



## Migratory Connectivity and Contaminants in Grebes *Summer 2021*

Every spring the boreal forest attracts millions of breeding waterfowl and other aquatic birds. It is one of the most important breeding habitats for waterfowl and waterbirds in North America, second only to the ‘prairie pothole’ region. The boreal forest becomes increasingly important during years of drought in the prairies, when it acts as a haven for ducks and waterbirds that might otherwise nest further south.

There is very little information available for waterbirds in the boreal region. Horned and Red-necked grebes are not well-studied or monitored because they are not harvested and are not usually surveyed during waterfowl surveys. Apparent declines in western Horned Grebe populations lead to this species being listed as Special Concern on the Species at Risk Act in 2017. Red-necked Grebe populations have remained stable but had among the highest contaminant loads of all grebe species in Prairie Canada according to a 1980’s study.



*Horned Grebe*



*Red-necked Grebe.*



*Figure 1. Location of the study area along Highway #3 and area surrounding Yellowknife.*

Grebes use many different areas during the year for breeding, staging, and wintering and can be exposed to a variety of threats, including contaminants, at each area. This study will provide information on migration routes and wintering areas of Horned Grebes as well as contaminant exposure for Horned Grebes and Red-necked Grebes near Yellowknife. The results will be combined with data from southern breeding areas to improve knowledge from across the breeding range. The fieldwork will occur along Highway 3 between Behchoko and Yellowknife and along the Ingraham Trail 15 km NE of Yellowknife (Figure 1).

## Banding Horned Grebes

A maximum of 20 Horned Grebes will be captured in late May-early June using a submerged gill net and 2 kayakers to guide the birds into the net (Figure 2). Grebes will be removed quickly from the net and each will be banded with a standard leg band. The net will be removed prior to releasing the grebes back into the pond.

A small geolocator will be attached to the leg band to record information on migration routes and wintering areas (Figure 3). These devices will provide insight into movement patterns and areas the grebes use outside of the breeding season which may help identify potential threats grebes may be exposed to along their migration route. This information may help develop monitoring plans for Horned Grebes in the future.



*Figure 2. Gill net deployed by kayak for grebe capture.*

while on staging areas whereas blood provides information regarding contaminant exposure on the breeding areas. Feathers will also be used to assess if stable isotopes can be used alongside the geolocator data to determine wintering areas and the use of freshwater versus marine habitats.

A maximum of 10 Horned Grebe and 10 Red-necked Grebe eggs will be collected to test for contaminants and measure contaminant transfer from adults to their chicks. Only one egg per nest will be collected.

All of the capture and handling techniques are approved by Environment and Climate Change Canada's Animal Care Committee.

## Future Recommendations

The study will continue in 2022 as retrieving migration data stored on the geolocators requires recapturing grebes one or more years after marking. We hope to retrieve as many geolocators as possible, however, recapture rates are generally less than 50% because of natural mortality and dispersal (nesting on a different pond than the previous year).



*Figure 3. Geolocator attached to leg band on an Eared Grebe, a grebe that is slightly smaller than a Horned Grebe. Inset: geolocator with ruler to show size (14x8x6mm, weight:1g).*

## Contaminants

A few feathers and a small amount of blood will be sampled from each bird for contaminant analyses. Feathers provide an estimate of contaminant exposure



*Canadian Wildlife Service - Yellowknife, Northwest Territories*

Eric Reed 867-669-4769 [eric.reed@canada.ca](mailto:eric.reed@canada.ca)

Cindy Wood 867-669-4786 [cindy.wood@canada.ca](mailto:cindy.wood@canada.ca)