DRAFT PROPOSAL
2005 Project year

A.TITLE: Hydroacoustic Fish Passage Studies at McNary Dam, 2005

B. Project Leader: **POC Mark Smith (COE)**

C. Study Code: **SPE -W-04-3**

D. Anticipated Duration **2005-2008**

E. Submission Date: **August 2, 2004**

Draft Proposal for
Hydroacoustic Fish Passage Studies at McNary Dam, 2005

1 Introduction

1.1 Background

The U.S. Army Corps of Engineers (Corps) is committed to increasing survival rates for fish passing its projects on the Columbia River. Studies at McNary Dam have been conducted over the last several years and will likely continue over the next several years. The proposed hydro acoustic study is an integral part in determining Fish Guidance Efficiency (FGE), Fish Passage Efficiency (FPE), and Spill Passage Effectiveness (SPE) estimates at McNary Dam. This information will be used to assist in determining future operations for fish passage at this Project which may include increased flow through turbines or new turbine designs.

1.2 Site Description

This study will be performed McNary Dam (Umatiila, OR) on the Columbia River. The Dam, includes a navigation lock, a spillway, powerhouse, and a screened fish collection.

1.3 Goal and Objectives

The goal of this study is to collect Fish Passage information for use in development of operations at McNary Dam for safe fish passage. Future operations may include installation of new turbines under the McNary Modernization Program . This data will also provide insights into current operations of the turbine units at MCN Dam.

Obective:
1-Estimate FGE throughout the fish passage season (Spring and summer passage) for all turbine units at McNary Dam (estimates to be made in all three slots of one unit)
2-Estimation of FPE and SPE for 2 spill treatments. Specifics of treatments will be coordinated with the region

2 Statement of Work

2.1 Project Fish Passage Efficiency

2.1.1 Task Description

The Contractor shall conduct hydroacoustic monitoring for 24 hour periods (starting at 0500 hours for each study day) from 15 April through 15 July. These data shall be collected, analyzed, and interpreted to provide input for operation of the project and planning for future fish passage measures. Specifically, the Contractor shall:

a. Estimate for each study hour, the FGE, FPE and SPE of juvenile salmon passing the Dam.

2.1.2 Data Analysis Requirements Passage estimates must be based on the techniques developed by Ploskey et al. (2000); specifically spatial weightings must be based on range and expected fish velocities (range and gate opening specific factors). The Contractor shall:

a. Present the diel passage patterns.
b. Present composite and individual (by turbine unit) estimates for FGE (95% confidence interval).
c. Test for significant differences in FGE, FPE and SPE between treatments with the ability to detect a difference greater than 2% (alpha = .05).