Common Loon Status Report 2021

WASHINGTON

bri

A Series Publication of BRI's Center for Waterbird Studies

Status of Western Breeding Loon Populations

The loon is a key biosentinel of aquatic integrity for lake ecosystems across northern America. In Washington, the Common Loon (*Gavia immer*) is currently listed as a State Sensitive species, as determined by the Washington Department of Fish and Wildlife (WDFW). Records indicate that Washington's Common Loons were nearly extirpated from 1881 to 1979 from sport shooting, general public animosity toward fish-eating species, loss of habitat, and other anthropogenic stressors while settlement increased.

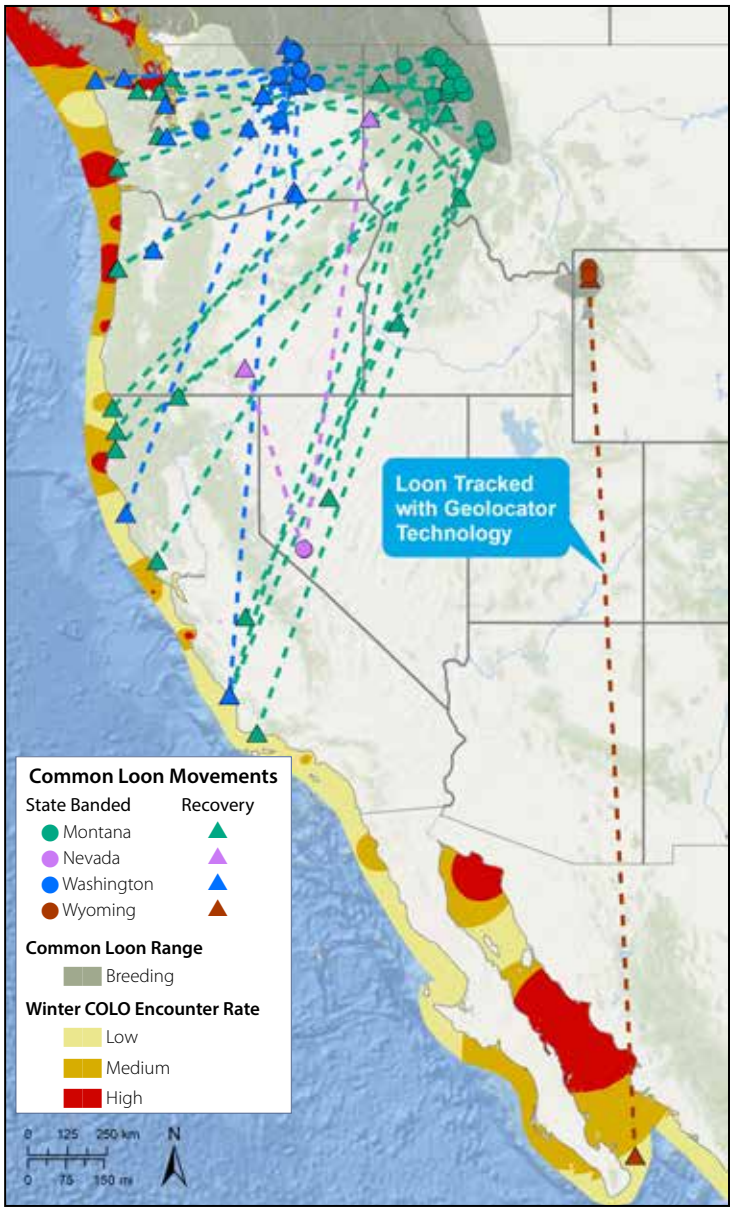


Figure 1. The breeding and wintering range for the Common Loon in the western U.S. Movements of loons are based on recoveries (n=38), recaptures (n=65), and re-observation of individuals banded by BRI researchers. The winter range densities are taken from the National Audubon Society's Christmas Bird Count, 2002-2012, and are categorized in three levels of encounter rates.

Western U.S. Breeding Populations

In the western U.S., Common Loons regularly breed in Montana, Washington, and Wyoming—with breeding pairs in Idaho occasionally found (Figure 1). Today, the western U.S. breeding population is estimated at 130 territorial pairs—combining Montana (80 pairs), Washington (25 pairs), and Wyoming (22 pairs). Based on scattered historical nesting records in California, Oregon, and Idaho, the western breeding population has experienced a contraction in the past century.

To help understand breeding ecology, migration patterns, and overwintering fidelity of Common Loons in the western U.S., BRI banded 626 loons at their breeding lakes from 1993 to 2020. During migration, BRI banded 60 spring and 40 fall migrant loons on Walker Lake, Nevada from 1998 to 2004, and in wintering areas, 99 loons were banded in California from 1997 to 2012.

Findings from recovered and resighted color-banded loons demonstrate that breeding loons in Washington overwinter along the Washington, Oregon, and California shoreline of the Pacific Ocean, and on 11 reservoirs on the Columbia River and its major tributaries.

Washington Breeding Population

Historically, breeding loons occupied lakes throughout the state, yet experienced large population declines and likely breeding extirpation periods throughout the late 1800s through the 1970s. A statewide WDFW survey in the early 1980s found only two nesting pairs, which were in northeastern Washington. Currently, loons breed in two distinct areas of Washington—a smaller western portion east of the Seattle and Tacoma area, and a larger area and greater population breeds in the northeast part of the state on federal, state, private and tribal lakes. Formal loon surveys were established by WDFW in Washington in 1979 (Richardson et al. 2000).

The statewide breeding loon population is currently 25 known pairs, with an estimated six pairs in the western range and 19 pairs in northeastern Washington (Figure 2).

30-300 Number of miles Common Loons migrate from coastal areas to breeding territories in Washington.

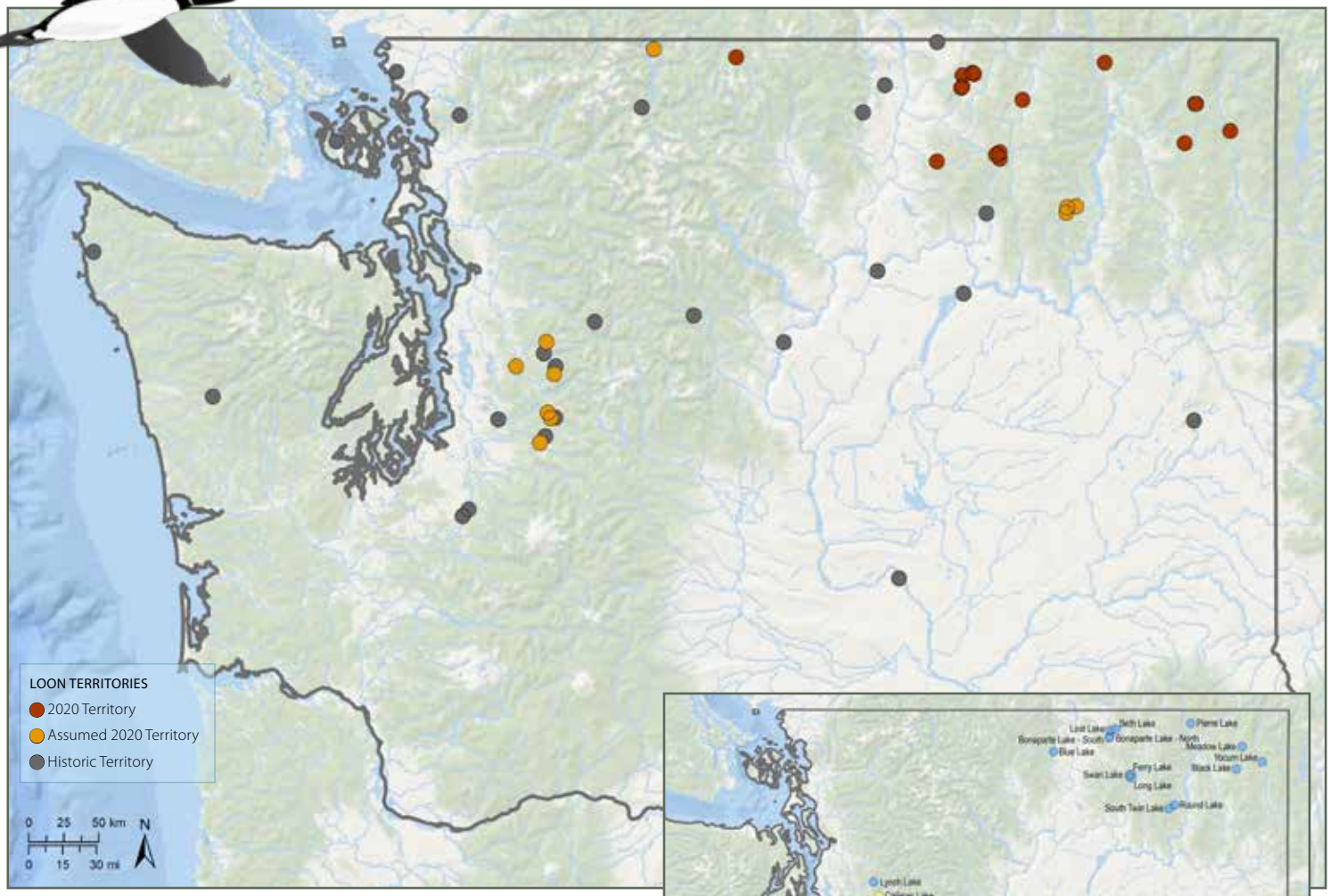


Figure 2 (*top*). Washington Common Loon population study area. Loons from Bonaparte, Swan, and South Twin Lakes represent individuals who have held territories for the longest terms. (Age of each loon assumes age at first breeding is six years.)

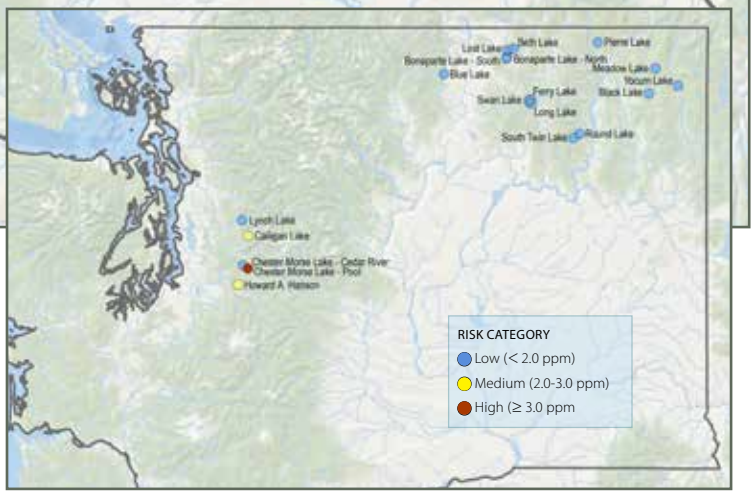
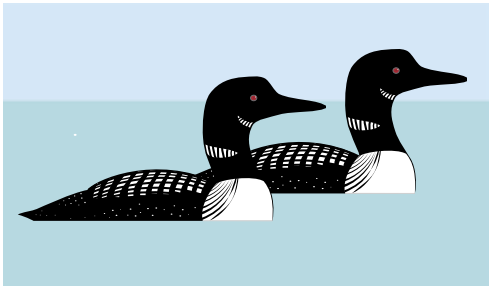


Figure 3 (*right*). Risk categories for mercury exposure to loons, measured in parts per million (ppm).



Total Number of Territorial Pairs

25*	130	258,000**
Washington	Western U.S.	North America

*Washington territorial pair totals assume six territorial pairs on the western side of the state (since 2015).
**Approximate breeding population (Evers et al. 2021)

Reproductive Status

In Washington the number of known territorial pairs has ranged from 6 to 25 from 1996-2020 (Figure 3). This variation over the 25-year time period is typical for a growing Common Loon population.

Loon productivity is best measured as chicks surviving (i.e., those living at least six weeks) per territorial pair per year. Productivity in Washington for the last 25 years was above the well-established sustainability threshold value of 0.48 chicks surviving per territorial pair (average of 0.76; Figure 4). Since the low of six pairs in 2004, the number of territorial pairs continues to increase at an annual growth rate of 16 percent since 2001. This trend reflects the pattern of overall productivity to be consistently above population sustainability levels.

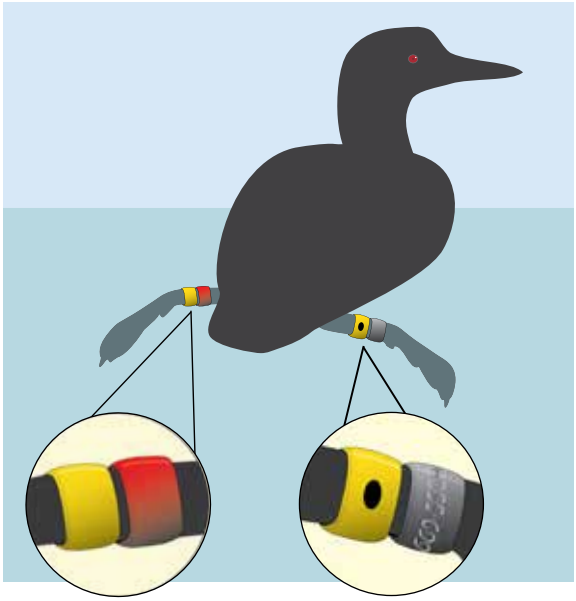
Number of BRI Banded Common Loons

115
Washington
(since 1995)

637
Western U.S.
(since 1993)

5,771
North America
(since 1989)

Long-term monitoring of banded loons provides valuable information about reproductive success, habitat utilization, and behavioral ecology.



Plastic color bands are used in unique combinations and include a metal band engraved with an I.D. number. Metal bands are placed on the left leg of loons banded as chicks and on the right leg of loons banded as adults.

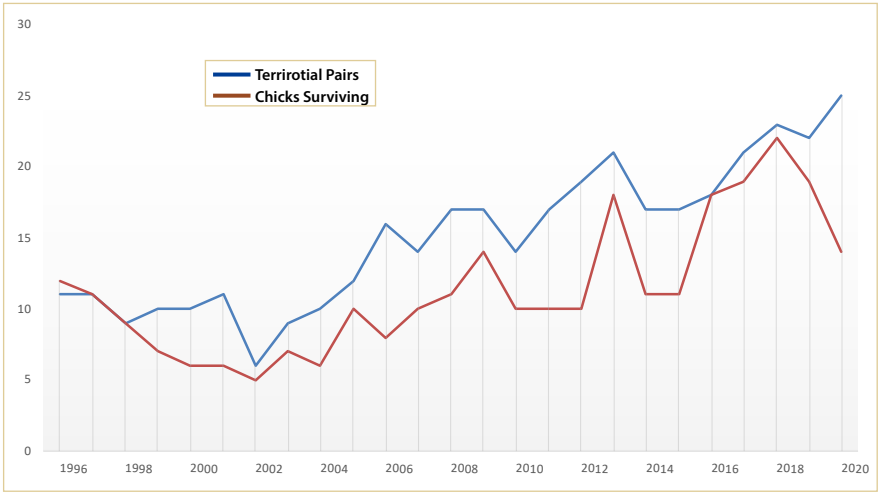


Figure 3. The number of territorial pairs and chicks surviving in Washington, 1996-2020. *Data for 2018-2020 represent only eastern Washington loon populations and are not statewide totals.

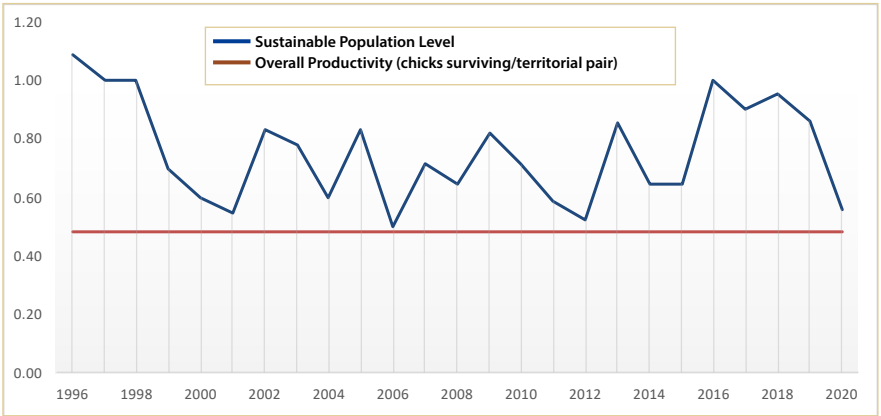
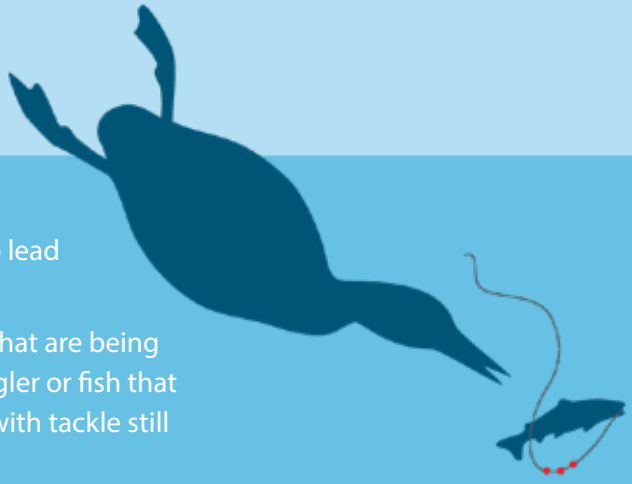


Figure 4. Washington's loon productivity (1996-2020) compared with a well-established national productivity model that uses a value of 0.48 chicks surviving per territorial pair per year as a sustainable population benchmark.

Loons and Lead: A Lethal Mix

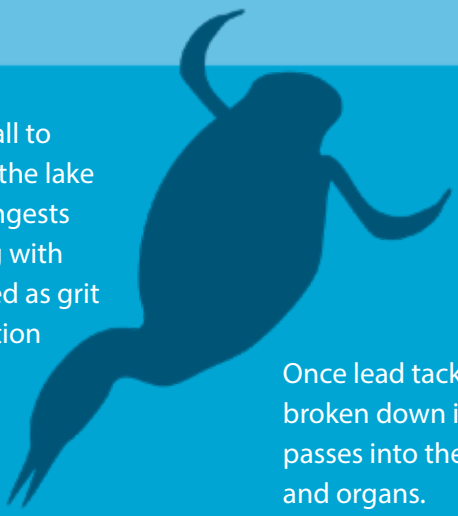
Lead poisoning is the most significant cause of mortality in adult loons

Loons are long-lived, have low fecundity and a low annual adult mortality rate—significant changes in breeding populations are symptomatic of chronic stressors such as lead poisoning from fishing tackle.



Loons are exposed to lead in two ways:

1) they feed on fish that are being reeled in by an angler or fish that have broken free with tackle still attached



2) lead weights fall to the bottom of the lake and the loon ingests the lead along with pebbles needed as grit to aid in digestion

Once lead tackle is ingested, it is broken down in the gizzard and passes into the bloodstream and organs.

Mortality Statistics

2-3

The number of weeks it takes for loons to die after ingesting lead from fishing tackle. Even a small piece of lead is fatal.

31%

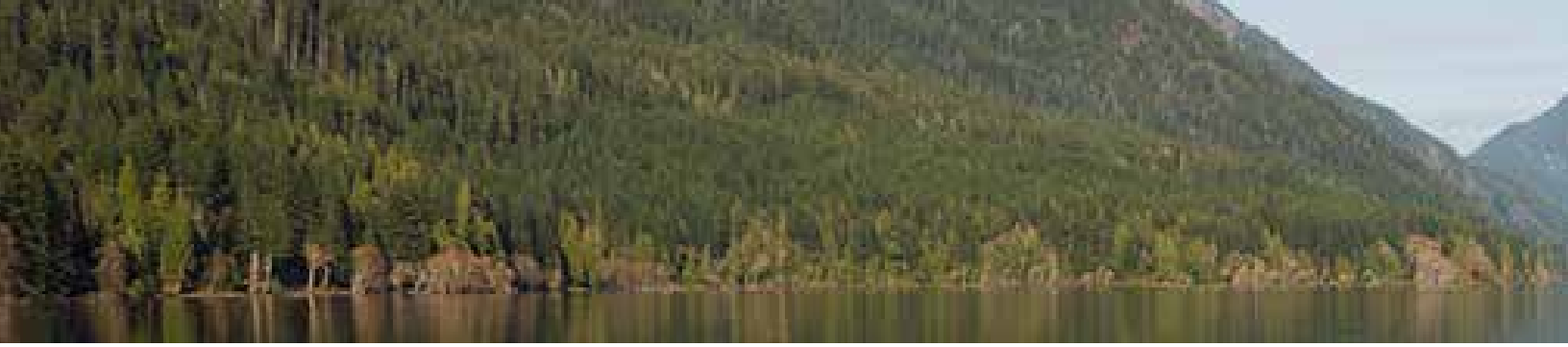
The percent of all adult loon mortalities as a result of lead toxicosis in Washington between 1996-2010.

0

The number of loon mortalities in Washington due to lead fishing tackle since 2010, when restrictions were put in place.

How You Can Help

Properly dispose of old lead tackle and switch to lead-free tackle made from nontoxic materials such as bismuth, tin, tungsten, steel, and ceramic.



Conservation Concerns for Population Sustainability

Protection of loon breeding habitat is critical to maintaining the integrity of loon populations and avoiding increased degradation of suitable breeding habitat. Because of its status at the top of the food web, high visibility to people, limited dispersal ability, and relatively slow replacement rate, the loon is widely used as an indicator species for tracking aquatic integrity (Evers 2006).

General threats to this population during the breeding season include: (1) direct human disturbance to nests and chicks; (2) water level fluctuations of territorial lakes and reservoirs; (3) changes in prey abundance; and, (4) contaminants. Washington's wintering loon population is susceptible in marine waters (see Figure 1) to hazards such as oil spills and commercial fishing nets (Evers et al. 2021). Loons are long-lived and have relatively low fecundity—therefore, Washington's breeding population is at particularly high risk to anthropogenic stressors.

Direct Human Disturbance

Human recreational activity has the potential to affect breeding, wintering, and migrating Common Loons. People in boats, canoes and kayaks pose a threat when accessing shallow water areas typical of loon nesting and brood sites.

Hikers can disturb nesting and foraging activity. Water skiing and the use of jet skis on migration staging lakes and proximal to Common Loon nesting areas creates the potential of strikes and nests being swamped. Discarded fishing line poses mortality risks from entanglement.

ACTION: Improve public awareness, especially at boat launches and hiking trails.

Climate Change/Water Level Fluctuations

Loons nest on the water's edge where changing water levels can pose a serious threat. A rise in water level can flood eggs on a nest; a fall in water level can leave a nest high and dry (Figure 5).

ACTION: Place rafts in territories of need.

Changes in Prey Abundance and Composition

Earlier feeding studies indicated that chicks were not surviving at some nesting lakes in northeast Washington because those lakes were being stocked with only larger, catchable-size fish, and not with fingerlings small enough for young.

ACTION: Continue stocking fish in nesting lakes with supplement of 3-4-inch fingerlings.

Contaminants and Toxins

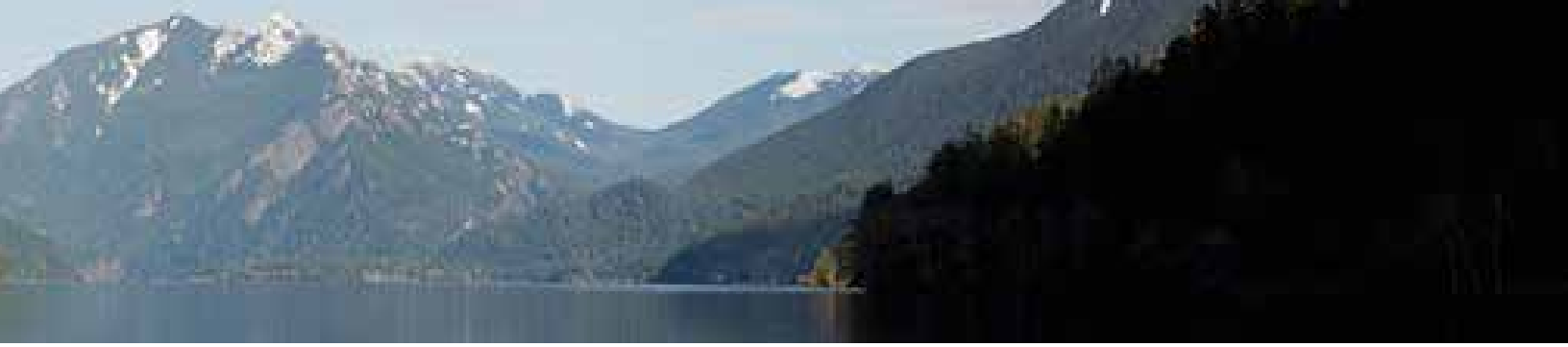
A leading cause of mortality is lead toxicosis, primarily from ingesting fish with attached line and lead fishing tackle, and from mistakenly selecting lost lead sinkers and other lead objects for grit. Moreover, the anthropogenic release of mercury into the environment is a serious problem for ecosystems that are sensitive to the atmospheric deposition from regional and even global sources. This includes loon nesting lakes and reservoirs, especially those with abundant shoreline wetlands and frequent water level fluctuations.

ACTION: Continue to monitor trends of contaminant and toxin levels. Expand lead legislation. Locate mercury point sources near waterbodies that are occupied by loons in the high-risk category .

Oil Spills

Marine oil spills can have significant impacts on wintering populations of loons through feather oiling and ingestion, causing hypothermia. This potential threat exists in Washington along the Pacific Ocean coastline and is actually greater in the Strait of Juan de Fuca and the Puget Sound region, where commercial shipping traffic is highest.

ACTION: Rapid reporting, effective clean-up, and full-scale efforts to eliminate oil spills are needed to minimize environmental impact.



Recommendations for 2021

Evidence of the loon's ability to acclimate to changing conditions demonstrates that properly designed conservation efforts can be beneficial. General threats to North America's loon population are well-established. We recommend prioritizing the following actions to help maintain their long-term sustainability.

Monitoring

- Continue standardized surveys of breeding loon population.
- Continue to band and track adults and returning juveniles to determine mate and site fidelity, local territory movements, age at first breeding, longevity, and individual performance.
- Enlist the help of additional citizen scientists at breeding territories to function as Loon Rangers.
- Collect more information on reproductive success and specific movements during and after the breeding season to assess long-term sustainability of loon populations west of the Cascade Mountains.
- Continue tracking mortality to document trends and the effectiveness of current lead ban regulations.
- Continue monitoring number and locations of bald eagle predation.

Research

- Continue capturing, banding, and sampling loons to track individuals and determine health, including contaminant body burdens (e.g., mercury and lead and stable isotopes).
- Generate a complete mercury profile for each loon territory (currently 76 percent of loon territories have been sampled for mercury).
- Determine inter- and intraseasonal movements with geolocators. Prioritize geolocator placement on loons with the highest reproductive success.

Management

- Expand the use of artificial nest platforms. Use avian guards around nest sites and on artificial nest platforms (Figure 5).
- Assess the impact of Washington's Bald Eagle population on loons.
- Increase the ban on lead fishing tackle statewide.

Outreach

- Continue to increase awareness of the presence and requirements of breeding loons using dioramas, exhibits, brochures, and video presentations.
- Post educational signs at boat launches, trail heads, kiosks, and visitor centers.

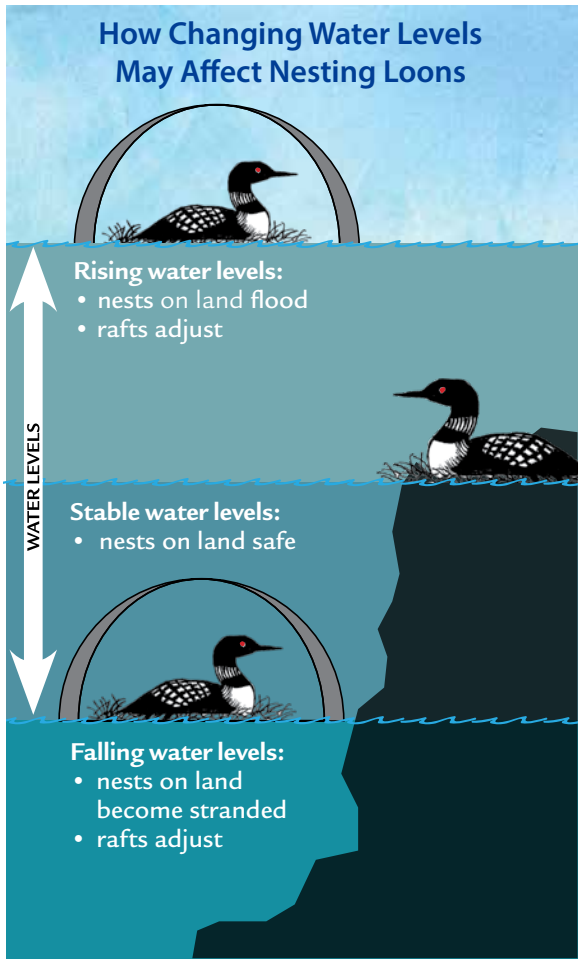


Figure 5. Aquatic birds, loons build their nests at the water's edge. Typically, a 6-inch increase or a 12-inch decrease in the water level will likely cause significant nest loss. Fluctuations in natural lakes can vary widely depending on geographic and climate conditions. Reservoirs can be managed so that water drawdowns are timed to be sensitive to nesting and egg hatching. Rafts have proven an effective management tool to enhance loon reproductive success.

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Credits

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Maps: Mark Burton

Illustrations: Iain Stenhouse; Linda Mirabile

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