

BRI Program Project Index

Through our research programs, we work to better understand ecological health through the lens of wildlife. With 17 different programs, we work across the globe, from the Arctic to the Tropics. Below are the list of projects for each of our programs.

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Arctic Program

BRI's Arctic Program is involved in a range of research and conservation initiatives. These are generally interdisciplinary in nature and include collaborators from national agencies within Arctic countries and local and international conservation organizations

Contaminants Monitoring Projects:

- Investigating mercury levels in the feathers and blood of a broad suite of shorebirds breeding across North America, from Alaska to Nunavut (in collaboration with the Arctic Shorebird Demographics Network)
- Evaluating mercury exposure in a number of seabirds and waterbirds breeding in Alaska and Russia, including the Kittlitz's Murrelet, Yellow-billed Loon, Pacific Loon, and Arctic Loon (in collaboration with researchers at the U.S. Geological Survey, and at the Russian Academy of Sciences)

Tracking Projects:

- Determining the year-round movements of migratory birds that nest in Denali National Park, Alaska, and identifying migration routes, stopover sites, and wintering areas (in collaboration with the National Park Service)
- Identifying the Asian wintering areas of Yellow-billed Loons breeding on Alaska's North Slope (in collaboration with Dr. Joel Schmutz, U.S. Geological Survey)

Population Studies:

- Capturing and color-banding Yellow-billed Loons on Alaska's North Slope to monitor their reproductive success, survival, and breeding distribution (in collaboration with Dr. Joel Schmutz, U.S. Geological Survey)
- Collaborating with Russian scientists in the Chukotka region of Siberia to develop on-site field methods for monitoring loons (Yellow-billed, Pacific, and Arctic), and on publications related to the ecology of waterbirds, shorebirds, songbirds, and other Arctic wildlife (with Dr. Diana Solovyeva, Russian Academy of Sciences)

Biodiversity Program

Staff are conducting the biodiversity surveys around the world that include the quantification of soil carbon, vegetation, invertebrate and wildlife populations to establish baseline conditions that will be used in comparison to replicated surveys conducted in the future.

Biodiversity Survey Location and Project Information

- [South Dakota](#)
- [Kenya](#)
- [Zambia](#)
- Tanzania

Fisheries Program

BRI's fisheries program focuses on projects which may involve: (1) contaminants monitoring and analyses; (2) mapping fish movements and habitat utilization; (3) tributary inspections; (4) spawning surveys; and (5) fish inventories. Staff routinely work collaboratively with state and federal agencies, Ministries of the Environment and Health, nongovernmental organizations, and other stakeholders on fisheries projects.

Contaminants Monitoring Projects

- FERC mercury monitoring among the Upper and Middle Dam Project, Maine (FERC #11834)
- FERC mercury monitoring among the Flagstaff Storage Project, Maine (FERC #2612)
- FERC Fifteen Mile Falls Project (FERC #2077), New Hampshire/Vermont
- Androscoggin Lake Mercury Study

Movement Studies Projects

- Brassua Lake/Misery Stream fish project
- Western Maine fish tracking and habitat utilization project

Mammal Program

BRI focuses its mammal research efforts on meeting the conservation needs of selected species and using them as bioindicators to evaluate the health of individuals, populations, and ecosystems. Below, we have grouped our primary areas of research emphasis into nonexclusive areas: (1) contaminants monitoring; (2) movement studies; and (3) surveys and population monitoring.

Contaminants Monitoring Projects

- Evaluating spatial and temporal patterns of mercury exposure in northeast U.S. bat populations
- Developing mercury lowest adverse effect levels (LOAEL) for U.S. bat populations
- Penobscot River mercury study: mercury assessment in bats along the Penobscot River and comparison regions in Maine
- Assessing bat, furbearer, and small mammal Hg profiles for Natural Resource Damage Assessments (NRDA) with USFWS, EPA, and various state agencies
- Peru mercury study examining mercury for gold mining using Giant River and Neotropical River otters as indicator species
- Evaluating spatial and temporal patterns of mercury exposure in northeast U.S. mink and otter populations
- Examining bat mercury trends at Great Dismal Swamp National Wildlife Refuge, Virginia
- Penobscot River mercury study: mercury assessment in harbor and gray seals along the Penobscot River and comparison regions in Maine and Massachusetts

Movement and Tracking Projects

- [Identifying Late Summer Activities and Habitat Preferences of Remnant Populations of Myotis Bats in Acadia National Park](#)
- Home range movements of otter, mink, beaver, and muskrat on a fluctuating reservoir in western Maine
- Tracking Indiana bats to day roosts and performing exit counts
- Tracking eastern small-footed bats to rock roosts at Acadia National Park
- Home range study of little brown and tri-color bats on a river in Virginia
- Home range study of northern long-eared and eastern small-footed bats at Great Bay National Wildlife Refuge
- Examining muskrat movements and populations on a fluctuating reservoir in Downeast Maine

Inventory and Population Projects:

- Understanding bat migration in coastal Massachusetts (working with Parker River and Great Bay National Wildlife Refuges)
- Acoustic monitoring of bats at various National Parks, National Wildlife Refuges, and various states for inventory purposes
- Community structure of bats at Acadia National Park

- Museum query for historical coastal bat occurrences
- Bat survey of Parker River and Great Bay National Wildlife Refuges
- Ecoregion survey to determine rare bat and small mammal species in Maine
- Characterizing bird and bat migration in the Thousand Islands region of New York State (with the U.S. Fish and Wildlife Service).
- Gas pipeline surveys for endangered Indiana bats in Pennsylvania, West Virginia, and Ohio
- Rare mammal inventory along the Appalachian Trail in Maine for the National Park Service

Marine Bird Program

BRI focuses its research efforts on Marine Birds on meeting the conservation needs of marine birds and using these species as bioindicators. Below, we have grouped our primary areas of research emphasis into three nonexclusive areas: (1) contaminants monitoring; (2) movement studies; and (3) surveys and population monitoring.

Contaminants Monitoring Projects

- Evaluating mercury exposure in a broad range of shorebird species breeding at sites across the North American Arctic from Alaska to Nunavut
- Evaluating the spatial and temporal patterns of mercury exposure in a group of sentinel marine bird species breeding in the Gulf of Maine
- Evaluating Northern Gannet exposure to polycyclic aromatic hydrocarbons (PAHs)

Movement and Tracking Projects

- [Tracking shorebird migration](#)
- Tracking the annual migration and winter movement patterns of vulnerable marine bird species ([Northern Gannets](#), [Red-throated Loons](#), and [Surf Scoters](#)) wintering off the mid-Atlantic region of the U.S.
- Tracking the annual migration of Black Guillemots breeding in Northern Alaska and their movements in relation to changes in the ice edge
- Tracking the annual movements and migration of vulnerable marine bird species
- in the aftermath of the Deepwater Horizon oil spill

Inventory and Population Monitoring Projects

- Assessing the effects of offshore wind energy development on seabirds on the Atlantic Coast
- Modeling the abundance and distribution of marine wildlife across the mid-Atlantic continental shelf region to identify hotspots of consistent use on the continental shelf
- Assessing the distribution and abundance of migratory birds using the offshore New York waters of Lake Erie using traditional aerial surveys
- Assessing the external oiling of migratory birds following the Deepwater Horizon oil spill
- Evaluating the abundance and spatio-temporal distribution of marine wildlife (mainly seabirds, marine mammals, sea turtles) across the mid-Atlantic continental shelf region over two years using high-definition digital aerial surveys
- Evaluating the abundance and spatio-temporal distribution of marine wildlife (mainly seabirds, marine mammals, sea turtles) in the mid-Atlantic WEAs over two years using traditional boat-based surveys

Raptor Program

BRI's raptor research focuses on informing the management and conservation needs of raptors. Our research emphasizes three nonexclusive areas: (1) contaminants monitoring; (2) movement studies; and (3) population monitoring.

Contaminants Monitoring Projects

- [Evaluating lead and mercury exposure in adult Bald Eagles and Common Loons in northeastern Maine](#)
- [Evaluating mercury exposure in migrant raptors](#)
- Assessing exposure of Maine's coastal and inland Bald Eagles to organic and emerging compounds
- Penobscot River mercury study: mercury assessment in Bald Eagles and Ospreys along the Penobscot River and comparison regions in Maine
- [Evaluating spatial and temporal patterns of mercury exposure in Maine's Bald Eagle population](#)
- [Evaluating mercury exposure in New York State Bald Eagles](#)

Movement and Tracking Projects

- [Characterizing the movement and dispersal patterns of Maine adult and subadult Bald Eagles using satellite telemetry and color banding](#)
- [Studying movement patterns and wintering area use of raptors migrating along the U.S. Atlantic Flyway using the Block Island Raptor Research Station](#)
- Describing movements of migrating Peregrine Falcons in relation to Offshore Wind Energy facilities along the Atlantic seaboard (Chapter 25).
- [Tracking the movements of Snowy Owls](#)
- [Tracking the Range and Migration Routes of New Hampshire Peregrine Falcons](#)

Inventory and Population Projects

- [Quantifying the use of New England's premier fish run by Bald Eagles](#)
- [Tracking Northern Saw-whet Owls along the coast of Maine](#)
- [Characterizing the diurnal and nocturnal raptor migration at Monhegan Island, Maine](#)
- [Evaluating Osprey Nest Abundance, Distribution and Productivity in Casco Bay](#)

Shorebird Program

Shorebirds undertake some of the most spectacular long-distance migrations of any avian taxa. Many species utilize far-ranging habitats for breeding and wintering, and while on migration rely on specific stopover sites where they gather in large numbers to rest and refuel before continuing on. BRI conducts shorebird research through inventory and population studies, movement and tracking studies, contaminants monitoring, and avian health studies.

Contaminants monitoring projects:

- Quantifying mercury exposure in North American arctic-breeding shorebirds. 2009, 2012, and 2013
- Determining mercury exposure in Northeast breeding Eastern Willets throughout their annual cycle. 2010-2014
- Study of environmental contaminants in Mexico. 2013

Tracking projects:

- Determining Migratory Connectivity of Eastern Willets Breeding in the Gulf of Maine, 2011-present
- Mapping shorebird movements to determine habitat use, length of stay, and pre-migration condition of shorebirds using beach and saltmarsh staging habitats in the mid coast and southern regions of Maine, 2014-2016
- Assessment of water level management on breeding marsh birds (Wilson's Snipe), ME, NH, 201

Population monitoring projects:

- Red Knot and Roseate tern surveys at NCTAMSLANT DET Cutler, Maine, 2017, 2020-2022
- Upland Sandpiper surveys at blueberry farms in eastern Maine, 2019-2022

Songbird Program

Many anthropogenic stressors affect songbirds. At BRI, we are working to understand how contaminants, wind power development, climate change, and habitat change impact songbird ecology and demography. BRI is working in various places across New England, the United States, and south into Central and South America to better understand the ecology, movements, and contaminant effects of a variety of songbird species, with an emphasis on neotropical migrants.

Contaminants Monitoring Projects

- [Monitoring Spatial Gradients and Temporal Trends of Mercury in Songbirds of New York State](#)
- [Songbirds: Indicators of Mercury in National Park Ecosystems](#)
- [Songbirds: Monitoring Mercury in Invertivores](#)
- Florida Migration Study: Tracking mercury loads in migrating songbirds
- Northern Waterthrush Wintering Study: Determining origins of mercury exposure in tropical habitats
- Mercury in Forest Songbirds (Hidden Risk)
- Riverine Mercury Footprint Study
- Carolina Wren Nest Success Mercury Study
- Trask Watershed Mercury Study

Movement and Tracking Projects

- Great Lakes Migration Monitoring: Documenting bird and bat migration around the Great Lakes to assess risk to migrants from wind power development
- [Tracking Wildlife Offshore: Modeling abundance of marine wildlife to promote informed offshore wind power decision making](#)
- Developing novel methods for monitoring songbirds with offshore buoys
- [Migratory Connections – Veeries and Gray Catbirds](#)
- [Evaluating the distribution of Black Rosy-finches in northwestern Wyoming](#)
- Mountain Bluebird demographics
- [Olive-sided Flycatcher Migratory Connectivity Project](#)

Waterfowl Program

BRI has partnered with other conservation organizations, as well as state and federal agencies interested in waterfowl conservation goals. BRI is actively conducting waterfowl research within three broad areas: (1) contaminants monitoring; (2) movement and tracking studies; and (3) avian health.

Contaminants Monitoring Projects

- [Examining mercury concentrations in Common Eiders and their food items in the northeastern United States](#)
- Exposure profile of contaminants in North American sea ducks
- [Scaly-sided Merganser: A collaborative workshop between Russian and American scientists to facilitate research and outreach efforts to conserve endangered wildlife in Russia and China](#)
- [Pilot assessment of methyl-mercury in Mallard Ducks from the South River, Virginia, USA](#)
- Pilot assessment of methyl-mercury in Mallard Ducks from the North Fork Holston River, Virginia, USA
- Mercury concentrations in tissues of waterfowl from Alaska, USA
- Mercury concentrations in eggs of Common Goldeneyes and Hooded Mergansers breeding in Minnesota, USA
- Reproductive monitoring and mercury concentrations in cavity nesting ducks in Maine, USA
- Penobscot River mercury study: assessment of mercury residues from wintering sea ducks in Penobscot Bay area, Maine, USA
- [Assessment of mercury in wintering waterfowl from Parker River National Wildlife Refuge, Massachusetts, USA](#)
- Summary of wildlife mercury exposure for the Nyanza Superfund Project: Hooded Merganser and Wood Duck

Movement and Tracking Projects

- [Determining offshore use of diving bird species in federal waters of the Mid-Atlantic United States using satellite tracking – Surf Scoter \(*Melanitta perspicillata*\) Component](#)
- [Boston Harbor Common Eider Tracking Study](#)
- [Connecting Wyoming's Breeding Harlequin Duck Population to Important Wintering and Molting Areas and Identifying Migration Routes](#)
- [Tracking Common Eider Brood Survival in Casco Bay, Maine](#)
- [Atlantic and Great Lakes Sea Duck Telemetry Study](#)
- [Maine Common Eider Satellite Telemetry Study](#)
- [Movement Ecology and Habitat Use of White-winged Scoters and Long-tailed Ducks in Southern New England](#)

Wetlands Program

Wetland ecosystems provide habitat for a broad diversity of species, some of which are declining and of high conservation concern. Faced with the devastating loss of habitat and threats from pollution, wetland obligate species are under considerable pressure. Studying the effects of these stressors on behavior, physiology, survival, and reproductive success provides critical information on the status of populations and health of wetland ecosystems. BRI's wetlands studies inform stakeholders and policy makers and allow for the development and implementation of effective conservation strategies.

Contaminants Monitoring Projects

- [Long-term mercury monitoring in the species of special concern, the Saltmarsh Sparrow \(*Ammodramus caudacutus*\) in Maine, Massachusetts and New York, 2004-present.](#)
- Mercury monitoring of Rusty Blackbirds in the Northeast U.S. and Canada. 2009, 2020
- Quantifying mercury exposure in North American arctic-breeding shorebirds. 2009, 2012, and 2013.
- Determining mercury exposure in Northeast breeding Eastern Willets throughout their annual cycle. 2010-2014
- Injury screening study of contaminant exposure in fish, bats and birds, Pompton Lakes, NRDA study, 2014.
- State-wide long-term mercury studies of New York birds, 2013-2018.
- Long term fish mercury monitoring at Fifteen Mile Falls on Connecticut River, NH, VT, 2003-2014.
- A Multidisciplinary Assessment of Mercury Contamination in Wetlands of Nicaragua, 2012, 2014
- Limpia Guerrero 2013, A Pilot Study of Environmental Contaminants in Mexico, 2013

Natural Resources Damage Assessment (NRDA)

Due to the potential or pending litigation between the trustees and the responsible parties we are unable to present our findings here, however, representative NRDA projects are listed below. For more specific information please contact BRI directly.

- Pilot assessment of mercury exposure to songbirds in Pompton Lakes, New Jersey, 2014
- Assessment of mercury exposure to songbirds in the marshes of Piles Creek and South Branch creek, New Jersey, 2010-2011
- Penobscot River Estuary mercury exposure study, 2006-2010
- Evaluation of mercury and PCBs in birds on Onondaga Lake, 2008-2009
- Assessment of methylmercury availability to bats and birds on the South River, Virginia, 2007-2009

- Assessment of mercury contamination in songbirds on the North Fork of the Holston River, Virginia, 2005-2008
- NYANZA Superfund site, mercury exposure of biota, Sudbury River, Massachusetts, 2003-2004

Food Web Studies

- Evaluation of mercury and PCBs in birds on Onondaga Lake, 2008-2009
- Penobscot River Estuary mercury exposure study, 2006-2010
- Injury screening study of contaminant exposure in fish, bats, and birds, Pompton Lakes, NRDA study, 2014
- Dome Island Invertivore Food Web Study, 2009

Inventory and Population Monitoring Projects

- Night time frog chorus surveys
- Identification of frog and salamander egg masses
- Shorebird and tern surveys at NCTAMSLANT DET Cutler, Maine, 2017,2020
- Remote Acoustic Unit data analysis of rare wetland bird songs in New Jersey, 2012-2013
- Assessment of water level management on breeding marsh birds, ME, NH, 2018
- Eastern Hognose Snake surveys, CT, 2015
- Night time frog chorus surveys
- Identification of frog and salamander egg masses

Movement Studies

- [Determining Migratory Paths and Mercury Exposure of Eastern Willets Breeding in the Gulf of Maine, 2011-present](#)
- Mapping shorebird movements to determine habitat use, length of stay, and pre-migration condition of shorebirds using beach and saltmarsh staging habitats in the mid coast and southern regions of Maine, 2014-2016
- Assessment of water level management on breeding marsh birds, ME, NH, 2018