**NELSWG Meeting 2019 Minutes**

**Thursday March 21, 2019**

**State Monitoring and Population Notes**

*State Comparisons - Harry Vogel, LPC*

* Maine has largest loon population in the Northeast
* New Hampshire has highest number of monitored pairs
* New Hampshire deploys the most rafts
* NH and VT employ the most signage
* Chick Survival highest in MA and lowest in ME
* VT had highest overall productivity (~0.58) in 2018

*Mass Loon Surveys – Lucas Savoy, BRI*

* Loons locally extirpated in late 1800s
* Steady increase in TP from 1975-2018
* 89% of loons in the Quabbin Reservoir area
* Mass monitors 7 waterbodies
* Mass DCR monitors 58% of the state loons on Wachusett and Quabbin Reservoirs
* 48 lakes are monitored by BRI, 24 of which had loons present
* 18 territorial pairs, 12 nesting pairs, and 18 chicks fledged from non-DCR lakes in Mass

*Maine Loon Surveys – Alex Dalton, BRI*

* Synopsis of BRI’s loon surveys and management projects in Maine
* Overview of new survey tool Survey123 by ArcGIS and practical applications for loon monitoring
* Hilarious and witty banter with a deeply engaged audience

*Lakes of Maine Website- Sally Stockwell, Maine Audubon*

* Digital Data Interface for lake, wildlife, and habitat data
* Maximizes data analysis and viewing opportunities
* Easy submission and mapping of loon count data
* Website: <https://www.lakesofmaine.org>

Vermont Update – Eric Hanson, VCE

* 7 nests in 1981 🡪 91 nests in 2018!!
* Nest signage a success

New York-Nina Schoch, ACLC

* Evidence of black bear predation on loon eggs

**Mortality – Causes and Avoidance**

*Necropsy updates and plans, student project updates – Mark Pokras, Tufts University*

* Book Recommendation “To Kill a Common Loon”-Mitch Luckett
* 30 years of data from Tufts, LPC, BRI, UNH
* NWDC – Northeast Wildlife Disease COOP and Canadian Wildlife Disease COOP
* Collaborate and share data:
  + Google Drive
  + Tufts Server
  + Frozen tissue archives
  + LPC
  + UNH
  + BRI
* Student Project Update
  + Bone Pb using XRF
  + Loon blood chemistry
  + Fishing gear wear rates with rock tumbler
  + Aspergillosis
  + Cyanotoxins
  + Sternal puncture
  + Digital image recognition
* The Kappy effect- discussion on the behavioral effects that observer clothing may have on loons

*Regional mortality database progress - Meghan Hartwick, UNH*

* Northeast Loon Mortality Data Project
  + 1987 🡪 Present
  + 1891 cases
  + 91 categories
    - ID, Morphometrics, Pathology, Location, etc.
  + Ultimate cause of death
  + 25% of carcass recoveries from salt water
  + 75% of carcass recoveries from fresh water
  + Rapidly searchable

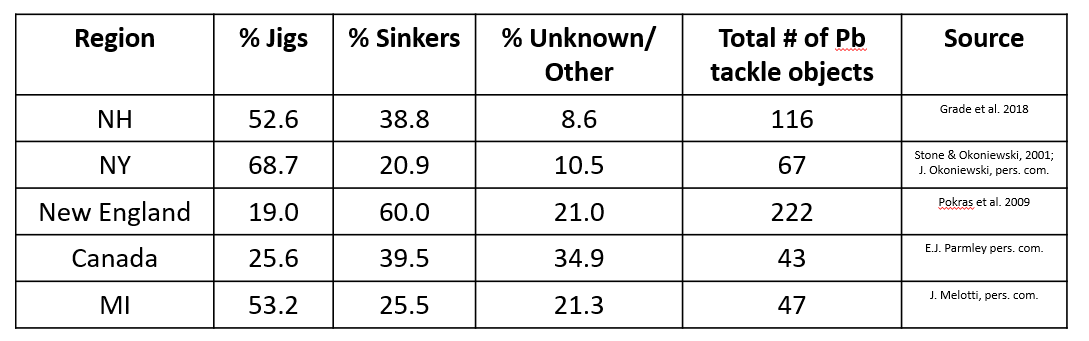
*Avian bycatch in Yellowstone - Arcata Leavitt, RCF*

* Bycatch from 1998-2018
  + 21 Loons
  + 29 ducks
  + 5 gulls
  + 1 grebe
* 20 loons caught during fall migration
* Measures that could reduce mortality
  + Reduce fishing effort
  + Overnight net sets at greater than 65 ft. deep could reduce mortality
  + Visual deterrents
  + Bird panels placed on nets

**Lead**

*Ambio lead review paper – Tiffany Grade, LPC; Mark Pokras, Tufts*

* Review of lead (Pb) poisoning from fishing gear in Ambio
  + Rates of lead lost to the environment
  + Impact of lead on wildlife-swans and loons
  + Sub-lethal impacts
* Loon mortality data meta-analysis
  + NH, ME, NY, MI, WI, MN, WA, New England in total, Canada
  + Lead tackle ingested by loons



* Jigs are major source of Pb for loons
* Recommendations
  + Combine Law and Education
  + State and National level legislation
  + Drive down cost on non-lead alternatives
  + No coated products
  + Include size categories used by S.O.C.
  + Collaboratively work with stakeholders

*Lead tackle buyback program – Harry Vogel, LPC; Sheridan Brown, LPC*

* Collect Pb tackle
* Test effectiveness of angler incentives
* Build goodwill with anglers
* Expand outreach
* Strategy
  + Provide financial incentive
  + Improve ease of disposal
* Challenges
  + Discontent of anglers
  + Overcoming myths about Pb
* Pilot effort
  + 2 store locations
  + Personal connections with anglers
  + Increased publicity
  + Increased incentive
* “Buy it up Dry it up” buyback program
  + 62% of vouchers claimed
  + 4786 pieces of tackle collected
* Shop owners excited and happy with the program

*Fish Lead Free Initiative – Sally Stockwell, ME Audubon*

* Website - <https://www.maineaudubon.org/projects/loons/fish-lead-free/>
* Instead of vouchers free lead-free tackle kits and swag distributed at fishing events
* Database with Rod and Gun clubs, retailers, and fish groups
* Tackle exchange at boat ramps
* Hooked on fishing tackle kits for kids
* North American non-lead initiative

**Other Worthy Research and Ideas**

*Winter habitat selection and migration of Red-throated loons - Carrie Gray, University of Maine*

* Bureau of Ocean Management (BOEM) collaborative project
* Bulk of wintering population between New Jersey and North Carolina
* Hotspots in Delaware Bay and the Chesapeake Bay
* Night-capture
* Implanted satellite transmitters
* 111 red-throated loons caught
* 86 transmitters deployed
* Identified breeding, winter, spring, and fall areas and migration periods
* Used a Brownian bridge movement model
* Results
  + Hotspots in Delaware Bay, Chesapeake Bay, and Pamlico Sound
  + Typically less than 5 miles from shore
  + Females arrived first in wintering areas and left last
  + Many red-throated loons winter in tidal rivers
  + Less individuals in areas of greater than 20m of water depth
  + Lots of winter movement
  + In March many individuals moved further offshore
  + Nantucket Shoals, and Gulf of St. Lawrence appear to be spring staging areas
  + Breeding in Nunavut and Baffin Island
  + Molt stage stopover in Hudson Bay

*Practicality and Value of time-activity budget studies – Jay Mager, Ohio Northern University*

* Can be used to assess temporal, spatial, and contaminant driven states and events
* Differences in parental duties
* Observed decrease in parental care with increased chick age
* Contaminants and TABs
  + Chick riding decreased with increased Hg
  + Preening decreased with increased Hg
* Need to clearly define and streamline TAB protocol for reproducibility

*Tracking Older Loons, a first look – Lee Attix, LCA; Lucas Savoy, BRI*

* Keeping track of loons banded before 2004 as an ATY of before 1998 as HY
* 52% Males, 43% Females, 5% Unknown sex
* Oldest is the Sweat Meadow Female banded on Umbagog 31 years old
* 8 of the geriatrics nested in 2018
* NY had the highest count of old loons in 2018 with 18 and VT had the lowest with 1

*New Field Techniques for Managing Loons – Bill Hanson*

* Increased nest cam usage
* Directly catching birds off the nest
  + Pros
    - 21 captures using this method and 2 nests have failed but due to other reasons many days after capture
    - Does not require that chicks hatch in order to be a viable capture technique
    - Can be done with a 2 person crew
    - Can be less stressful than chasing loons around and using playback
    - Doesn’t need to be at night depending on birds behavior
    - Can be fairly fast
    - Can be particularly helpful with pairs that don’t typically hatch their chicks for whatever reason
* Cons
* You only get one shot per trip
* Possibility of nesting interference that has not been documented as of yet, but still remains a threat
* 50% chance of getting the right bird if you are targeting a specific individual in a pair

*Oil Spills and Loons – Dave Evers, BRI*

* North Cape Oil Spill- 1996 – 2009
  + Spill in 1996
  + Approx. 400 loons died
  + Approx. 2800 loon-years lost
  + Restoration choice
    - Lake/shoreline lease or purchase leveraged with land trusts greater than $100 million dollars spent
    - Result- Estimated 75 loon nests protected by land purchased and put into conservation on lakes around Maine
* Bouchard Oil Spill – 2003 - Current
  + Spill in 2003 in Buzzards Bay
  + Restoration choice
    - Still undecided USFWS has received money and are still taking proposals
    - Perhaps some translocation and a NELSWG group shared proposal
* BP Oil Spill 2010 – Current
  + Spill in Gulf of Mexico in 2010
  + Approx. 200 loons died
  + Restoration Ideas
    - Loon chick translocation
    - Lead sinker abatement program
    - Nothing decided yet
* Massachusetts Translocation Summary
  + 24 chicks translocated in total
  + 15 captive reared
  + 9 Direct Release
  + 18 Male, 6 Female

**Breeding or Lack thereof**

*Acid Rain in the third Millennium – Rob Alvo*

* Discussion on relevance of acid rain research in Canada and Northeast
* Discussed the potential for a follow up study on lakes that experience acid rain related loon declines in Canada and Northeast

*Mercury Analysis of Maine Loon Habitat – Kathleen Carey, Unity College*

* Senior Research Thesis for Unity College
* Analyzed environmental mercury (Hg) concentrations from sediment samples in know loon territories and compared those to loon blood samples collected by BRI
* Found some spatial trends related to lumber mills as potential point sources
* Flagstaff Lake had the highest Hg

*Adirondack Loons: mercury, sampling, and productivity – Nina Schoch, ACLC*

* Utilized power analysis for more robust sampling for Hg analysis
* Acidic vs. non-acidic model used to determine sampling effort vs detectability
* Thought that population may be close to K and that Hg may not be as much of a factor as it once was
* 5.7% increase in population from 1998 – 2010 and then population plateaued

*Squam Lake Loon Initiative update and Contaminants vs. Loon eggs – Tiffany Grade, LPC*

* DOOM and GLOOM
* Social chaos
* 0.19 Overall productivity
* 44% pair decline 2002 -2007
* 3 chicks survived in 2018
* Squam loon eggs had high: DDE, PFO’s, PBDE’s, PCB congeners, DO’s, Furans
* Maybe contaminant load is affecting social chaos?
* Pursuing eggshell thickness testing
* Additive vs synergistic effects of contaminants on individuals vs populations

**Climate Change and Related**

*Climate impacts on loon nesting – John Cooley, LPC*

* Fed and Audubon model show that loons will be extirpated from the U.S. due to climate change
* LPC model focused on many covariates in addition to climate data such as roads, sub-population, territory types
* LPC model was 70%-80% successful compared to global climate model
* Less successful compared to national model that had less covariates
* Clear linear relationship between nest success and climate temperature averages
  + Above 70°F nesting success drops off
  + Below 60°F nesting also drops off

*Alleviating thermal vulnerability of nesting loons – Caroline Hughes, LPC*

* Are species ranges dictated by climate alone?
* Should future range only be predicted using climate?
* Rafts modified to provide different amount of cover and temperature of the rafts was logged (note, no loons were nesting on these rafts)
  + 3 raft designs
    - No cover
    - Current raft model cover = 1.3° cooler than no cover
    - Modified cover with more shade = 1.6 ° cooler than no shade
* At what temperature do loons start to pant on the nest?
  + 71°F had more than 50% of nesting loons panting
  + With more nest cover loons can handle higher ambient temps

*Climate Change-What to track and do?* – Sally Stockwell, ME Audubon; All

* Discussion of the group about loons and climate change
  + Are loons okay to use to track climate change or is climate change just another stressor among many?
    - Harry-Loons are the perfect bellwether species for climate change, and being a charismatic species will have trickle down effects on other species
    - Mark – Don’t cry wolf and ensure quality of data, what do community scientists already have that we can use
    - Alex –collaborate, incorporate all the data we can (between all groups) into models to ensure robust findings and further deter harmful scrutiny
  + What is all the current research suggesting and how to broadcast it more effectively and widely?
  + Citizen science projects?

*Food web transfer of cyanotoxins –Katie Low and Jim Haney, UNH*

* Cyanotoxins – neurotoxic effects linked to ALS and Alzheimer’s
* Found in eutrophic lakes and have some evidence for biomagnification
* Preliminary studies showed that it was high in some WY lakes as evidenced by loon blood
* Not entirely from algal blooms as some high BMAA lakes don’t have algal blooms
* Attempting to look at BMAA throughout the food web and more in loon diet

**Other Worthy Research and Ideas**

*Lake Smart/Loon Smart Program – Sally Stockwell, ME Audubon*

* Website: <https://mainelakessociety.org/lakesmart/>
* Incentive program to ensure lakeside residents are responsible with their unintended contributions to the lake
* Loon Smart added as another distinction and education program for lakeside property owners to be good neighbors to the loons

**The Future**

*Joint NELSWG B-120 Proposal – ALL*

* NELSWG partners committed to joint proposal – it certainly seems like it
* Who should administer the proposal?
* Total amount? 1 million for each of the northern New England States, total 6 million for Massachusetts.
* E-mail Harry to express interest

*International Loon Symposium October 2020*

* October 19-21, 2020 Westin Harborview Hotel, Portland, ME
* Will happen in joint partnership with the Sea Duck Joint Venture
* IUCN Species of Special Concern group will also be a partner
* Special issue of Waterbirds planned

**Next Meeting!!**

**March 26-27, 2020**