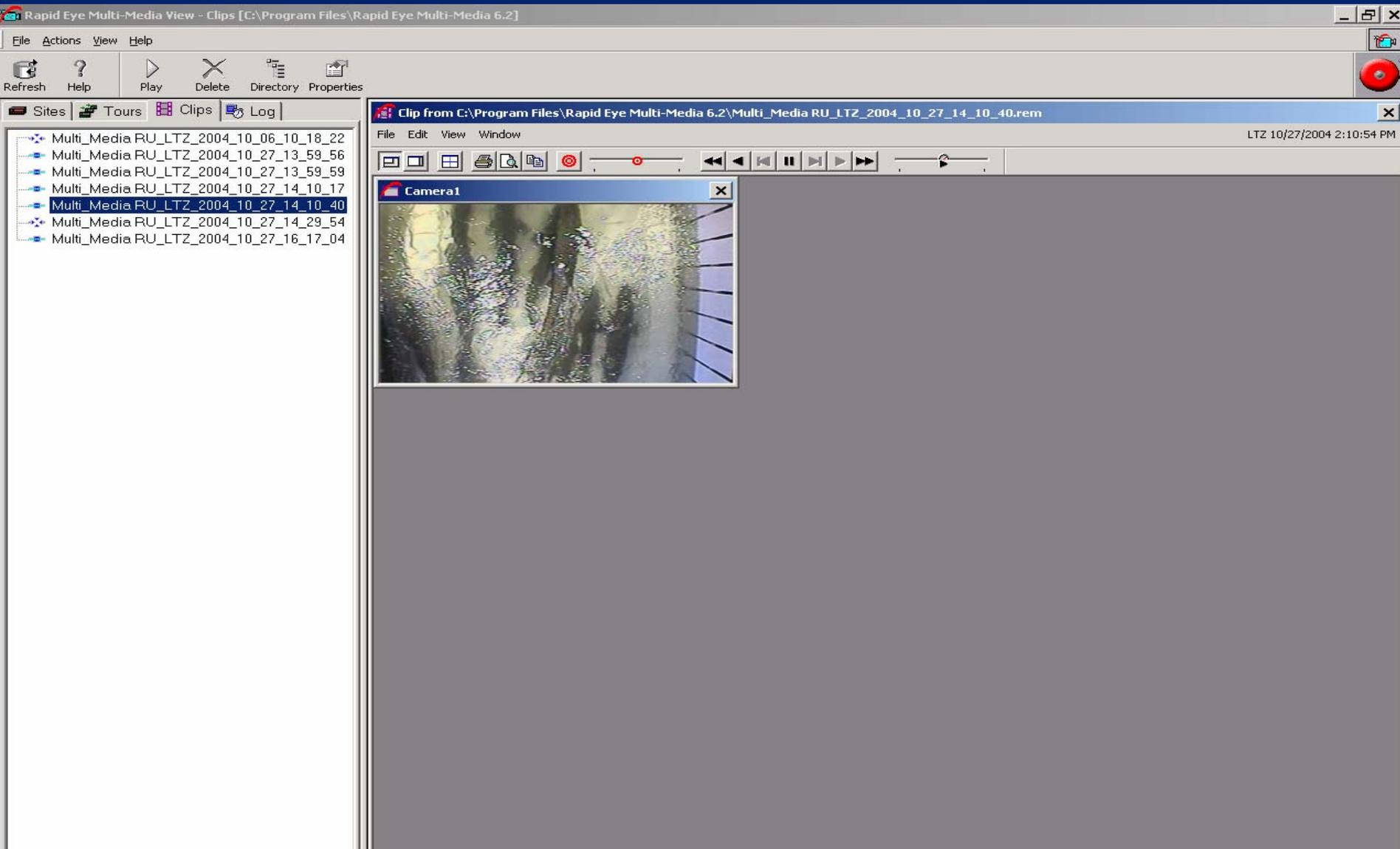


Light and Underwater Camera



Infrared Images

DIGITAL VIDEO SYSTEM LOWER MOKELUMNE RIVER



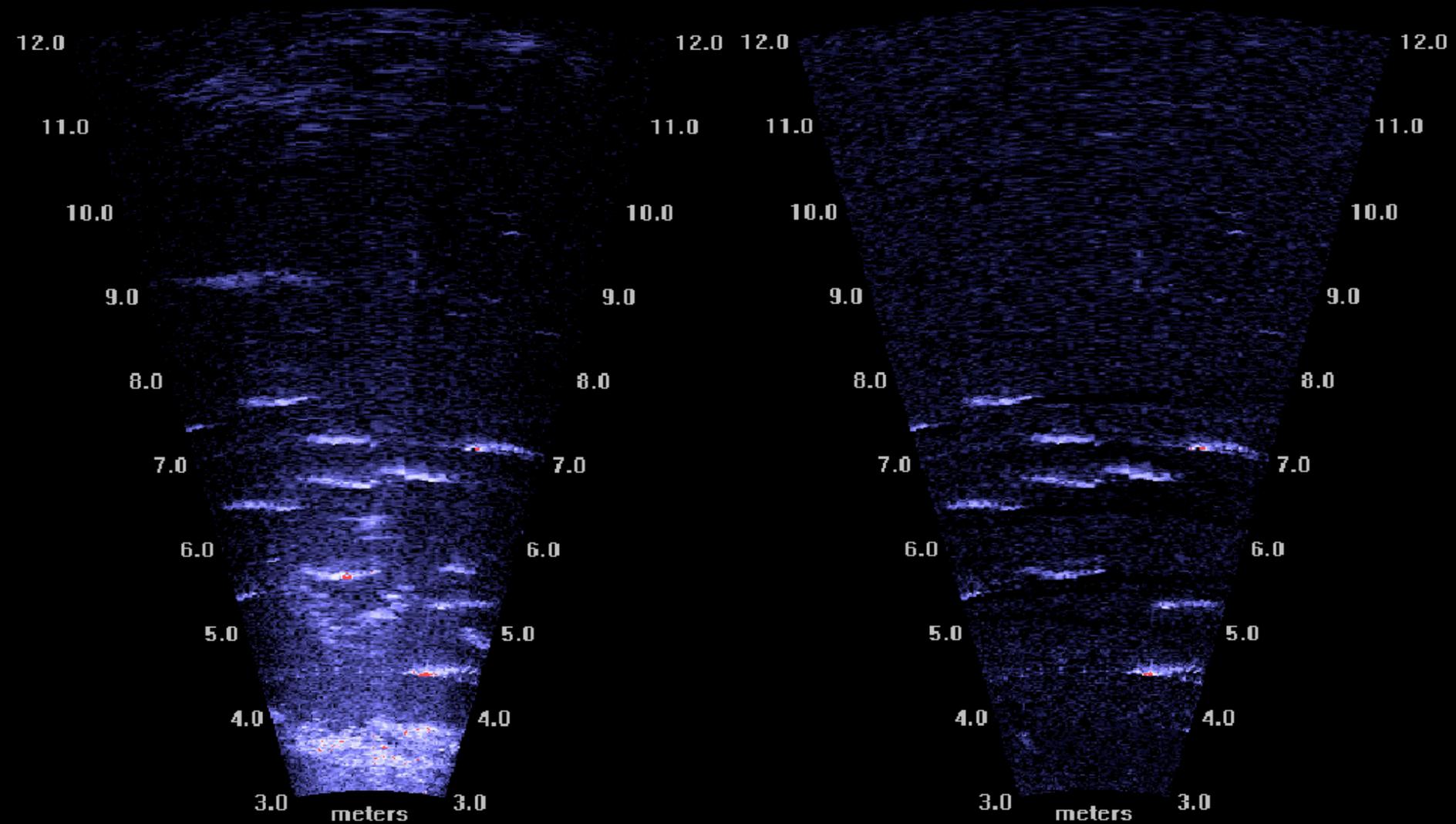
BATTLE CREEK VIDEO MONITORING SYSTEM



BATTLE CREEK VIDEO MONITORING SYSTEM



HYDROACOUSTIC MONITORING LOWER MILL CREEK



IMPROVEMENTS IN CARCASS SURVEY ESTIMATES



HOW GOOD A JOB ARE WE DOING?

- Analysis of Escapement Sampling Rates (ESR)
- Coded-wire tag inspection rates
- Comparison of weir counts/carcass survey data (2003-4)

ESCAPEMENT SAMPLING RATES (2003)

Stream	ESR
American River	0.36
Mainstem Sacramento River – Winter-run	0.55
Feather River	0.40
Battle Creek	0.46
Mokelumne River	0.38
Merced River	0.39
Tuolumne River	0.49
Stanislaus River	0.54
Butte Creek – Spring-run Carcass survey	0.61
Mill Creek Fall-run (2002)	0.61

CWT INSPECTION RATES (2003)

Stream	ESR
American River	0.04
Mainstem Sacramento River – Winter-run	0.55
Feather River	0.07
Battle Creek	0.46
Mokelumne River	0.38
Merced River	0.39
Tuolumne River	0.49
Stanislaus River	0.54
Butte Creek – Spring-run Carcass survey	0.61
Mill Creek Fall-run (2002)	0.61

COMPARISON OF WEIR COUNT/CARCASS SURVEY DATA

Stream	Year	Weir/Dam Estimate	Carcass Survey Estimate
Mokelumne River	2003	10,240	9,921
	2004	11,416	11,943
Battle Creek	2003	152,530	153,027
	2004	92,254	92,090

CV SALMONID ESCAPEMENT PROJECT WORK TEAM

- Technical Team Formed in 2001
- Goals include:
 - Improve communication/coordination among programs
 - Improve scientific methods used in escapement monitoring
 - Seek improved funding for CV programs

CV SALMONID ESCAPEMENT PWT WORKSHOPS

- 2003 - Otolith Thermal Marking
 - Northwest/Central Valley Workshop
- 2004 - POPAN5 (Jolly-Seber) Workshop
- 2005 – Adult Escapement Monitoring
- 2006 – Mini-series on New Monitoring Techniques

ESCAPEMENT MONITORING PLAN DEVELOPMENT

Statistician/Biologist/Database Expert Team:

- Review Existing Programs
 - Sampling designs, data analysis methods
- Develop Revised Programs/Cost Estimates
 - In-river escapement programs
 - Inland harvest program
 - CWT recovery programs
 - Integrated data management/reporting system

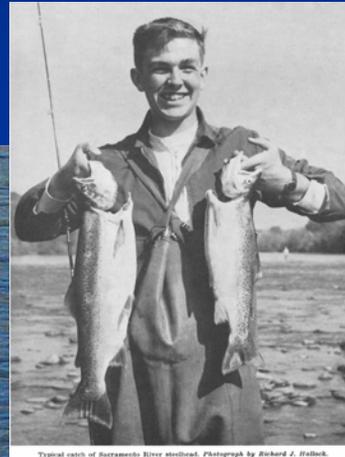
RECENT ADDITIONS TO CV ESCAPEMENT MONITORING

- CV-Wide Scale Aging Program
- In-river Sport Harvest Monitoring Program

CENTRAL VALLEY SCALE AGING PROGRAM



CENTRAL VALLEY INLAND SPORT HARVEST SURVEY



Typical catch of Sacramento River steelhead. Photograph by Richard J. Hallak.



