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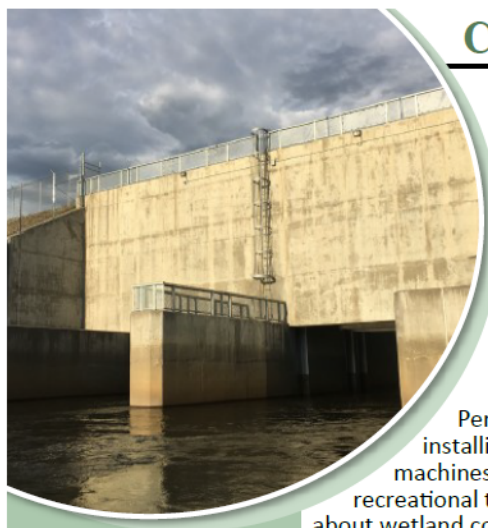
Project Spotlight: Breeding Ecology of Common Goldeneyes in Alaska

A Cooperative Project Between the U.S. Army Corps of Engineers Chena River Project and the U.S. Fish and Wildlife Service, Alaska Region

Article provided by: Eric Taylor, U.S. Fish and Wildlife Service, Alaska Region, Migratory Bird Program

From 1993-1996, students from the University of Alaska Fairbanks (UAF) constructed and installed 150 common goldeneye (*Bucephala clangula*) nest boxes along the upper Chena River in the Chena River State Recreation Area east of Fairbanks, Alaska. Ducks Unlimited provided the initial project funding via a grant to the University of Alaska Fairbanks Student Chapter of The Wildlife Society. In 1997, John Schaake, Project Leader for USACE's Chena River Project, was contacted to determine interest in nest boxes for common goldeneyes. John was not only enthusiastic, he offered to build the boxes and help install them in wetlands that offer great waterfowl habitat and that are accessible to the public! Over the next 20 years, the two agencies fostered and maintained a productive scientific partnership and established three objectives for a study on common goldeneyes:

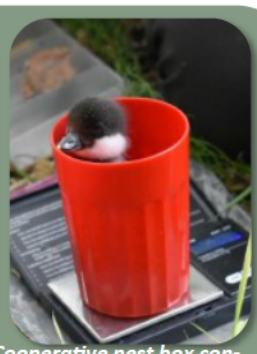
1. Provide undergraduate training in leadership, waterfowl ecology, and decision-making;
2. Increase public understanding, awareness, and support for waterfowl management and wetland conservation;
3. Assess breeding and nesting ecology of Common Goldeneye in Interior Alaska.



Common Goldeneye Continued from Page 1

The design, number and location of nest boxes for common goldeneyes and other cavity nesting birds has varied over this period; however, the project has consistently met the original objectives. Undergraduate students responsible for conducting fieldwork, including data collection, analyses and report writing as well as maintaining nest boxes are now in an array of professional positions. Common Goldeneye "Field Season Graduates" have attained professional positions including U.S. Army Corps of Engineers Central Section Regulations Chief (Alaska); Research Scientist with the National Park Service (Alaska); Supervisory Wildlife Biologist with the U.S. Forest Service (Tennessee); an International Commodities Attorney (Japan); an Environmental Specialist in the Coastal and Ecosystem Management (Florida); a post-doctoral student at Auburn University (Alabama), and a U.S. Fish and Wildlife Service Law Enforcement Officer (Florida).

Personnel at Chena River Project have provided unequivocal support by building and installing nest boxes, storing field equipment, and providing logistic support via boats, snow machines and ATVs. Relative to public outreach and education, the placing of nest boxes along recreational trails and campgrounds has afforded us many opportunities to interact with the public about wetland conservation, waterfowl ecology and management, and respective roles of federal and state agencies in natural resource management. Former Chena River Project Leaders (John Schaake, Tim Feavel) and current Project Leader Levi Llewellyn have provided consistent and enthusiastic leadership for our work. Stewart Gillmore, former Chena River Park Ranger, and Justin Kerwin, current Lead Park Ranger, have always provided outstanding assistance in clearing paths, monitoring boxes, capturing hens and web-tagging ducklings. The partnership and collaboration between USACE and the Service are what make this project so effective and frankly, fun. Together we have endured long days afield outlasting cold winds, driving rain, and an annoying, insane numbers of biting insects.



Photos Left to Right: Park Ranger Justin Kerwin holds a Common Goldeneye. Cooperative nest box construction. Park Ranger Levi Llewellyn holding a duckling. Data collection of a Common Goldeneye chick.

What have we learned? Common goldeneye readily accept nest boxes in lieu of natural tree cavities to nest, lay and incubate eggs, and hatch ducklings. However, two other species of sea ducks including Common Mergansers (*Mergus merganser*) and Bufflehead (*Bucephala albeola*) compete with common goldeneyes. Because both of these species tend to initiate nests later than goldeneyes, the number of available boxes to occupy is less and the locations maybe less preferable. The other regular user of our boxes is not a sea duck but an owl, specifically the Boreal Owl (*Aegolius funereus*).

Common goldeneyes occupy more than 50% of our 200 nest boxes; bufflehead and boreal owl each occupy about 5% (10/200) nest boxes year and common merganser about 3% (6/200). In 2018, almost 80% (73/92) of common goldeneye nests were successful, defined as hatching at least one egg. Typical clutch size is around eight eggs and incubation takes 28 days. In total, our field crew web-tagged 551 common goldeneye ducklings last year! Given that ducklings only stay in the nest box about 24 hours, students become experts at candling an egg i.e., determining the stage of incubation to ensure they arrive to tag ducklings after they hatch but before they make the big leap to the wetlands world! The majority of our nesting hens are birds we have captured and monitored before! In 2018, 56 out of the 83 hens we captured already had a U.S. Geological Survey band on its right leg. We have also discovered most hens and their ducklings prefer to return to the same nest box or wetland (slough, oxbow, lake) each year-likely to increase their survival. In fact, we had one common goldeneye hen return to the same box and have a successful hatch for over 10 straight years!

In summary, the success of this 20-year study on common goldeneye breeding ecology in Alaska is due to the unwavering and enthusiastic support of former and current personnel working at the Chena River Project. The partnership between USACE and the FWS continues to provide training opportunities of students and young natural resource professionals; public outreach on waterfowl and wetland ecology; and new scientific insights on the nesting ecology of a unique cavity-nesting sea duck in Alaska!

CHENA RIVER PROJECT

Chena River Lakes, North Pole, Alaska, is the northernmost flood risk mitigation project operated by USACE. Authorized by Congress after the devastating 1967 flood, Moose Creek Dam and its associated features reduce flooding to the interior Alaskan city of Fairbanks, as well as provide local residents and visitors a variety of recreational opportunities on nearly 20,000 acres of public land.

Construction of the Project began in 1973 and was completed at a cost of $256 million in 1979. A popular activity for visitors is the salmon watch. Around the beginning of July chinook (king) and chum (dog) salmon can be seen swimming up the Chena River to spawn. An excellent place to view them is the top of the outlook works!

Photo Top: Chena River outlet works