

8.25.15 Lake Champlain F&W Management Cooperative Policy Committee Meeting Notes

Kehoe Conservation Camp, Castleton, VT

Attendees: Brian Chipman (VTFWD), Chet MacKenzie (VTFWD), Adam Miller (VTFWD), Eric Palmer (VTFWD), Bernie Pientka (VTFWD), Louis Porter (VTFWD),

BJ Allaire (USFWS), Bill Archambault (USFWS), Bill Ardren (USFWS), Chris Smith (USFWS), Steve Smith (USFWS), Dave Tilton (USFWS), Sherry White (USFWS), Brad Young (USFWS),

Lance Durfey (NYSDEC), Phil Hulbert (NYSDEC – Div. of F&W), Ed Reed (NYSDEC Wildlife), Patty Riexinger (NYSDEC – Div. of F&W),

David Allaben (USDA Wildlife Services – NH/VT), Allen Gosser (USDA Wildlife Services), Fred Pogmore (USDA Wildlife Services – VT),

Ellen Marsden (UVM)

Notes:

- ***Introduction / Welcome from VTFWD Commissioner Louis Porter***
- ***Staff / Budget updates***
 - USFWS – will see a small budget reduction, could be compounded if sequestration continues
 - NYSDEC – agency continues to see an aging workforce; however, working to bring in new hires. Sportfish restoration dollars are down due to a glitch in the allocation scheme. Exciting work is being done on bloaters, deep water cisco, and sturgeon.
 - VTFWD – agency is doing well funding wise (fairly level funding). Agency is now approximately 25% general funded now. Recent early retirement incentives might result in some losses of key staff. It's looking to be a difficult budget year next year. A public survey was conducted by Mark Duda regarding public opinion of VTFWD / willingness to pay. There was overwhelming support for RTE species, invasive work, as well as regulatory work.
- ***USFWS Lake Champlain Sea Lamprey Control – Brad Young***
 - Successes
 - Lowest wounding rates in program history
 - Finding smaller larval populations in the assessments
 - Trapping numbers are declining on average
 - Substantial monetary savings due to technical improvements and logistical reorganization
 - i.e. Spreader boat makes treatment more effective in delta treatments
 - Geographic realignment into three regions (NY North, South Lake, VT North).
 - Treatments rotate for 3 years with 1 year off or to do spot treatments
 - Plan is to treat this fall, fall 2016, with no plans for 2017
 - Saves on permitting process, cuts the time by about half
 - Morpion barrier (138 lamprey collected last year, 248 collected this year)

- There has been a great response by the public to the barrier
- Budget for treatment: If we stay at approximately an \$850k appropriation annually, the program will be able to maintain for another 10 years.
- Questions / Comments:
 - Bill Archambault: Are larval number decreases due to treatments or other environmental factors? Brad: There are very little environmental factors that would affect larval numbers.
 - Dave Tilton: Where is our lowest feasibility point for treatments? Brad: We're approaching it but not quite there yet.
 - Bill Ardren: Where do the target lamprey wounding rates come from? Brad: Target wounding rates are not empirically driven, they're more driven by anecdotal population health. That said, we're not "married" to the wounding rate number.
 - Chet MacKenzie: Sea lamprey can still affect other fish. Brad: Yes, even with maintaining low wounding rates, we are still planning comprehensive control.
- La Platte River – will be new river to be treated. Some resistance is expected due to housing near the La Platte and stonecats.
- Lamoille River – taken off the list for 2016 due to absence of sea lamprey from trapping
- Every river sampled the year between a treatment year. Patty Riexinger: Do lamprey return back to the same river / stream? Brad: No, they are attracted by larval pheromone.
- Challenges
 - Need to write a new environmental assessment (EA) for the Little Chazy, Rea Brook, and MacKenzie Brook.
 - 1st ever lampricide permit for the LaPlatte River
 - Continued annual dependency on appropriations
 - Sen. Leahy currently endorses our annual funding. He's currently engaged in finding a new and permanent funding route for treatment (i.e. letter from Sen. Leahy to Dan Ashe). At the same time, it should be recognized that Sen. Leahy won't always be around in the future to advocate for funding.
 - Sherry White: Letter from Sen. Leahy to find and/or outline another funding through USFWS budget. Soonest to do this would be through the FY18 over target request. An over target request is a request for money beyond the normal budget.
 - Bill Archambault: The long term goal is to get treatment into the base budget similar to the Great Lakes admin costs.
 - Ellen Marsden: Is there a way to do a lamprey population assessment like the Great Lakes? Brad: Data is so variable and the data that the Great Lakes is getting is not reliable and is very labor intensive. Chet MacKenzie: Our real measure of success revolves around wounding and reducing the wounding rate, not

the population size of lamprey; therefore, it doesn't make sense to look at lamprey population size.

- Louis Porter: Would it help to add sturgeon to the discussion on lamprey control? Chet MacKenzie: The focus of control is on all fish, not just lake trout and landlocked Atlantic salmon. Sherry White: Getting sturgeon involved is helpful. Chet MacKenzie: Personally leans towards the hypothesis that major effects on the sturgeon decline are due to sea lamprey wounding on adults.

- **Ongoing Sea Lamprey Control Research (Ellen Marsden)**

- One current, uncontrolled phase of sea lamprey are the outmigrants / transformers
- They are worth a lot more than killing young lamprey
- If there would exist a successful way in catching transformers on their way out, there could exist good population control and have a good effect on the Champlain fishery.
- Transformers typically outmigrate from fall through spring.
- Questions to answer:
 - What are the environmental factors that stimulate outmigration?
 - Where do they transformers go out and how do they get out?
- Crew did work on Morpion Stream with drift net sampling
 - Problems existed with this year
 - Transformers trended towards high flows, near the surface.
- New strategy – PIT tagging
 - Surprisingly few lamprey were found- possibly due to high flows perhaps. Might also have to do with how transformers move downstream (i.e. drifting downstream vs. actively moving downstream).
- Questions / Comments:
 - Phil Hulbert: Given the challenges with research / testing, how would you go into an application for control? Ellen Marsden: Perhaps focus on key times / locations. More research is still needed.
 - Eric Palmer: Are you catching other species during sampling? If so, you'd have to worry about catching other species. Ellen Marsden: Yes, other species are captured.
 - Bill Archambault: There is a very large window for outmigration. Ellen Marsden: Yes, this makes it tough. Outmigration definitely corresponds with peak flows.

- **Break for lunch**

- **Aquatic Habitat Restoration – Chris Smith**

- The Lake Champlain Fish & Wildlife Research Office (LCFWRO) is USFWS's delivery arm for habitat / habitat improvement in Champlain basin.
- Aquatic habitat restoration is not possible without wetland conservation / restoration. Another facet involves riparian habitat restoration.
 - Major focus on Lake Champlain currently revolves around water quality improvements (i.e. Champlain TMDL)
- You don't have to go far to see aquatic habitat fragmentation is a problem (i.e. dams, roads, stream crossings).

- Less than 5% of culverts / stream crossings cover bank full width.
 - Aquatic connectivity partnership: Includes USFWS, VTFWD, and NYSDEC
 - Regulation: VT stream alteration permit, NYSDEC SEQR and protection of waters permit, and VT/NY dam safety permits
 - Technical Resources: VTFWD aquatic organism passage guidelines, NYSDEC stream crossing specs / standards, USFWS Region 5 fish passage engineers, USFWS / VTFWD / NYSDEC biological staff, VT culvert assessment protocols and database (ANR Natural Resource Atlas / Mapper), North Atlantic Aquatic Connectivity Collaborative (NAACC) culvert assessment project.
 - Financial Resources: NYSDEC, Great Lakes Fisheries Commission (GLFC), VT State Wildlife Grants (SWG)
 - Patty Riexinger: It's important to think about all aquatic species, not just large salmonids.
 - All VT stream crossing data is put into the VT ANR Natural Resource Atlas.
 - This is viewable to the public – a lot of work is done at the local level.
 - It's important to remember about agriculture – Many farm road stream crossings aren't mapped.
 - USFWS has partnered with Ag to improve connectivity on farm roads
 - Dam removals:
 - Crowning Shield Dam on the Boquet River
 - Kendrick Pond dam on Sugar Hollow Brook
 - Marshfield 8 dam on Winooski River
 - Cox Brook Dam goes to Dog River
 - Currently are looking into prefabricated bridges to evaluate them for cost effectiveness
 - Beaver dams? Are basically a transient barrier and usually not a major impairment to passage.
- **Lake Champlain Fisheries Technical Committee Annual Report – Chet MacKenzie**
 - Highlights
 - Fish culture / distribution
 - Total distributed was less than 1% short of target (512,000) smolt equivalents.
 - Reduced number of brown trout and steelhead statewide
 - Walleye restoration
 - Experimentation / evaluation continues with intensive dry feed rearing
 - Partnership continues with extensive culture with the Lake Champlain Walleye Association
 - Distributed 180,000 fry and 98,000 fingerlings into the Poultney River and South Lake
 - Assessment of stocking success continues – 93% of Age 3 walleye were OTC marked fish.
 - Research projects:
 - Lake trout / walleye acoustic telemetry study
 - Lake trout thiamine study
 - Stonecat in the La Platte and Mississquoi Rivers

- River run restoration of landlocked Atlantic salmon
- **Smelt / Alewife Assessment – Bernie Pientka**
 - The historic food web on Lake Champlain was rainbow smelt, cisco, and mysis
 - The current food web on Lake Champlain includes the historic food web with the significant addition of alewife and white perch.
 - Why are alewife bad?
 - Massive die offs can occur; thus losing a large portion of the prey base.
 - Consumption of alewife from Champlain can result in Early Mortality Syndrome (EMS)
 - The smelt / alewife assessment includes:
 - Acoustic transects – Main Lake (70 miles), Inland Sea (30 miles), Malletts Bay (12 miles)
 - Standard trawls – 5 stations, stepped oblique trawls
 - Targeted trawls – 20-30 trawls
 - Floating gillnets – 5 stations plus others, operated from dusk to midnight
 - CTD profiles – part of the survey, Lake-wide 25-30 per year.
 - South Main Lake
 - Trawl – 2014 was the highest CPUE for smelt, 2015 was high as well
 - 85% of the smelt aged in 2014 were Age 1
 - Mean age of the smelt was 1.2 years
 - The smelt biomass has been lower in recent years
 - The alewife biomass is larger than the smelt biomass
 - Main Lake
 - Smelt CPUE was good for the trawl
 - 85% of the smelt aged in 2014 were Age 1
 - Mean age of the smelt was 1.2 years
 - The alewife biomass is larger than the smelt biomass
 - North Main Lake
 - 85% of the smelt aged in 2014 were Age 1
 - Mean Age of the smelt was 1.2 years
 - Smelt biomass was lower in 2011-2013, but up in 2014
 - The alewife biomass is larger than the smelt biomass
 - Northeast Arm
 - Smelt CPUE was very low for the trawl
 - Mean age of the smelt was 2.7 years
 - Smelt biomass was lower 2004-2012. It's up recently (fewer fish but larger individuals)
 - The alewife biomass is larger than the smelt biomass
 - Malletts Bay
 - Smelt CPUE was very very low for the trawl
 - Mean age of the smelt was 1.8 years.
 - Smelt biomass in 2013/2014 was the lowest estimated
 - The alewife biomass is larger than the smelt biomass
 - Highlights

- Despite spiny water flea, the Northeast arm smelt won't give up
 - Comments: Patty Riexinger: Seems like the information presented shows that smelt are becoming less predominant and alewife are taking over. What do we do with this information going forward? Eric: VT will be working on developing strategies to address what to do with a change in the target base.
- **Lake Champlain Salmonid Assessment 2014 – Brian Chipman**
 - Fish sampling
 - Passage / trap facilities: Winooski 1 fish lift, Hatchery Brook, Boquet River
 - Electrofishing – Lamoille River, Mississquoi River, Otter Creek, Nearshore area of Whallon Bay/ Willsboro Bay
 - Trapnetting – Hatchery Cove
 - Fishway salmon returns
 - Wounding rates are going down
 - 2nd highest landlocked Atlantic salmon return to Winooski 1
 - VT resumed upstream movement of salmon at Winooski 1 in the fall of 2014, after being suspended in 2008 due to concerns involving the risk of VHS.
 - This year was the first year of documented salmon spawning activity upriver of the lift (57 redds found)
 - Huntington- 31 redds
 - Winooski – 18 redds
 - Other tributaries – 8 redds
 - The Hatchery Brook return trap was operated for the first year, fall 2014
 - Highest return on record to Hatchery Brook
 - Lamprey wounding rates were down
 - Electrofishing
 - Lamoille River – one of the highest returns on record
 - Otter Creek – 30 salmon collected, one of the highest on record since 1994
 - Mississquoi River – 19 salmon collected, first return since smolt stocking began in 2011
 - Whallon Bay – 124 salmon collected
 - Willsboro Bay – 278 salmon collected
 - Salmon age structure – predominantly 1 lake year old fish. It's very rare to see over 3 lake year old fish.
 - Lamoille River fish vs. hatchery brook fish
 - Lamoille River fish have a lower mean length and lower condition factor. Possible implication for this involves stocking numbers.
 - Feral vs. Domestic broodstock evaluation:
 - Salmon are marked with different fin clips (feral spawned vs. domestic broodline)
 - Feral returns in the last 2 years have been almost double the domestic broodline returns
 - 3 more years are left in the evaluation.
 - Steelhead strain evaluation – Chambers Creek broodline vs. Memphremagog broodline

- Chambers Creek fish perform much better in the hatchery than the Memphremagog fish
 - Returns for the number of fish stocked are relatively poor.
 - At Hatchery Brook the Chambers Creek fish have done a little better than the Memphremagog fish.
 - Data has varied for the Winooski River over which fish do better.
- **Restoring River Runs of Landlocked Atlantic Salmon in Lake Champlain – Bill Ardren**
 - New opportunities to enhance river runs of salmon
 - Dam removal / aquatic organism passage
 - Riparian habitat restoration
 - Changes in forage fish compositions
 - Sea lamprey control
 - In 1973 the Lake Champlain F&W Management Cooperative initiated the salmon restoration program.
 - First goal was to restore the landlocked Atlantic salmon fishery to the lake. Why restore the fishery to the lake first?...
 - It's a fast return to the anglers
 - There is limited river habitat
 - Methods to establishing this fishery included: fish culture / distribution, & sea lamprey control
 - With sea lamprey control a popular lake fishery has been reestablished. Additionally, river runs of salmon have increased.
 - Targeted research:
 - Optimization of fish culture activities to promote a river run fishery.
 - Identification of physiological indicators of smoltification in salmon.
 - Evaluating downstream passage of landlocked Atlantic salmon in the Winooski River.
 - Identification of imprinting and homing odorants for landlocked Atlantic salmon.
 - Does boosting thiamine levels of adult landlocked Atlantic salmon enhance upstream migration?
 - Fry imprinting experiment
 - In summary: Using targeted research and adaptive management, there is a potential for rapid / significant increases in river runs of Lake Champlain landlocked Atlantic salmon.
- **Fisheries Research at UVM – Ellen Marsden**
 - Great Lakes Acoustic Telemetry Observation System (GLATOS) / Champlain Acoustic Telemetry Observation System (CATOS)
 - GLATOS consists of arrays of stationary acoustic receivers set up throughout the Great Lakes. The receivers can identify individual fish implanted with acoustic tags and log data from tagged fish as they swim near the receivers. There are many multi-agency and multi-institutional research projects that use GLATOS to learn about movements and habitat use of several fish species.
 - CATOS is a similar system of receivers set up in Lake Champlain with dedicated Lake Champlain funds (from Sen. Leahy) in the Great Lakes Fishery Commission budget. Most of these receivers are set at openings in causeways to learn about

fish movements between different basins of Lake Champlain. Others are set at river mouths and lake trout spawning areas.

- Currently students from UVM are studying lake trout spawning behavior (92 tagged lake trout) and inter-basin movement of walleye (16 tagged walleye).
 - Preliminary data from lake trout show that most stay at one spawning site throughout the spawning season, and all but one lake trout tagged at the Grand Isle spawning site in 2013 returned to Grand Isle in 2014.
 - Walleye study just started this year and not results are available yet.
 - Chet MacKenzie tagged 10 lake sturgeon this spring in the Winooski River. Data collected from receivers at the mouth of the Winooski River as well as with a portable receiver have so far shown that all 10 sturgeon have been staying in the lake within a couple miles of the Winooski River mouth.
- Thiamine monitoring in Salmonids
 - Lake trout thiamine levels were first examined in 2004, after alewife were first discovered in Lake Champlain, BUT before their population expanded.
 - Thiamine levels began to decline substantially from 2007 through 2014 as alewife became a major food source
 - About half of the lake trout tested in 2014 had thiamine levels below 4nmol/g (the thiamine deficiency threshold level).
 - Salmon egg thiamine levels have also declined rapidly, with most now below the threshold.
 - Feral salmon eggs and fry in the hatchery are treated with thiamine to prevent Early Mortality Syndrome (EMS).
 - New research suggest that lake trout fry make up for thiamine deficiency before EMS manifests by feeding on thiamine-rich zooplankton; however, fry from feral lake trout in the hatchery have not shown thiamine deficiency symptoms even if starved.
- **Cormorants**
 - Louis Porter – Vermont is providing \$40,000 of general funds to USDA Wildlife Services for cormorant control on state-owned islands. Wildlife Services also obtained a \$10,000 grant from the Lake Champlain Basin Program for private landowner assistance with cormorant control.
 - Fred Pogmore – This year, few cormorants have been found South of Shelburne Bay. High cormorant abundance has been found in Shelburne Bay, Malletts Bay, and the Inland Sea. Egg oiling continues on the Four Brothers Islands.
 - Allen Gosse – The new colonial waterbird environmental assessment (EA) is going out for public review soon. They may have the Finding of No Significant Impact (FONSI) for the EA by the end of the year.
 - David Allaben is the new VT/NH director of Wildlife Services. Allen Gosse is the new NY director of Wildlife Services.
 - Ed Reed – The Four Brothers Islands currently hold 80% of cormorant nesting in Lake Champlain. The Nature Conservancy owns the Four Brothers and recently approached

NYSDEC to transfer the islands to the state. An easement was initially proposed and TNC wants to retain some level of management authority since lethal cormorant control is a point of contention. NY is more interested in a fee purchase.

- ***Policy Committee Discussion and Future Plans***

- Patty Riexinger will take over as Policy Committee Chair for the next 2 years.
- Phil Hulbert will take over as Management Committee Chair.
- Bill Ardren has agreed to become the new Fisheries Technical Committee Chair.

DRAFT