West Basin Midwater Trawl Project 2017 (LEA_MW17_001)

The objective of this midwater trawl program is to quantify the relative abundance of YOY Walleye ,Yellow perch and other species on bottom and suspended in the water column in western Lake Erie. During years when hypoxia occurs in western Lake Erie, this study may be used to compare the vertical distribution of juvenile percids and other species in the presence and absence of hypoxia.

Methods

During the week of August 28-September 1, 2017 the research vessel Keenosay is scheduled to trawl using midwater gear at 7 stations, for a total of 18 samples (Figure 1). Stations are unchanged since the program began in 2012. They were selected from the interagency bottom trawl project based on depth strata, spatial representation and to some degree, catches of young-of-the-year percids. Site coordinates and depth strata are listed in Table 1.

The mid-water trawl has a 3-m square opening, with 102, 76, 51, and 25 mm graded mesh running from the gape to 13 mm mesh in the cod-end. The general gear configuration is in Figure 2. Trawl duration is 10 minutes at 3.0 knots.

Water temperature / dissolved oxygen profiles should be logged at each location at the start and end of the first trawl per site. Water characteristics (temperature, dissolved oxygen) will be recorded at surface, bottom and the depth at which trawling occurs (gear depth). Up to 3 trawls may be done at each location. The Keenosay will haul the midwater trawl on the bottom first, followed by fishing the same gear suspended at one or two depths consecutively for effective coverage of the water column. Start and end locations must be the same for each replicate per station. The presence of mussels, sediment, rocks and benthic species (ie: gobies, troutperch) should be recorded in comments to document whether the midwater gear was actually fishing on bottom during the initial trawl. See Table 1 for coordinates and fishing depths.

In 2017, Go Pro cameras may be used to examine net behaviour while trawling if secchi depths are 4 m or greater.

Upon completion of each trawl, the catch will be sorted by species and size into age classes specified in LEMU's west basin interagency trawling protocol. Lengths will be recorded according to the same protocol (Table 2). All sampling will be done on board the Keenosay. Some fish will be retained for research (list in galley).

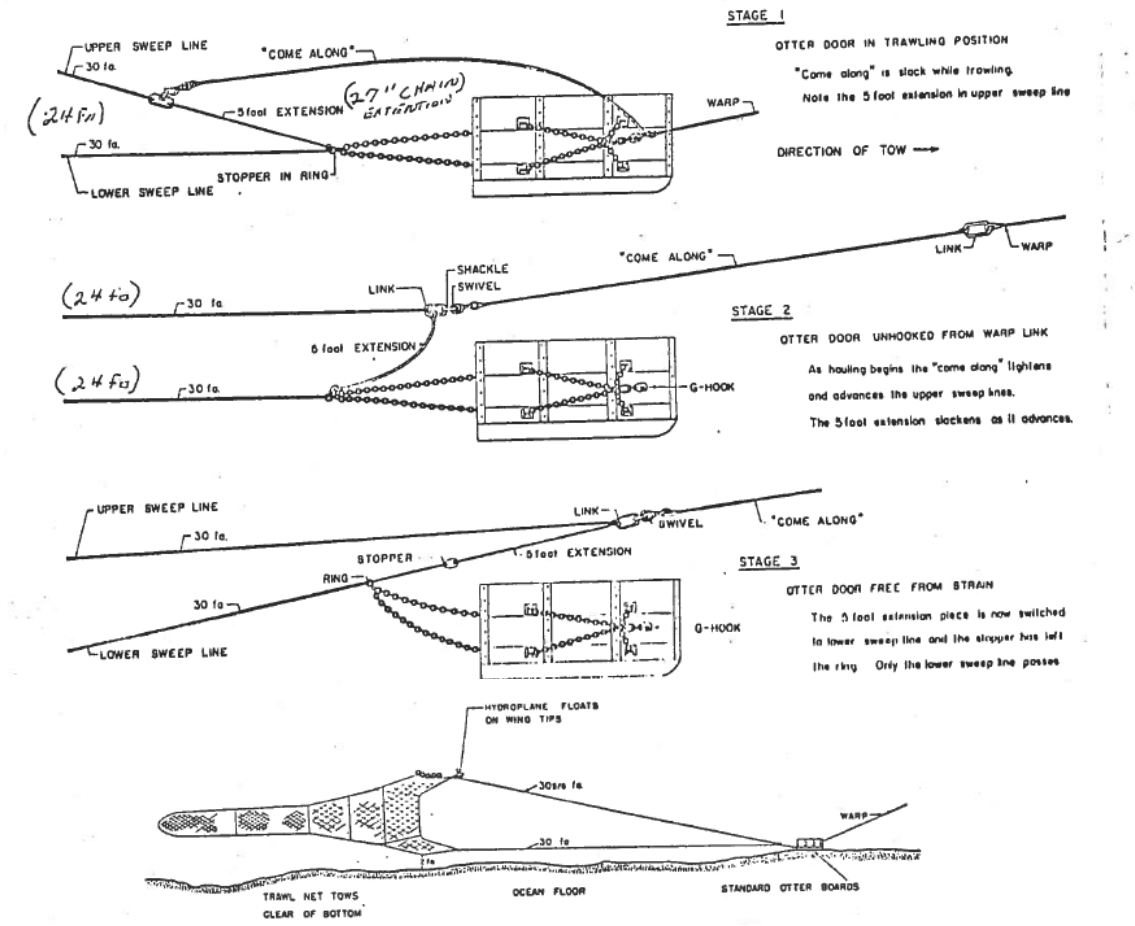
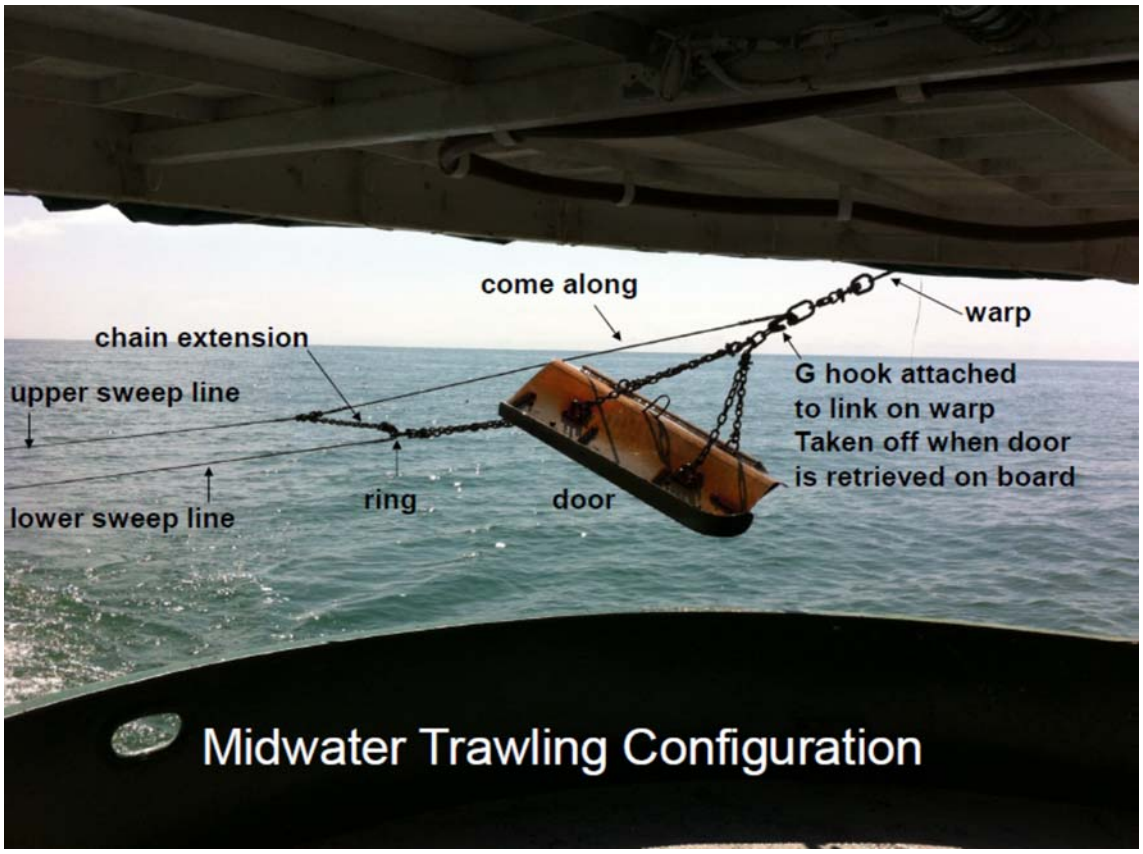


Figure 2. Midwater trawling gear.


come along
warp
chain extension
upper sweep line
G hook attached
to link on warp
Taken off when door
is retrieved on board
ring
door
lower sweep line
Midwater Trawling Configuration

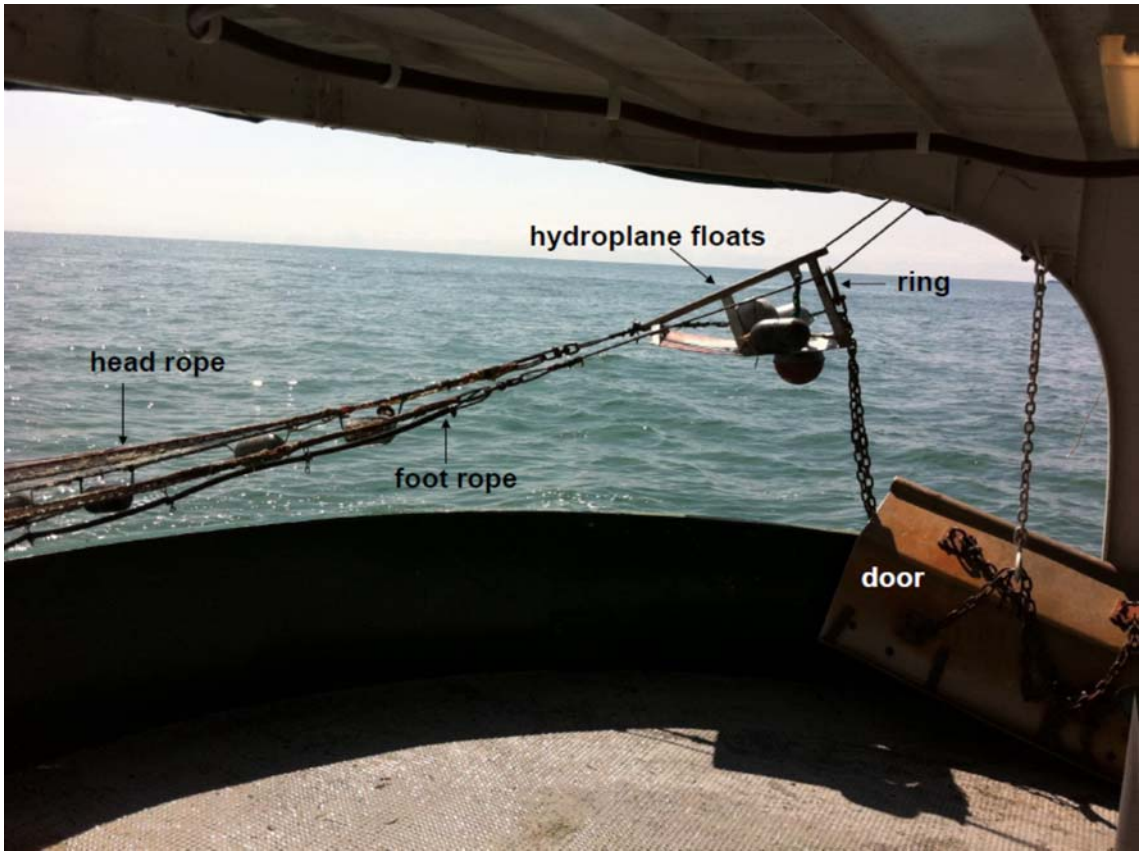

hydroplane floats
ring
head rope
foot rope
door

Table 1. Interagency sites selected for midwater trawling in western Lake Erie in 2017.

Site	Depth m	Depth Stratum	Latitude ddmm.mm	Longitude ddmm.mm	Foot Rope Depth m	Head Rope Depth m	Gear	Substrate
1	5	3 - 6	4200.00	8303.50	5	2	Bottom	Soft - weed
1	5	3 - 6	4200.00	8303.50	3	0	Midwater	Soft
19	5	3 - 6	4200.60	8234.80	5-6	2-3	Bottom	Soft
19	5	3 - 6	4200.60	8234.80	2-3	0	Midwater	Soft
22	8	6 - 9	4146.80	8246.80	8	5	Bottom	Soft
22	8	6 - 9	4146.80	8246.80	5	2	Midwater	Soft
24	9	6 - 9	4157.00	8259.00	9	6	Bottom	Soft
24	9	6 - 9	4157.00	8259.00	6	3	Midwater	Soft
24	9	6 - 9	4157.00	8259.00	3	0	Midwater	Soft
12	11	> 9	4156.90	8241.80	11	8	Bottom	Soft
12	11	> 9	4156.90	8241.80	8	5	Midwater	Soft
12	11	> 9	4156.90	8241.80	5	2	Midwater	Soft
8	11	> 9	4149.40	8253.80	11	8	Bottom	Soft
8	11	> 9	4149.40	8253.80	8	5	Midwater	Soft
8	11	> 9	4149.40	8253.80	5	2	Midwater	Soft
18	12	> 9	4142.00	8233.00	12	9	Bottom	Soft
18	12	> 9	4142.00	8233.00	9	6	Midwater	Soft
18	12	> 9	4142.00	8233.00	6	3	Midwater	Soft

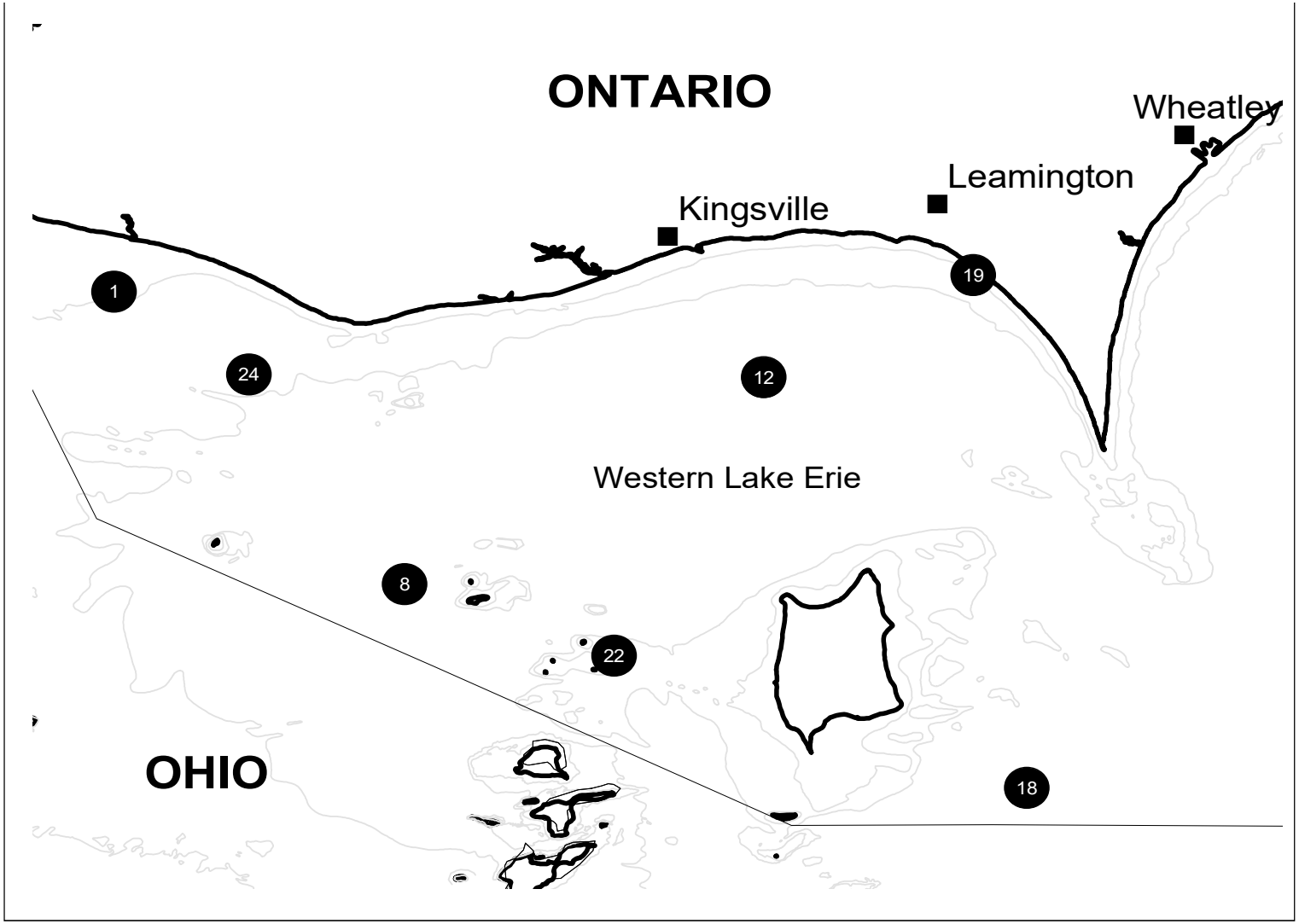


Figure 1. Sites for west basin midwater trawling project, 2017.
(site numbers correspond to interagency bottom trawl project 89)

2017 Ontario West Basin Midwater Trawling

Ontario Ministry of Natural Resources and Forestry

Date: 17 / 08 / (YR/MM/DD)

Vessel: Keenosay

I.D. Number: _____ (101-118)

Gear: Midwater

Site: _____

Gear Depth m _____

Start Latitude: _____

Stop Latitude: _____

Start Longitude: (on bottom) _____

Stop Longitude: (on bottom) _____

Wind: _____

Air Temp (ºC): (not for entry)

Start of Trawl

Surface Water Temperature (ºC): _____

Gear Temp (ºC): _____

Surface D.O (mg/L): _____

Gear D.O (mg/L): _____

Surface % Sat: _____

Gear % Sat: _____

Bottom Temp (ºC): _____

Bottom D.O (mg/L): _____

Bottom % Sat: _____

Secchi (m) _____

Site Depth (start): _____

Site Depth (end of trawl) _____

Start Time: : _____

End Time: : _____

Tow Duration: (minutes) _____

Tow Distance: (nautical miles on bottom) _____

Total Distance: (nautical miles) _____

Vessel Speed: (knots) _____

Line of suspended fish due to low DO? ☐ Y ☐ N

End of Trawl Limno Sample

Surface Water Temperature (ºC): _____

Gear Temp (ºC): _____

Surface D.O (mg/L): _____

Gear D.O (mg/L): _____

Surface % Sat: _____

Gear % Sat: _____

Bottom Temp (ºC): _____

Bottom D.O (mg/L): _____

Bottom % Sat: _____

Secchi (m) _____

Effort Status: _____ (1 = good; 0 = not to be used)

Benthic species? Y N (list) (not for entry)

Mussels? Y N

Rocks or sediment? Y N

Comments: _____

ON West Basin Midwater Trawl Catch & Length Tally Form, 2017

page__of__

CATCH ID __________ **SITE** __________________ **DATE** __________________ **2017**

Species __________________

Catch __________________ **Age Group** __________________

Species __________________

Catch __________________ **Age Group** __________________

Species __________________

Catch __________________ **Age Group** __________________

Species __________________

Catch __________________ **Age Group** __________________

Species __________________

Catch __________________ **Age Group** __________________

Species __________________

Catch __________________ **Age Group** __________________

Age Key **1 = YOY (30)** **2 = Yearling (30)** **3 = Yearling and Older (60)** **4 = Age 2 and Older (60)** **5 = All Ages (60)**
age group (number length tallied)

13 silver lamprey
31 lake sturgeon
61 alewife
63 gizzard shad
121 smelt
161 quillback
163 white sucker
171 redhorse
186 carp
191 silver chub
196 emerald shiner
198 common shiner
201 spottail shiner
203 spotfin shiner
206 mimic shiner
208 bluntnose minnow
233 brown bullhead
234 channel catfish
235 stonecat
291 troutperch
301 white perch
302 white bass
311 rock bass
316 smallmouth bass
317 largemouth bass
331 yellow perch
334 walleye
342 logperch
361 brook silverside
366 round goby
371 fw drum