

EXHIBIT 1

Project:

Cloney Gulch at Freshwater Road fish passage monitoring by Humboldt State University Foundation under contract by National Marine Fisheries Service (Contract no. 50ABNF800082).

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Description:

To assess fish migration success an experiment using a transponder tagging protocol developed by Dr. Alex Haro of the USGS Conte Anadromous Fish Research Center will be conducted at Cloney Gulch, a tributary of Freshwater Creek in Humboldt County, California. Adult salmon and steelhead will be tagged with glass encapsulated transponders as they enter the creek by the Humboldt Fish Action Council (HFAC) at their fish trap. The tags are made by Texas Instruments and are cylindrical in shape (32 mm by 3.5 mm). Each transponder has a 16 digit code that indicates the watershed, fish species, fish sex, and a unique fish number. Fish ID numbers, vital statistics, and time of capture at the trap will be recorded before fish are tagged and released upstream. The fish then begin their normal migration into the upper streams of the watershed. Fish entering the Cloney Gulch culvert at Freshwater Road will be detected by antennas at the outlet and inlet of the culvert, which record the fish ID and time. The antenna loops on the culvert are roughly 15 ft along the bottom and 9ft high at the top of the arch (essentially around the perimeter of the openings). The data allow evaluation of fish passage through the culvert under different hydraulic conditions and timing of migration from the trap along with percent of total fish tagged that attempt to enter Cloney Gulch. In addition to the information gained at the culvert site, HFAC personnel conducting spawning and carcass surveys will use a portable scanner to scan carcasses and record the fish ID numbers and the location and time that carcasses are found.

Texas Instruments makes and sells the majority of the equipment for this experiment. It is called the Texas Instrument Registration and Identification System (TIRIS). TIRIS uses a very low radio frequency system (132.4 kHz in this project) to identify compact transponders that carry a tamper-proof identification number and can be logged automatically through connection to a plam-top PC. The part numbers for our system components in this project are:

TIRIS S-2000 Radio Frequency Module; RI-RFM-008B
TIRIS S-2000 Control Module; RI-CTL-MB2A-02
TIRIS Multipage Transponder; RI-TRP-DR2B