

# **Technical Assistance, Development, and Support to the Tanana River Fish Wheel Salmon Monitoring Projects using Remote Video Technology**

## **R&M# 07-10**

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### **1. Introduction:**

#### *Objectives:*

Video systems (originally developed by USFWS in 2000) are now an integral part of many fish wheel related projects throughout the Yukon River drainage. Video projects include catch monitoring projects on the Yukon and Tanana rivers, totaling over \$100,000 in annual project costs. The advantages of the video system over traditional fish wheels with live-boxes are reduced handling and holding time for captured fish; improved counting accuracy; unattended operation; and lower labor costs. Local fishermen presently operate three video projects, with technical assistance provided by USFWS, targeting Yukon River salmon bound for upper Yukon and Tanana River spawning grounds (primarily Chinook, summer and fall chum, and coho salmon). These projects are great success stories, building local biological capacity within rural Alaskan communities. Because of the technical nature of video technology and the extensive training needed for newer operators, there is a continued need for mentorship, technical assistance, and support throughout the annual video project operations.

Specific 2010 project objectives include:

- 1) provide technical assistance during the summer/fall field season to the Nenana Video Project (ADF&G funded) and fall season for the Y-5A Video Project (RM-06-10);
- 2) assist in post-season data analysis and annual report review for the Y-5A operator (RM-06-10); and
- 3) implement computer and video system training for Y-5A operator (RM-06-10).

#### *Summary:*

*Technical in-season assistance for both video projects: Nenana and Y-5A (RM-06-10) Video Projects.*

On June 30 – July 3, 2010, the Nenana video project was visited by the project investigator (PI) David Daum for initial set-up. All equipment was transported from Fairbanks to Nenana. Video components were installed and checked for functionality at the in-river site. A desktop computer was setup in the operator's home and all video counting procedures and current spreadsheets were made available. All video procedures were re-introduced from the previous season and explained to the operator. Break-down of all equipment at the in-river site took place on September 30 – October 2, 2010. All

components were cleaned and transported back to Fairbanks for storage. The video system operated smoothly for the majority of the season, though system shutdowns occurred in late July and late August. Data loss was kept to a minimum during these times by operating the fish wheel's live box using dip net counts. The PI visited the fish wheel site on July 31 to diagnose possible problems with the computer and/or electrical system. Old wiring and some electrical components were replaced. The on-site generator was modified to accept an on/off timer switch. The system operated with few interruptions until late August when similar problems to late July reappeared. The PI again visited the site on September 2 and replaced the on-site computer. From then to the end of the season the video system operated with no interruptions from system malfunctions. Additionally, numerous phone and e-mail correspondences were made throughout the field season discussing various aspects and operations of the Nenana project with the operator and ADF&G project biologists.

On August 12 – 17, 2010, the Y-5A video project was visited by the PI for initial set-up. Video components were installed and checked for functionality at the in-river site. New spreadsheet templates for the 2010 season were created and installed on the operator's home computer in Tanana. The video system ran smoothly for most of the season, except on three occasions. Problems with the data acquisition computer were diagnosed over the phone and by e-mail resulting in successful repairs to the system. After repairs, the video system operated error free for the remainder of the season. Also, numerous phone and e-mail correspondences were made throughout the field season discussing various aspects and operations of the Y-5A project with the operator and ADF&G project biologists.

*Post-season data analysis and annual report review for the Y-5A Video Project (RM-06-10).* Data analysis and report review were completed for the Y-5A Video Project (RM-06-10) by January, 2011. Post-season data analysis included video data integrity check, report review, statistical help, annual report editing, and 2011 proposal review. Water temperature data from a data logger installed at the fishwheel were downloaded, summarized, and included in the Y-5A Video Project 2010 annual report.

*Technical computer and video system training for the Y-5A operator (RM-06-10).* On-site training was provided to the Y-5A project operator (RM-06-10) during the August visit to the site. Training included video system troubleshooting, installation, and computer software operation. Current spreadsheets were provided, and video counting procedures and e-mail summary reports were also explained.