

intuVision User Story: Post Processing

Fishway Monitoring for Ecofish Research

"Activity detection analytics successfully condensed 2 months of video footage into 300 individual 5 minute clips that could be easily viewed to confirm fish species and migrational behaviour."

H. Wright, Biologist, Ecofish Research



Ecofish Research Consulting came to intuVision to quickly sift through weeks worth of video collected from fishway cameras to identify the segments of fish activity and reduce the amount of data for researchers' review.

Ecofish Research Ltd. Based in Vancouver, offers a broad range of environmental assessment, monitoring, mitigation, offsetting and design consultancy services using a proven, science-based approach.

www.ecofishresearch.com

Equipment-at-a-Glance

Hardware: Underwater IP cameras, exacqVision DVR, intuVision VA server.

Software: intuVision Post Processing Version 7.4



Fishway Monitoring with intuVision VA Activity Detection

Ecofish collected continuous video from underwater cameras in the canal at the top of the intake, and at the midpoint/turning pool of the fishway. Using intuVision VA post analysis the periods of interest in these videos were segmented to confirm successful fish passage and to enumerate spawning steelhead and coho.

Benefits

- Automated identification of segments of interest from a large video collection.
- Significant (~14 fold) reduction of the review time for the researchers
- Faster than real-time analysis of collected video.

intuVision User Story: Fishway Monitoring

“Ecofish researchers’ only reviewed these 5 minutes segments, recording relevant observations for each adult fish such as wild or hatchery origin ..”
H. Wright, Biologist

Solution Details

Underwater video cameras were installed at the canal at the top of the intake fishway, and at the midpoint/turning pool of the fishway.

The intake camera views the fishway entrance directly and the midway camera views the downstream slot opening in the pool from immediately upstream across the pool. The cameras were on exaQVision DVR which was set to record video continuously.

Over 700 hours of this video collection was submitted to intuVision VA to be analyzed automatically. With a two-pass approach surplus video that contain inactivity or unwanted footage (nighttime, bubbles, small fish, etc.) was eliminated using dynamic filters. The remaining video (approximately 350 hours) was further analyzed and intuVision’s Activity detection which successfully segmented and condensed the video footage into 300 individual 5 minute clips (total of 25 hours) to be manually viewed to confirm fish species and migrational behavior.

intuVision’s faster-than-real-time post processing feature allowed 10-20 times faster than the real-time analysis for a quick turn around of the resultant segments of fish activity to Ecofish.

Researchers then reviewed these 5 minutes segments for recording hatchery origin (as identified by presence/absence of adipose fin); species; estimate fork length; sex; condition (using a standard rating system of 1 through 5), observation date; time; and; descriptive comments of identifiable features. The video clips of individual fish observations, stored in intuVision database, were reviewed a second time by a senior fishery biologist to confirm fish identification. Screen shots of each fish generated by intuVision VA were collected to compare the images side by side to assist with delineating fish that were observed multiple times.

Results

Using intuVision video analytics, segments of interest were identified automatically and 10 times faster than real-time from a large video archive. Ecofish’s video data collection was condensed significantly to reduce the researcher time required to review the video.

