

Onondaga County
Department of Water Environment Protection
INTER-OFFICE MEMO

To: Jeanne Powers, Sanitary Engineer-III
From: Christopher Gandino, Sanitary Engineer-II
Date: May 21, 2013
Subject: Littoral Zone Electrofishing Audit

On May 20, 2013 I conducted a quality assurance/quality control (QA/QC) audit of the Onondaga County Department Water Environment Protection's (OCDWEP) littoral electrofishing efforts. The purpose of the audit was to ensure that the studies were conducted as outlined in Section 9.0 of the Quality Assurance Program Plan (QAPP) for the Onondaga Lake Fish Sampling Program (February 2013) prepared by OCDWEP and in the standard operating procedure (SOP) for Littoral Zone Electrofishing (February 2011) and the SOP for Fish Tagging (February 2011) prepared by OCDWEP. Additionally, the audit was conducted to ensure that the data were collected in a scientifically defensible manner.

The audit was performed during the second day of the spring electrofishing effort conducted by OCDWEP staff. The OCDWEP field crew for the sampling effort consisted of Mark Halbritter, Jason Teribury, Alex Studdert, and Barb Yeager. The attached field audit checklist provides the details of the audit.

Observations during the field audit indicated that the field crew conducted their work in a professional manner and complied with the procedures outlined in the QAPP and SOP. Nothing was observed that would jeopardize the quality of the data.

CJG/ncs

File – AMP Correspondence

**Onondaga County
Department of Environmental Protection
Onondaga Lake Ambient Monitoring Program
Audit Checklist – Littoral Zone Electrofishing**

Project Location: Onondaga Lake

Date(s) of Field Audit: May 20, 2013

Time(s) of Field Audit: 1900-2230

Auditor: Christopher Gandino

Samplers: Mark Halbritter, Alex Studdert, Jason Teribury, and Barb Yeager

**Onondaga County Department of Water Environment Protection
Onondaga Lake Ambient Monitoring Program**

Audit Checklist - Littoral Zone Electrofishing

General	YES	NO	NA	Comments
Are personnel responsibilities defined?	X			
Have all personnel performing work been trained in the procedures listed in the SOP?	X			
Is the folder containing data and information sheets available?	X			
Was the "Electrofishing Boat Safety Checklist" completed by all personnel?	X			
Was OCDWEP Metro Board informed of night sampling event?	X			
Was weather forecast reviewed to assess feasibility of sampling?	X			
Equipment Checklist				
Tag guns (Mark II pistol and scissor grip) and Floy T-bar anchor tags	X			
Spare needles for tag guns	X			
Measuring boards	X			
Weight scale - large and small (fall only)	X			
YSI 650 MDS & pre-calibrated YSI 600XL	X			
Scale envelope and knife	X			
Fish holding tub	X			
Better Bait water conditioner	X			
2 aerators	X			
Depth finder	X			
Flare kit	X			

Equipment Checklist - Continued	YES	NO	NA	Comments
Handheld GPS	X			
Life jackets	X			
Marine and county radio	X			Also cell phones
Gas can with reserve fuel	X			In Truck
Fire extinguisher	X			
Toolbox with rubber mallet	X			
Boat anchor	X			
First aid kit	X			
Ring buoy	X			
Two fiberglass poled minnow nets	X			
Boat keys	X			
Digital Camera	X			
Spare batteries for camera	X			
Flash and spot lights	X			
High voltage gloves (Safety Tested)	X			
Three fiberglassed poled electrofishing nets	X			
Formalin and jar (species id in lab if id can not be made in field)	X			
Field Collection Procedures				
Are there 4 technicians on board and have they been assigned duties?	X			
Was the surface water quality data taken at the start of the transect?	X			
Did crew determine if "all fish" or "gamefish" transect was being sampled (odd all fish)?	X			
Is water temperature between 15 and 21° C?	X			
Was starting information (time, starting seconds, GPS coordinates recorded?	X			

Field Collection Procedures-Continued	YES	NO	NA	Comments
Did netters don electrofishing gloves with leather outers?	X			
Did driver and data recorder attach the emergency shut-off safety clips and don hearing protection before electrofisher was started?	X			
Were emergency shut-off safety clips tested and reinstalled?	X			
Was boat placed forward in idle speed to begin collections?	X			
Were the proper fish netted (gamefish only or all fish).	X			
Were carp counted or estimated during all fish transect?	X			
Were gizzard shad and alewife encountered in large schools estimated and recorded in the bulk fish section?	X			
Were any other fish missed estimated and recorded in the bulk fish section?	X			
Were fixed setting on pulsator set, frequency and volt, 120 and 340 respectively and monitored?	X			
Was the amperage/output current maintained between 19-23 amps?	X			
Were the electrofisher data recorded?	X			
Was boat maintained approximately parallel to shore in 1 m of water?	X			

Field Collection Procedures - Continued	YES	NO	NA	Comments
Was electrofisher turned off and the boat set to neutral at the end of the transect?	X			
Was the end time, GPS coordinates, and other notes recorded at end of transect?	X			
Were fish worked up following collection mid transect?	X			
Were estimated fish recorded in bulk fish section?	X			
Were fish collected identified to species and listed on individual fish data sheet.	X			
Were all fish measured to total L (mm) and weighed (fall only) and recorded on the individual fish data sheet?	X			
Were all fish screened for (DELTFM) individual fish data sheet?	X			
Were fish less than 100 gr weighed on small scale			X	No weights only take in fall
If small scale would not stabilize, were multiple fish of the same species and size range bulked weighed and divided by the number of individuals to establish a relative weight?			X	No weights only take in fall
If sample was less 30 of a species - were all fish measured?	X			
If sample was greater than 30 for a species were random subsamples measured and the remaining individuals counted?	X			

Field Collection Procedures - Continued	YES	NO	NA	Comments
Were life stages of bulk counted fish recorded?	X			
Were unknown species noted and placed in formalin-filled jar and labeled?			X	Did not collect any unknown species
Were adult gamefish tagged and sampled for scales (fall only)?	X			Several Largemouth Bass were tagged. No scale samples taken.
Were tagged fish in good health?	X			
Was the tag number, scale envelope number and other information recorded on data sheets?	X			Tag numbers
Were tag numbers of recaptured fish recorded and evaluated to determine the need for new tag?			X	No recaptures
If sampling during fall, were select species randomly sampled for scale samples?			X	
Were data sheets checked over for completeness?	X			
Fish Tagging				
Were tag guns checked to make sure they were operating properly?	X			
Was all tag information recorded on data sheets (Tag number, location, L(mm), w(gr), and date)?	X			
Were scales removed before tag was inserted?	X			
Was needle inserted at an ~45° angle?	X			
Was tag locked in place behind the dorsal rays?	X			

Other Comments/Notes

Missed one large tiger musky on transect 1.

Onondaga County
Department of Water Environment Protection
INTER-OFFICE MEMO

To: Jeanne Powers, Sanitary Engineer-III
From: Christopher Gandino, Sanitary Engineer-II
Date: May 30, 2013
Subject: Littoral – Profundal Zone Gill Nets Audit

On May 30, 2013, I conducted a quality assurance/quality control (QA/QC) audit of the Onondaga County Department Water Environment Protection's (OCDWEP) Littoral – Profundal Zone Gill Net efforts. The purpose of the audit was to ensure that the studies were conducted as outlined in Section 9.0 of the Quality Assurance Program Plan (QAPP) for the Onondaga Lake Fish Sampling Program (February 2012) prepared by OCDWEP and in the standard operating procedure (SOP) for Littoral – Profundal Zone Gill Nets (April 2012) and the SOP for Fish Tagging (February 2011) prepared by OCDWEP. Additionally, the audit was conducted to ensure that the data were collected in a scientifically defensible manner.

The audit was performed during the first day of the spring gill netting effort conducted by OCDWEP staff. The OCDWEP field crew for the sampling effort consisted of Mark Halbritter, Alex Studdart, and Nathan Talucci. The attached field audit checklist provides the details of the audit.

Observations during the field audit indicated that the field crew conducted their work in a professional manner and complied with the procedures outlined in the QAPP and SOP. Nothing was observed that would jeopardize the quality of the data.

**Onondaga County
Department of Environmental Protection
Onondaga Lake Ambient Monitoring Program
Audit Checklist – Littoral-Profundal Zone Gill Nets**

Project Location: Onondaga Lake

Date(s) of Field Audit: May 30, 2013

Time(s) of Field Audit: 1930-2300

Auditor: Christopher Gandino

Samplers: Mark Halbritter, Alex Studdert, and Nathan Talucci

**Onondaga County Department of Water Environment Protection
Onondaga Lake Ambient Monitoring Program**

Audit Checklist - Littoral-Profundal Zone Gill Nets
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General	YES	NO	NA	Comments
Is gill net sampling being conducted within on week of electrofishing?	X			
Has SOP been reviewed by all personnel	X			
Equipment Checklist				
Folder containing data and information sheets for each sample location	X			
Tag guns (Mark II pistol and scissor grip)	X			
Floy T-bar anchor tags	X			
Spare needles for tag guns	X			
Five experimental gill nets with mesh size of 3.8, 5.1,6.4,7.6,8.9, and 10.2 cm; 50 m long and 2 m deep	X			
10 anchors with 1 m rope	X			
15 buoys with 5 m of rope attached	X			Five additional buoys with 5 m of rope
Extra rope and snaps	X			
Measuring boards	X			
Weight scale - large and small (fall only)			X	Fall Only
YSI 650 MDS & pre-calibrated YSI 600XL	X			
Scale envelope and knife	X			
Fish holding tub	X			
Better Bait conditioner	X			
2 aerators	X			
Depth finder	X			

<i>Equipment Checklist - Continued</i>	YES	NO	NA	Comments
Secchi disk	X			
Flare kit	X			
Life jackets	X			
Marine and county radio	X			
Fire extinguisher	X			
Toolbox	X			
Boat anchor	X			
First aid kit	X			
Ring buoy	X			
Two minnow nets	X			
Boat keys	X			
Digital Camera	X			
Spare batteries for camera	X			
Formalin and jar (species id in lab if id can not be made in field)	X			
<i>Pre-Field Collection Procedures</i>				
Was YSI calibrated?	X			
Was equipment examined for repairs prior to heading to field?	X			
Was weather forecast reviewed to assess feasibility of sampling?	X			
Were all field data sheets assembled prior to departure?	X			
Was QAPP and SOP reviewed prior to departure?	X			
<i>Field Collection Procedures - gill net set</i>				
Did field crew proceed to a random monitoring location within one of the 5 strata.	X			
Was the gill net set at night?	X			

Field Collection Procedures - gill net set - Continued	YES	NO	NA	Comments
Was the gill net depth set recorded?	X			
Was water quality data recorded as described in the SOP?	X			
Were GPS coordinates recorded?	X			
Did one technician remain on the bow of the boat and lower the leading anchor out and pay out the net as the boat was reversed spreading the mesh?	X			Two technicians lowered net out.
After full length of net was set, was the net stretched taut and the trailing anchor dropped?	X			
The net set portion of the data sheet completed?	X			
Was the net set for two hour before retrieval?	X			
Field Collection Procedures - gill net retrieval				
Was the downwind end of the net retrieved first?	X			
Was the net slowly brought aboard by grasping the lead and floatlines together?	X			
As fish were removed from the gill net, were they quickly placed in the live well?	X			
If catch was large were only gamefish removed during retrieval and non-gamefish removed after net was retrieved?			X	Small Catch
The net haul portion of the data sheet completed?	X			

Field Collection Procedures - gill net retrieval-Continued	YES	NO	NA	Comments
Were collected fish identified to species and listed on the individual fish data sheet?	X			
Were all fish measured to total L (mm) and weighed (fall samples only) and recorded on the individual fish data sheet?	X			
Were all fish screened for (DELTFM)?	X			
Were fish less than 100 gr weighed on small scale			X	Weights only taken in fall
If small scale would not stabilize, were multiple fish of the same species and size range bulked weighed and divided by the number of individuals to establish a relative weight?			X	Weights only taken in fall
If sample was less 30 of a species - were all fish measured?	X			
If sample was greater than 30 for a species were random subsamples measured and the remaining individuals bulk counted?			X	Did not collect more than 30 of any one species
Were life stages of bulk counted fish recorded?			X	Did not collect more than 30 of any one species bulk counts not required
Were unknown species noted and placed in formalin-filled jar and labeled for later identification?			X	Did not collect any unknown species
Were adult gamefish tagged and sampled for scales (fall only)?			X	No fish were tagged

Field Collection Procedures - gill net retrieval-Continued	YES	NO	NA	Comments
Were tagged fish in good health and not overly stressed?			X	No fish were tagged
Was the tag number, scale envelope number and other information recorded on data sheets?			X	No fish were tagged
Were tag numbers of recaptured fish recorded and evaluated to determine the need for new tag?			X	No fish were tagged
If sampling during fall, were select species (bluegill, pumpkinseed, white perch, yellow perch, and gizzard shad) randomly sampled for scale samples?			X	Fall Only
Were data sheets checked over for completeness before moving to next location?	X			

Other Comments

Onondaga County
Department of Water Environment Protection
INTER-OFFICE MEMO

To: Jeanne Powers, Sanitary Engineer-III
From: Christopher Gandino, Sanitary Engineer-II
Date: 10/7/2013
Subject: Field Audit of OCDWEP Juvenile Seine Sampling Program

On October 7, 2013, I conducted a quality assurance/quality control (QA/QC) audit of the Onondaga County Department Water Environment Protection's (OCDWEP) juvenile seine efforts. The purpose of the audit was to ensure that the studies were conducted as outlined in Section 9.0 of the Quality Assurance Program Plan (QAPP) for the Onondaga Lake Fish Sampling Program (February 2013) prepared by OCDWEP and in the Standard Operating Procedure (SOP) for Littoral Zone Young-of-Year and Juvenile Fish Bag Seine (2/16/11 Rev. #4) prepared by OCDWEP. Additionally, the audit was conducted to ensure that the data were collected in a scientifically defensible manner.

The audit was performed during the first event of the juvenile seine efforts conducted by OCDWEP staff. The OCDWEP field crew for the sampling effort consisted of, Dan Walpole, Alex Studdert, and Kevin Stager. The attached field audit checklist provides the details of the audit.

Observations during the field audit indicated that the field crew conducted their work in a professional manner and complied with the procedures outlined in the QAPP and SOP. Nothing was observed that would jeopardize the quality of the data.

**Onondaga County
Department of Environmental Protection
Onondaga Lake Ambient Monitoring Program
Audit Checklist – Juvenile Seines**

Project Location: Onondaga Lake

Date(s) of Field Audit: October 7, 2013

Time(s) of Field Audit: 0745

Auditor: Christopher Gandino

Samplers: Dan Walpole, Alex Studdert and Kevin Stager.

**Onondaga County Department of Water Environment Protection
Onondaga Lake Ambient Monitoring Program**

Audit Checklist - Juvenile Littoral Seining
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<i>General</i>	YES	NO	NA	<i>Comments</i>
Are seine sites physically marked on shore?	X			
Are there three sites within each strata?	X			
Are seine locations documented with GPS coordinates?	X			
<i>Equipment Checklist</i>				
Is the folder containing data and information sheets available?	X			
Tag guns (Mark II pistol and scissor grip) and Floy T-bar anchor tags	X			
Spare needles for tag guns	X			
Two 50 ft 1/4" mesh bag seines	X			
Measuring boards	X			
Weight scale with small basket	X			
YSI 650 MDS & pre-calibrated YSI 600XL	X			
Scale envelope and knife	X			
Fish holding tub	X			
Better Bait water conditioner	X			
Waders	X			
Minnow nets	X			
Digital Camera	X			
Handheld GPS	X			
Formalin and jar (species id in lab if id cannot be made in field)	X			
Twine for net repair	X			
<i>Pre-Field Collection Procedures</i>				
Was water quality meter calibrated?	X			
Was weather forecast reviewed to access feasibility of sampling?	X			
Was equipment examined for repairs prior to heading out in field?	X			

<i>Pre-Field Collection Procedures - continued</i>	YES	NO	NA	Comments
Were all field data sheets assembled prior to departure?	X			
Was QAPP and SOP reviewed prior to departure?	X			
<i>Field Collection Procedures</i>				
Did field crew proceed to appropriate station?	X			Marina location (Strata 4 ,Site 3)
Was facility code/location, and time recorded on data sheet?	X			
Was water quality data recorded on field data sheets?	X			
Was seine stretch out on shore prior to deployment and checked for holes?	X			
If holes in net were they repaired or was backup net used?			X	No holes in net.
Was net brought to marked station location?	X			
Was the site assessed for the ability to seine effectively (limited macrophyte growth)?	X			Macrophytes starting to die back
If site was seined, did one person walk the end of the seine off shore until the full length of the net was deployed?	X			
Was the bag section checked to be sure it was fully deployed?	X			
Did the offshore person sweep their brail toward shore while the onshore person held their brail stationary?	X			
Did third person walk behind seine and dislodge the seine if it became stuck?	X			
Was the lead line lifted or the seine stopped to dislodge a snag? If yes, was the sample rejected?		X		
If sample was rejected did crew proceed to next location with plans to return to current location at a later time?			X	

Field Collection Procedures - Continued	YES	NO	NA	Comments
Was integrity of seine maintained while beaching the seine?	X			
Were fish picked and placed in holding tanks immediately following seine retrieval?	X			
Was the bag thoroughly checked and sorted through to remove all fish?	X			
If adult fish were captured, were they identified to species, counted, data recorded, and released back to the lake?		X		Small catch so recorded length
Were representative adult bass and other selected game fish tagged with numbered floy tag, and measured?			X	No fish tagged
If adult fish were tagged was relevant information recorded on data forms?			X	
Were tagged fish in good health and not overly stressed?			X	
Was seine stretched out on shore following removal of fish, any material removed, checked for holes?	X			
Was seine allowed to dry while fish were processed?	X			
If sample was less than 30 fish for a species - were all fish measured?	X			
If sample was greater than 30 fish for a species were random subsamples measured and the remaining individuals bulk counted?			X	Only six fish captured
Were YOY pumpkinseed and bluegill grouped as <i>lepomis sp.</i> ?			X	None captured
Were fish collected identified to species and listed on individual fish data sheet.	X			
Were all fish returned to lake following processing?	X			
Were all fish screened for (DELTFM) on recorded on data sheet?	X			

Field Collection Procedures - Continued	YES	NO	NA	
Were unknown species noted and placed in formalin-filled jar and labeled for later identification?			X	No unknown species
Were life stages based on length recorded?	X			
Were data sheets checked over for completeness before moving to next location?	X			
Was original site not seinable or was the sample rejected due to excessive macrophytes?		X		Site was fine
If original site was not seinable, was the next closest location, or back-up site, sampled and the new GPS coordinates documented in the field data sheet?			X	
If the site was changed during the first two sampling events, was this secondary site now sampled as the primary site for the rest of the season?			X	
If macrophytes were dense at the backup location, and the leadline rolled over "some" of the macrophytes - was the Data Validity Classification marked as conditional?			X	

Other Comments/Notes

Work was completed as described in SOP and QAPP

Onondaga County
Department of Water Environment Protection
INTER-OFFICE MEMO

To: Jeanne Powers, Sanitary Engineer-III
From: Christopher Gandino, Sanitary Engineer-II
Date: July 11, 2013
Subject: Larval Seine Audit

On July 10, 2013, I conducted a quality assurance/quality control (QA/QC) audit of the Onondaga County Department Water Environment Protection's (OCDWEP) littoral larval seine efforts. The purpose of the audit was to ensure that the studies were conducted as outlined in Section 9.0 of the Quality Assurance Program Plan (QAPP) for the Onondaga Lake Fish Sampling Program (February 2013) prepared by OCDWEP and in the standard operating procedure (SOP) for Littoral Larval Zone Larval Fish Seine (February 8, 2012). Additionally, the audit was conducted to ensure that the data were collected in a scientifically defensible manner.

The audit was performed during the first day of the larval seine sampling conducted by OCDWEP staff. The OCDWEP field crew for the sampling effort consisted of, Dan Walpole, Alex Studdert, Jason Shaw, Maryann Brown (summer intern) and Travis Henn. The attached field audit checklist provides the details of the audit.

Observations during the field audit indicated that the field crew conducted their work in a professional manner and complied with the procedures outlined in the QAPP and SOP. Nothing was observed that would jeopardize the quality of the data.

**Onondaga County
Department of Environmental Protection
Onondaga Lake Ambient Monitoring Program
Audit Checklist – Littoral Larval Seines**

Project Location: Onondaga Lake

Site: Stratum 4, site 3

Date(s) of Field Audit: July 10, 2013

Time(s) of Field Audit: 0745-0830

Auditor: Christopher Gandino

Samplers: Dan Walpole, Alex Studdert, Jason Shaw, Maryann Brown and Travis Henn

**Onondaga County Department of Water Environment Protection
Onondaga Lake Ambient Monitoring Program**

Date: July 10, 2013

Audit Checklist - Larval Fish Seining
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General	YES	NO	NA	Comments
Are seine sites physically marked on shore?	X			
Are there three sites within each strata?	X			
Are seine locations documented with GPS coordinates?	X			
Equipment Checklist				
Is the folder containing data and information sheets available?	X			
Is a map of larval seine locations available?	X			
Are a copy of the QAPP and SOP available?	X			
Two larval seine nets	X			
YSI 650 MDS & pre-calibrated YSI 600XL	X			
Two 541 micron wash baskets	X			
Two large holding tubs	X			
Two five gallon buckets	X			
Garden sprayer	X			
Waders	X			
Digital Camera	X			
Handheld GPS	X			
10% buffered formalin and jars for sample collection	X			
Tape measure	X			
Wash bottles	X			
Proper PPE	X			

Audit Checklist - Larval Fish Seining	YES	NO	NA	Comments
<i>Pre-Field Collection Procedures</i>				
Was water quality meter calibrated?	X			
Was weather forecast reviewed to assess feasibility of sampling?	X			
Was equipment examined for repairs prior to heading out in field?	X			
Were all field data sheets assembled prior to departure?	X			
Was QAPP and SOP reviewed prior to departure?	X			
<i>Field Collection Procedures</i>				
Did field crew proceed to appropriate station?	X			
Was facility code/location, and time recorded on data sheet?	X			
Was water quality data recorded on field data sheets?	X			
Was seine stretch out on shore prior to deployment and checked for holes?	X			
If holes were in net was backup net used?			X	Net was fine no holes, backup net not required
Was net brought to marked station location?	X			
Was the site assessed for the ability to seine effectively (limited macrophyte growth)?	X			
Was the seine (out of water) walked off shore until ~1 meter depth was reached before being deployed?	X			

Audit Checklist - Larval Fish Seining	YES	NO	NA	Comments
Was the net stretched as both technicians in unison swept the net perpendicular to the shoreline for a distance of 10 m?	X			
When 10 m was reached was the net lifted in unison to a horizontal position?	X			
Was the net walked to shore and carefully placed into a tub large enough to handle entire net suitable for wash down?	X			
Was the net washed down with lake water filtered with a 541 micron wash bucket?	X			
Was sample poured from wash tub through 541 micron wash bucket?	X			
Were contents in from 541 micron wash bucket placed in a sample jar or jars and preserved with 10% buffered formalin.	X			
Were all forms filled out when sampling complete (field form, chain of custody) and reviewed?	X			
Were samples stowed properly before heading to next location?	X			

Additional Comments