

Project 1B – Amendment No. 1 Concentration and Effects of Selenium in California Gulls 2007 Sampling Season

SUBCONTRACT WITH: Utah State University

PRINCIPAL INVESTIGATOR: Dr. Michael Conover

CONTRACT VALUE: \$27,512

SCHEDULE: April 1, 2007 through November 1, 2007 (elapsed time: 8 months)

Project Objective

Determine ambient selenium concentrations in blood and liver samples of nesting California gulls. Determine body condition of nesting birds. Determine diet of nesting birds by examining the contents of their esophagus. Compare blood/liver selenium levels and diet found in crop of sampled birds from salt water colonies (Hat Island & Great Salt Lake Minerals) and a “fresh” water colony (Farminton Bay or Bear River National Wildlife Refuge). Opportunistically sample brine shrimp in area gulls are feeding in to link diet to blood and liver selenium levels.

General Assumptions

1. All work completed as part of this scope of work will follow UDWQ’s Quality Assurance Plan protocol. Samples will be shipped to the laboratory selected by UDWQ following required protocol. Cost of laboratory analysis is not included in this scope of work.
2. All necessary clearances/permits to complete the work specified herein will be acquired prior to and maintained for the length of the work. All access will be properly coordinated and permission obtained.
3. Safety is of the essence. Health & safety protocol will be identified prior to beginning field work and followed.

Scope of Work

Task 1. Preparation of Workplan, Budget Estimates, and Data Quality Objectives

It is assumed that the Data Quality Objectives and Standard Operating Procedures used for the 2006 sampling season will apply for this effort with no required changes to the text. This

task also includes participation in one Science Panel meeting, conference calls, and other tasks on an as-needed basis.

Deliverables

1. Workplan including scope of work, projects costs, project schedule, health & safety plan (completed as soon as a contract has been signed).

Task 2 – Collect Adult Gulls

We will collect 12 adult gulls from three different colonies by shooting them while they are foraging away from the colony. These birds will be collected from the Hat Island colony, the Great Salt Lake Minerals colony, and from a colony in Farmington Bay. The foraging location for the Farmington Bay gulls will be verified prior to shooting them to confirm they are feeding in a fresh water area. If gulls fail to nest in either the Hat Island or Great Salt Lake Minerals colonies, then we will collect gulls from the Antelope Island colony; if gulls fail to nest in Farmington Bay, we will collect from another freshwater site (potentially Bear River National Wildlife Refuge). We will determine the birds' diet by analyzing the contents of the esophagus. We will collect 5 brine shrimp from the areas where gulls are feeding as well as opportunistically collect three samples of adult brine fly samples from Hat Island.

Schedule

This task will be completed by June 1, 2007 or within 1 month from when a contract has been signed.

Task 3 – Determine Selenium Concentrations in Samples

Samples (blood and liver) from 12 collected adult gulls from each location (total of 36 blood and 36 liver samples) will be analyzed for selenium and mercury. Samples will be shipped to the UDWQ's selected laboratory following required protocol. Gull carcasses will be shipped to a UDWQ storage location per required protocol.

A draft and final report will be prepared to document activities, methods, assumptions, data, recommendations, and conclusions completed as part of this task to address the project's objective.

Deliverables

- Laboratory chain-of-custodies (COCs) and list of stored samples
- 2007 Draft and Final Reports

Schedule

The laboratory COCs and list of stored samples will be completed by July 1, 2007. The 2007 Draft Report will be submitted within 1 month of receiving analytical data and the Final Report will be completed by November 1, 2007.

Schedule of Tasks

Time Frame for 2007

The 2007 chronological order of field work with California gulls is as follows:

1. Obtain all necessary permits to collect gulls. April 2007, or as soon as a contract has been signed.
2. Collect 12 adult gulls from areas near each colony during the egg-laying period. April and May 2007, or within 1 month from when a contract has been signed.
3. Prepare and ship liver and blood samples from birds and invertebrates collected from the feeding areas or nesting site for selenium analyses. May and June 2007, or within 1 month of sample collection.
4. Examine gull crops for forage items. May 2007, or within 1 month from when a contract has been signed. Quantitative analyses of crop contents will be completed by July 1, 2007.
5. Complete the 2007 Draft Report by August 30, 2007 assuming lab results are received by August 1, 2007; Final Report by November 1, 2007.

FIGURE 1
Locations of California Gull Colonies to be Sampled on the South Arm of Great Salt Lake

