

NORTHEAST LOON STUDY WORKGROUP
13th meeting at the Wildlife Clinic at Tufts University, N. Grafton, Massachusetts
Minutes: April 11-12, 2002

Monitoring efforts in 2001 and 2002 plans

Review - NY	Nina Schoch	ACLP
<ul style="list-style-type: none"> • Developed the Adirondack Cooperative Loon Program in spring of 2001 • ACLP = cooperative partnership of WCS, NHMA, DEC, BRI, & ASNY • Monitoring loons banded as part of 1998-2000 BRI/USFWS research in NY • Continuing contaminant sampling & banding w/BRI • Education programs <ul style="list-style-type: none"> ○ Presentations ○ 7th grade “Loon Scientists” program ○ Lead sinker exchange project – press releases ○ Boat launch signs – awareness of disturbance, etc ○ Banding signs • Annual census – coordinated w/NH, VT, ME • Developing/refining NY monitoring, census, etc. database • Worked with NYS DEC to develop nest raft guidelines (based on ME guidelines) • Writing WCS working paper on Common Loons in the Adk. Park • Working w/BRI to revise 1998-2000 report of Hg-loon data in Adk Park • Developing database for NYS DEC Wildlife Pathology Unit • Working with BRI, WCS, NHMA on grant proposals • Will coordinate databases w/NERC & EPA, NH, VT, ME... • Potential to work with WCS field veterinary program, Tufts, NYS DEC Wildlife Path Unit... 		

Review - VT	Eric Hanson	VINS
<p><i>See handout</i></p> <ul style="list-style-type: none"> • 38 pairs • 47 of 56 chicks survived • 16 on nesting platforms • Volunteers & warning signs around nest sites to decrease disturbance • Education – fact sheet: where loons are & where they aren't • Working with BRI on banding & mercury sample collection • Send necropsy specimens to Tufts – had 3 lead birds in southern ½ state • Maintaining education & overall management program • Lake Champlain survey for non-breeding loons – will coordinate with NY – ACLP/DEC • Will find out about reservoirs that will be relicensed by FERC • Will probably delist loons from endangered to threatened based on VT Recovery Plan from ~1997 • Surveying ~150 lakes w/90 lakes very closely 		

Review - MA	Dan Clark/Rose Miconi	MDC/Tufts
<p><u>Dan Clark – MA Dept of Cons:</u></p> <ul style="list-style-type: none"> • 17 of 22 pairs in MA on reservoirs – primarily on Quabbin • In 2001, Quabbin had 12 terr pairs – 6 nested >> 2 fledged young from natural island nests 		

- Wachusett had 4 nests – 1 chick each fledged
- 3rd reservoir had 1 nest w/1 chick fledging
- 8 adults banded w/BRI
- Want to figure out why lots of loons on Quabbin, but so few chicks?
- MDC maintaining water elevation in Wachusett – keeping pretty stable, but Quabbin fluctuates more. Changes in Quabbin are more gradual usually b/c so large. Did lose some nests in 2001 due to flooding.
- In ME: reservoir levels restricted to 12” drawdown or 6” increase (*see 2001 Lake Umbagog report*) – may want to consider doing so in MA also. May want to use rafts on lakes/reservoirs w/more fluctuation

Rose Miconi – Tufts:

- 31 lakes surveyed in MA over ~2 month period in 2001, not all good habitat for loons
- Looked for nesting and non-breeding loons: groups, single pairs, single birds
- Looked for where loons might nest & if suitable habitat available for nesting to determine if might need to place rafts/manage for breeding loons
- Didn’t get to survey ~19 reservoirs/lakes
- Of the ones surveyed, 9 lakes/reservoirs had potential habitat for nesting & saw some adults on the water, but no chicks
- Recommended in report: to survey a second year & go longer, from ice-out to Sept.
- On potential lakes, Rose thinks that what is lacking is good nesting habitat & would like to place rafts on waterbodies where loons coming back yearly but not breeding successfully to encourage nesting & increase breeding success.
- Did several papers & case reports: e.g.: NWF lead article, case report on cryptococcus sp in J. Wildlife Ds., lead toxicosis report
- Education presentation & lead sinker exchange program

Review - NH

Kate Taylor/Harry Vogel LPC

See LPC progress report

- Loons threatened in NH
- LPC has been monitoring NH loons for 25 years – See 25 year report
- 2000 was record year for breeding
- 2001 had 212 terr pairs
- 144 chicks with 113 surviving
- Intensive monitoring/management for each pair
- Monitoring over 200 pairs
- Goal for banding is to band as many as possible birds to enable good modeling of threats impacting population
- Lake Umbagog had 22% pop’n missing from previous years (over ½ were banded)– suspect some stressor event that impacted that pop’n – both experienced & inexperienced birds equally
- Overall positive growth
- Have seen some decrease in fledge rate
- Looking at:
 - human disturbance
 - shoreline development
 - lead toxicity
 - Hg deposition

- Squam Lake
 - Longest running study site – but, over time, placed too many rafts & became very political about where & which rafts to place.
 - Raft placement actually began to decrease productivity b/c too much interaction between loons & killing chicks or defending territories
 - Now, very difficult politically to remove or move rafts to be better for birds

Review – ME

Lucas Savoy/Tom Hodgman

BRI/MIFW

- Weekly surveys on 5 study regions based on aerial surveys (*accuracy of aerial surveys dependent on observer ability – good first screening tool, but need to ground proof*):
 - Rangeley Lakes
 - Eagle Lake
 - Allagash
 - West Grand Lake
 - Downeast
- 1996 oil spill \$ used to determine which waterbodies to protect to increase loon habitat & pop'n
- USFWS
- New England Forestry Foundation
- FERC relicensing
- Floated 51 rafts on 4 FPL reservoirs
- Weekly surveys to determine:
 - Territorial pairs (TP) = 296
 - Nesting pairs (NP)
 - # chicks hatching (CH)
 - # chicks surviving to fledge (CS) = 78
 - Habitat evaluation: water quality- pH,
 - Mapped loon territories based on prenesting, nesting & brooding behaviors
 - Color band reobservations
 - 145 lakes surveyed
- Estimate pop'n to be ~270 pairs
- Egg sampling to evaluate Hg levels
- Return rates ~80% but depends on type of territory (1 pair/lake, multi-pair lake, or 1 pair uses multiple lakes)
- Continued banding in ME, NH, NY, MA, VT
- Productivity – Avg = 0.6 for NA summary (J. McIntyre), ME is less & trying to determine why

Review – Loon Health/Mortality

Mark Pokras

Tufts

See handout

- 44 loons from ME & New England
- Lead toxicity cases ~ same as previous years; 2/3 time associated w/other fishing gear probably due to loon catching fish w/tackle attached; other 1/3 time sinker by itself & may be from loon picking up sinker off bottom
- 18% mortality from fungal respiratory problems (primarily aspergillosis) – not statistically tied to other problems/contaminants; suspect due to ecological phenomenon instead of contaminants; i.e.: wintering population = more stressed & more parasitized
- Several publications (*see handout*)

- Would like to coordinate w/NY DEC Wildlife Pathology Lab, Canada, etc. to evaluate mortality on a continent-wide basis. Larger scale datasets.
- Anthropogenic mortality – lots of mortality due to impacts from boats, monofilament (lake = fishing line, ocean = gill net) entanglement, gunshot wounds...
- Fish hooks relatively unimportant in cause of mortality in loons (except on ocean where stainless steel hooks don't break down). If gets lodged in upper GIT, lasts longer & may cause problems. If gets lodged in lower GIT, hook gets broken down by acids in stomach (e.g.: w/in 2 weeks in grebe) and doesn't usually cause a problem.

Review – Loon Modeling/Other efforts

Mona Haebler/Matt Midor

USEPA

See handout

- Looking at multiple stressors, not just one
- Looking at pop'n, not just individual
- 4 steps to characterize effects of impacts (*see slide #3*)
- Age based life cycle graph >> matrix pop'n model to evaluate effects on individuals
- Transition matrix >> how pop'n changes over time
- How changes in parameters result in changes at pop'n level e.g.: small changes in repro >> changes in pop'n growth rate & changes in survival >> changes in pop'n growth rate
- Changes in stressors also affect pop'n growth rate – will be evaluating for loons also
- Trying to determine if can use field studies to determine the effects of stressors on loon pop'ns
 - Evidence from literature: so far, studies haven't ruled out confounding stressors to relate to one stressor such as Hg (*see slide*) – looking at by geographic regions & by individual lake
 - If effect of Hg on productivity, it's being masked by other stressors
 - Effects of any one stressor needs to be considered in context of other stressors
 - Evidence from field data
- Will evaluate stressors on lake by lake basis
- Increase sample size to better address stressor effects on productivity & survival

Loon Conservation Issues

Botulism Type E review for Canada

Jeff Robinson

CWS

- 1999 = first reports of birds dying of botulism on shores of Lake Erie & Lake Huron: RBME & COLO
- 2000: No birds on Lake Huron, most on Lake Erie – gulls (ring-bills & herring) & cormorants in mid-summer, then loons later in fall. Dying on main shoreline & on islands
- 2001: Lake Erie –eastern basin - gulls & cormorants in mid-summer, then loons later in fall
- Tried to give Canadian Wildlife Health Center sick live birds to aid in diagnosis
- Also some shorebirds affected (from Mohawk Island NWA)
- Many species affected: DBCC, RBGU, HEGU, diving ducks, shorebirds, grebes, GBB Gull...
- Late summer/early fall in eastern basin (e.g.: Port Dover area) >> cold front pushes surface water SE >> temp change in water & fish get caught up & die. If birds eat affected fish, then get botulism.
- Round gobies have moved into Lake Erie – birds like to feed on gobies b/c right size – looking at stomach contents of affected birds
- Temperature fluctuations can result in botulism outbreaks
- Not sure if gobies are cause or effect? Botulism often associated w/gobie presence, but not always

- Migrating/staging areas are where outbreaks primarily occurring – not breeding birds
- Fast acting toxin – kills w/in hours after first clinical signs
- Factors affecting botulism outbreak:
 - Timing of temperature fluctuations
 - Gobie movements
 - Bird migratory patterns (e.g.: gulls in summer, loons in late fall)
 - Storms can bring in temp changes e.g.: Nov, 2001 >> ~200 dead loons on section of beach; (~30-35/km). Events can last days.
 - Zebra mussels, quagga mussels, gobies, mud puppies...
- Cyclic patterns – occurs for several years, then disappears for a while
- Summary:
 - fish-eating birds begin dying in late July assoc w/fish die offs
 - Late summer/early fall = primarily near-shore birds
 - Initial large-scale mortality of gulls & cormorants
 - Late fall = migrating loons
 - Possibly associated w/ mussels (zebra & quagga) or fish or both

Botulism Type E review for NY

Dave Adams

NYS DEC

See handout & Seagrant website: www.nyseagrant.org

Pb review – legislative impacts

Kate Taylor/Mark Pokras LPC/Tufts

- Not seeing much difference in loon mortality due to lead toxicity since NH ban on lead sinker use was passed.
- 2000 & 2001 seeing ~same amount of lead toxicity despite ban
- Maine & NH have different laws. ME = use, but not sell; NH = sell, but not use
- Use on different waterbodies vary depending on state. Some states ban lead on all waterbodies, other states ban on some waterbodies
- Need to do something to regulate lead sinker use across board
- Education helps, but not answer to problem
- Helps that availability of alternatives is increasing
- NY legislation pending
- MI meeting soon to consider submitting legislation (Mark Pokras attending)

Hg review - multiple efforts/NERC

David Evers

BRI

- Compile existing Hg db's for New England, NY, and eastern Canada and NESCAUM in NERC db -- See *BRI website for link to NERC info*
 - Promote collaboration on ecosystem processes
 - Shared regional perspective>> synthesis papers
 - 3 year project
 - Variety of governmental and NGO participants
 - Document the extent of Hg distribution in northeastern North American surface waters, sediments and key biota
 - Synthesis papers = endproduct
 - Eventually be able to extrapolate what a certain size fish means in Hg content to a loon
 - Risk assessment modeling/characterization to interpret findings (e.g.: high Hg birds are incubating less than lower Hg birds)

- Determine a wildlife criterion value that improves on the generic USEPA model and use the Common Loon as a primary indicator – sample multiple sp
 - Is there a pop'n growth impact from Hg?
 - May eventually be used as a regulatory device to establish how much Hg is ok in the water column
 - Wildlife Criterion Value (WCV)
- Determine the relationship of water level fluctuations and biotic Hg exposure
- Use REMAP random sampling strategy to extrapolate abiotic and biotic Hg exposure across New England
- Determine impacts of local emissions on biota in southern NH
 - “Hot spots” – to get responsible party to determine if link btn emissions & biotic levels of Hg (Dartmouth College/Celia Chen)
 - Almost all northeastern states have regulations on incinerators now, so less of a problem, thus coal-fired facilities = primary problem now

Marine Oil Spills – the next one

Drew Major

USFWS

- What to do when next big spill happens?
- Need to have 8 hour OSHA oil spill certification to work on spill. Tri-States & IBRC training
- Wildlife recovery, triage centers, rehabilitation centers
- USFWS would like to have anyone working with loons to be trained – would like to have BRI 24hr hazard certified (3 day training) >> can be crew leaders.
- Need to contact John Kenney (ME), Bill Ingham - NH, Tom French - MA, Bryan Swift (?) - NY, Greg Chasco - CT for training classes & info on how to help w/ a spill.
- Drew could arrange for a oil spill training session for NELSWG if want
- If report to a spill, Coast Guard pays salary while working on spill b/c considered state or federal employee while working on a spill
- Will be drawing blood from all loons for genetic determination – will need buffer from BRI to collect samples for genetics
- If in rehabilitation centers, loon rehab success = poor (develop pressure sores, asper, stressed...); even if released, then often rebeach themselves
- After the spill, the responsible party is responsible for clean up & for restoring wildlife pop'n to former conditions:
 - Pop'n modeling >> “loon years” that need to be replaced by restoration
 - Habitat mitigation: on scene & off scene (e.g.: purchase of land in imminent danger of being developed)
 - Education?? Need to show (in court of law) that education efforts would produce so many “loon years”. Need to be able to quantify how education will help restoration of loon pop'ns
 - E.g.: several million was available from North Cape spill for restoration
- Source of funding based out of CA to work with oil-spill research ~\$300,000 -- *Talk w/Flo Tseng*
- Also ~\$75,000 available for post-release studies -- *Talk w/Flo Tseng*

Human Disturbance/Development

Harry Vogel

LPC

- Shoreline development study (*see handout*):
 - NH = one of fastest growing areas in NE
 - Development & recreational use assoc w/development = ongoing
 - How much development is too much & too close?

- 4 testable hypotheses (*see handout*)
- 2001 = all lakes btn 50-120 ha (one pair lakes) = 98 lakes
- 2002 = lakes btn 40-50 ha in addition = 46 more lakes
- Preliminary results >>
 - No loons if have 3 or more habitable places/100m shoreline
 - No pairs if have 150 (or more) habitable dwellings/100 ha lake surface area (w/one exception = nest raft)
 - Stepwise multiple regression planned to separate factors decreasing breeding success
 - Need to coordinate with causes of nest failure to determine if development or recreational use assoc w/development causing decreased reproduction
 - May also be able to relate predators (cats, dogs, raccoons) assoc w/humans as score for disturbance

Water-level fluctuations

Chris DeSorbo

BRI

Loon productivity, nest rafts, and water level fluctuations *See LPC's Umbagog report*

- FERC relicensing now must consider Common Loon pop'ns when relicensing
- Mgmt Strategies:
 - Implementing a water level mgmt strategy that considers the loon's seasonal nesting chronology
 - Mandated mgmt (using rafts) to increase repro success of loon pop'ns (on fluctuating reservoirs)
- General Rule: Lake level fluctuations known to negatively affect nesting loons
 - Rise of ½' fluctuations can cause nest failure during nesting season
 - Fall of 1' down can cause nest failure during nesting season
- Manage for recreational, wildlife, energy uses
- Drawdowns can increase exposure of sediments/Hg stirring
- Raft mgmt widely used & accepted >> increased productivity
 - Avian covers help decrease predation
 - 63% rafts used – 48% use it the first year raft placed
 - More attempts on rafts are associated w/more successful nesting attempts
 - Nesting and hatching success best on raft attempts on non-fluctuating water bodies
 - Natural nests on fluctuating water bodies least productive
- Raft use & mgmt varies by state

Ongoing efforts

North American Waterbird Conserv. Plan

Manomet/Flo Tseng

MBO/Tufts

See handout

Seabird Project:

- Develop seabird morbidity & mortality database for along eastern coastline
- Contaminant & distribution patterns along coast
- ~Pacific seabird group
- Develop beached bird census
- “Beached bird field guide”

North American Waterbird Conservation Plan (Kathy Parsons & Scott Johnston):

USFWS - Migratory bird division

See handout

- Mid-Atlantic, New England & eastern Canadian provinces
- ~210 waterbird species + shorebirds/wading birds/loons/grebes
- Planning at regional scale (Bird Conservation Region) – Atlantic States Joint Venture
- Compile info for local managers
- Species accounts – “snapshot” of Birds of North America series
- Neotropical Migratory Bird Conservation Act
- Contact Kathy or Scott about actively participating in NAWCP
- Will do subregional meeting
- See website! www.nawcp.org (may be www.nacwcp.org??)
- Plan for waterbirds, marshbirds, & colonial birds should have other considerations than BBS basis since not appropriate for these species
- Will eventually have continental scale plan for colonial & marsh species
- Consider coordinating with EPA estuary program

Loon Mgmt Plans (N.Am. and Marshbird)**David Evers****BRI**

- Loons in Marshbird plan
- Loons and grebes to be evaluated at national level
- North American Common Loon mgmt plan that Dave Evers working on
- Also thinking about regional Common Loon mgmt plan – Canada & US

GIS Mapping efforts - PDAs**Wing Goodale****BRI**

- Georeferencing & mapping BRI Hg data
- Lots of optyps w/GIS to do analysis
- Possible to get 3-4 graduate students (Clark Univ) to work on how Hg moves through environment – need to get funding for this project ~\$20,000 would provide for several students to work on this project
- Working on BRI’s website w/NELSWG webpage
 - Give Wing suggestions for expanding webpage!
- Loon education program w/high school students to volunteer & intern - monitoring

Pb field testing kit**ESA, Inc.****ESA**

- Developed in response to CDC request to test children for lead poisoning
- Portable, FDA approved
- Is used globally to determine lead toxicity in wildlife or falcons for hunting, esp raptors (e.g.: released condors, rehab facilities...)
- Enables early detection of lead toxicity >> early treatment & increased survival of affected birds
- 50 microliters (~2 ½ drops) blood needed- results in ~3 minutes
- Comparison studies w/regular lab at Condor studies indicates that lets know if high or low level of lead or if Pb level decreasing or increasing. (Ranges, not necessarily #'s)
- Peaks at 65ugm/dl
- Tufts is considering doing double control w/ this machine & regular lab
- Should do Positive & Negative controls w/each user & when change lot #'s. Calibrates w/reagent strips.
- May not need to run controls if using fixed capillary amount vs. pipetting quantity.
- Not yet considering developing other tests for different toxins b/c not sure if there is a real market for testing equipment. E.g: Hg, arsenic, chromium, antimony, cadmium, lead, zinc...

Wildlife Clinic studies/Rehab

Mark Pokras/Flo Tseng

Tufts

- Continuing mortality studies
- Immune systems as indicator of multiple stressors – wbc
- Endocrinology – stress hormones & Hg levels
- Endocrinology – Males have detectable estradiol levels – endocrine disruptor??
- Virology studies
 - negative results for virus & infectious bursal disease
 - Possible indicator for presence of retrovirus
- Microgenetics
- Aquatic facilities to be improved so will be able to rehabilitate seabirds more effectively
 - Possibly developing regional network of aquatic facilities
- NWRA meeting – March 11-15, 2003 in Rhode Island

PBT's

Alan Van Arsdale

EPA

- EPA Persistent bioaccumulating toxin (PBT) issue & monitoring many species & compounds
 - Especially Hg, dioxins, PCBs
 - May be looking for specimens for analysis in near future – be opportunistic in samples & tests that are done
- PBT research grants program – \$50K grants for priority PBTs
 - Wildlife monitoring
 - Toxin evaluation
- PBT meeting to put together national monitoring program for PBTs – increase collaboration
- Regional toxics reduction strategy
- Interested in methylated arsenic levels in wildlife – especially in acidic systems – i.e.: multiple contaminants may be present – Hg & arsenic increased in acidic environments??
- Will try to keep NELSWG informed about available grants
- EPA will be applying for national grants next year instead of using internal funding

Informal get-together to discuss collaborative opportunities

All

1. 2003 NELSWG meeting

- At Minnowbrook in Blue Mtn Lake, NY?
- Need to decide on dates & let Nina know so she can arrange w/Minnowbrook
- Possibly first week in April?

2. NELSWG Webpage

- BRI coordinating webpage through the BRI website
- Minutes
- Reports
- NELSWG participants & links
- E-mail Wing at BRI if want to add/change something on webpage: wing.goodale@briloon.org
 - Dodi from EPA also willing to help Wing
- Journal articles
 - need to get permission from journal first if copyrighted
 - Abstracts ok if can't get article b/c copyrighted
- Outreach (link to NALF)
 - pdf brochures, signs, etc...

- ppt lead slide show to view & download
- May want to do part of site as password protected site for NELWSG participants to view data, etc that isn't ready to be published
- Subwebpage off of domain name, so that directed to different address – NELSWG site instead of BRI site
- Diver loon newsletter
- NA Waterbird link?
- E-mail links, with summaries!, to Wing that would be good to add to site
- Post documents as rtf as well as w/photos (pdf)

3. NALF

- Dan Poleschok = new director
- Headquarters will be in WA state
- Outreach on webpage
 - Data forms
 - Signs
 - Lead info
 - Press releases

4. 2002 Field Season

- Data forms
 - Would like to standardize data collection/formats better
 - Considering putting data forms up on web to increase standardization
- Samples Collected:
 - Blood – has been collected in past from both captured birds & from sick birds:
 - Buffer vials for genetics
 - Hg
 - Serum chemistries
 - Whole blood for heavy metals
 - cbc's
 - Virology
 - Serology
 - Endocrine
 - Feather – second secondary and 2 central tail – Hg
 - Morphometric data
 - Bill msrmts
 - Weight
 - Wing msrmts
 - Eggs & egg shell fragments – stored at LPC
- Lead Analysis
 - Considering doing loon-side lead levels with new analyzer
 - Can't use archived blood b/c collected in EDTA (purple-top) tubes & machine can't analyze
 - Would need to use Lithium Heparin (green top) tubes to collect for lead analyzer machine
- Botulism work

- Necropsies
- Genetics analysis of dead birds to determine breeding pop'n affected
- Archive samples from dead birds – work with Canada & NY to collect & archive samples
- Satellite telemetry of birds migrating through Lake Ontario & Lake Erie to help determine breeding pop'ns affected
- Archives?
 - BRI & Tufts to decide what & protocols & contact AMNH
 - What samples to archive?
 - Develop standard protocols for archiving samples
 - American Museum of Natural History archive facility
 - Cathy Lehn: clehn@wcs.org
 - Robert ?
- Centralized resource for equipment at Tufts?
- Satellite transmitters
 - Funding for Nevada
 - Funding applied for in NY for migratory birds
 - Kevin Kenow has developed protocol & paper published in Waterbirds
 - Kevin Kenow = limiting factor; would like to train other people – Tufts, WCS, ACLP – to implant transmitters; may want to have Kevin do training session w/other vets
 - Post-oil spill transmitters to determine survival
- GPS
 - When pick up bird
 - Yodels
 - Nest sites

5. Money/Funding Sources:

- Coordinate all groups together (through NALF?) to apply for funding for all projects? (Walter Piper?)
- e.g.: MacArthur, Pew foundations?
- LPC, Tufts & BRI to review CEC proposal done in past & expand

6. Wish List:

- Boats
- Microscopes
- \$\$ for satellite transmitters
- GIS printer (BRI)
- Laptop & LCD projector
- GPS units
- \$\$ for printing brochures, signs...
- Nest raft – lobster trap mesh (ask Eric – VT)

SUBGROUPS

1. Data

- Divide up work so each person does different aspect & gets done quicker

- Per Rett: Format tables as “tall/skinny” format, so easier to add new fields down the road

Loon #	Variable	Value	Unit
	Egg#		
	#hatch		
	#fledge		

Table links to other tables:

- Loon links to loon capture table
- Variable links to variable-description table
- Easier to set up cross-tab queries: Loon=row#, variable=column#,
- Less cumbersome
- Easier to pull into statistical packages
- Easier to maintain, esp if have fields that don’t collect from anymore
- Rely on autonumbers as primary keys instead of human generated numbers as primary keys
- Double entry of data as quality control for what’s entered
- Design forms so that data entry more accurate – dropdown lists & validation rules/text
- Ecological metadata language (XML): variable name, structure..., so can see how everything listed in tables
- Datadocumenter in Access or Table of Contents in Excel or relationship diagram to evaluate your table
- Territory ID code:
 - State
 - Lake id #
 - Territory id #
 - GPS # for each site?
 - LPC starting up for NH to evaluate quality of territory (track as independent entity instead of individual bird) – will write up protocol & distribute to other orgs
- Mortality submissions:
 - LPC admission sheet w/info about where found & circumstances in which found
 - Topo map w/location found
- Mortality & Nest Failures:
 - Result of several things, not one factor necessarily – what is primary cause of death?
 - First event
 - All that apply
 - Need to standardize how to label factors of death or nest failure, so that we are consistently labeling the same problem the same way – categorizing & subcategorizing the factors consistently.
 - Can also code factors w/numbers so there is less subjective & more objective labeling of factors.
- Loon Productivity
 - Standardizing protocols for defining TP, NP, CH, CS, Eggs....
 - Nina and BRI to review and refine

2. Biomedical

- Discussed sample types & protocols for collecting & processing samples
- Consider making one NELSWG form instead of for each state/organization

- Consider making one NELSWG set of education materials instead of for each state/organization
- WCS wants to do full health evaluation on loons– randomizes birds
- BRI, LPC, and ACLP to send protocols to Flo & Sharon to evaluate & revise/standardize
- Tufts considering doing bacteriology on choanal, cloacal swabs, fecal steroids
- Samples:
 - Blood
 - Choanal swab
 - Cloacal swab
 - Feather
 - Feces
 - Morphometric:
 - Bill
 - Tarsal width
 - Consider doing tarsal length?
 - Bird weight
- Consider doing integrated reliability tests? To evaluate the quality of the measurements taken
- Other species?
 - Eagles - ME, older data in MA, Hudson River eagles in NY
 - Otter/mink – carcasses (BRI has ~80 carcasses in archives)

3. Populations & Ecology

- NH able to estimate pop'n based on current data available
- Canadian pop'ns & Type E – how many samples do you need for genetic analysis to decide that pop'n impacted?
- Mona/EPA to get Canadian data to evaluate pop'ns (productivity...), GIS coverages, COMERN involved with HydroQuebec & may be able to get access to data for addition to EPA & NERC db's

2002 NELSWG Meeting - ATTENDEES

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