

Project 1B - Phase II Concentration and Effects of Selenium in Eared Grebes and Goldeneyes

SUBCONTRACT WITH: Utah State University
PRINCIPAL INVESTIGATOR: Dr. Michael Conover
CONTRACT VALUE: \$41,200
SCHEDULE: August 15, 2006 through May 15, 2007 (elapsed time: 9 months)

Project Objectives

Determine selenium concentrations in eared grebes during the fall and male common goldeneyes during the winter, and determine if selenium concentrations affect body condition of those birds. See project Data Quality Objectives for additional detail.

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.
4. All samples will be stored per Standard Operating Procedures and livers archived for potential future mercury analysis. In the event that Utah State University can no longer store the samples, the Utah Division of Water Quality will be contacted and given the opportunity to assume storage of samples prior to samples being disposed of.

Scope of Work

Task 1. Completion of Scope of Work and Standard Operating Procedures.

We will complete a Scope of Work and Standard Operating Procedures.

Deliverable

- Scope of Work and Standard Operating Procedures.

Schedule

This task will be completed by August 15, 2006.

Task 2. Collect Eared Grebes in September and November.

Providing that we have a signed contract in time, we will collect 20 eared grebes during September and 20 during November. Half of the birds will be collected near Antelope Island and half from the southern end of Carrington Bay. Blood and liver samples will be collected from each bird following similar methods as described in the SOP for Harvest of Adult Birds that was submitted previously. Body condition of all carcasses will be analyzed.

Deliverable

- Technical memorandum with simple maps indicating coordinates and description of collection sites.

Schedule

This task will be completed by December 15, 2006.

Task 3. Collect Male Goldeneyes during Winter.

Male common goldeneyes will be collected during winter from the Great Salt Lake. Twenty birds will be collected soon after they arrive and twenty birds will be collected within 4 weeks of when they are expected to leave Great Salt Lake. Because these birds move in large groups throughout the Great Salt Lake, we cannot predict where these birds might be collected. We will try, however, to collect some from the same areas where eared grebes were collected earlier. Blood and liver samples will be collected from each bird following similar methods as described in the SOP for Harvest of Adult Birds. Se analyses and body condition of all carcasses will be analyzed.

Deliverable

- Technical memorandum with simple maps indicating coordinates and description of collection sites.

Schedule

This task will be completed by March 15, 2007.

Task 4. Determine Selenium Concentrations in Samples

Samples (blood and liver) from up to 20 collected grebes and 20 goldeneyes from each time period (total of 40 birds for each species) will be analyzed for selenium and possibly heavy metal concentrations following similar methods as described in the SOP for Harvest of Adult Birds. Additional samples will be stored frozen for possible later analysis. Samples will be shipped to the UDWQ's selected laboratory following required protocol.

Deliverables

Laboratory chains-of-custody (COCs) and list of stored samples.

Schedule

This task will be completed by March 15, 2007.

Task 6. Determine Food in Esophagus of Collected Grebes and Goldeneyes.

The contents of the esophagus of all collected grebes and goldeneyes will be removed, identified to species, separated, and weighed (wet and dry weights).

Deliverable

- Technical memorandum of stomach content analyzes.

Schedule

This task will be completed by May 1, 2007.

Task 7. Determine Body Condition of All Collected Grebes and Goldeneyes.

We will collect the following external measurements: total body length, wing length, tarsus length, head length, head width, bill length, bill width, keel length, and rectrix length. We will take the following internal measurements: intestinal length, caecae length, esophagus length. We will take the following weights: total body, plucked body, feather, abdominal fat, intestinal, gizzard, esophageal, heart, liver, kidney, spleen, pancreas, and salt gland.

Deliverable

- Technical memorandum of body condition analyzes.

Schedule

This task will be completed by May 1, 2007.

Task 8. Complete Final Report.

A draft and final report will be prepared that documents activities, methods, assumptions, data, recommendations, and conclusions completed as part of meeting the objectives of this task.

Deliverable

- Draft and Final Report.

Schedule

This task will be completed by May 15, 2007.