Electronic Collection of Aerial Survey Data

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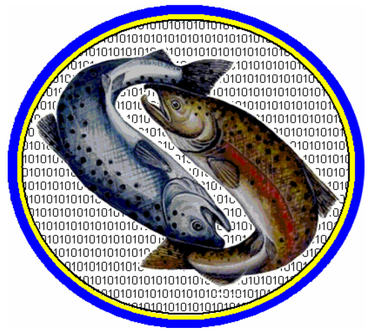
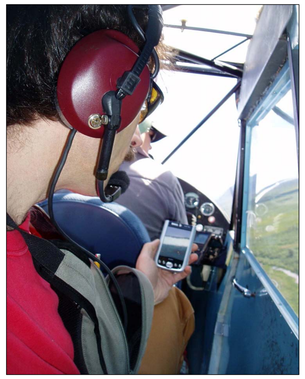
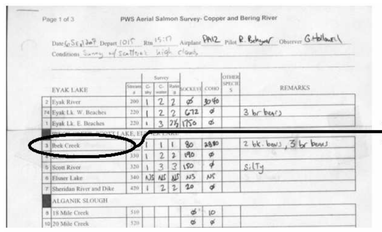


Abstract: Aerial surveying of streams in the Copper River drainage has been used to assess sockeye salmon spawning escapements since 1948. Historically, observations were recorded in-flight using pencil and paper. Recent advances in GIS technology and handheld computer hardware have provided biologists with the opportunity to record this data in-flight and pair aerial observations with accurate geographic coordinates. While software is currently available that can accomplish this, (ArcPad, CyberTracker, etc) these applications are written primarily for collecting generic field data and rely heavily on visual cues to change fields and record observations. This application, gpsDataLogger, was written specifically for use while conducting aerial surveys and addresses these shortfalls. It allows the observer to document observations with minimal visual contact with the computer. This allows for a more productive use of flying time as the observer focuses entirely on the stream being flown and significantly minimizes the possibility of untimely motion sickness. This application was written using the Superwaba java development environment. The application and source code are available at http://sourceforge.net/projects/gps-datalogger/.



Introduction:

Aerial surveys of sockeye and coho salmon are conducted from a Piper Super Cruiser weekly from June into the fall season. In any given survey, up to 80 streams and lakes systems may be surveyed for sockeye, coho and Chinook salmon. Many of these systems are extensive and can take 20-40 minutes to survey. With **traditional aerial survey** data collection the observer mentally keeps a count of the numbers of fish and other wildlife that are observed in the index stream being flown and then records a single number for each species observed, (see below left). With **electronic aerial survey** data collection the observer records observations as they are made for each system. This is done using a handheld computer that is receiving GPS input and running the application “gpsDataLogger”. Data is later downloaded as a table , (below center) for inclusion in a larger georeferenced dataset.



PWS Aerial Salmon Survey: Copper and Bering River

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