

APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

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APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Appendix I1: Young-of-the-Year (YOY) Bluegill Assessment

APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Attachment I1-1: Completed Young-of-the-Year (YOY) Bluegill Field Sampling Forms

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>AJS, FW</u>	Notes: <u>Recon Sampling</u>
Sampling Date(s): <u>July 17th, 2018</u>	
Weather Forecast: <u>80 F Sun/Cloud</u>	
Air Temp: <u>80 F</u> Water Temp: <u>~ 80 F</u>	

YOY Bass Sampling Region (circle one):

Upper Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>Upper Curds Inlet near CI 1</u>	<u>Minnow Traps (7)</u>	<u>930AM</u>	<u>1</u>	<u>15</u>	
	<u>Upper CI near outfall</u>	<u>Seine Net (Drop)</u>	<u>1045AM</u>	<u>2</u>	<u>~500+</u>	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>ATS, DJ</u>	Notes: <i>* Analytical sample separate</i>
Sampling Date(s): <u>July 20, 2018</u>	
Weather Forecast: <u>UNK</u>	
Air Temp: <u>80F</u> Water Temp: <u>80F</u>	

YOY Bass Sampling Region (circle one):

Mid
Curds Inlet

 HQ Inlet

 LHL1(Rocky Arm)

 LHL2(Dix Dam)

 LHL3 Cove

 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	<i>middle CI & cone of outfall + just downstream east shore</i>	<i>Seine (5 hauls)</i>	<i>1030</i>	<i>0.25</i>	<i>598</i>	
	<i>"</i>	<i>Seine (2 hauls)</i>	<i>"</i>	<i>0.25</i>	<i>128*</i>	

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**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): AJS, FW	Notes: * Also caught/released ~270 silverside minnows
Sampling Date(s): Jul 21st, 2018	
Weather Forecast: UNK	
Air Temp: 85 Water Temp: ~82f	

YOY Bass Sampling Region (circle one):

Mid Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	Middle CI @ dry outfall Near CI2	Seine Net (9 pulls)	1500	.75	181	
	Middle CI @ wet out fall Near CI 2.1	" (2 pulls)	1545	.25	49*	

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**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <u>ASJ, DJ</u>	Notes:
Sampling Date(s): <u>July 20, 2018</u>	
Weather Forecast: <u>Sunny, possibly rain</u>	
Air Temp: <u>72°</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Lower Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	<u>Lower Curds CT - 4 west shore</u>	<u>Seine net</u>	<u>10:45</u>	<u>2hrs 15 mins</u>	<u>31</u>	

Notes:

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b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): 7-21-18	Notes: directions (left, right) determined by looking into the cove/inlet
Sampling Date(s): Forest, Alan	
Weather Forecast: ~70° sunny	
Air Temp: ~70° Water Temp: estimate 80-85°	

YOY Bass Sampling Region (circle one):

Lower Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	3.2 transect right bank & left bank	Trap	10:10	30 mins	10	
	Mouth of inlet right side 300ft from point	trap	13:35	5 mins	10	

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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Forest, Alan</u>	Notes: <u>directions (left, right) determined by looking into the cove/inlet</u>
Sampling Date(s): <u>7-22-18</u>	
Weather Forecast: <u>Rain + overcast</u>	
Air Temp: <u>~70°</u> Water Temp: <u>estimate 60-65°</u>	

YOY Bass Sampling Region (circle one):

Lower Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>all of lower Curds inlet</u>	<u>traps</u>	<u>14:15</u>	<u>1hr 30mins</u>	<u>48</u>	

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**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <u>ALSS, DJ</u>	Notes:
Sampling Date(s): <u>July 22, 2018</u>	
Weather Forecast: <u>75 cloudy</u>	
Air Temp: <u>70</u> Water Temp: <u>~80</u>	

YOY Bass Sampling Region (circle one):

Lower Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	<u>Lower CI West Bank</u>	<u>Minnow traps (5)</u>	<u>940am</u>	<u>0.5</u>	<u>27</u>	

Notes:

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b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>ASFW</u>	Notes:
Sampling Date(s): <u>Jul 23</u>	
Weather Forecast: <u>Rain 70f</u>	
Air Temp: <u>70</u> Water Temp: <u>80f</u>	

YOY Bass Sampling Region (circle one):

Lower Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	lower CI westshore	Minnow Trap	946AM	15	4	
	" eastshore	"	1015	1hr	52	

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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>AS, DJ</u>	Notes:
Sampling Date(s): <u>Jul 25, 2018</u>	
Weather Forecast: <u>Sunny 80f</u>	
Air Temp: <u>80f</u> Water Temp: <u>82f</u>	

YOY Bass Sampling Region (circle one):

LOWER Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	East Shore Rock Bowl	Minnow Traps (14)	1100	1.5hrs	56	
	"	Dip Net	1200	.5 .5	53	
	"	Minnow Traps (14)	1230	.3hr	25	
	"	"	1330	.3hr	7	
		Dip Net	1345	.25	8	
	"	Minnow Traps(14)	1440	.25	11	
		Dip Net	1440	.5	11	

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**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <i>AJS DJ</i>	Notes:
Sampling Date(s): <i>Thur Jul 26th</i>	
Weather Forecast: <i>85f sunny</i>	
Air Temp: <i>76f</i> Water Temp: <i>82-84f</i>	

YOY Bass Sampling Region (circle one):

LOWEL Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<i>East Shore Rock Bowl near point</i>	<i>minnow traps (14)</i>	<i>9 AM</i>	<i>1hr</i>	<i>80</i>	
	<i>"</i>	<i>dip net</i>	<i>9:30AM</i>	<i>0.25h</i>	<i>8</i>	
	<i>"</i>	<i>minnow traps</i>	<i>3:00pm</i>	<i>1hr</i>	<i>28</i>	
	<i>"</i>	<i>Electro Shocking</i>	<i>3:45pm</i>	<i>0.5hr (3435)</i>	<i>43</i>	

145
116

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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <i>AJS, OJ</i>	Notes:
Sampling Date(s): <i>Jul 26th, 2018</i>	
Weather Forecast: <i>86° Sunny</i>	
Air Temp: <i>86°</i> Water Temp: <i>82ft</i>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<i>H2 Inlet East Bank Half of West bank</i>	<i>Electro shock</i>	<i>1100</i>	<i>1843s (1hr)</i>	<i>144</i>	
	<i>H2 Inlet over Half of West bank and back</i>	<i> </i>	<i>1200</i>	<i>(1657s) .75hr</i>	<i>77</i>	

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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>AJS, DJ</u>	Notes:
Sampling Date(s): <u>July 25, 2018</u>	
Weather Forecast: <u>Sunny 85F</u>	
Air Temp: <u>85F</u> Water Temp: <u>82F</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>East ~100ft Bank</u>	<u>Electro Shock</u>	<u>1350</u>	<u>1 Shock 4085</u>	<u>61</u>	

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**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): Forest, Alan	Notes: directions (left, right) determined by looking into the cove/inlet
Sampling Date(s): 7-24-18	
Weather Forecast: ~80° Sunny	
Air Temp: 80° Water Temp: estimate 80-85°	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	Waterfall at back of Inlet	dip net	13:00	48 mins	6	

Notes:
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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Forest, Alan</u>	Notes: <u>directions (left, right) determined by looking into the cove/inlet</u>
Sampling Date(s): <u>7-22-18</u>	
Weather Forecast: <u>rain and overcast</u>	
Air Temp: <u>72°</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>left side of HQ inlet, 200ft of shoreline</u>	<u>Seine</u>	<u>10:35</u>	<u>10 mins</u>	<u>0</u>	
	<u>right side of HQ inlet, 300 ft of shoreline cove</u>	<u>Seine</u>	<u>10:50</u>	<u>1 hr</u>	<u>15</u>	
	<u>//</u>	<u>dip net</u>	<u>11:50</u>	<u>40 mins</u>	<u>1</u>	

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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Foresch, Alan</u>	Notes: <u>directions (left, right) determined by looking into the cave/inlet</u>
Sampling Date(s): <u>7-21-18</u>	
Weather Forecast: <u>~70° sunny</u>	
Air Temp: <u>70°</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>Fallen Branch at waterfall at back of inlet</u>	<u>Trap</u>	<u>14:10</u>	<u>5mins</u>	<u>2</u>	
	<u>right side of inlet, start at 200 feet from waterfall</u>	<u>Seine</u>	<u>14:40</u>	<u>2hrs 20mins</u>	<u>105</u>	
	<u>covered ~200 ft of bank</u>					

Notes:
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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Fonest, Alan</u>	Notes: <u>directions (left, right) determined by looking into the cove/inlet</u>
Sampling Date(s): <u>7-26-18</u>	
Weather Forecast: <u>~70° sunny</u>	
Air Temp: <u>~70°</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>Fallen Branch at waterfall at back of inlet</u>	<u>Traps</u>	<u>10:00</u>	<u>10mins</u>	<u>1</u>	

Notes:
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Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): AJS DJ	Notes: * FW 2 AM Arrived in H2 2 1400 - Continued Seining on West Shore
Sampling Date(s): Jul 20, 2018	
Weather Forecast: Mixed 80F	
Air Temp: 80F Water Temp: ~ 78F-80F	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	Inner HQ 2 back	Seine (3 hauls)	1300	1.0hr	40+10+10 n=60	
	H2 West Shore	" (5 hauls)	1400	0.5hr	~20fish	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>ASS, FW</u>	Notes:
Sampling Date(s): <u>July 17th, 2018</u>	
Weather Forecast: <u>80F Sunny</u>	
Air Temp: <u>80F</u> Water Temp: <u>82F</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	HQ Inlet near water fall	Minnow Trap (1)	1015	.25	~10	
	H2 Inlet " "	Seine net	1300	1	65	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <u>AJS, DJ</u>	Notes:
Sampling Date(s): <u>July 22, 2018</u>	
Weather Forecast: <u>75 cloudy</u>	
Air Temp: <u>70</u> Water Temp: <u>~80</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo^{a,b} (N=)
	<u>LHL-1 Rocky fork left fork @ waterfall</u>	<u>Dip net</u>	<u>1215</u>	<u>2</u>	<u>~570 + ~190</u>	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <i>AJS, FW</i>	Notes:
Sampling Date(s): <i>July 17th, 2018</i>	
Weather Forecast: <i>80° Sunny</i>	
Air Temp: <i>80°</i> Water Temp: <i>82°</i>	

YOY Bass Sampling Region (circle one):

Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo^{a,b} <small>(N=)</small>
	<i>LHL3 Inner Cove</i>	<i>Seine Net</i>	<i>1400</i>	<i>1.5</i>	<i>25</i>	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Forrest, Alan</u>	Notes:
Sampling Date(s): <u>7-20-18</u>	
Weather Forecast: <u>Sunny</u>	
Air Temp: <u>72</u> Water Temp: <u>estimate 80-85</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>LHL-3 cove</u>	<u>Seine</u>	<u>15:00</u>	<u>0.5 (30mins)</u>	<u>3</u>	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): Forest, Alan	Notes:
Sampling Date(s): 7-22-18	
Weather Forecast: Overcast / slight rain	
Air Temp: ~ 68° Water Temp: estimate 80°-85°	

YOY Bass Sampling Region (circle one):

Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore)</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	LHL-3 core	dip net	15:50	0.5 (30 mins)	2	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <u>AJS, FW</u>	Notes:
Sampling Date(s): <u>July 23 2018</u>	
Weather Forecast: <u>Cloudy</u>	
Air Temp: <u>66</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo^{a,b} (N=)
	LHL3 cove	Traps	11:30	0.25	2	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>ASS FW</u>	Notes:
Sampling Date(s): <u>July 24, 2018</u>	
Weather Forecast: <u>86F Sunny</u>	
Air Temp: <u>86</u> Water Temp: <u>82F</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	LHL3 Cove	Minnow Traps (6)	9:30AM	0.5 hr	2	
	LHL3 North side	" (7)	10:00 9:45AM	1 hr	0 (only adults)	
	"	Seine Net (1 pull)		.25 hr	0	
	LHL3 M Cove NS	" (2 pulls)		.5 hr	0	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): AJS,	Notes:
Sampling Date(s): Jul 26th, 2018	
Weather Forecast: 80F Sunny	
Air Temp: 80 Water Temp: est. note 80-85	

YOY Bass Sampling Region (circle one):

Herding Inlet
 Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore)</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	Both Banks of HI	Electro Shock	1330	1.0 (1598g)	41	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): <u>AJS, EW</u>	Notes:
Sampling Date(s): <u>Jul 16, 2018</u>	
Weather Forecast: <u>80F Rain</u>	
Air Temp: <u>80F</u> Water Temp: <u>84F</u>	

(HARDIN Inlet) YOY Bass Sampling Region (circle one):

Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS-001TS-LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	<u>HI near boat ramp</u>	<u>Seine Net</u>	<u>1800</u>	<u>.5hr</u>	<u>~230</u>	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

**Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM**



Primary Fish Collector(s): AJS, DJ	Notes:
Sampling Date(s): Jul 25, 2018	
Weather Forecast: Sunny	
Air Temp: 70° Water Temp: 80 85°	

YOY Bass Sampling Region (circle one):

HARDIN INLET
 Curds Inlet
 HQ Inlet
 LHL1(Rocky Arm)
 LHL2(Dix Dam)
 LHL3 Cove
 LHL 6 Cove

Sample ID: <small>e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)</small>	Sampling Location Description <small>e.g. 50' north of CI2, west shore)</small>	Sampling Method <small>(Seine, Electrofish, Minnow Trap etc.)</small>	Start Time <small>(24hr clock)</small>	Sampling Duration <small>(in hrs)</small>	Sample Size <small>(N=)</small>	No. in Photo ^{a,b} <small>(N=)</small>
	Boat Ramp 30' right	seine (2) pulls	8:30AM	.5	0	

Notes:

a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).

b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Don, Alan</u>	Notes: <u>directions (left, right) is determined by looking into the cove/inlet</u>
Sampling Date(s): <u>7-23-19</u>	
Weather Forecast: <u>~65° cloudy</u>	
Air Temp: <u>-65°</u> Water Temp: <u>estimate 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>near 300 ft left of water fall at end of cove</u>	<u>dip net</u>	<u>9:50</u>	<u>2 hrs 10 min</u>	<u>29 AM, 109</u>	
	<u>500 ft left of water fall at end of cove</u>	<u>Seine</u>	<u>12:05</u>	<u>2 hrs</u>	<u>392</u>	
	<u>At waterfall at end of cove</u>	<u>traps</u>	<u>14:30</u>	<u>30 min</u>	<u>11</u>	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

Herrington Lake Young-Of-The-Year (YOY)
FISH COLLECTION EFFORT FORM



Primary Fish Collector(s): <u>Dom Alan</u>	Notes: <u>directions (left, right) determined by looking into the cove/inlet</u>
Sampling Date(s): <u>7-24-18</u>	
Weather Forecast: <u>~70° Sunny</u>	
Air Temp: <u>~70°</u> Water Temp: <u>est. water 80-85°</u>	

YOY Bass Sampling Region (circle one):

Curds Inlet HQ Inlet LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove

Sample ID: e.g. (YOYBASS-001-LHL6), or (YOYBASS - 001TS - LHL6)	Sampling Location Description e.g. 50' north of CI2, west shore)	Sampling Method (Seine, Electrofish, Minnow Trap etc.)	Start Time (24hr clock)	Sampling Duration (in hrs)	Sample Size (N=)	No. in Photo ^{a,b} (N=)
	<u>Small cove on right when heading into LHL-6 cove</u>	<u>traps</u>	<u>9:35</u>	<u>20 mins</u>	<u>12</u>	
	<u>//</u>	<u>dip net</u>	<u>9:55</u>	<u>20 mins</u>	<u>8</u>	
	<u>left bank ~300ft from waterfall</u>	<u>Seine</u>	<u>10:15</u>	<u>20 mins</u>	<u>50+</u>	

Notes:
a) For unaffected YOY Bass, a maximum of 100 individuals will fit within 20" X 10" image field, providing detailed imagery of both the left and right sides of the fish (two photos).
b) For the YOY analytical subsample of approximately 10 YOY bass (minimum 5 grams total weight), detailed imagery will be captured of both the left and right sides of each individual (two photos) before they are frozen for shipment to the laboratory.

APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Attachment I1-2: Completed Young-of-the-Year (YOY) Bluegill Assessment Samples: Group Health Examination Forms

**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>[Signature]</i>	Notes:
Primary Fish Health Assessor: <i>[Signature]</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/29, 30/18</i>	# of YOY in sample: <i>1150 + assessed 600</i>

YOY Fish Sampling Location: <i>Upper Woods Park</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
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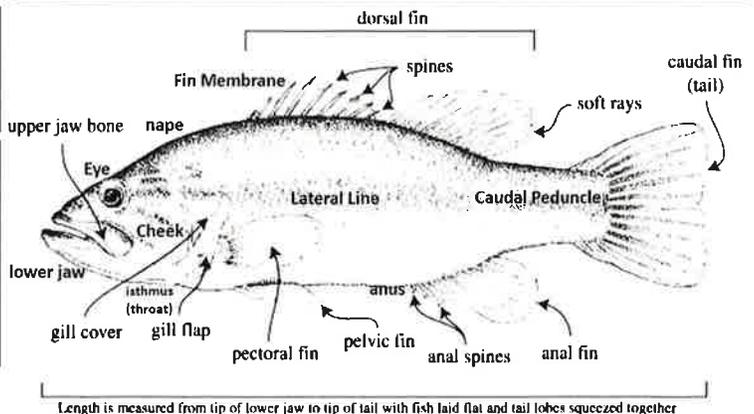
# of Normal Fish (no visible deformities): <i>595</i>				Assessment Guide for YOY Centrarchidae	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	<i>600</i>			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	normal:		normal:		
	exophthalmic:		exophthalmic:		
	opaque:		opaque:		
	missing:		missing:		
Other (list):		Other (list):		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.	

Fins	Fins all normal:	<i>595</i>	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:			
	missing:		<i>Down</i> twisted:	<i>5</i>	Dorsal fin	
	twisted:				partly missing:	
	Right pectoral		Anal fin		missing:	
	partly missing:		partly missing:		twisted:	
	missing:		missing:		fins other (list):	
twisted:		twisted:				

Spine	Spine normal:	<i>595/600</i>	Craniofacial	Head Normal:	<i>600</i>
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:			gill cover:	
	Other (list):			Other (list):	

Edema	normal:	<i>600</i>
	Edema:	
	Other (list):	

Other (List)		



**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>W</i>	Notes: <i>674 total reviewed</i> <i>93 exophthalmia - 5 non eye issue</i>
Primary Fish Health Assessor: <i>M</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/24, 27, 28/18</i>	
# of YOY in sample: <i>674</i>	

YOY Fish Sampling Location: <i>Mid CI</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
---	--

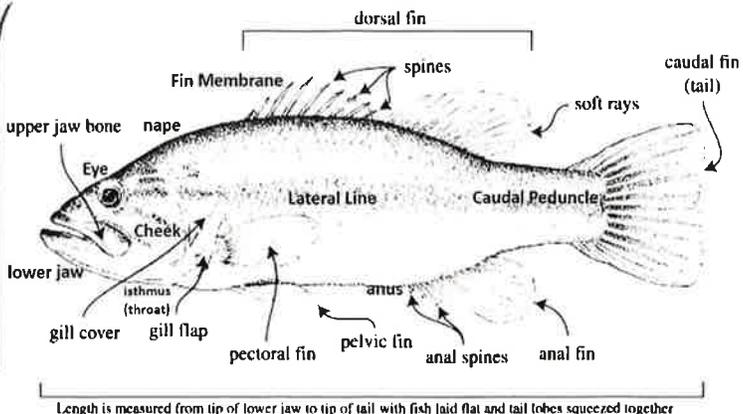
# of Normal Fish (no visible deformities): <i>576</i>				<u>Assessment Guide for YOY Centrarchidae</u>	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
Eyes <i>93</i>	Eyes both normal:	<i>581</i>			Fin irregularities - missing, misshaped, partly missing (aka vestigial)
	Left		Right		Spinal curvature - kyphosis, lordosis, and scoliosis
	normal:		normal:		Craniofacial defects - mouth, jaw, and gill cover
	exophthalmic:	<i>93</i>	exophthalmic:	<i>93</i>	Edema - fluid accumulation
	opaque:		opaque:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
	missing:		missing:		
	Other (list):		Other (list):		

Fins	Fins all normal:	<i>673</i>	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:	<i>1</i>		
	twisted:		Anal fin			
	Right pectoral		partly missing:		partly missing:	
	partly missing:		missing:		missing:	
	missing:		missing:		twisted:	
twisted:		twisted:		fins other (list):		

Spine	Spine normal:	<i>671</i>	Craniofacial <i>head generally stubby</i>	Head Normal:	<i>673</i>
	kyphosis:			mouth:	
	lordosis:	<i>1</i>		upper/jaw:	<i>1</i>
	scoliosis:	<i>3</i>		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	<i>674</i>
	Edema:	
	Other (list):	

Other (List)		



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together

**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>Woz</i>	Notes: <i>3 abnormal total 482 total</i>
Primary Fish Health Assessor: <i>Woz</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/30/18</i>	
# of YOY in sample: <i>1750 assessed 600</i>	

+ 42 shad = 504 = 504

YOY Fish Sampling Location: <i>Lower Cords I</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
--	---

of Normal Fish (no visible deformities): ~~595~~ *479*

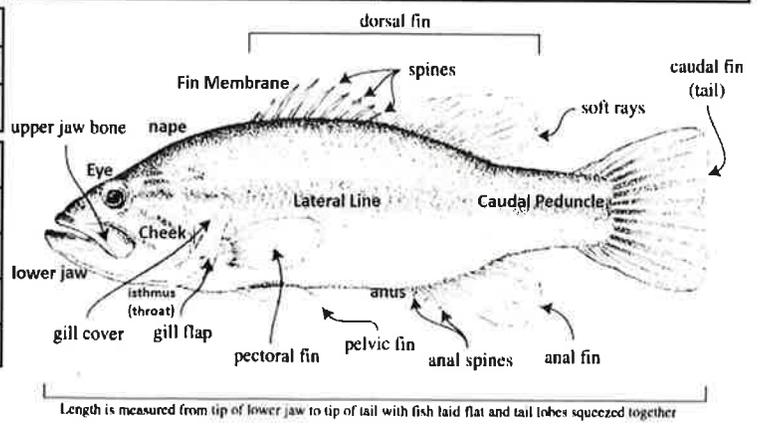
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Assessment Guide for YOY Centrarchidae Eye abnormalities - including lens cataracts and exophthalmos Fin irregularities - missing, misshaped, partly missing (aka vestigial) Spinal curvature - kyphosis, lordosis, and scoliosis Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.	
Eyes	Eyes both normal:	<i>595</i>	Left	<i>482</i>		Right normal: <input type="checkbox"/> exophthalmic: <input type="checkbox"/> opaque: <input type="checkbox"/> missing: <input type="checkbox"/> Other (list):
	normal:		normal:			
	exophthalmic:		exophthalmic:			
	opaque:		opaque:			
	missing:		missing:			
	Other (list):		Other (list):			

Fins	Fins all normal:		Caudal fin (tail)	Anatomical Anomaly	# of fish
	Left pectoral	<i>595</i>			
partly missing:			missing: <input type="checkbox"/>		
missing:			<i>Down</i> twisted: <input checked="" type="checkbox"/>	partly missing: <input type="checkbox"/>	
twisted:					
Right pectoral			Anal fin	missing: <input type="checkbox"/>	
partly missing:			partly missing: <input type="checkbox"/>	twisted: <input type="checkbox"/>	
missing:			missing: <input type="checkbox"/>	fins other (list):	
twisted:			twisted: <input type="checkbox"/>		

Spine	Spine normal:	<i>479</i>	Craniofacial	Head Normal:	<input type="checkbox"/>
	kyphosis:			mouth:	<input type="checkbox"/>
	lordosis:			jaw:	<input type="checkbox"/>
	scoliosis:	<i>3</i>		gill cover:	<input type="checkbox"/>
	Other (list):			Other (list):	

Edema	normal:	<input type="checkbox"/>
	Edema:	<input type="checkbox"/>
	Other (list):	

Other (List)		



**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>RVE</i>	Notes: <i>Many larger fish in poor weight condition 5 defined labels</i>
Primary Fish Health Assessor: <i>RVE</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/22-23/2008</i>	
# of YOY in sample: <i>283</i>	

YOY Fish Sampling Location: <i>HQ Tinet Not shared</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
---	---

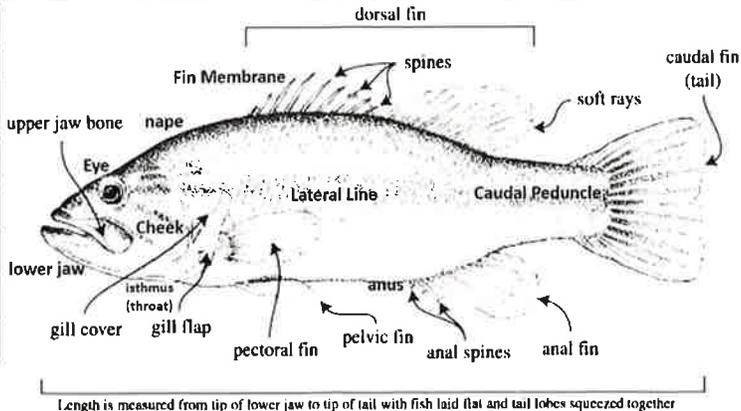
# of Normal Fish (no visible deformities): <i>279</i>				Assessment Guide for YOY Centrarchidae Eye abnormalities - including lens cataracts and exophthalmos Fin irregularities - missing, misshaped, partly missing (aka vestigial) Spinal curvature - kyphosis, lordosis, and scoliosis Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly		# of fish
Eyes	Eyes both normal:	<i>282</i>			
	Left		Right		
	normal:		normal:		
	exophthalmic:	<i>1</i>	exophthalmic:		
	opaque:		opaque:		
missing:		missing:			
Other (list):		Other (list):			

Fins <i>generally in good condition little trauma</i>	Fins all normal:	<i>283</i>	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:			
	missing:		twisted:			
	twisted:		Dorsal fin			
	Right pectoral		partly missing:			
partly missing:		Anal fin	missing:			
missing:		partly missing:	twisted:			
twisted:		missing:	twisted:			
Other (list):		Other (list):		fins other (list):		

Spine	Spine normal:	<i>281</i>	Craniofacial	Head Normal:	<i>252</i>
	kyphosis:			mouth:	<i>2</i>
	lordosis:	<i>2</i>		jaw:	
	scoliosis:	<i>1</i>		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	<i>283</i>
	Edema:	
	Other (list):	

Other (List)		



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together

**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>PLM</i>	Notes: <i>Generally better condition than HQ not shocked</i>
Primary Fish Health Assessor: <i>PLM</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/24/18</i>	# of YOY in sample: <i>173 + 30 possible b3F</i>

YOY Fish Sampling Location: <i>A/Q inlet shocked</i>	Species distribution in sample (e.g. 80% percent largemouth bass): <i>90% BG 10% redear</i>
--	---

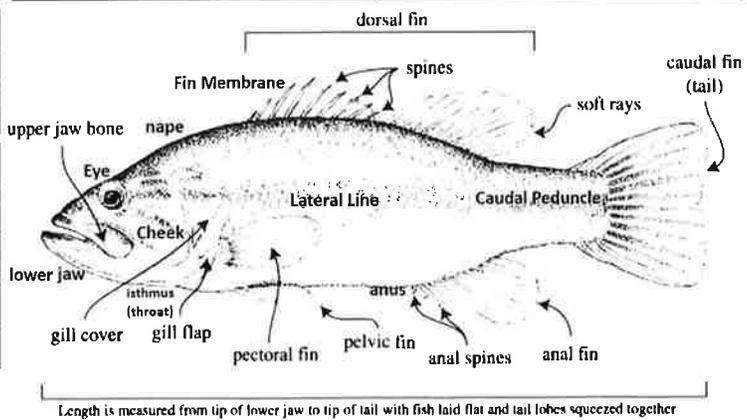
# of Normal Fish (no visible deformities): <i>173 203</i>			Assessment Guide for YOY Centrarchidae		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
					Spinal curvature - kyphosis, lordosis, and scoliosis
					Craniofacial defects - mouth, jaw, and gill cover
					Edema - fluid accumulation
					<small>Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.</small>

Fins	Fins all normal:	<i>173</i>	Caudal fin (tail)	partly missing:		Anatomical Anomaly	# of fish			
	Left pectoral			missing:				Dorsal fin		
	partly missing:			twisted:					partly missing:	
	missing:			Anal fin	partly missing:				missing:	
	twisted:				missing:				twisted:	
	Right pectoral			twisted:				fins other (list):		
	partly missing:									
	missing:									
	twisted:									
	Other (list): <i>203</i>									

Spine	Spine normal:	<i>173</i>	Craniofacial	Head Normal:	
	kyphosis:			mouth:	
	lordosis:	<i>1</i>		jaw:	
	scoliosis:			gill cover:	
	Other (list):	<i>203</i>		Other (list):	

Edema	normal:	<i>173</i>
	Edema:	
	Other (list):	

Other (List)		



Count reassessed 1/8/19 after review of photos & log book

**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <u>RBL</u>	Notes: <u>~30% Tail & fin trauma often in poor weight condition, 11 deformed total</u>
Primary Fish Health Assessor: <u>RBL</u>	
Third-Party Assessor:	
Assessment Date(s): <u>8/13 - 8/20/2018</u>	# of YOY in sample: <u>535 SR 4</u>

YOY Fish Sampling Location: <u>LH L1</u>	Species distribution in sample (e.g. 80% percent largemouth bass): <u>100% Bluegill sunfish</u>
--	---

of Normal Fish (no visible deformities): 529-11 = 513

Assessment Guide for YOY Centrarchidae
 Eye abnormalities - including lens cataracts and exophthalmos
 Fin irregularities - missing, misshaped, partly missing (aka vestigial) Non-trauma
 Spinal curvature - kyphosis, lordosis, and scoliosis
 Craniofacial defects - mouth, jaw, and gill cover
 Edema - fluid accumulation
 Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.

Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish
	Eyes both normal:	<u>534</u>		<u>512</u>
	Left		Right	
	normal:	<u>534</u>	normal:	
	exophthalmic:	<u>1</u>	exophthalmic:	<u>1 (edema)</u>
	opaque:		opaque:	
	missing:		missing:	
Other (list):			Other (list):	
		<u>513</u>		

All fin issues appear to be random trauma or disease

Fins all normal:	<u>535</u>
Left pectoral	
partly missing:	
missing:	
twisted:	
Right pectoral	
partly missing:	
missing:	
twisted:	<u>510</u>

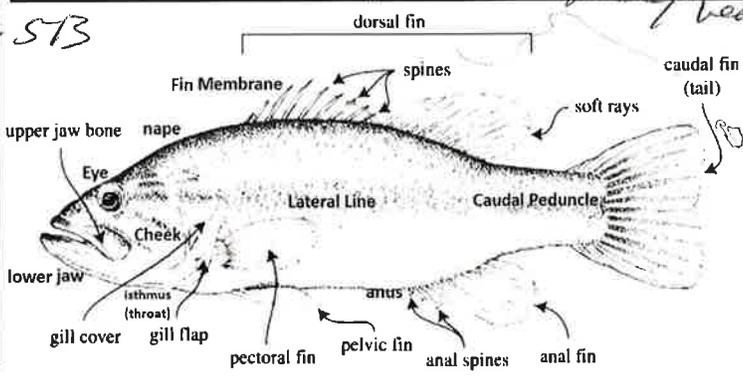
Caudal fin (tail)	Anatomical Anomaly	# of fish
partly missing:		
missing:		
twisted:		
Dorsal fin		
partly missing:		
missing:		
twisted:		
Anal fin		
partly missing:		
missing:		
twisted:		
fins other (list):		

Spine	Spine normal:	<u>513</u>
	kyphosis:	
	lordosis:	<u>1</u>
	scoliosis:	<u>2</u>
	Other (list):	

Craniofacial	Head Normal:	<u>528</u>	<u>506</u>
	mouth:	<u>4</u>	
	jaw:		
	gill cover:	<u>2</u>	
	Other (list):	<u>1 short nose/dented head.</u>	

Edema	normal:	<u>535</u>	<u>513</u>
	Edema:		
	Other (list):		

Stomach		
Other (List)	<u>Stomach through gill</u>	<u>1</u>



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together

**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>WCC</i>	Notes:
Primary Fish Health Assessor: <i>WCC</i>	
Third-Party Assessor:	
Assessment Date(s): <i>9/11-12/18</i>	# of YOY in sample: <i>209 assessed</i>

YOY Fish Sampling Location: <i>Hardens Inlet</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
---	---

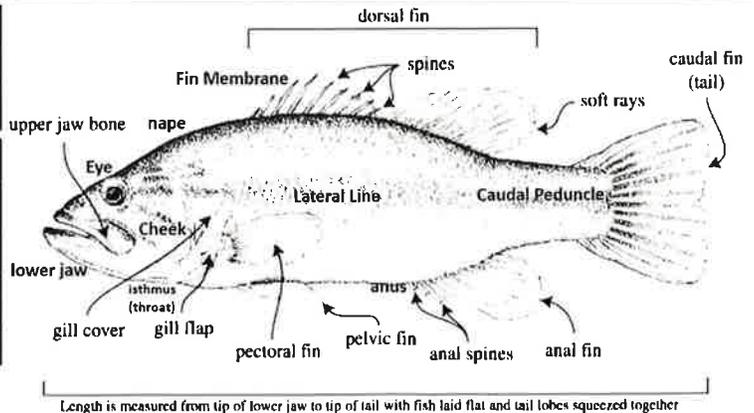
# of Normal Fish (no visible deformities): _____				Assessment Guide for YOY Centrarchidae	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos Fin irregularities - missing, misshaped, partly missing (aka vestigial) Spinal curvature - kyphosis, lordosis, and scoliosis Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
Eyes	Eyes both normal:	<i>103</i>	Left	Right	
	normal:		normal:		
	exophthalmic:	<i>106</i>	exophthalmic:	<i>0</i>	
	opaque:		opaque:		
	missing:		missing:		
Other (list):		Other (list):			

Fins	Fins all normal:	<i>209</i>	Caudal fin (tail)	Anatomical Anomaly	# of fish	
	Left pectoral	partly missing:				partly missing:
	partly missing:	missing:				missing:
	missing:	twisted:				twisted:
	twisted:					
	Right pectoral					
	partly missing:	Anal fin				partly missing:
	missing:	partly missing:				missing:
twisted:	missing:	twisted:				
	twisted:	twisted:	fins other (list):			

Spine	Spine normal:	<i>209</i>	Craniofacial	Head Normal:	<i>209</i>
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:			gill cover:	
	Other (list):			Other (list):	

Edema	normal:	
	Edema:	
	Other (list):	

Other (List)	<i>Dip in back before dorsal</i>	<i>2</i>



**Herrington Lake Young-Of-The-Year (YOY)
FISH HEALTH EXAMINATION FORM**



Recorder: <i>[Signature]</i>	Notes: <i>Better condition than LHL 1</i> <i>4 formed to be 1</i>
Primary Fish Health Assessor: <i>[Signature]</i>	
Third-Party Assessor:	
Assessment Date(s): <i>8/20 - 24/2018</i>	
# of YOY in sample: <i>607</i>	

YOY Fish Sampling Location: <i>LHL 6</i>	Species distribution in sample (e.g. 80% percent largemouth bass):
--	--

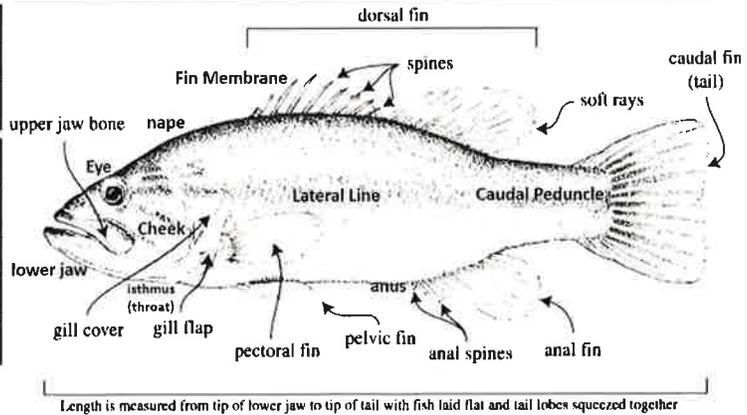
# of Normal Fish (no visible deformities): _____				Assessment Guide for YOY Centrarchidae			
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos		
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)		
Eyes	Eyes both normal:	<i>607</i>	Right		Spinal curvature - kyphosis, lordosis, and scoliosis		
	Left normal:				normal:		Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	exophthalmic:				exophthalmic:		
	opaque:				opaque:		
	missing:				missing:		
	Other (list):				Other (list):		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.

Fins	Fins all normal:	<i>607</i>	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:		partly missing:	
	twisted:		Anal fin		missing:	
	Right pectoral		partly missing:		twisted:	
	partly missing:		missing:		fins other (list):	
	missing:		twisted:			

Spine	Spine normal:	<i>606</i>	Craniofacial	Head Normal:	<i>607</i>
	kyphosis:			mouth:	<i>1</i>
	lordosis:			jaw:	
	scoliosis:	<i>1</i>		gill cover:	<i>1</i>
	Other (list):			Other (list):	<i>1 shorthead</i>

Edema	normal:	<i>607</i>
	Edema:	
	Other (list):	

Other (List)		



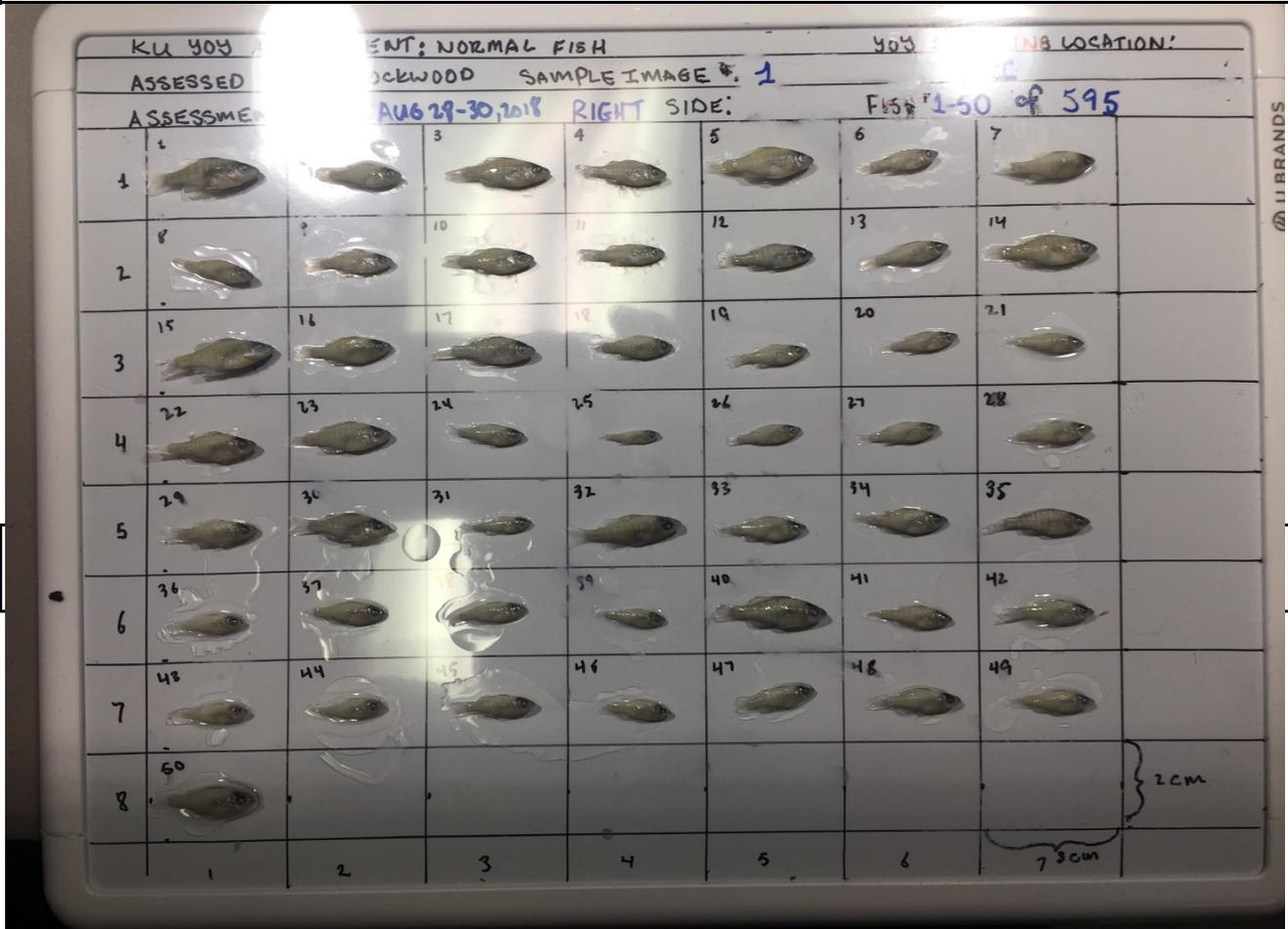
APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Attachment I1-3: Completed Young-of-the-Year (YOY) Bluegill Assessment Samples:
Individual Assessment Forms

Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms



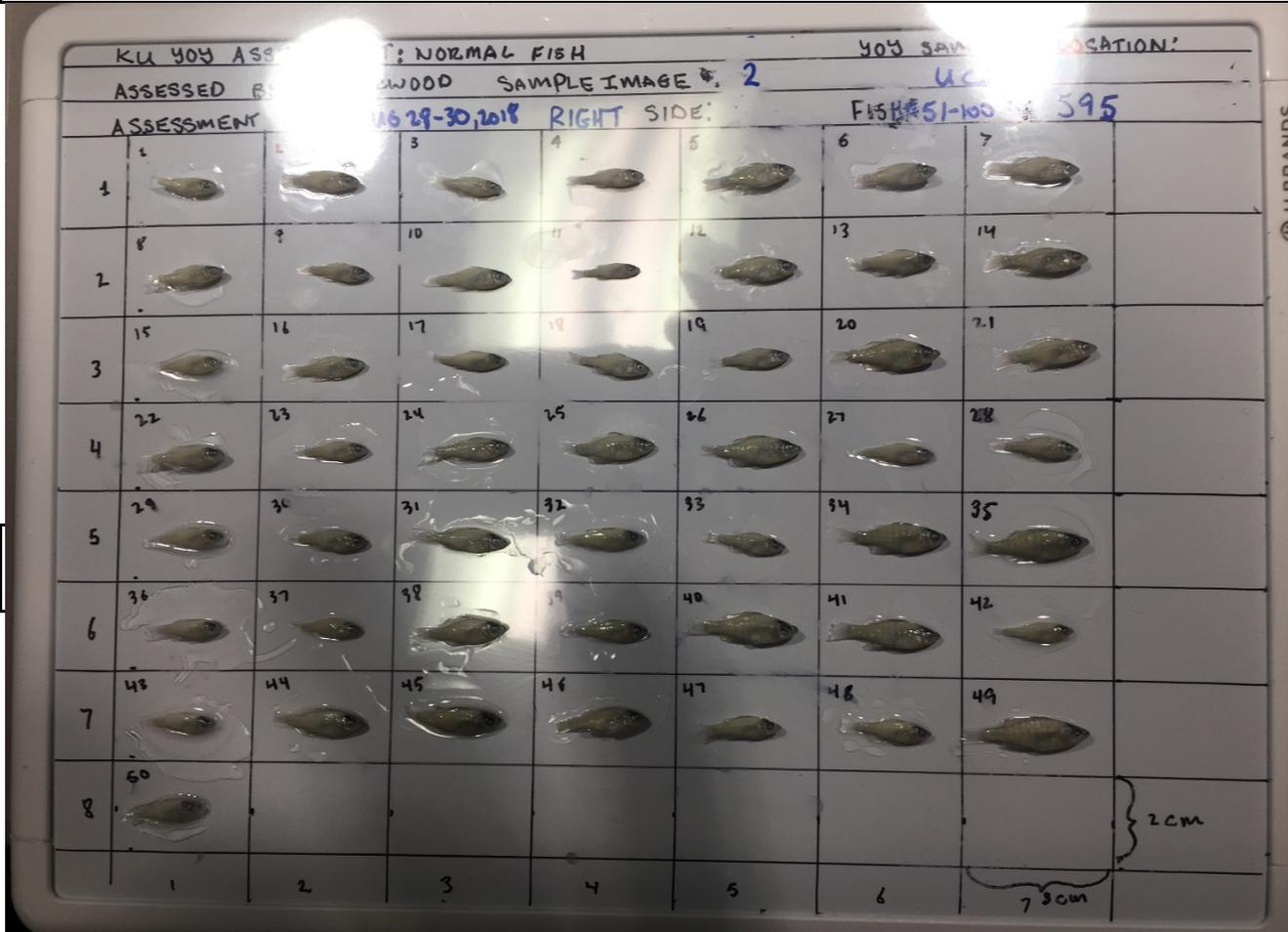
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=695+	
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_normal_fish_1-50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



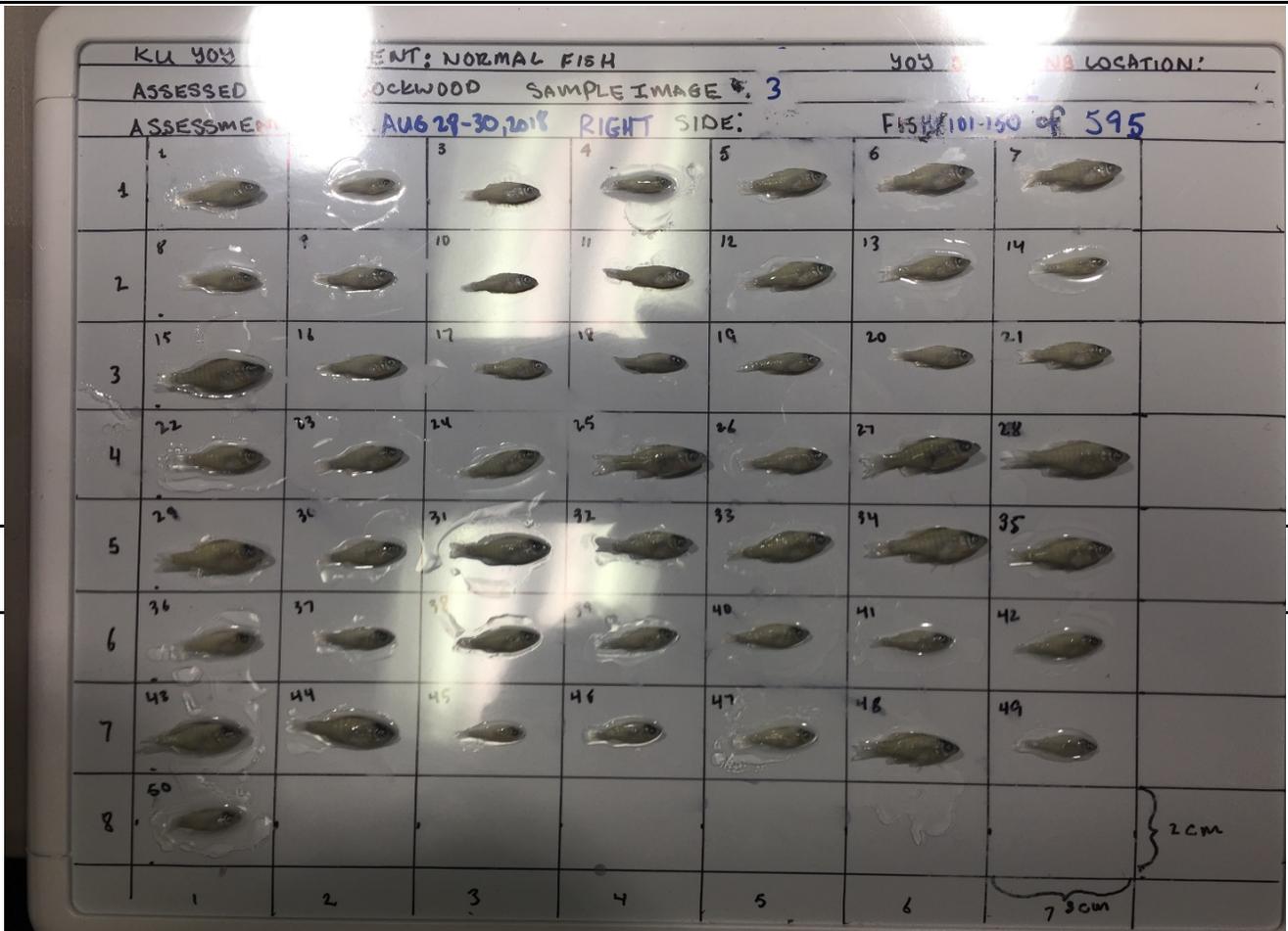
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=695+	
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_normal_fish_51-100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



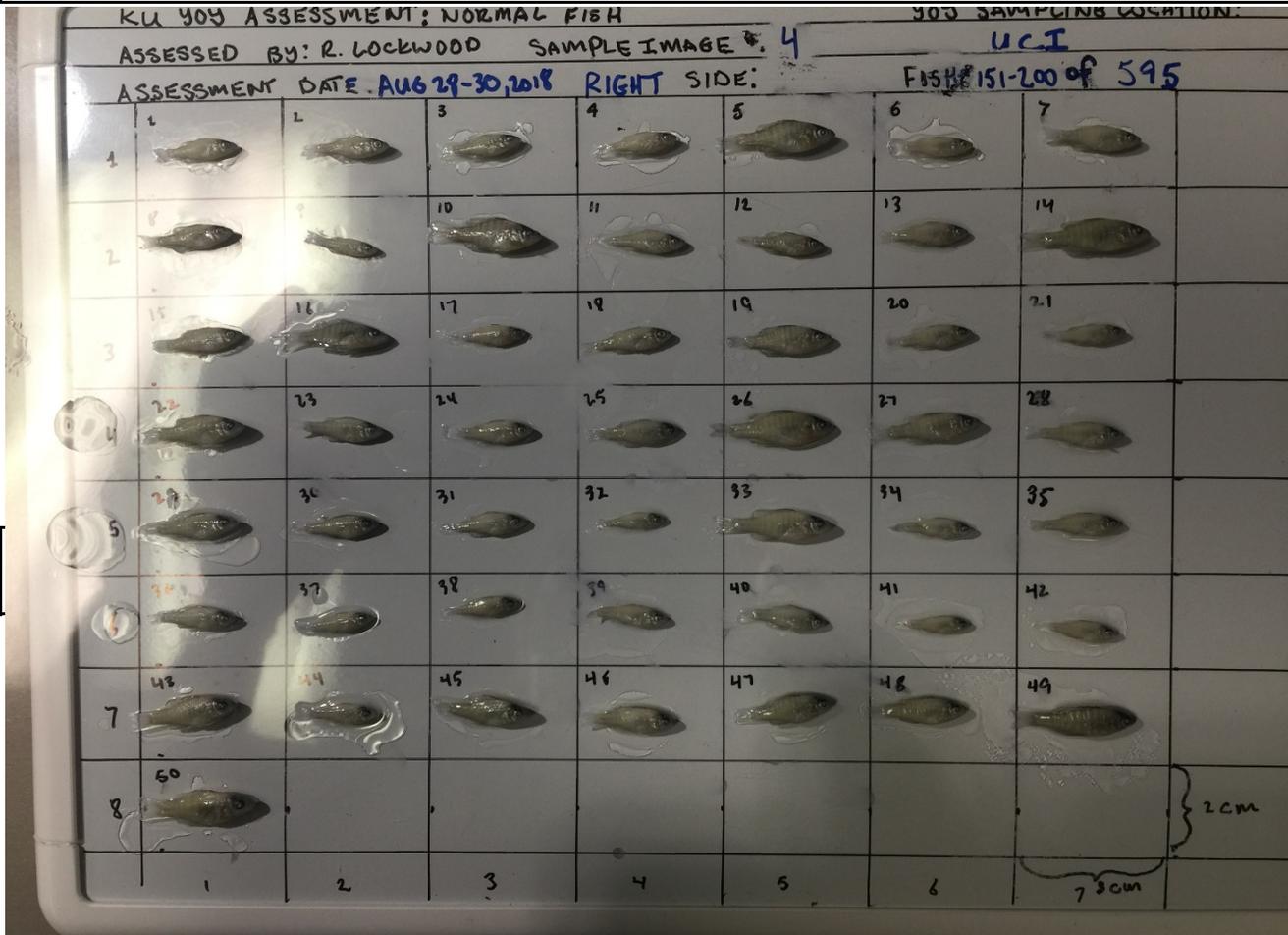
Recorder: AJ5	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=695+	
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_normal_fish_101-150
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



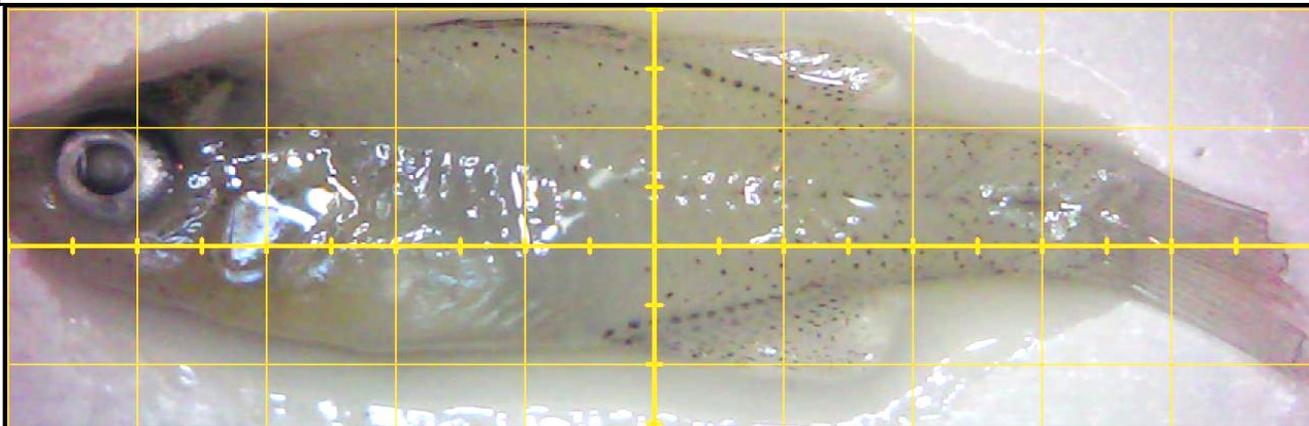
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=695+	
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_normal_fish_151-200
Abnormality Description(s): NONE		



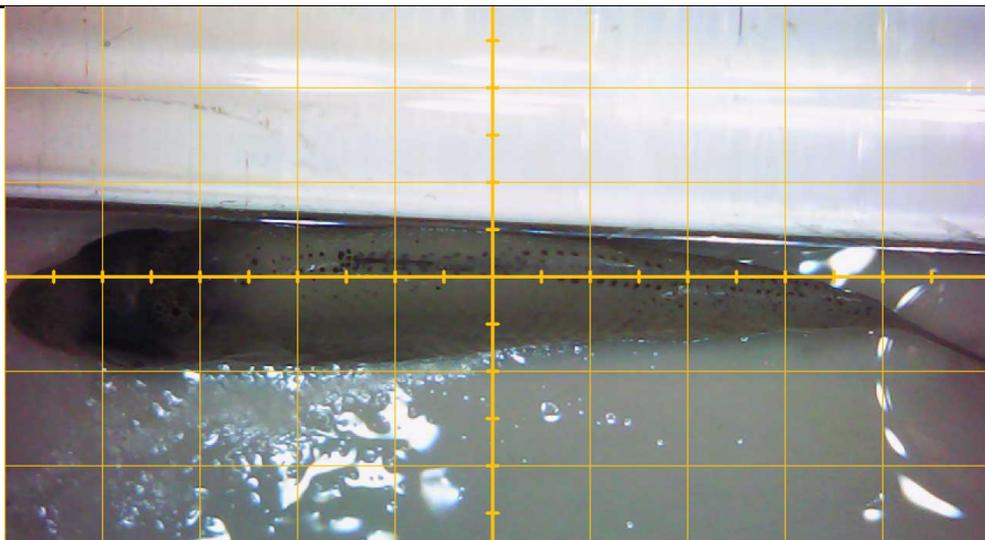
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Tail		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_001_L2, UCI_001_D
Abnormality Description(s): Tail Deformity		



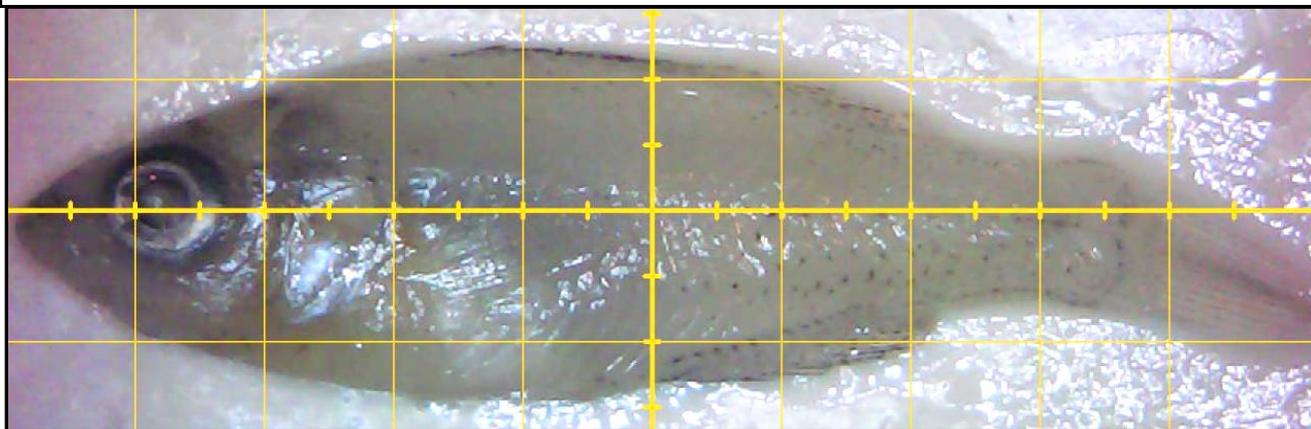
Abnormality Description(s): Tail Deformity



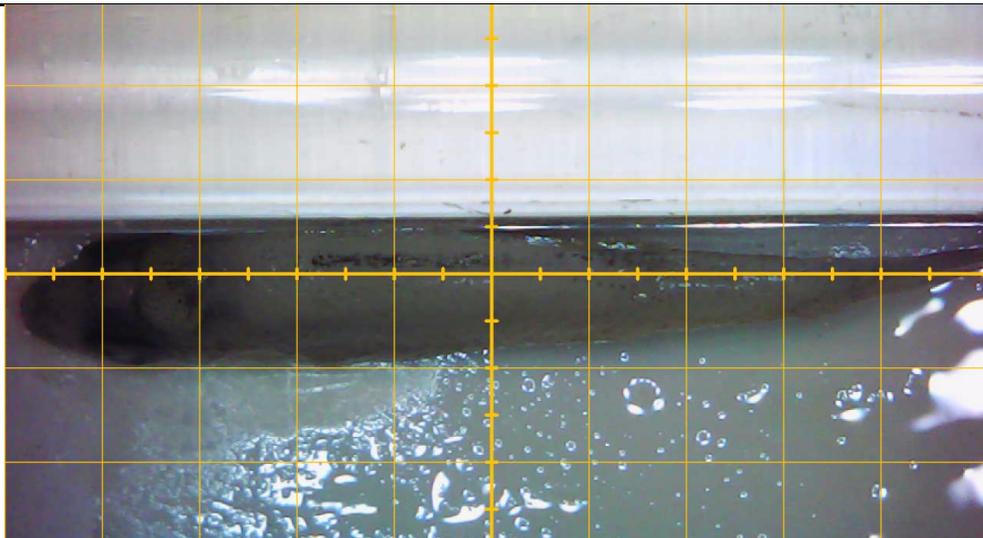
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Tail		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_002_L2, UCI_002_D
Abnormality Description(s): Tail Deformity		



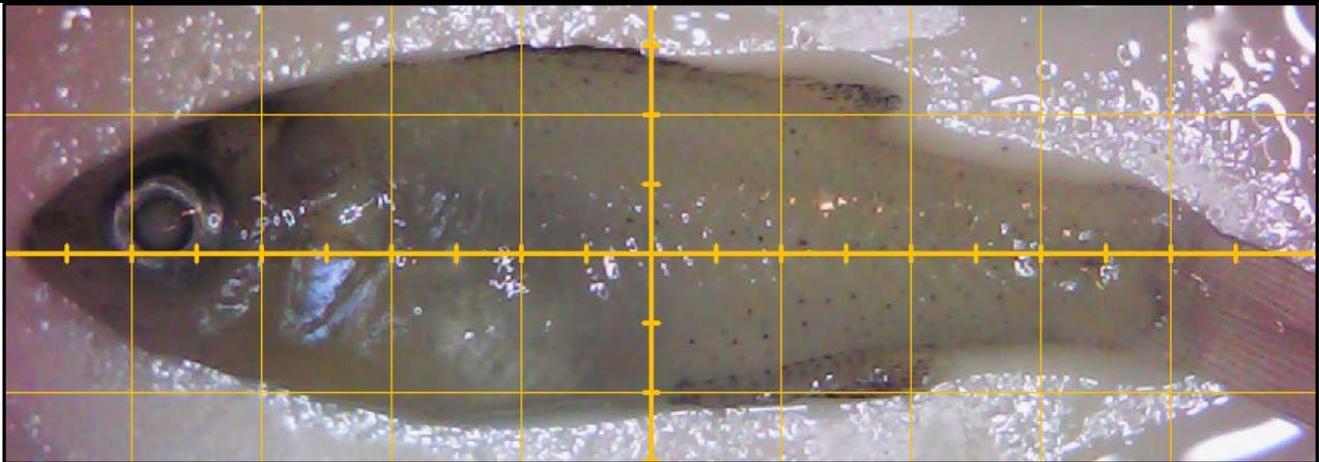
Abnormality Description(s): Tail Deformity



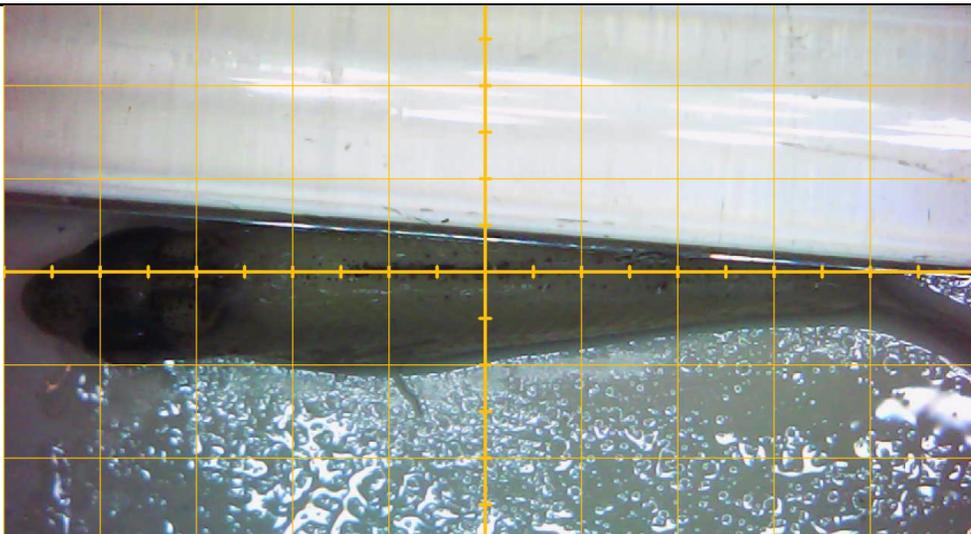
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Tail		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm)
	<input type="radio"/> LHL2(Dix Dam)	<input type="radio"/> LHL3 Cove
		<input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_003_L, UCI_003_D
Abnormality Description(s): Tail Deformity		



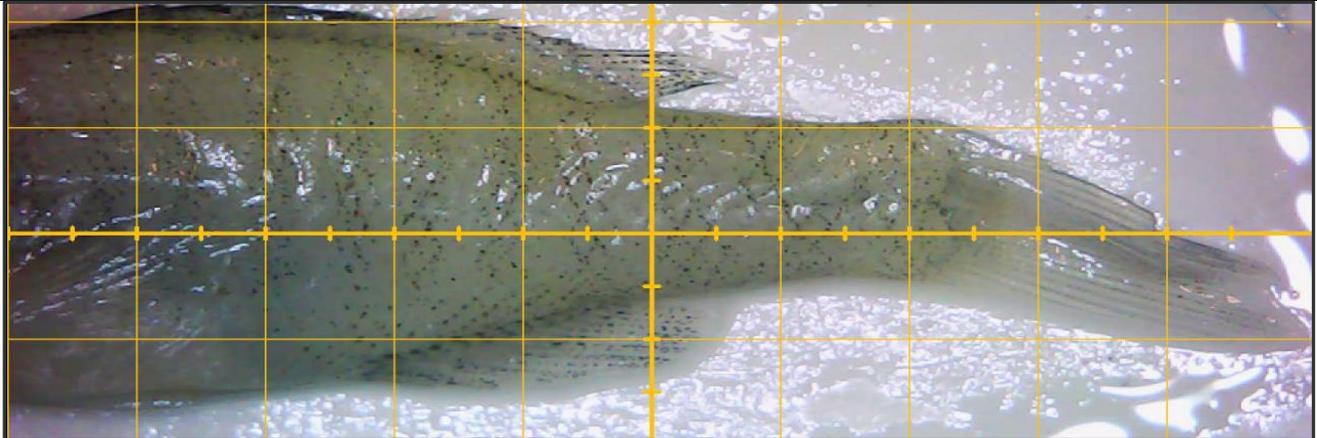
Abnormality Description(s): Tail Deformity



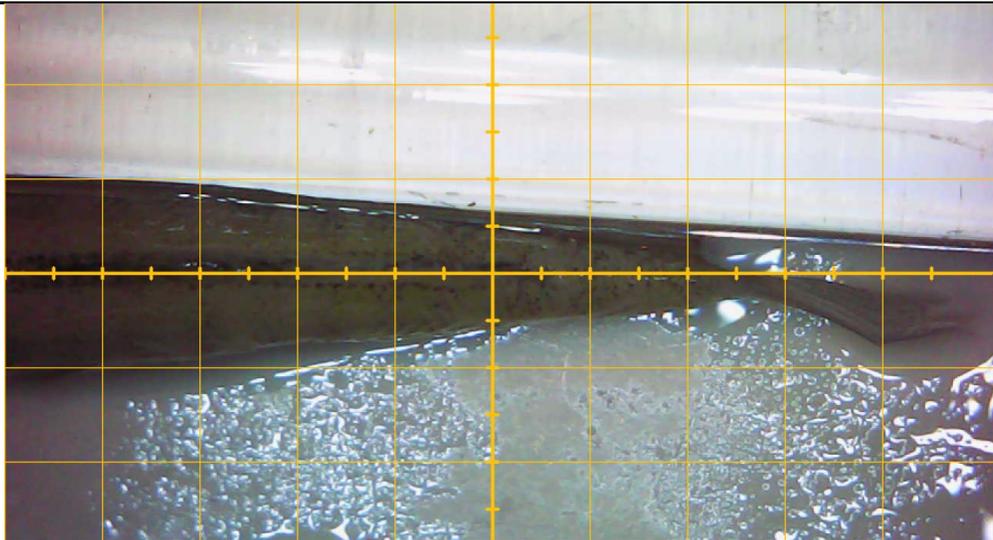
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Tail		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> <u>Curds Inlet</u>	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): UCI_004_L2, UCI_004_D2
Abnormality Description(s): Tail Deformity		



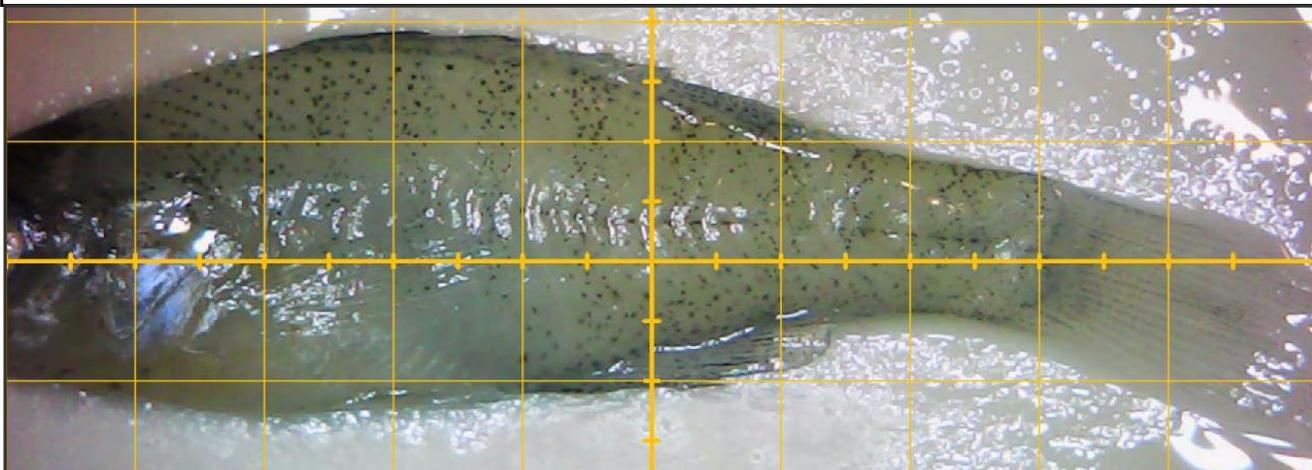
Abnormality Description(s): Tail Deformity



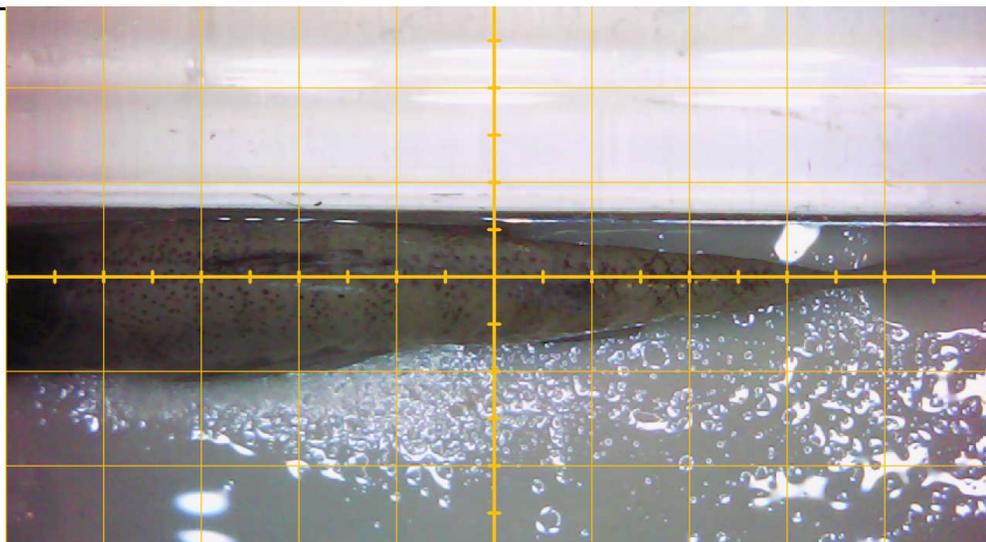
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 28-30, 2018		
Anatomical Category (e.g. spine, fin(s)): Tail		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (<i>Lepomis</i>)	Photo Number(s): UCI_005_L2, UCI_005_D2
Abnormality Description(s): Tail Deformity		



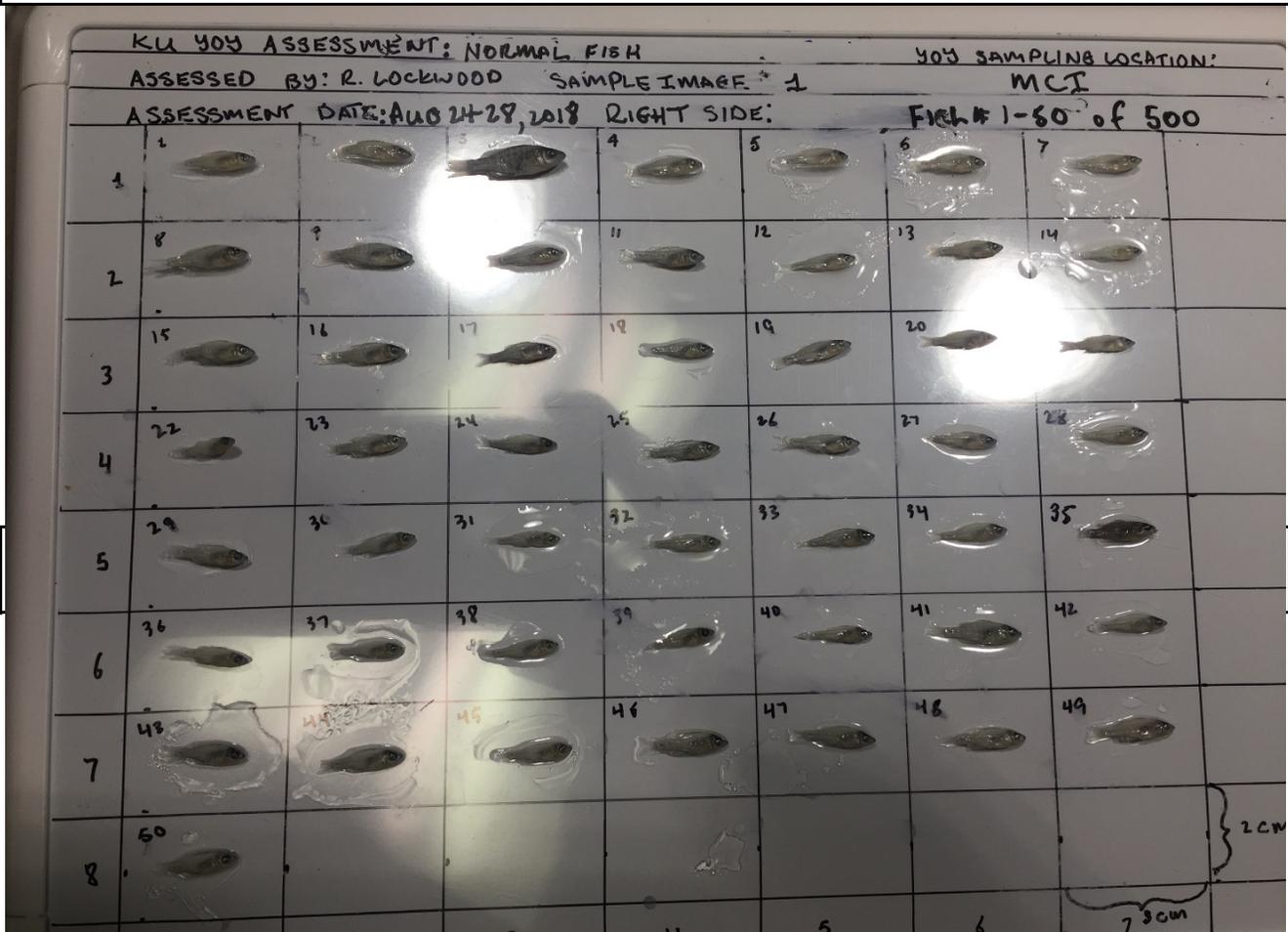
Abnormality Description(s): Tail Deformity



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



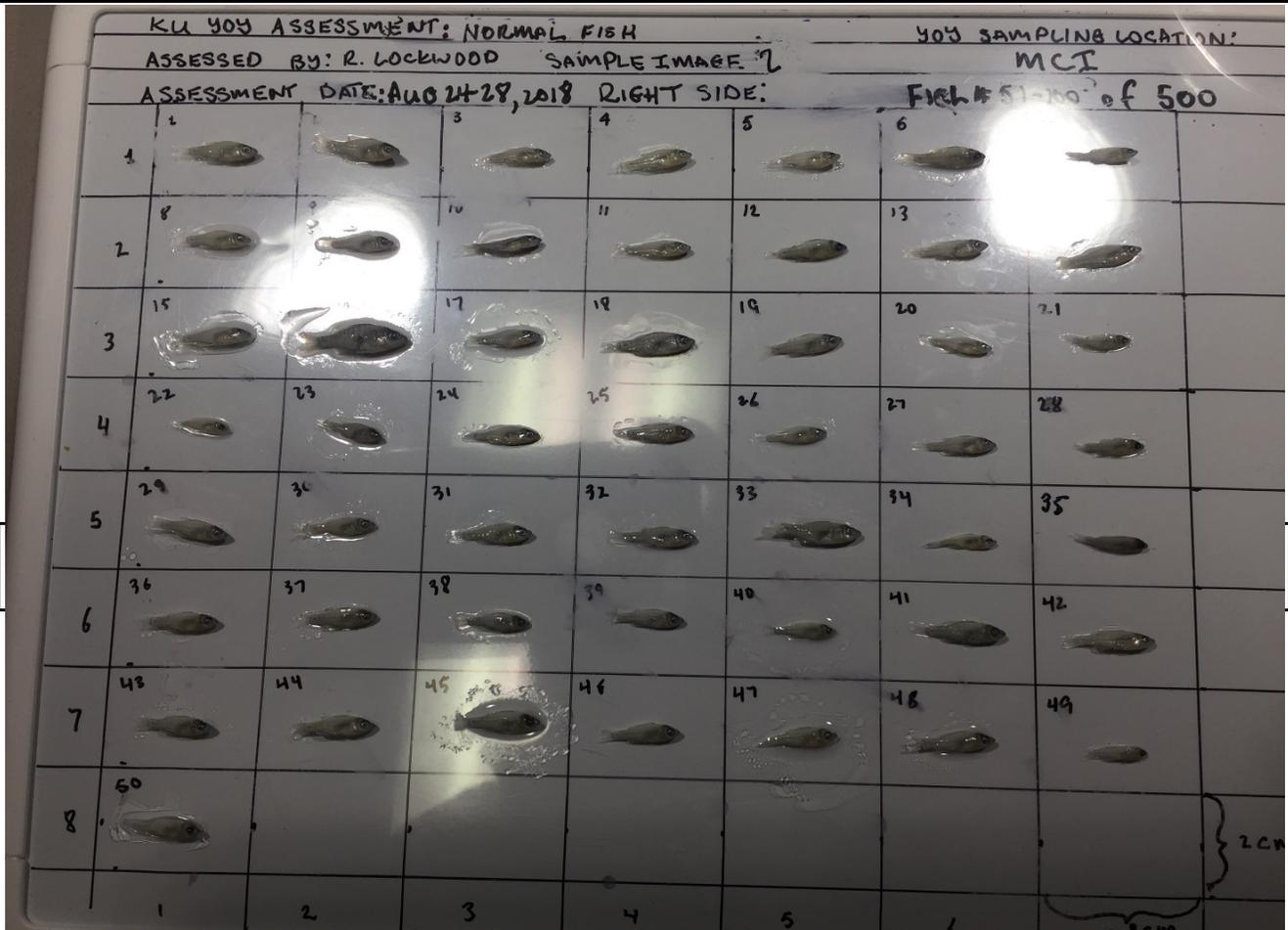
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=500	
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_normal_fish_1to50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



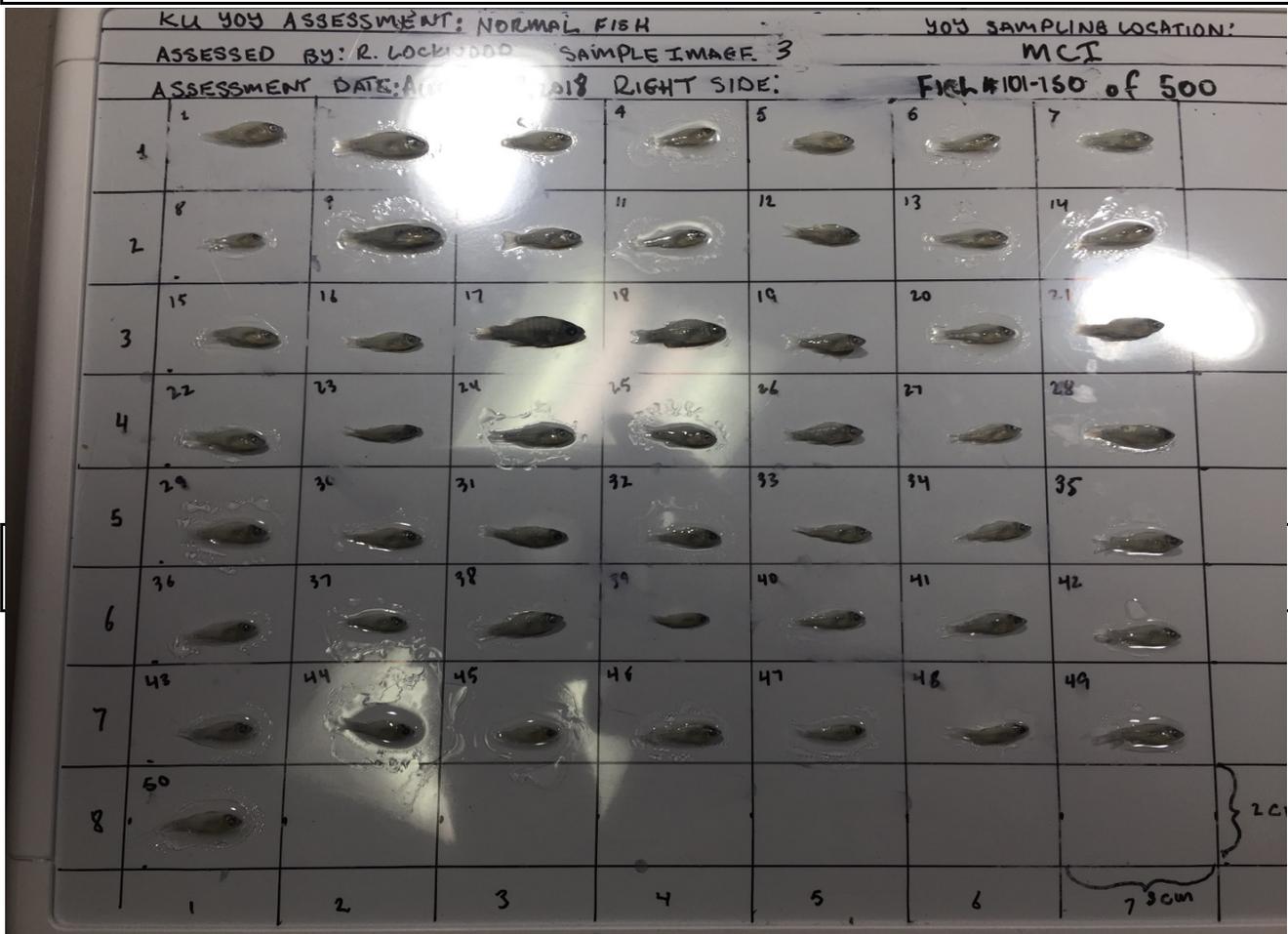
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=500	
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_normal_fish_51to100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



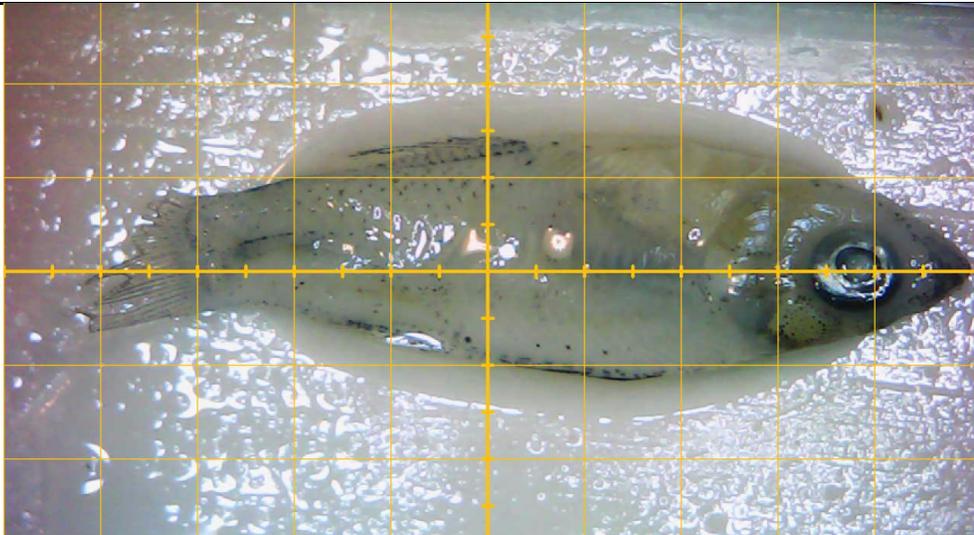
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=500	
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_normal_fish_101to150
Abnormality Description(s): NONE		



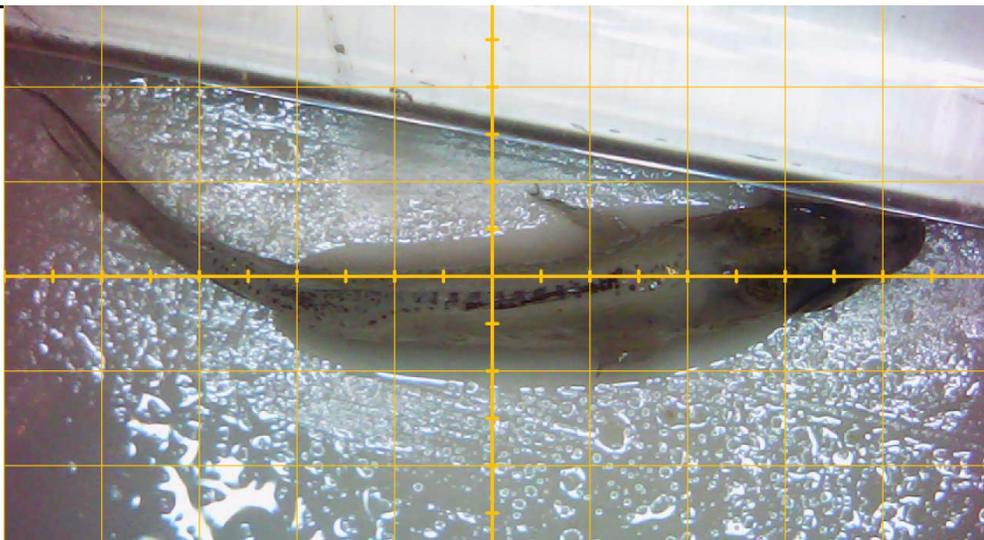
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_001_L, MCI_001_D
Abnormality Description(s): Lordosis		



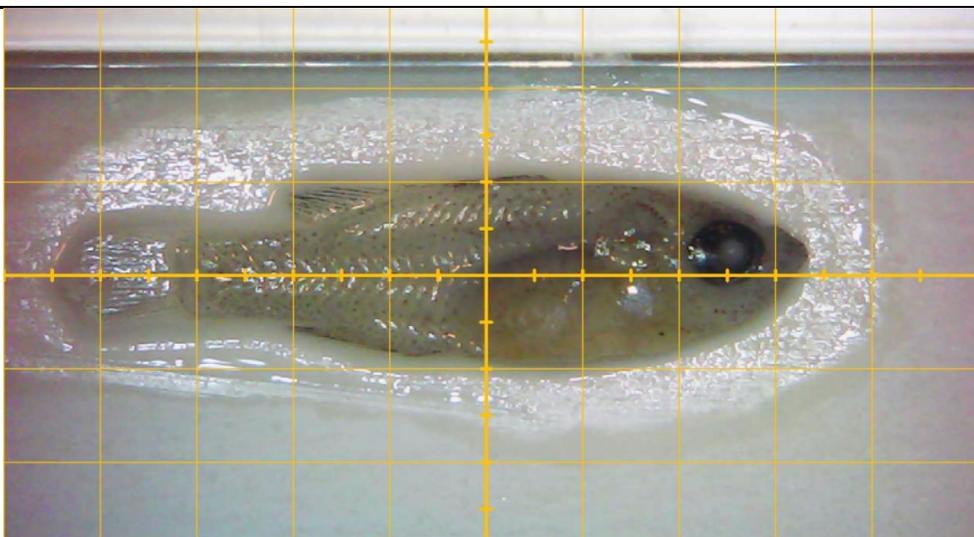
Abnormality Description(s): Lordosis



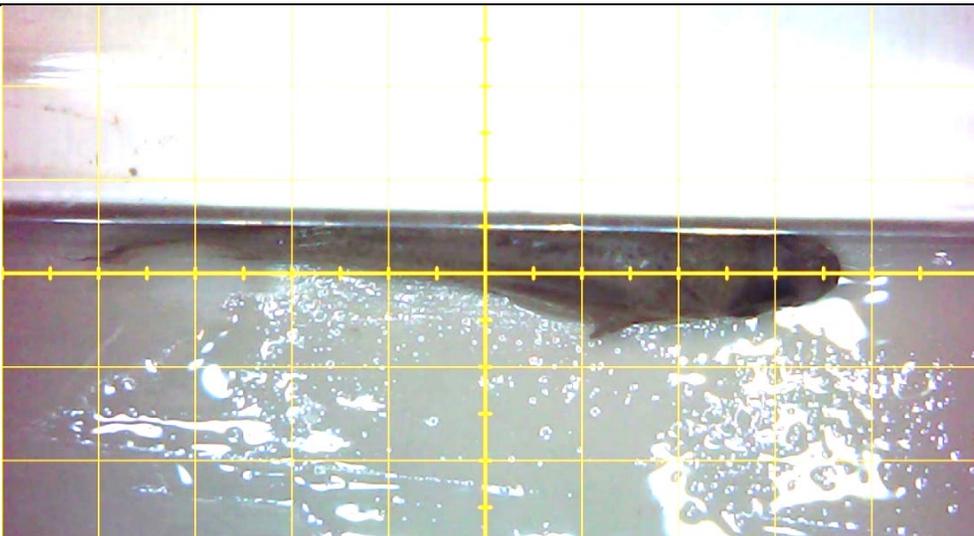
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Face/nose		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_002_R, MCI_002_D
Abnormality Description(s): Craniofacial pug-nosed		



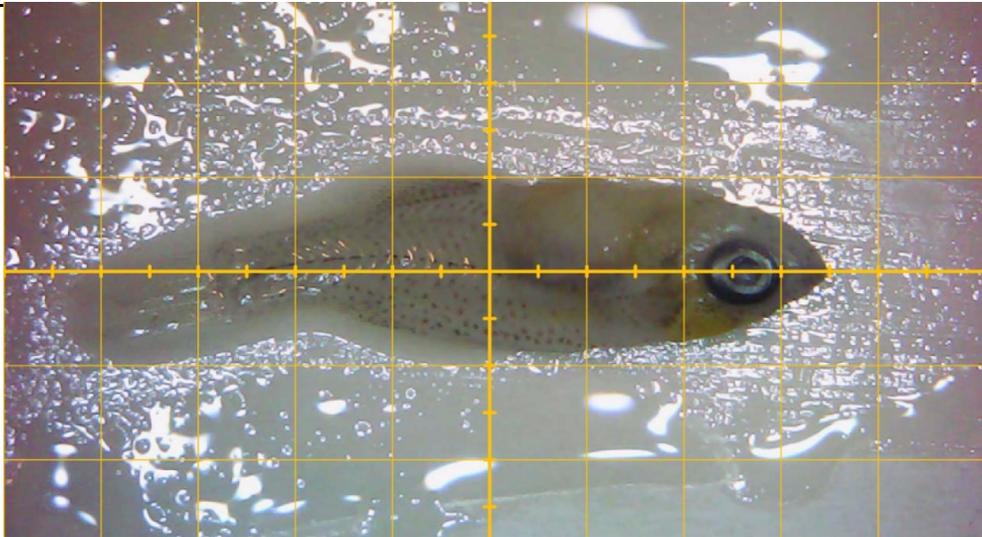
Abnormality Description(s): Craniofacial pug-nosed



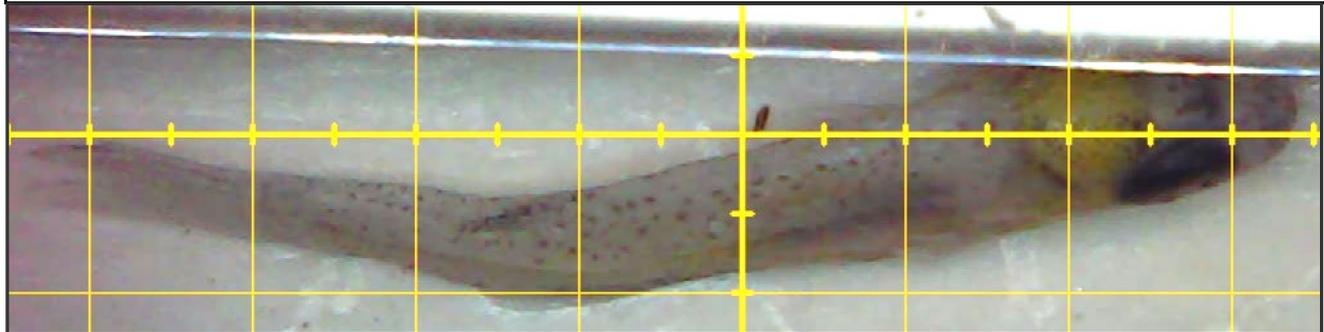
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): spine		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_003_L, MCI_003_D
Abnormality Description(s): Lordosis		



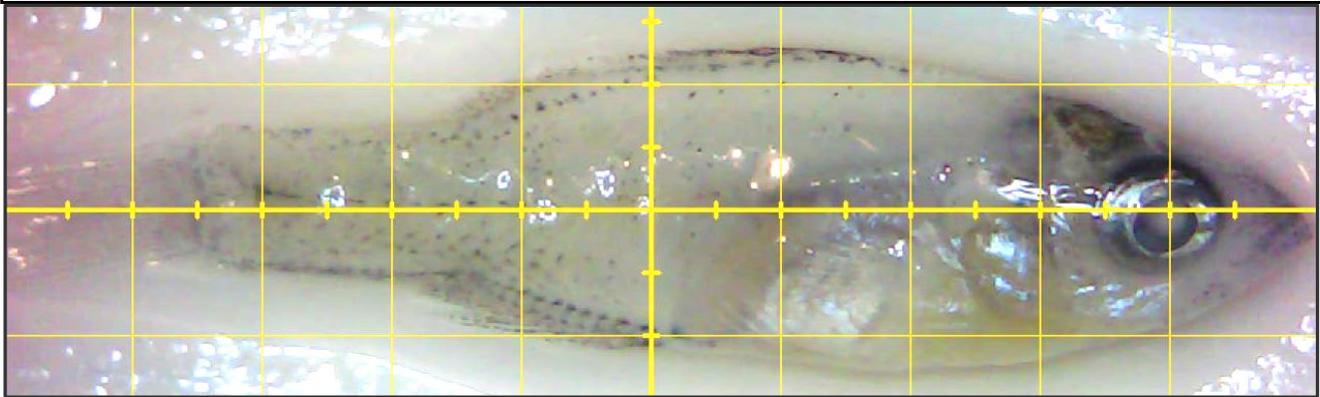
Abnormality Description(s): Scoliosis



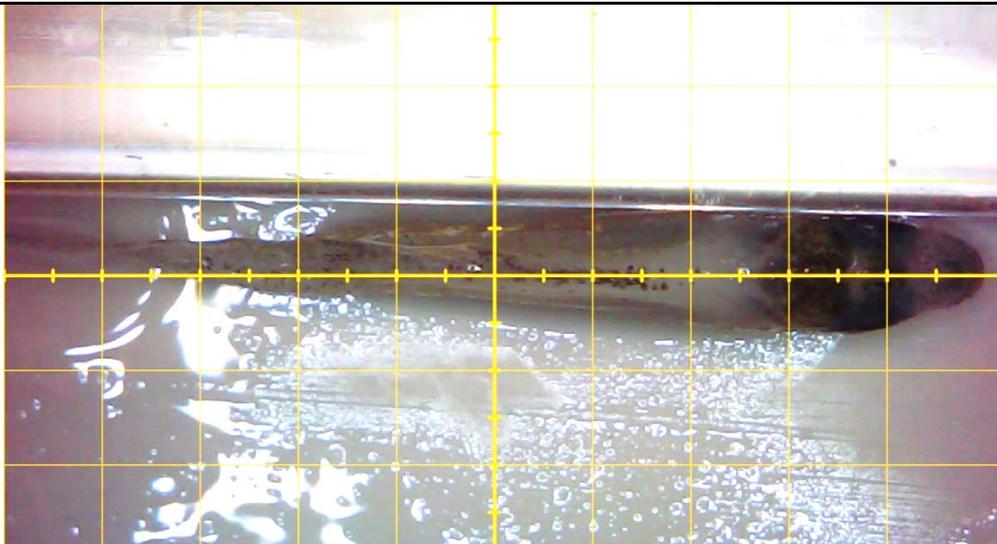
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Peduncle		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_004_R, MCI_004_D
Abnormality Description(s): Compressed peduncle		



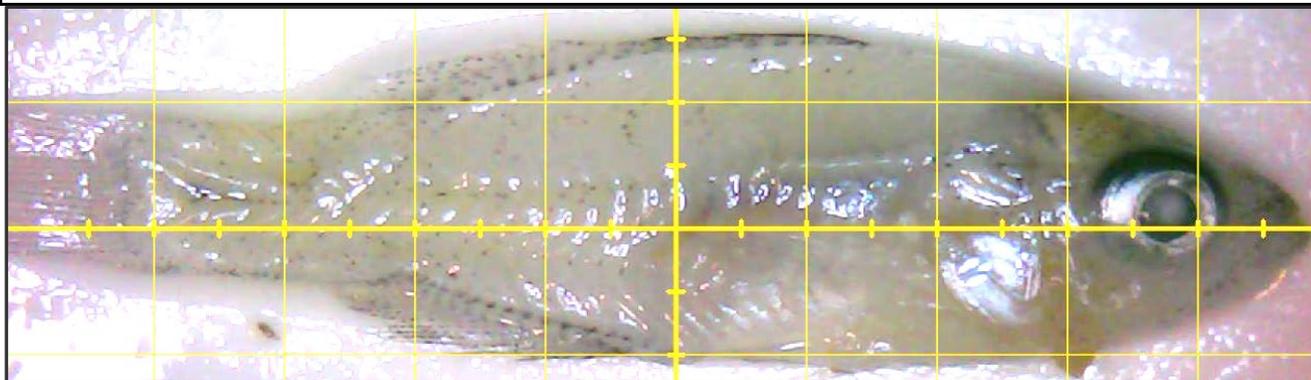
Abnormality Description(s): Compressed peduncle
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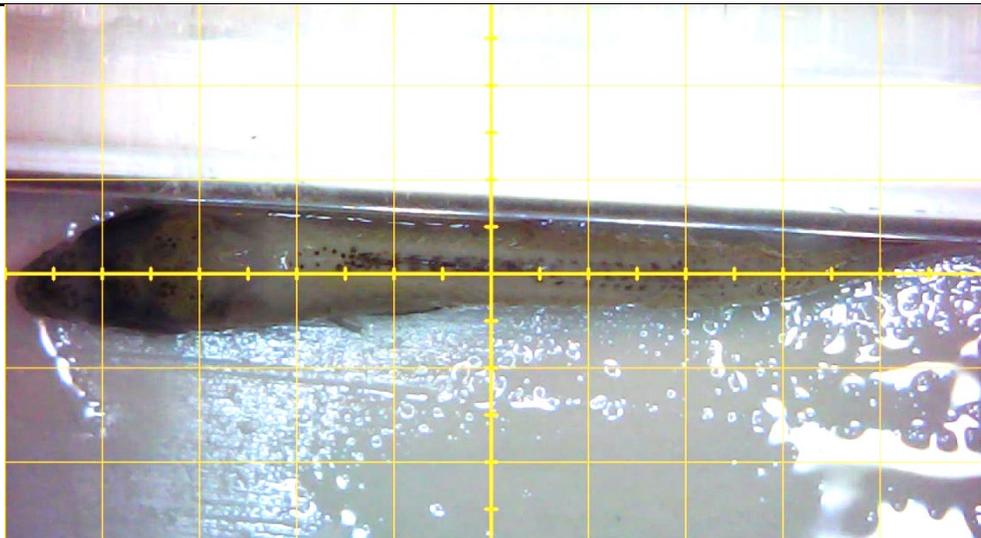
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Gill Plate		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_005_L, MCI_005_D
Abnormality Description(s): Gill plate		



Abnormality Description(s): Gill plate



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_Popeye_1-10
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_11-20
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_21-30
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_31-40
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_41-50
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_51-60
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_61-70
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_71-80
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



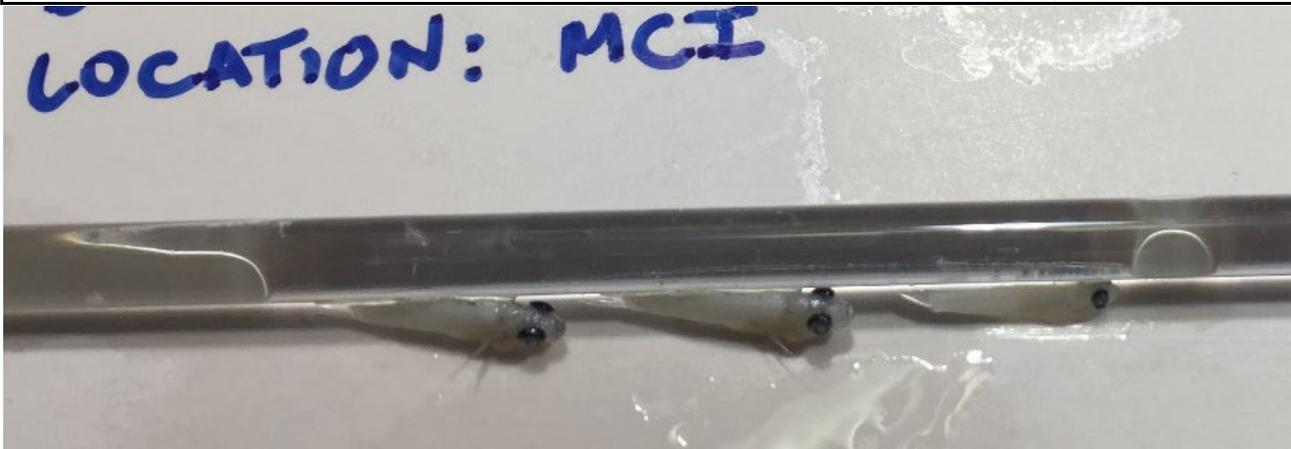
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_81-90
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



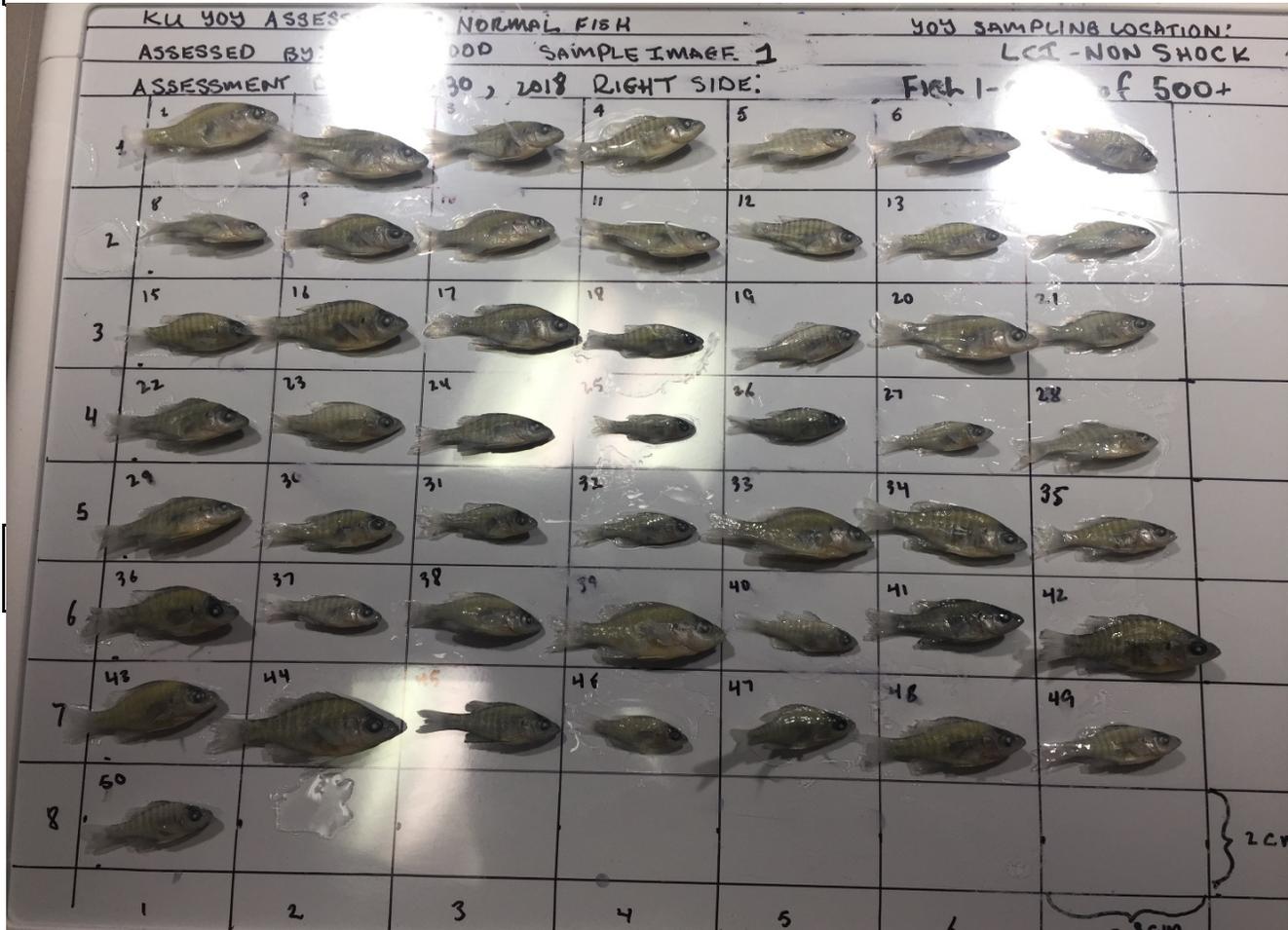
Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 24-28, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): MCI_popeye_91-93
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



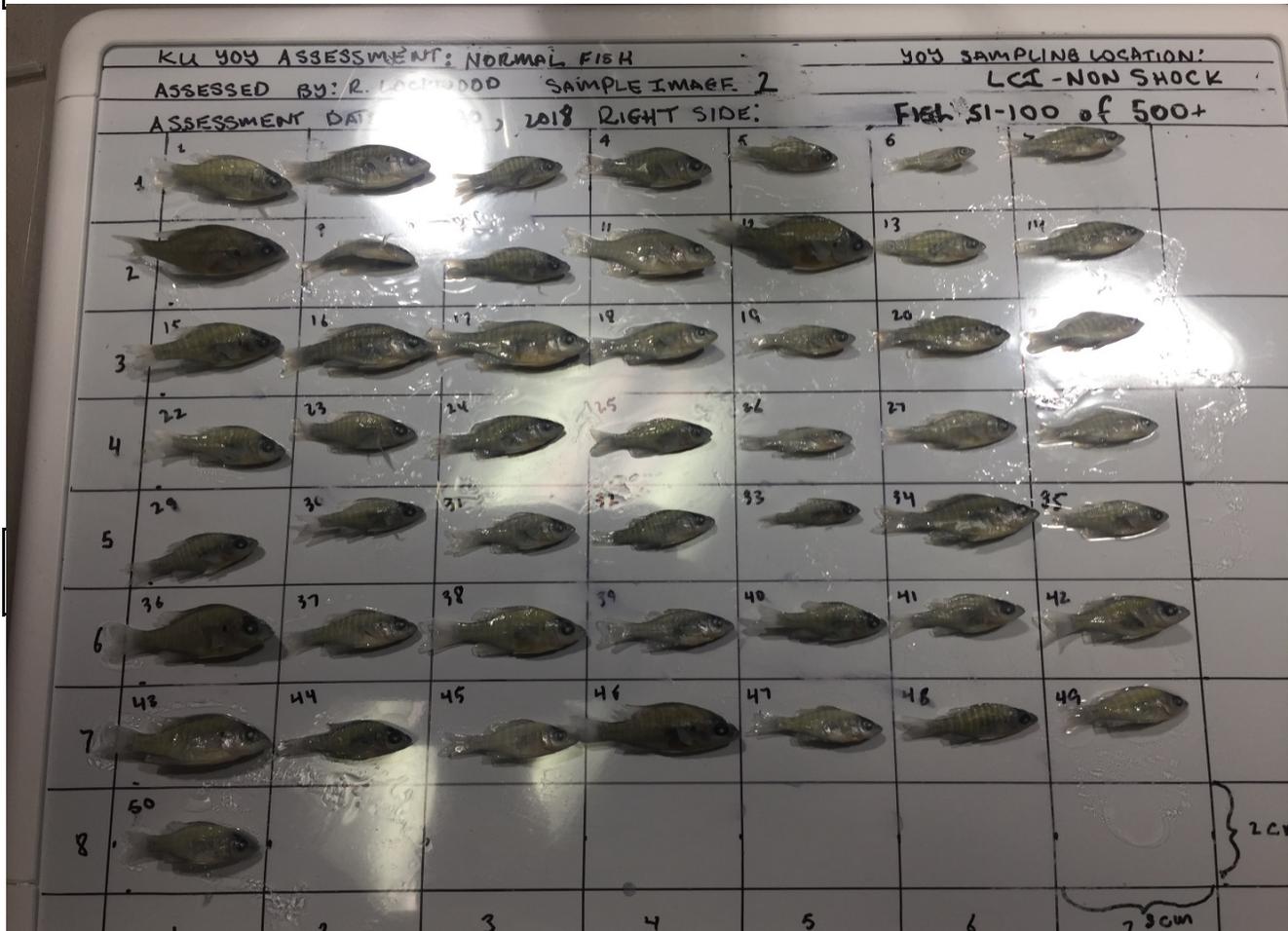
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=509	
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_nonshock_normal_fish_1to50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



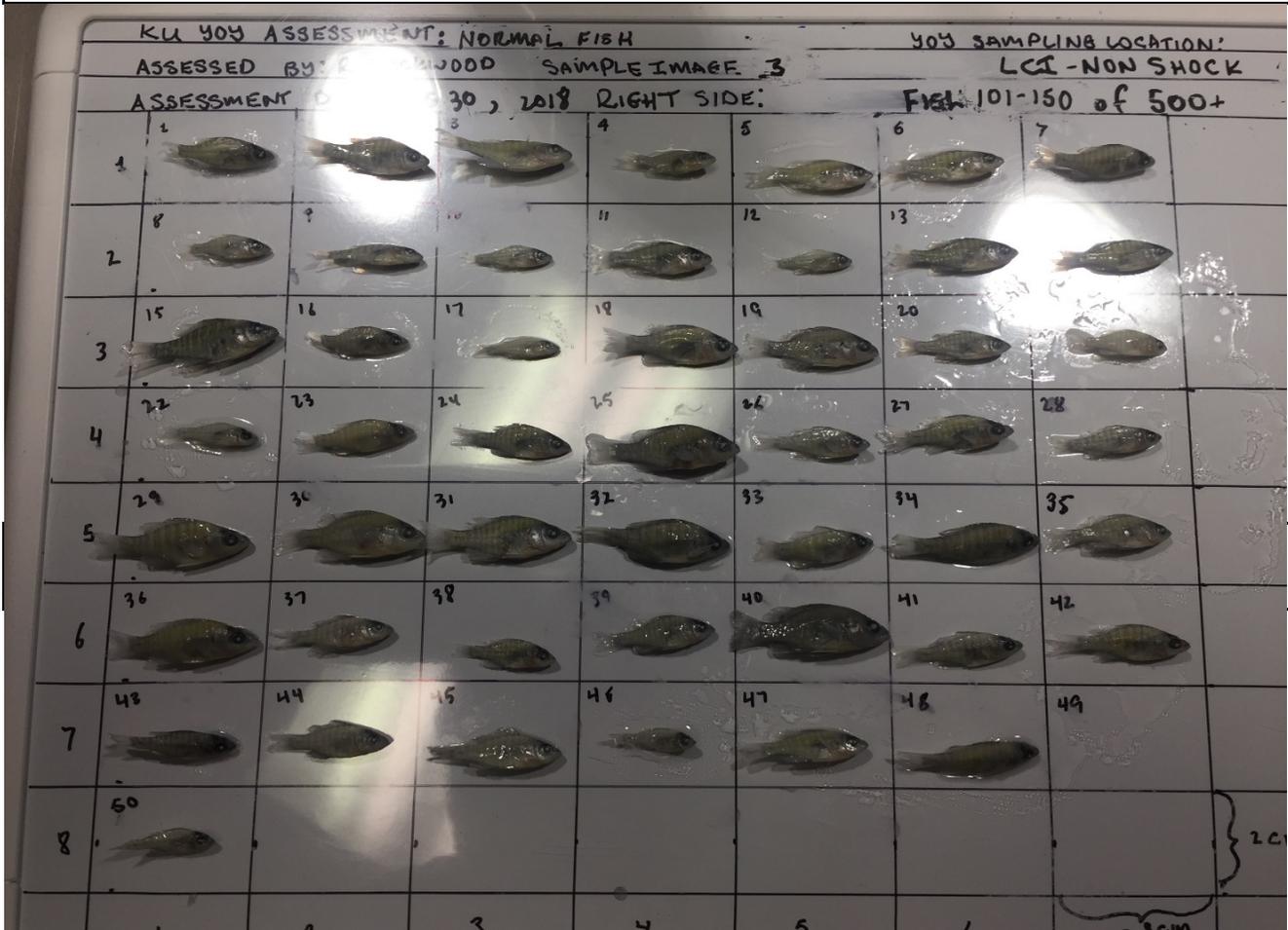
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=509	
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_nonshock_normal_fish_51to 100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



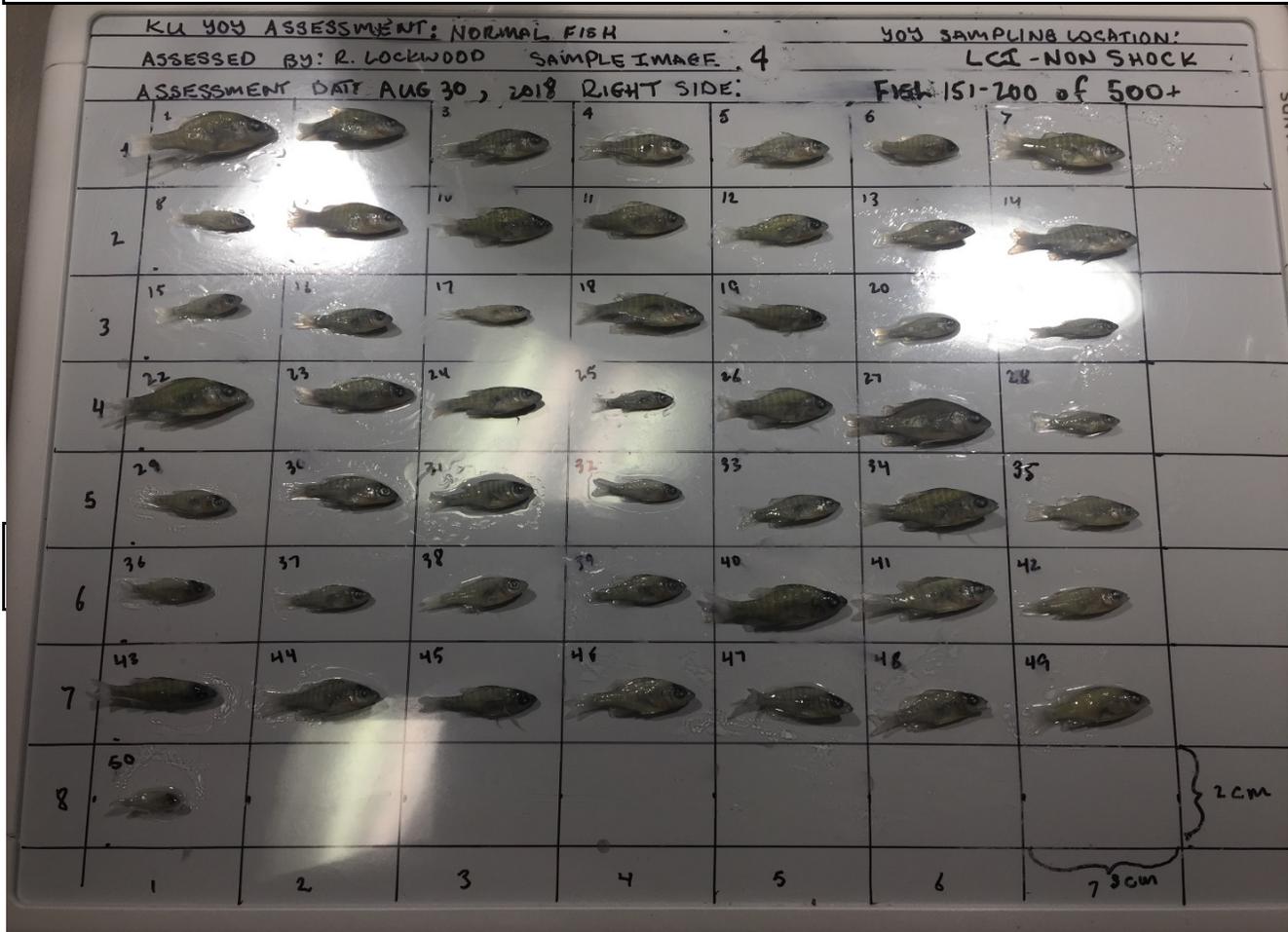
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=509	
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_nonshock_normal_fish_101t o150
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



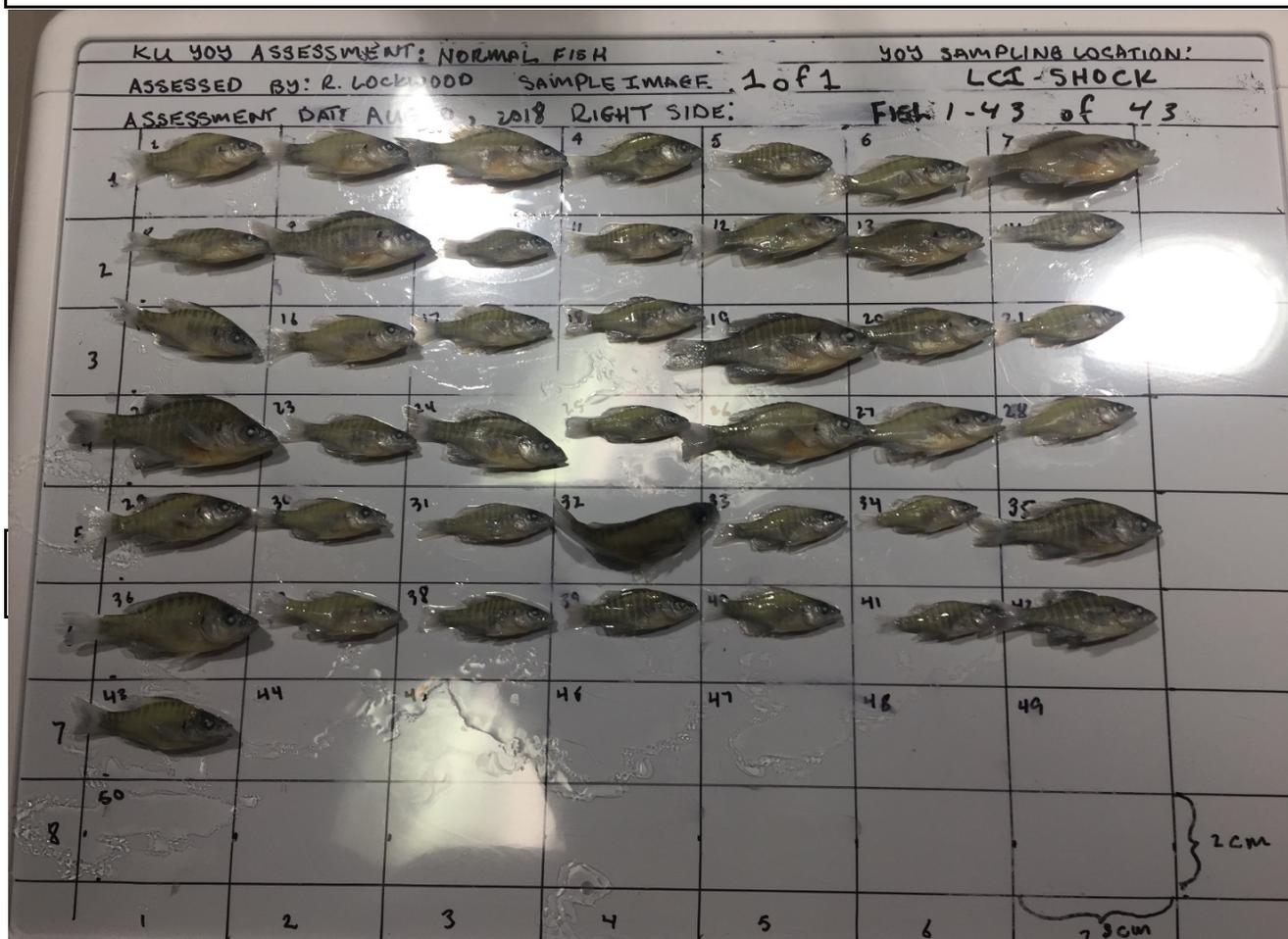
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=509	
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_nonshock_normal_fish_151t a200
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



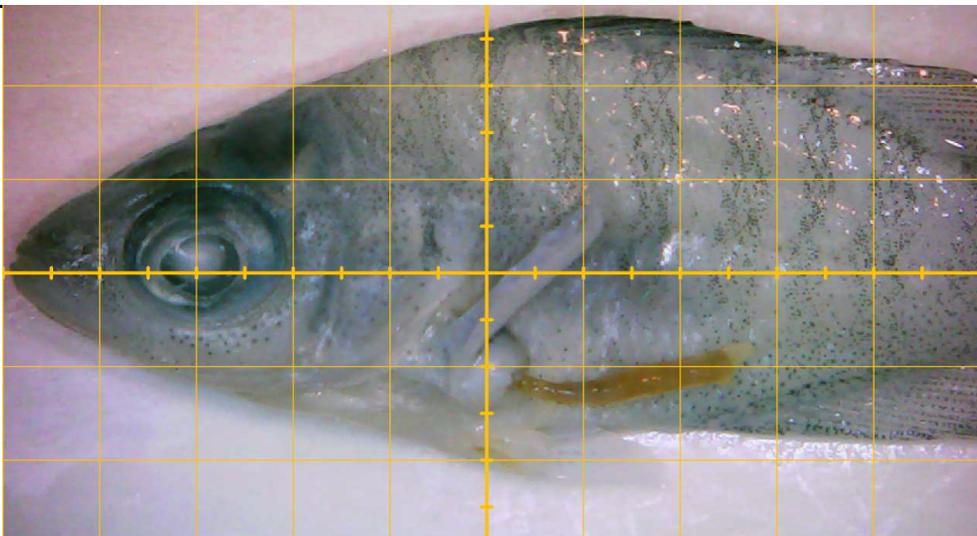
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	collection method: Electrofishing	
Assessment Date(s): Aug 30, 2018	Example of fish with no deformities. Total without deformities N=509	
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_shock_normal_fish_1to43
Abnormality Description(s): NONE		



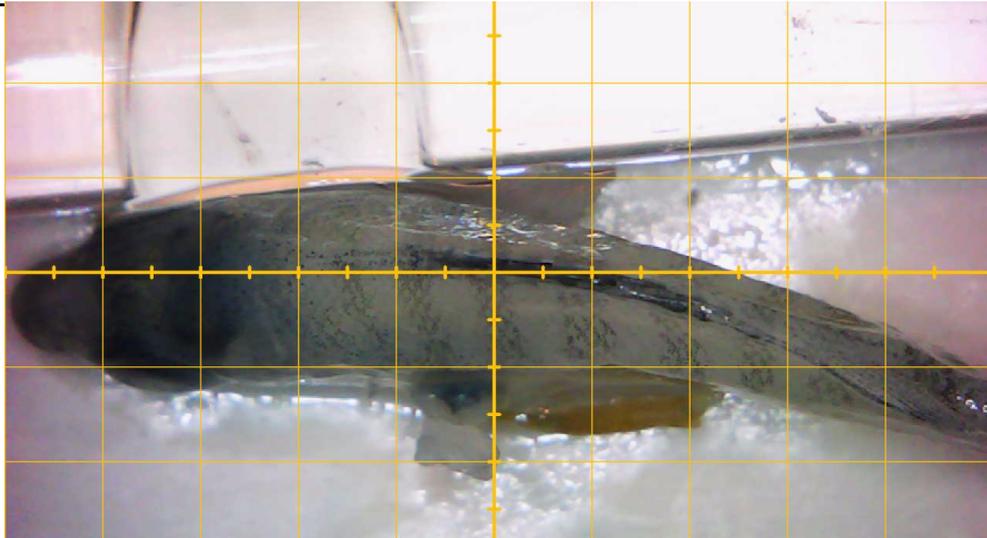
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)): pectoral fin		
Examples From YOY Bass Sampling Region (circle one):		
<u>Curds Inlet</u>	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_001_L1, LCI_001_D1
Abnormality Description(s): Anchor worm		



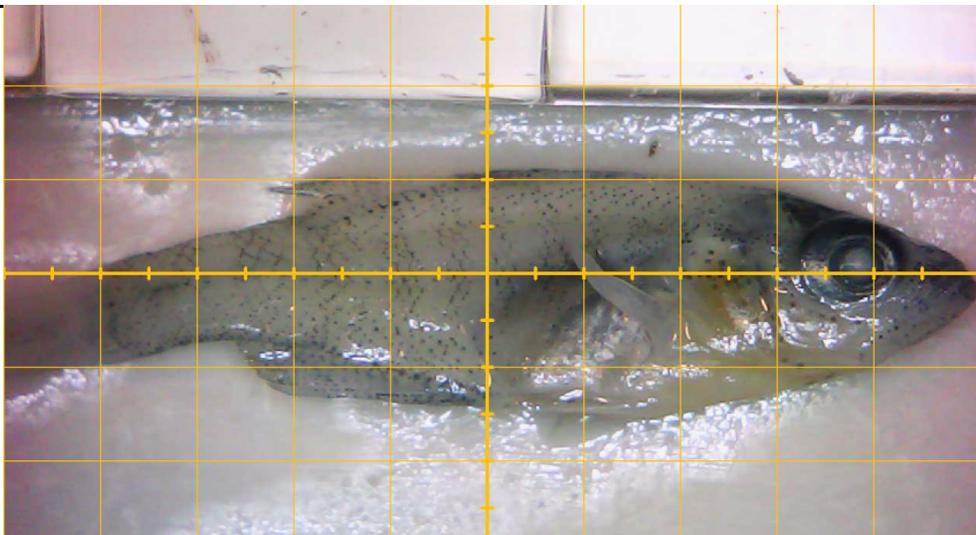
Abnormality Description(s): Anchor worm
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)):		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm)
	<input type="radio"/> LHL2(Dix Dam)	<input type="radio"/> LHL3 Cove
		<input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_002_R, LCI_002_D
Abnormality Description(s):		



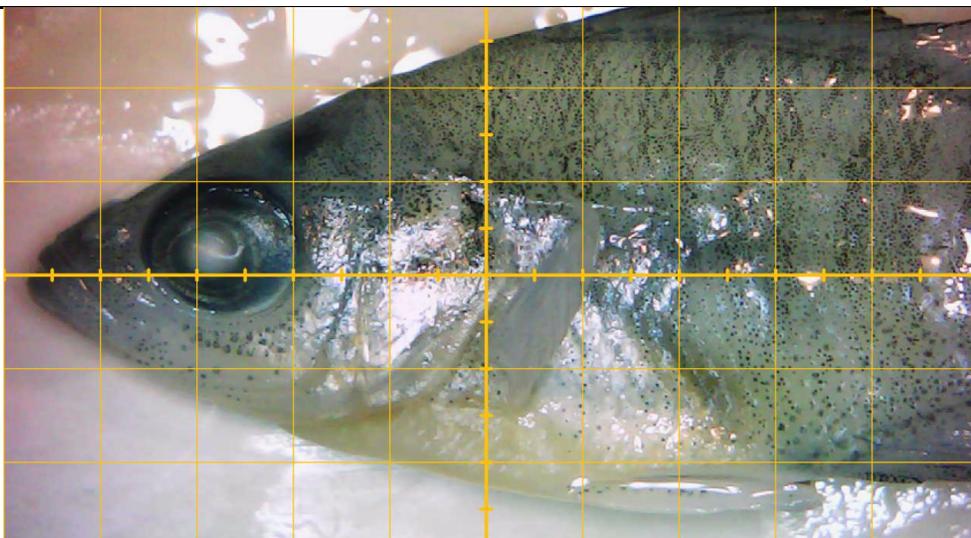
Abnormality Description(s):



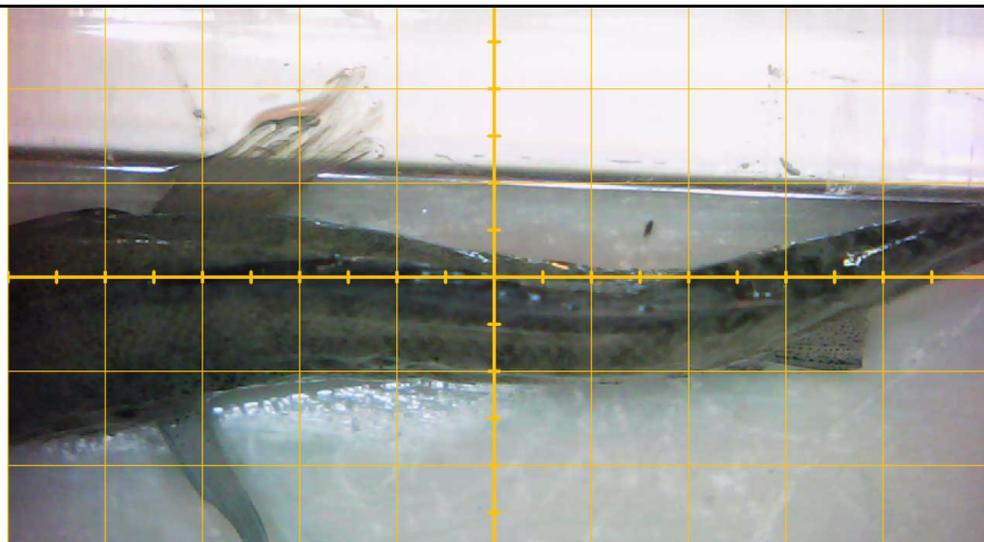
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 30, 2018		
Anatomical Category (e.g. spine, fin(s)):		
Examples From YOY Bass Sampling Region (circle one):		
<input checked="" type="radio"/> Curds Inlet	<input type="radio"/> HQ Inlet	<input type="radio"/> LHL1(Rocky Arm) <input type="radio"/> LHL2(Dix Dam) <input type="radio"/> LHL3 Cove <input type="radio"/> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LCI_003_L1, LCI_003_D2
Abnormality Description(s):		



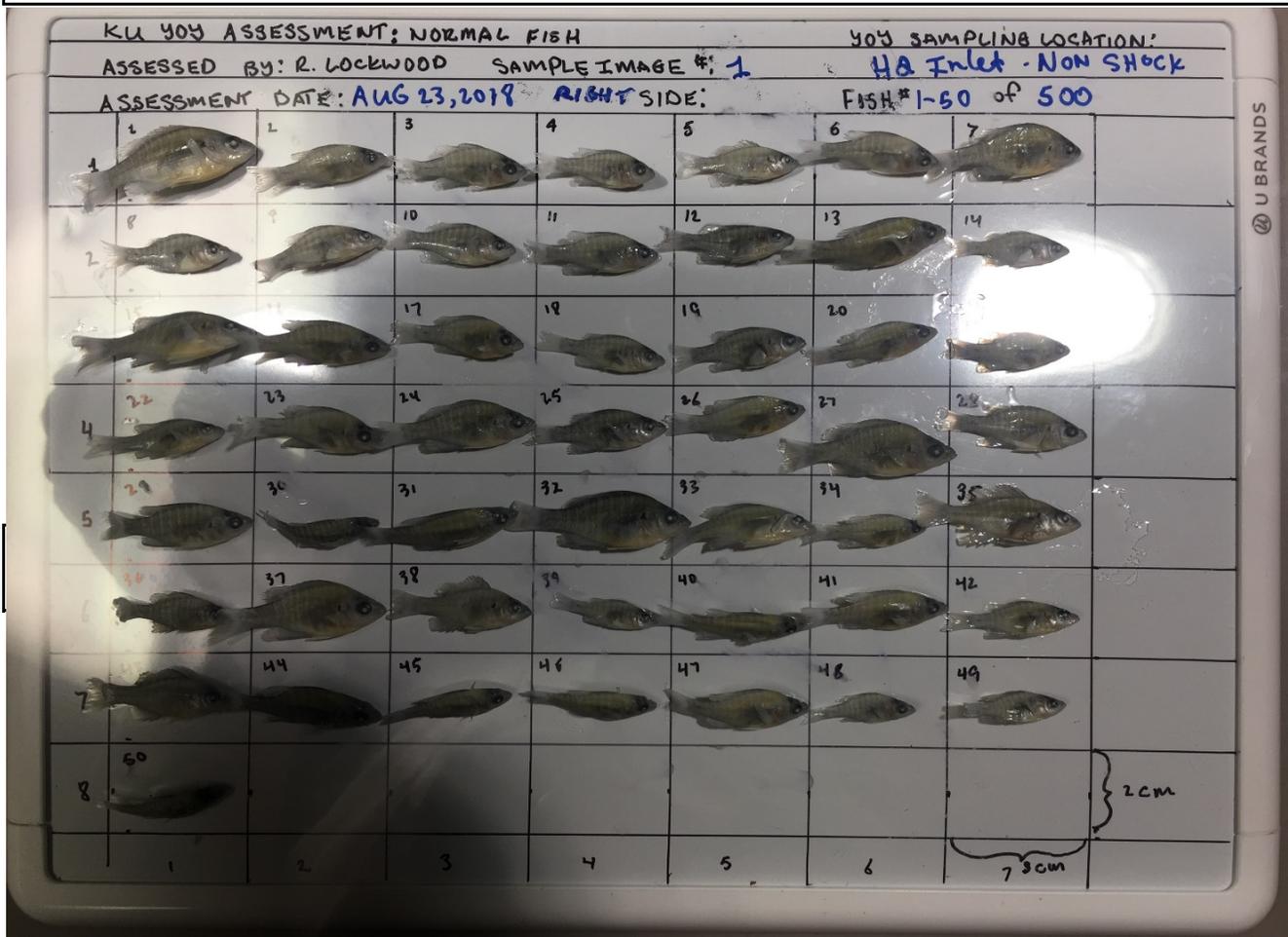
Abnormality Description(s):



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



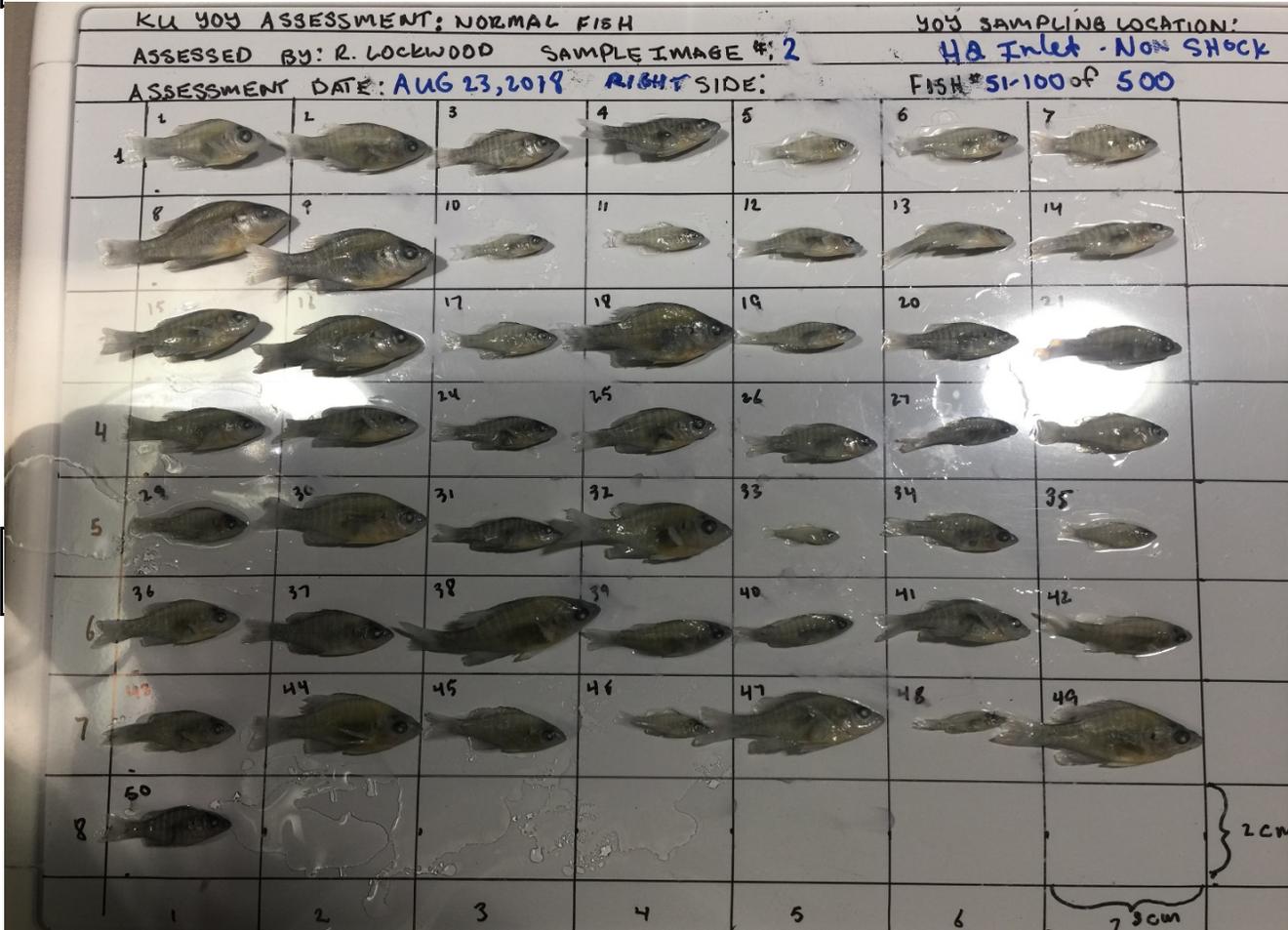
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=499	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Normal_Fish_1to50
Abnormality Description(s): NONE		



Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms



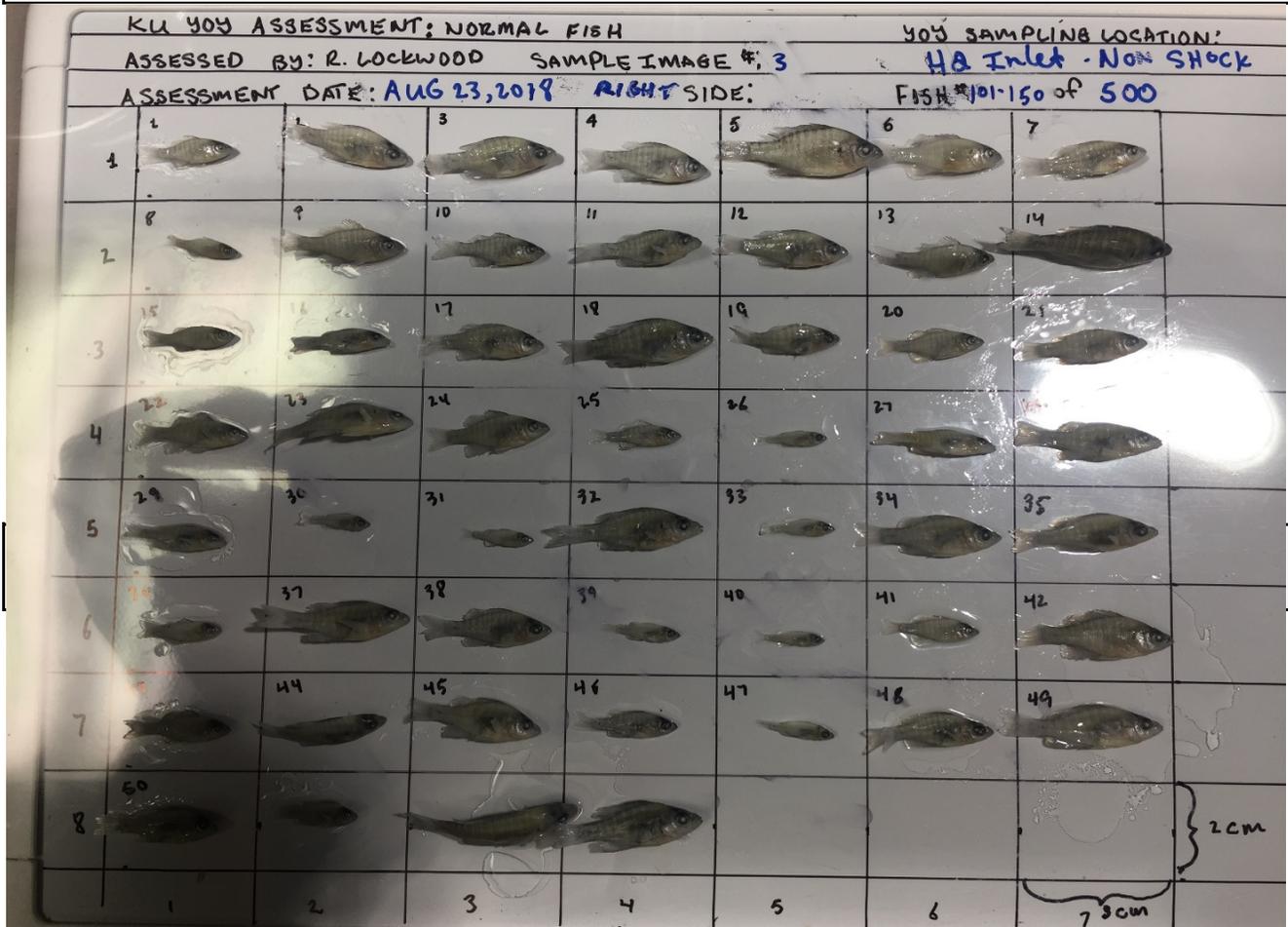
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=499	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Normal_Fish_51to100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



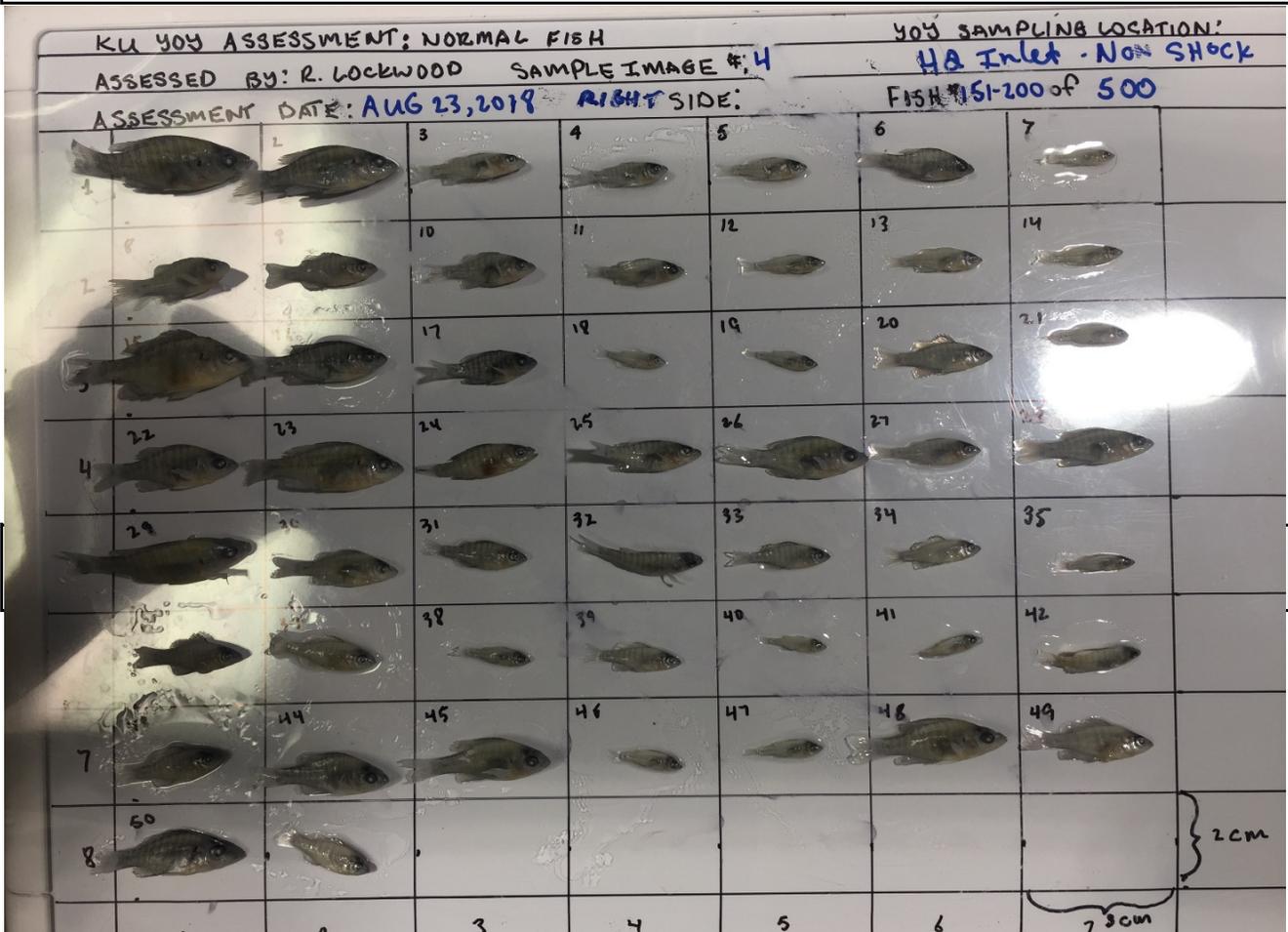
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=499	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Normal_Fish_101to150
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=499	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Normal_Fish_151to200
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



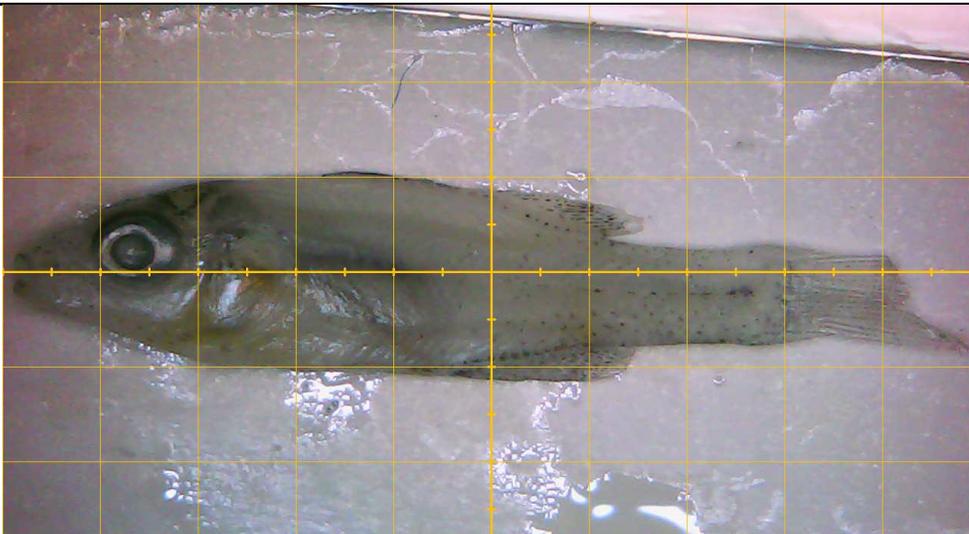
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Electrofishing	
Assessment Date(s): Aug 22-23, 2018	Example of fish with no deformities. Total without deformities N=499	
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Shock_Normal_Fish_1to50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Seine net/ minnow trap	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_nonshock_001L, HQ_nonshock_001D
Abnormality Description(s): Scoliosis		



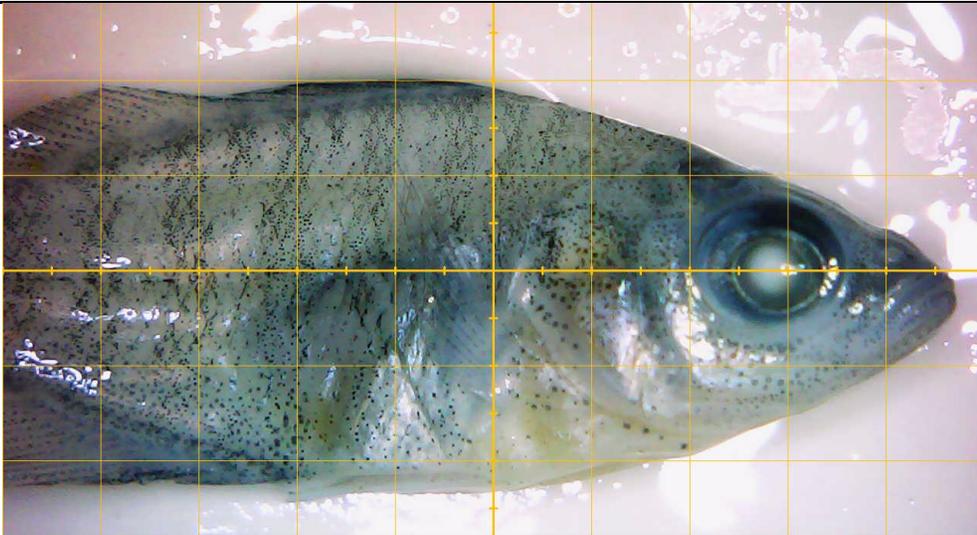
Abnormality Description(s): Scoliosis
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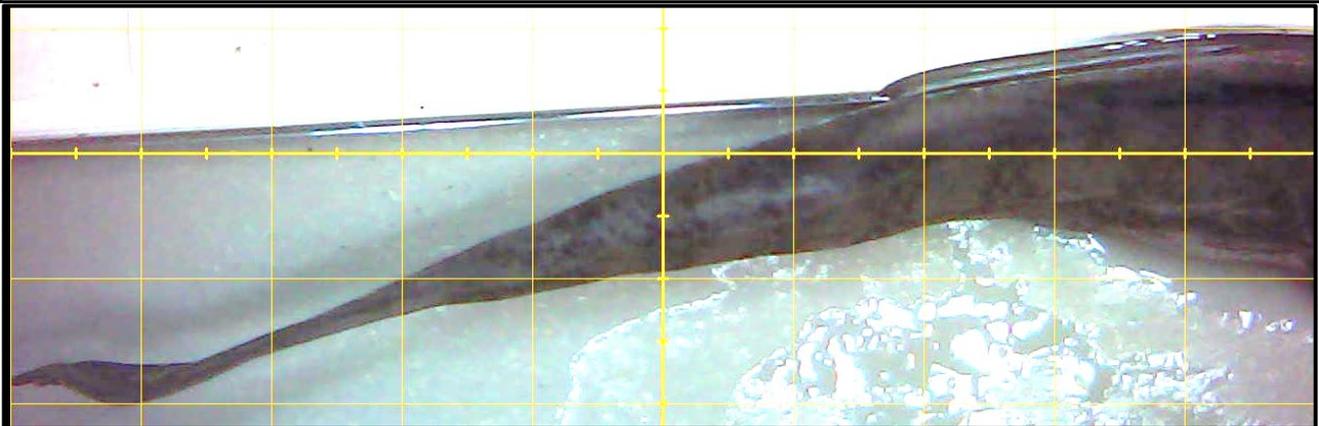
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Seine net/ minnow trap	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_002R1, HQ_002D1, HQ_002D2
Abnormality Description(s): Scoliosis		



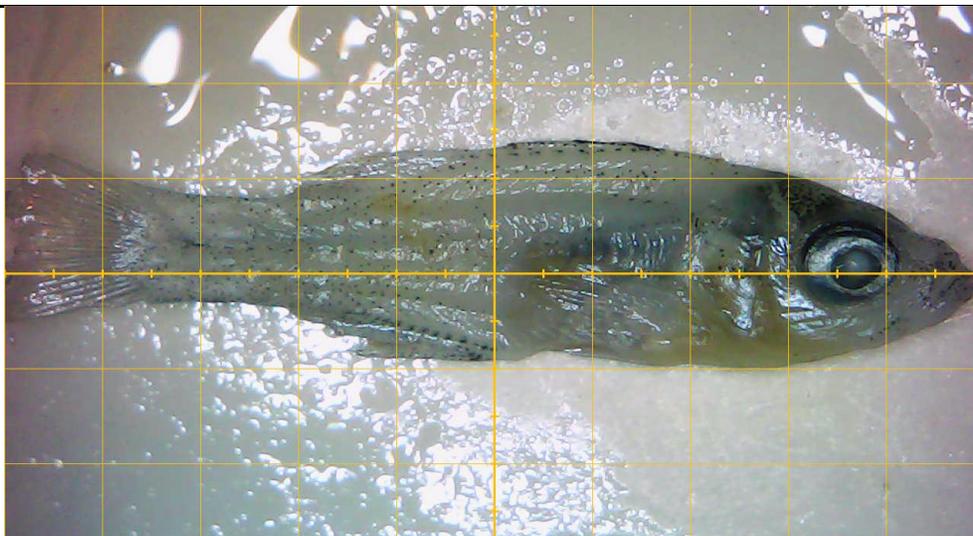
Abnormality Description(s): Scoliosis



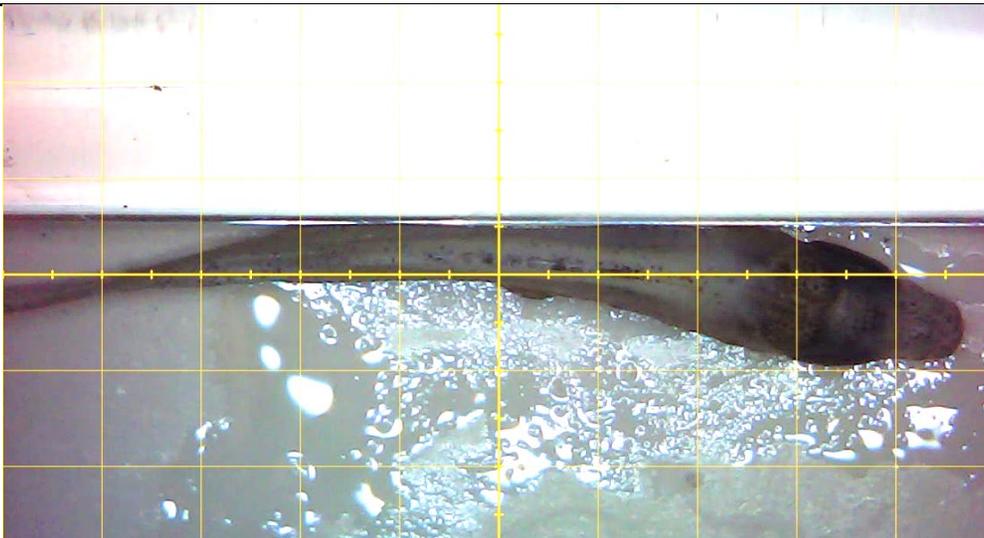
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Seine net/ minnow trap	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Face/mouth		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_003R, HQ_003D
Abnormality Description(s): Facial deformity		



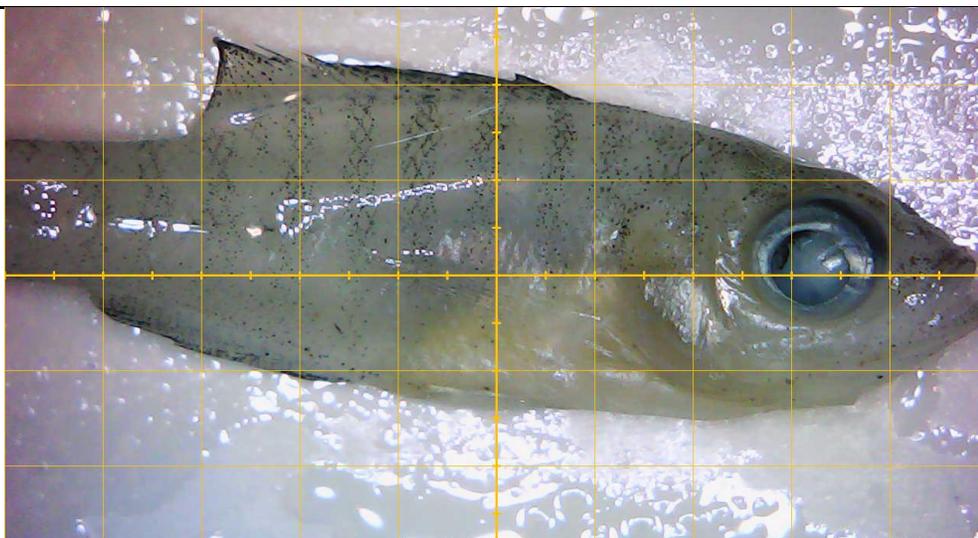
Abnormality Description(s): Facial deformity



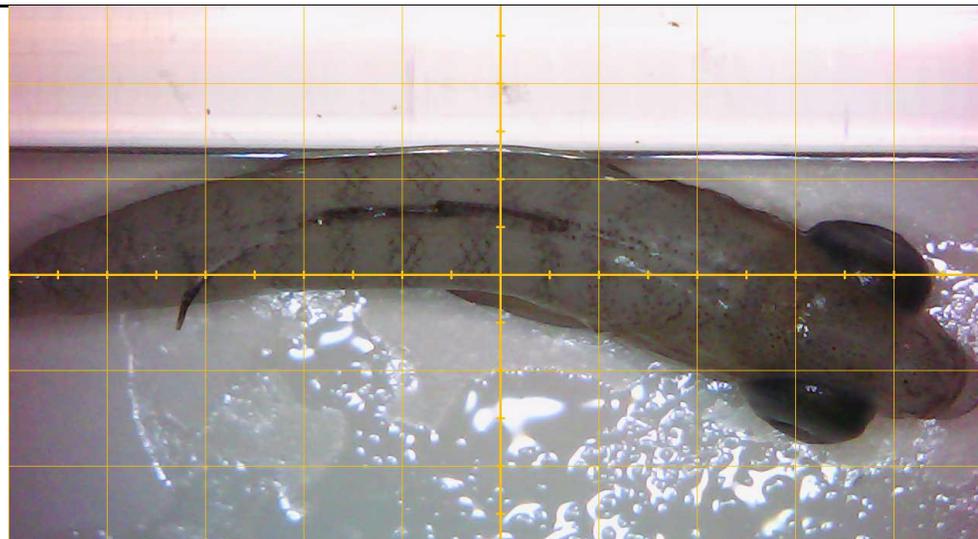
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Seine net/ minnow trap	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_004R1, HQ_004D1
Abnormality Description(s): Exophthalmia (popeye)		



Abnormality Description(s): Exophthalmia (popeye)
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Seine net/ minnow trap	
Assessment Date(s): Aug 22-23, 2018		
Anatomical Category (e.g. spine, fin(s)): Peduncle		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_005R1, HQ_005D1
Abnormality Description(s): Deformed Peduncle fish is on the top of the image and a fish with a normal peduncle is on the bottom.		



Abnormality Description(s): Deformed Peduncle fish is on the top of the image and a fish with a normal peduncle is on the bottom.
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Collection method: Electrofishing	
Assessment Date(s): Aug 24, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	<u>HQ Inlet</u>	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HQ_Inlet_Shock_Fish1 (4,6)
Abnormality Description(s): Lordosis		



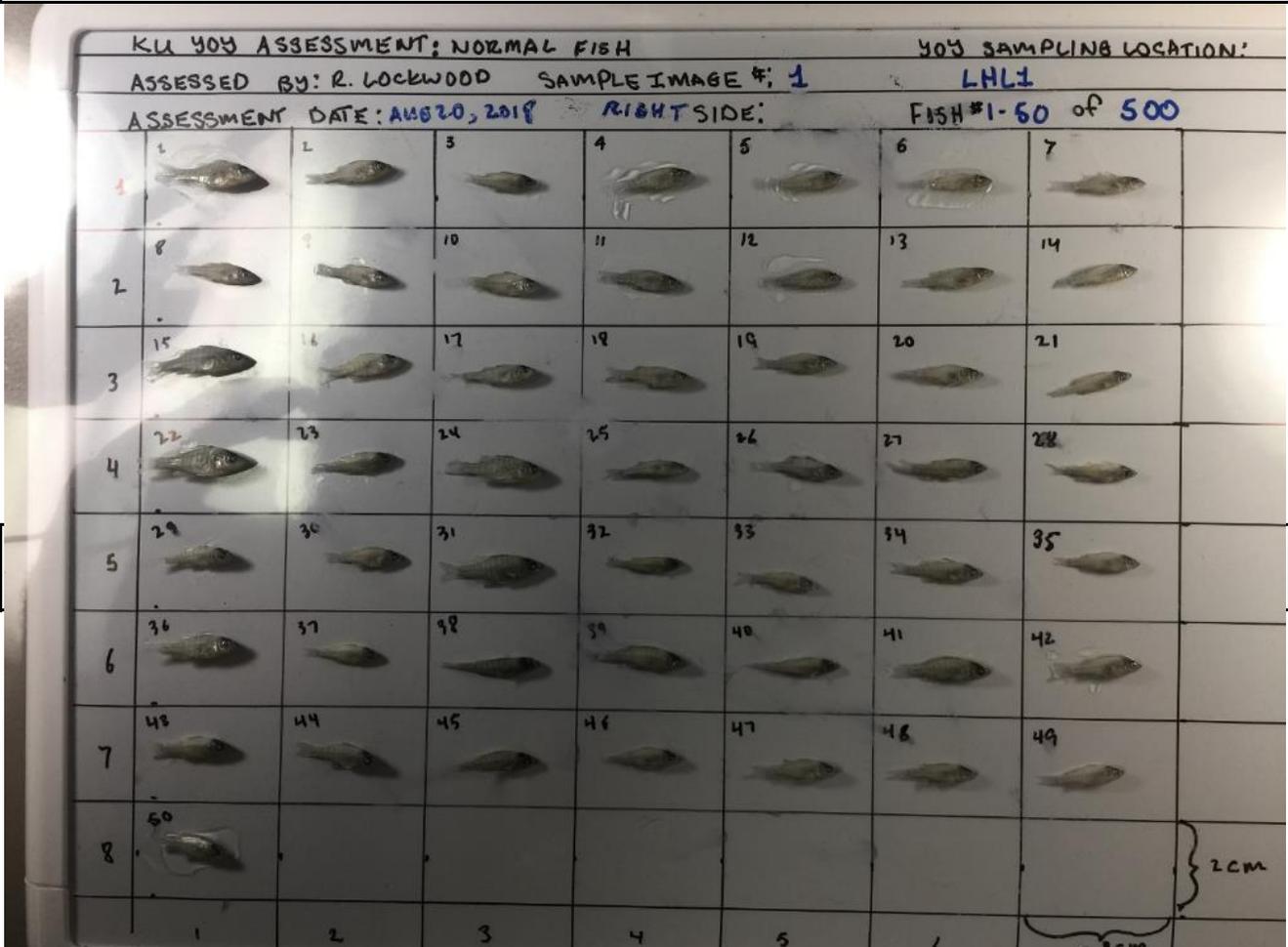
Abnormality Description(s): Lordosis



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



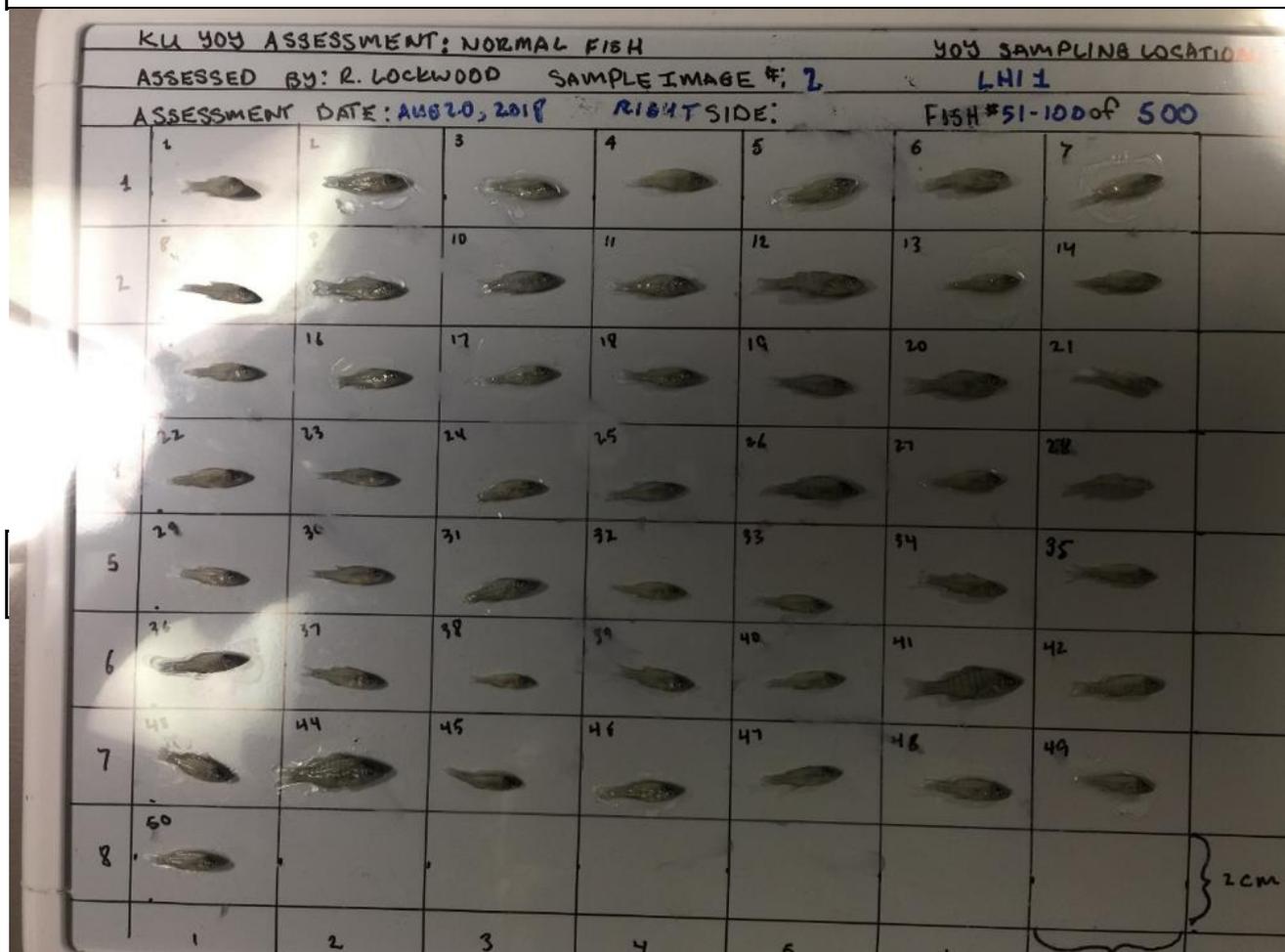
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=558	
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u>
		LHL2(Dix Dam)
		LHL3 Cove
		LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_normal_fish_1to50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



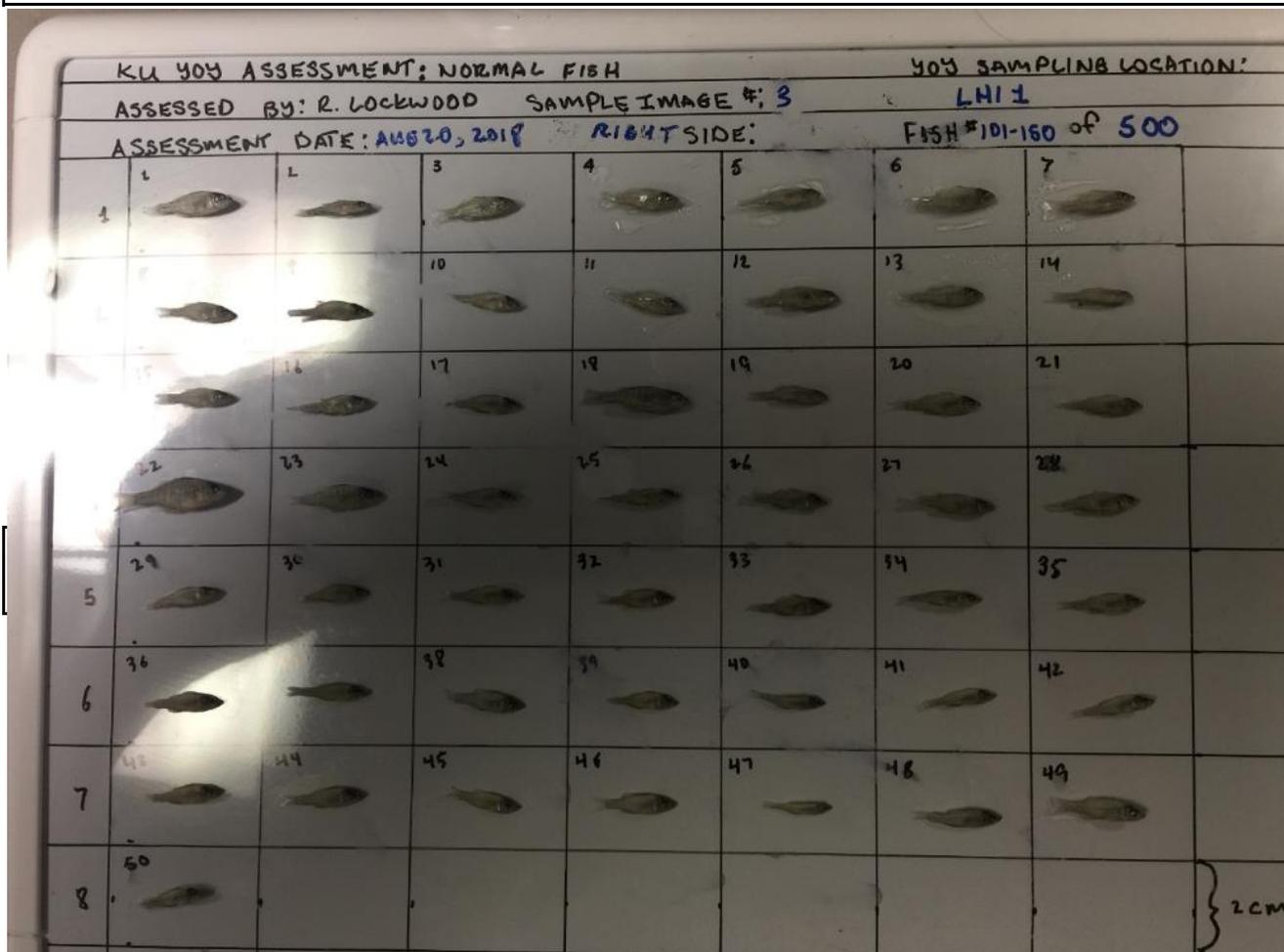
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=558	
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_normal_fish_51to100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



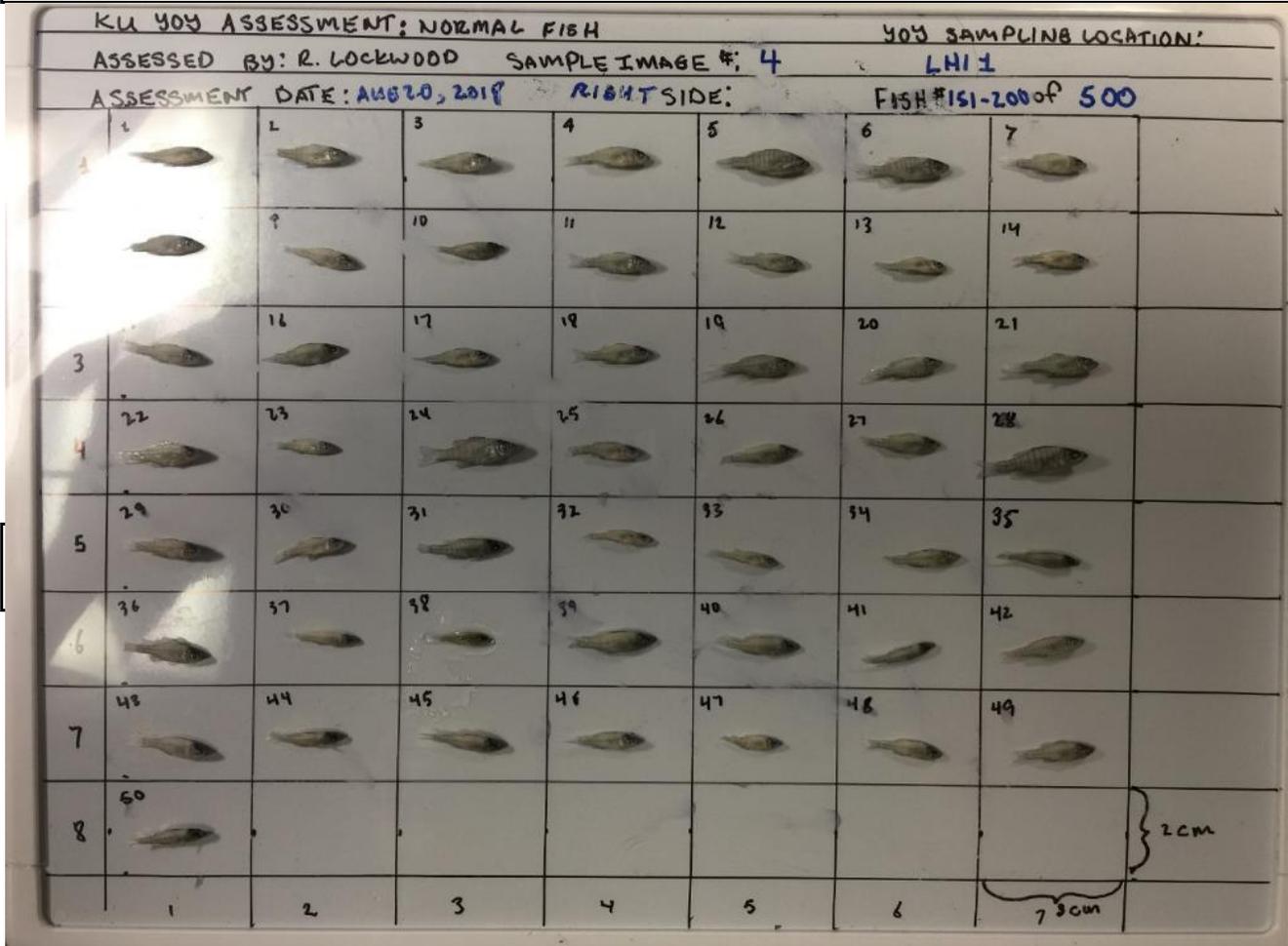
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=558	
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_normal_fish_101to150
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=558	
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_normal_fish_151to200
Abnormality Description(s): NONE		



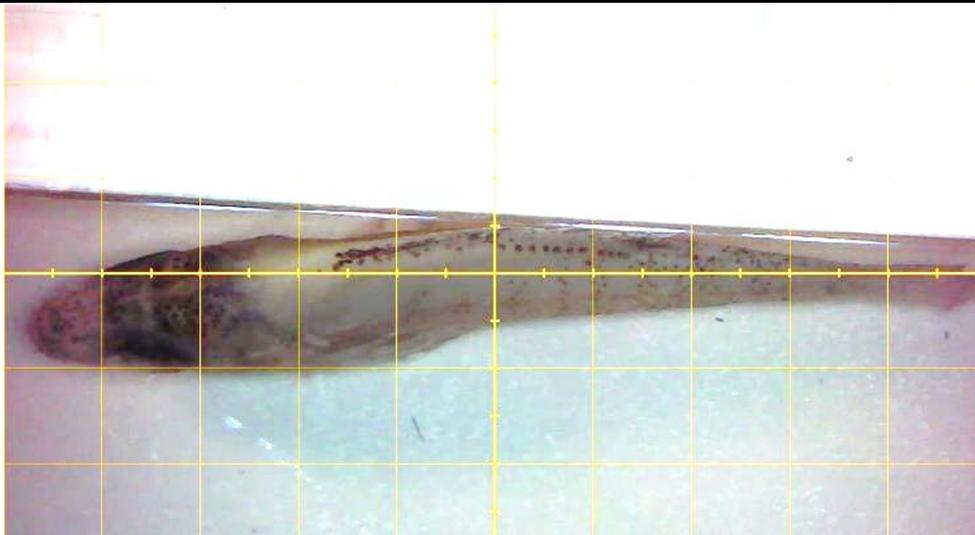
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Gills		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_001_L , LHL1_001_D
Abnormality Description(s): Operculum Deformity		



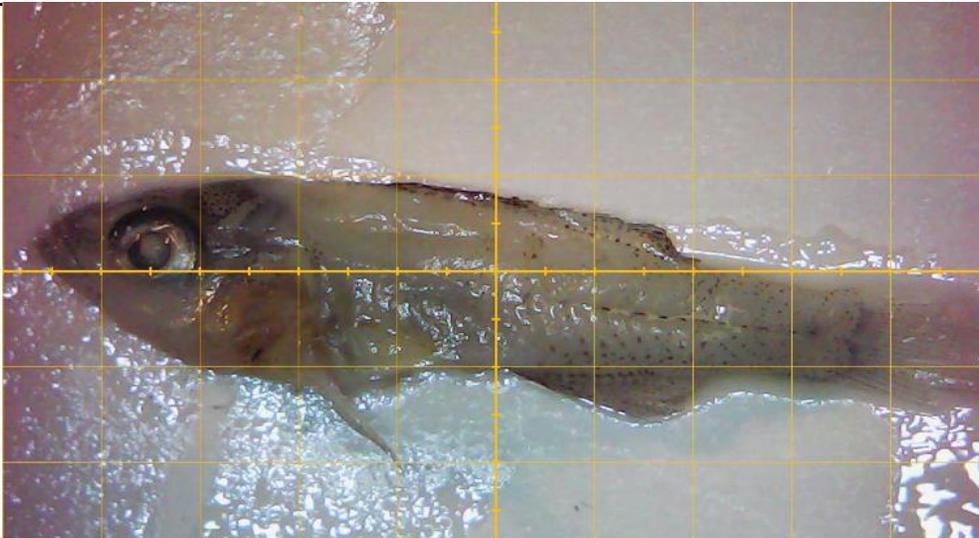
Abnormality Description(s): Operculum Deformity
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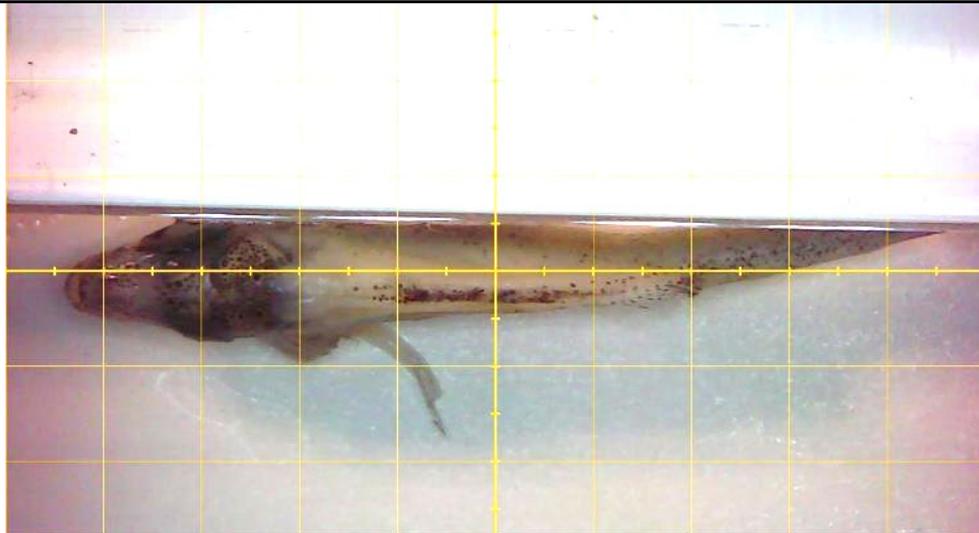
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Stomach and Gills		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_002_L, LHL1_002_D
Abnormality Description(s): Stomach protruding through gill chambers		



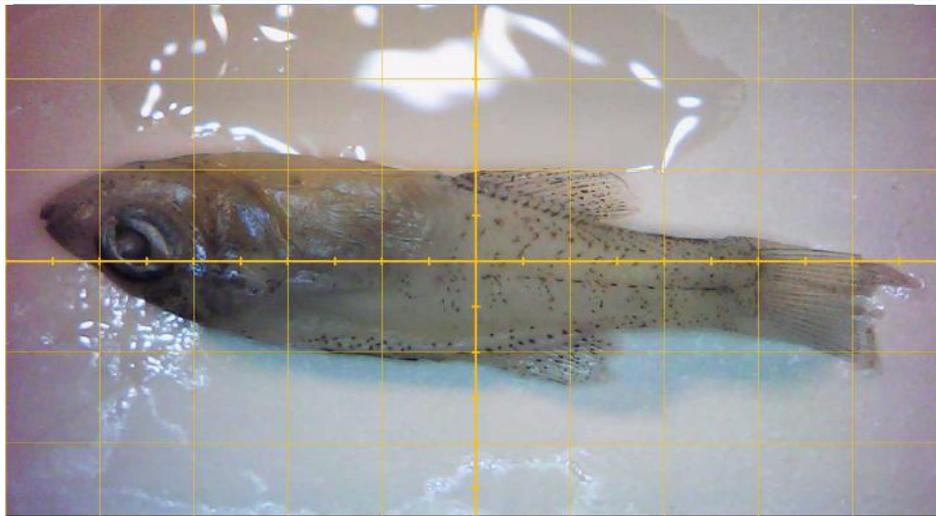
Abnormality Description(s): Stomach protruding through gill chambers



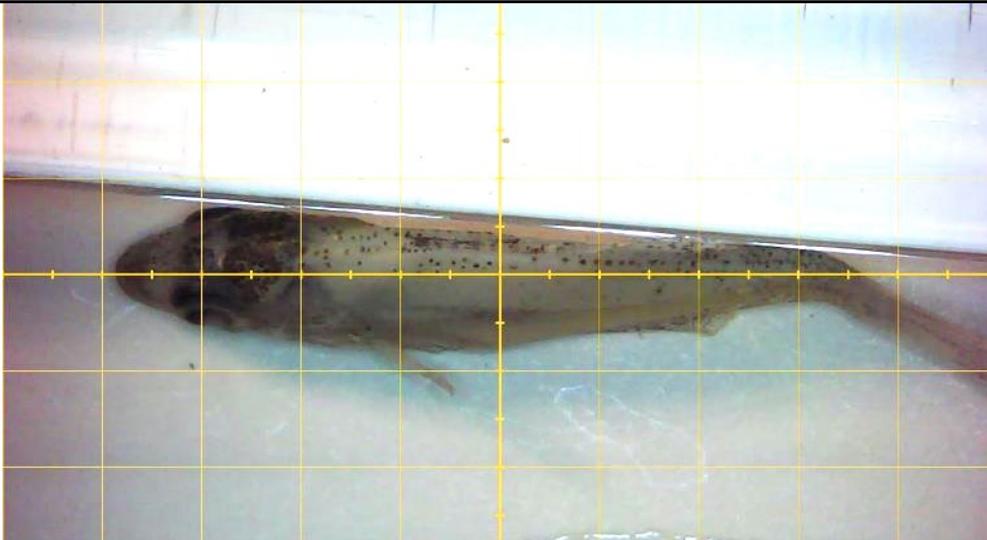
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm				
Primary Fish Health Assessor: RL					
Third-Party Assessor:					
Assessment Date(s): Aug 13-20, 2018					
Anatomical Category (e.g. spine, fin(s)): Spine					
Examples From YOY Bass Sampling Region (circle one):					
Curds Inlet	HQ Inlet	(LHL1(Rocky Arm))	LHL2(Dix Dam)	LHL3 Cove	LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_003_R, LHL1_003_D			
Abnormality Description(s): Scoliosis					



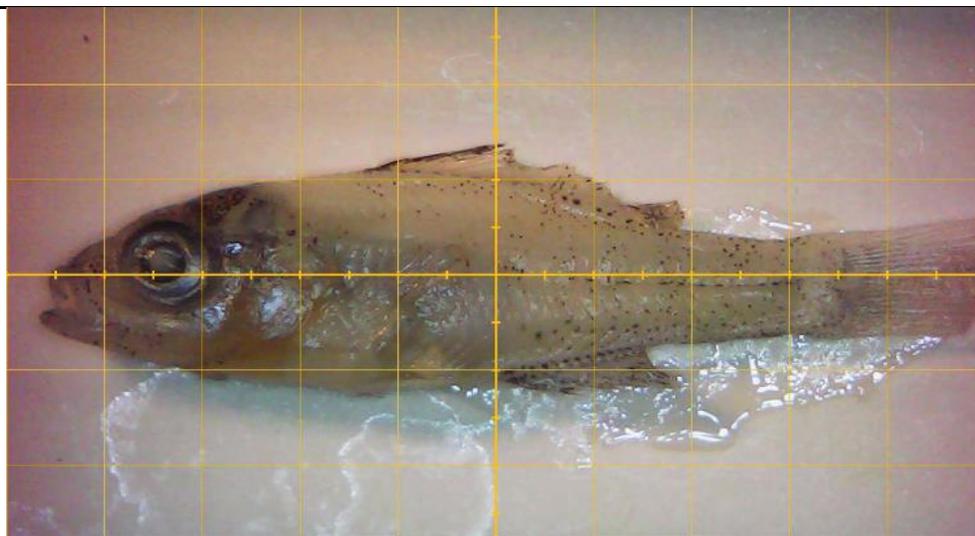
Abnormality Description(s): Scoliosis
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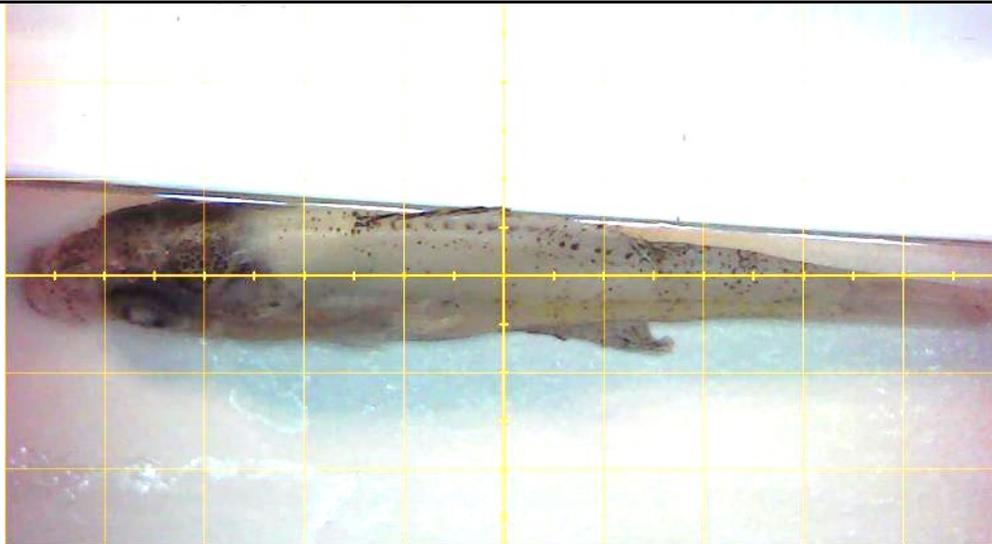
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Mouth		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u>
		LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_004_L, LHL1_004_D
Abnormality Description(s): Mouth deformity		



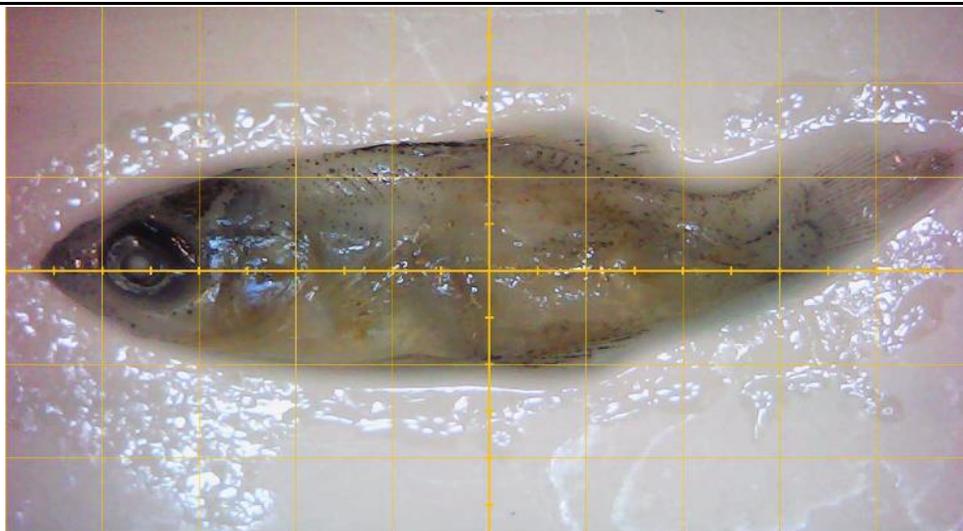
Abnormality Description(s): Mouth deformity
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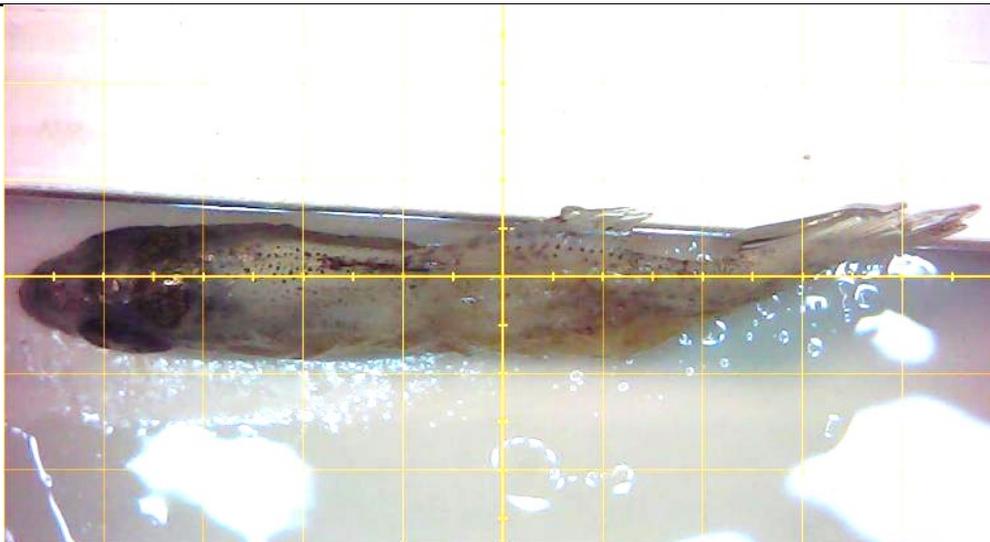
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u>
		LHL2(Dix Dam)
		LHL3 Cove
		LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_005_L, LHL1 005 D
Abnormality Description(s): Lordosis		



Abnormality Description(s): Lordosis

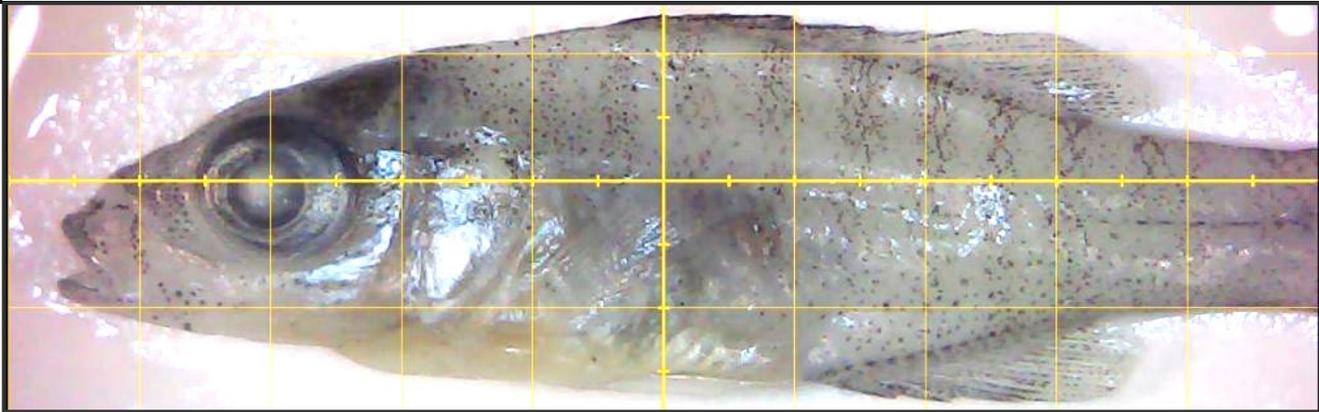


**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**

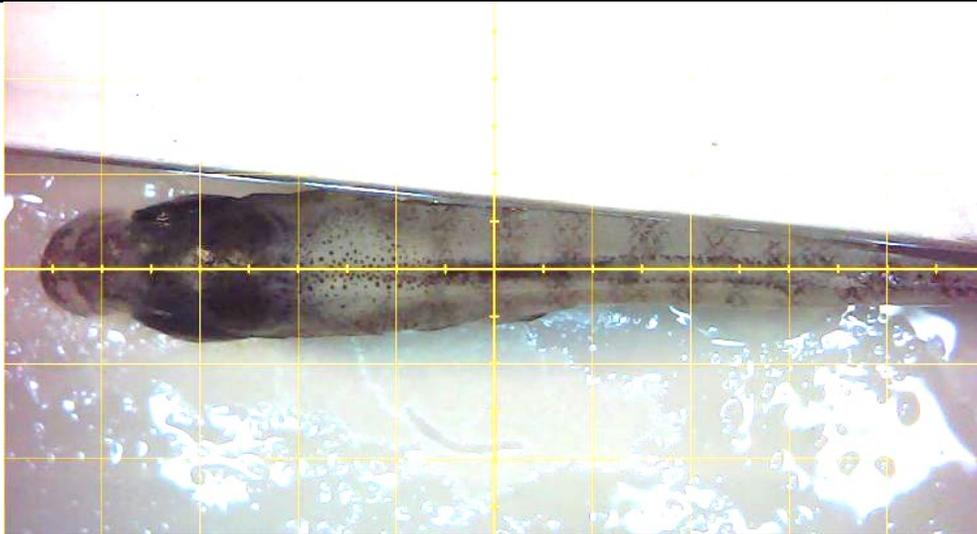


Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Mouth		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_006_L1, LHL1_006_D1

Abnormality Description(s): Mouth Deformity



Abnormality Description(s): Mouth Deformity



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Gills		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_007_R, LHL1_007_D
Abnormality Description(s): Operculum Deformity		



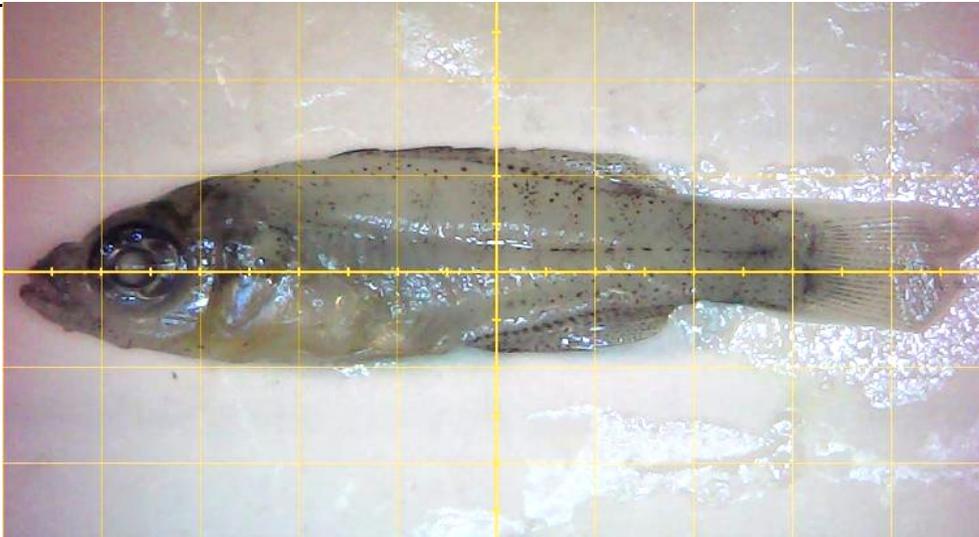
Abnormality Description(s): Operculum Deformity
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Mouth and face		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u>
		LHL2(Dix Dam)
		LHL3 Cove
		LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_008_L, LHL1_008_D
Abnormality Description(s): Mouth/Facial deformities		



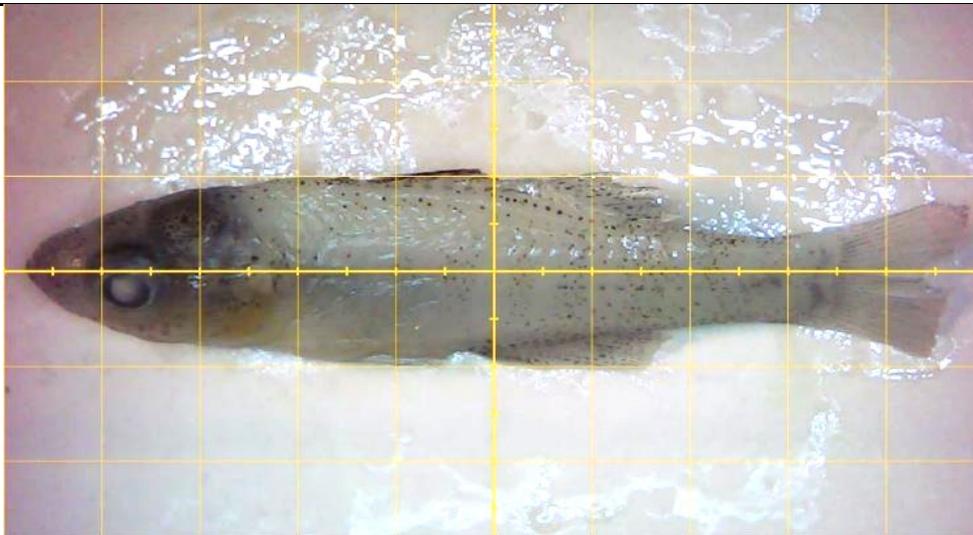
Abnormality Description(s): Mouth/Facial deformities



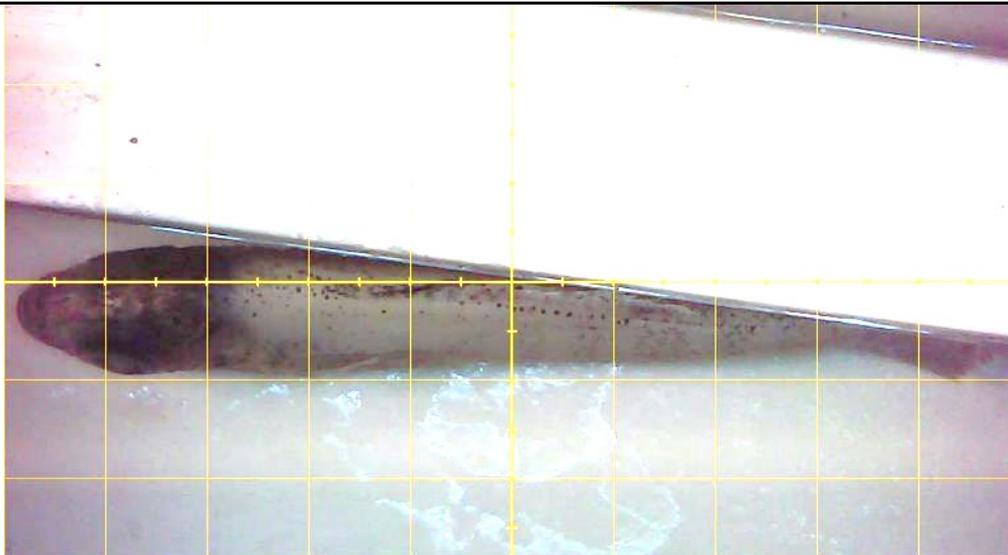
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Gills		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_009_L, LHL1_009_D
Abnormality Description(s): Operculum Deformity		



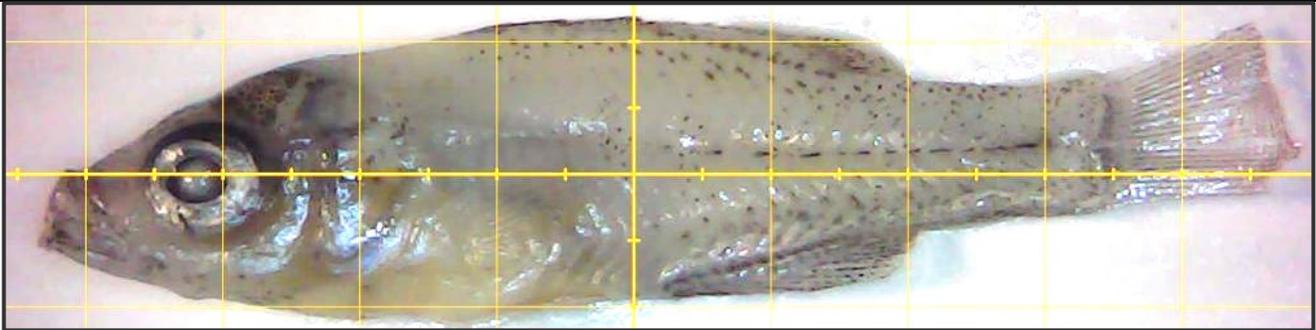
Abnormality Description(s): Operculum Deformity
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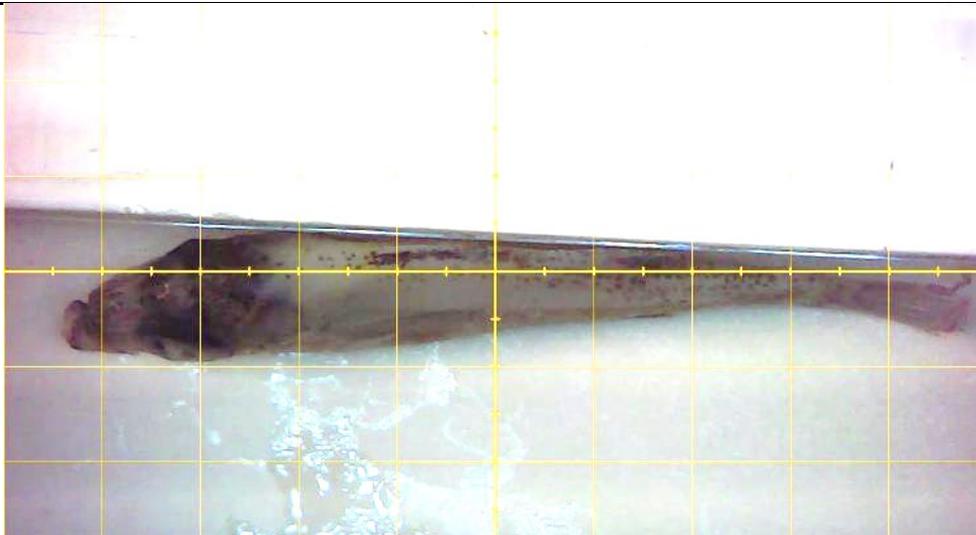
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Mouth		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_010_L, LHL1_010_D
Abnormality Description(s): Mouth deformity		



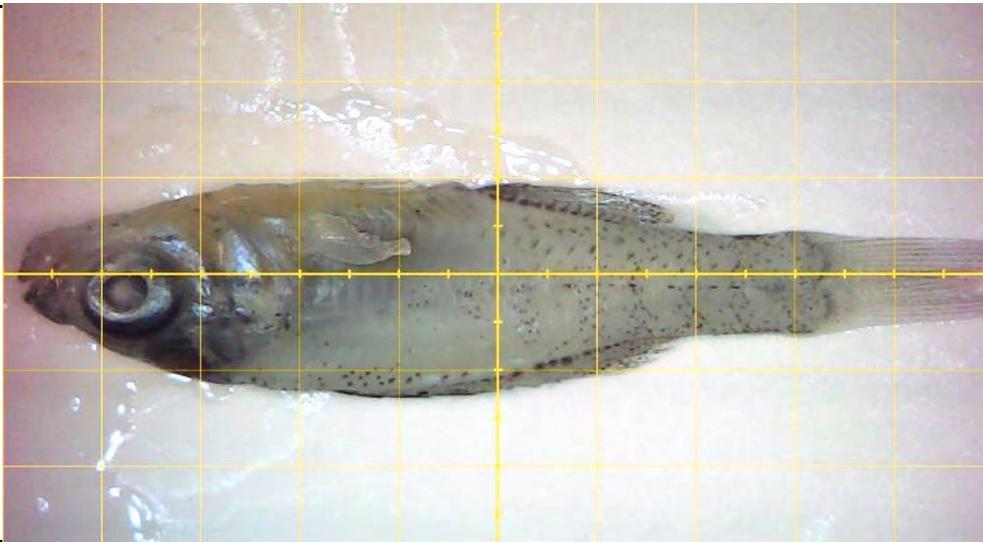
Abnormality Description(s): Mouth deformity
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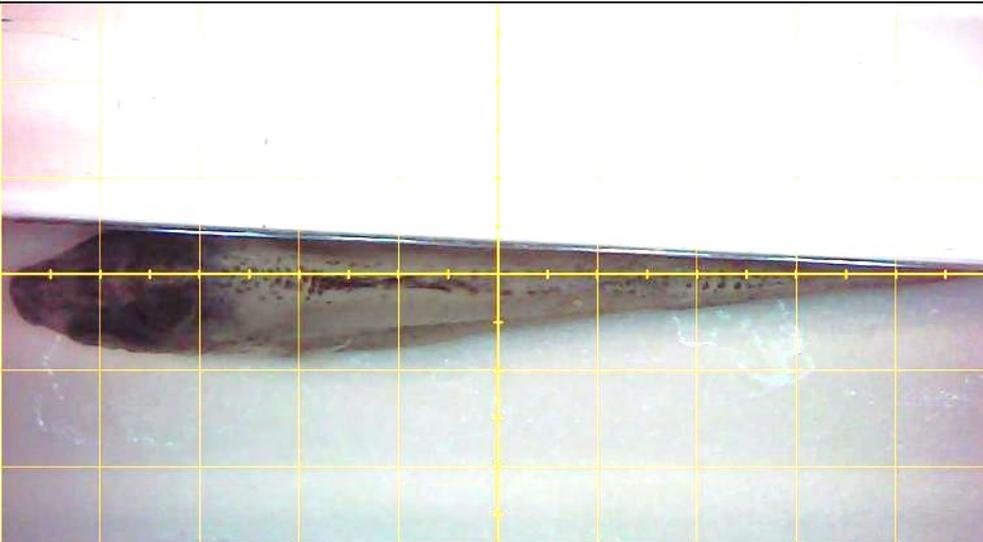
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): mouth and face		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_011_R, LHL1_011_D
Abnormality Description(s): Mouth/Facial deformity		



Abnormality Description(s): Mouth/Facial deformity



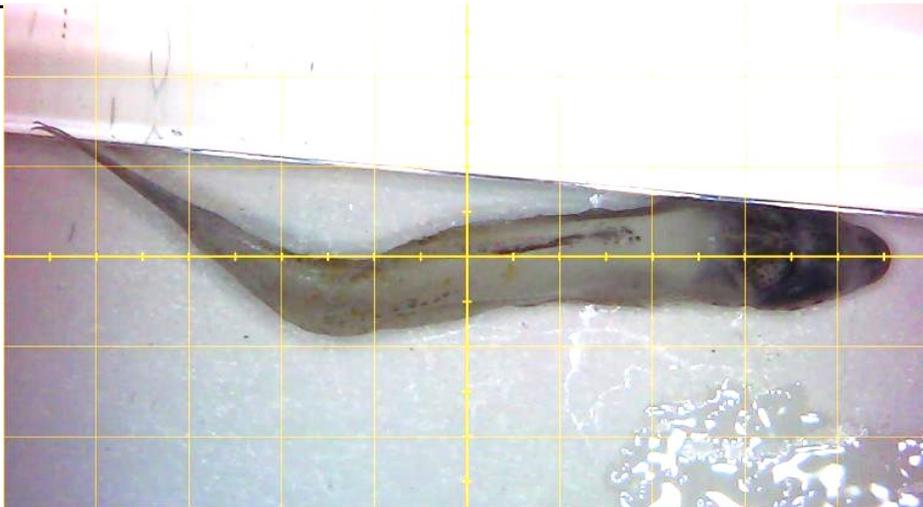
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 13-20, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	<u>LHL1(Rocky Arm)</u> LHL2(Dix Dam) LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL1_012_R, LHL1_012_D
Abnormality Description(s): Scoliosis		



Abnormality Description(s): Scoliosis
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



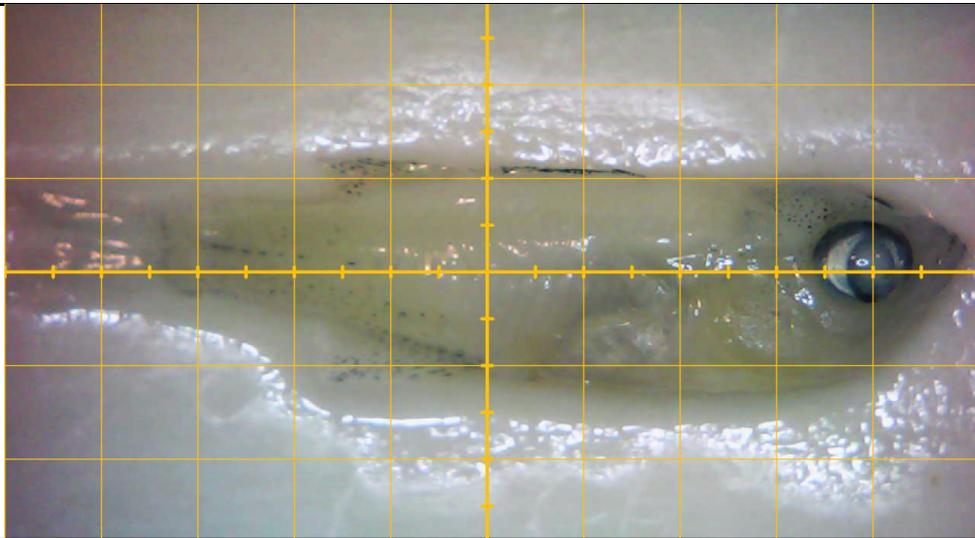
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=32	
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) <u>LHL3 Cove</u> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL3 normal fish 1to31
Abnormality Description(s): NONE		



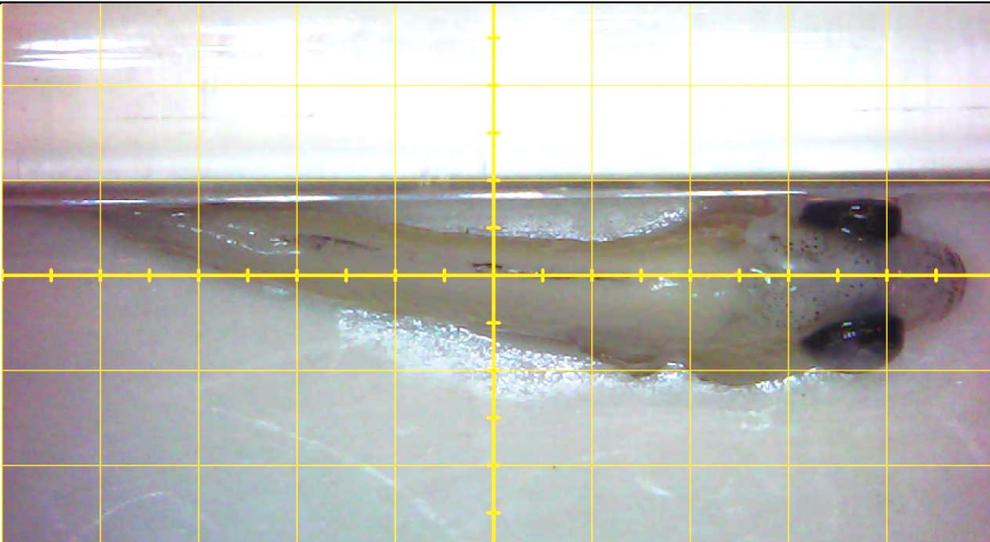
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Head		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) <u>LHL3 Cove</u> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL3_001R, LHL3_001D
Abnormality Description(s): Craniofacial deformity		



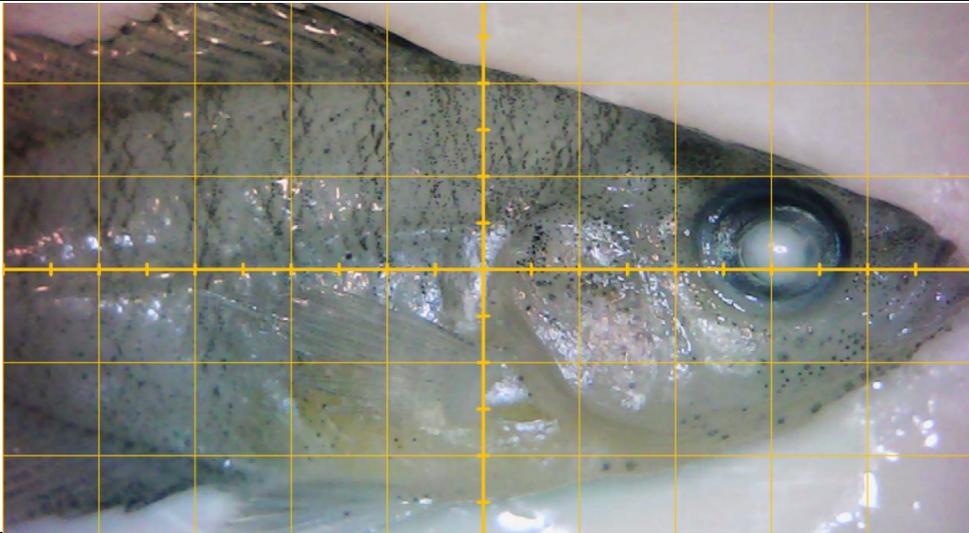
Abnormality Description(s): Craniofacial deformity



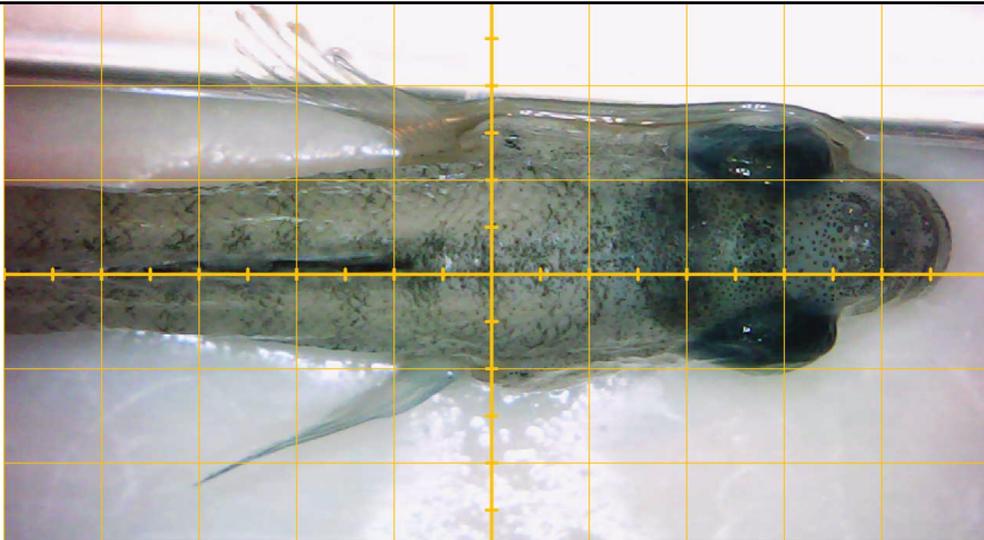
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Fins and Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) <u>LHL3 Cove</u> LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL3_002_R1, LHL3_002_D1
Abnormality Description(s): Popeye disease and pectoral fin deformity		



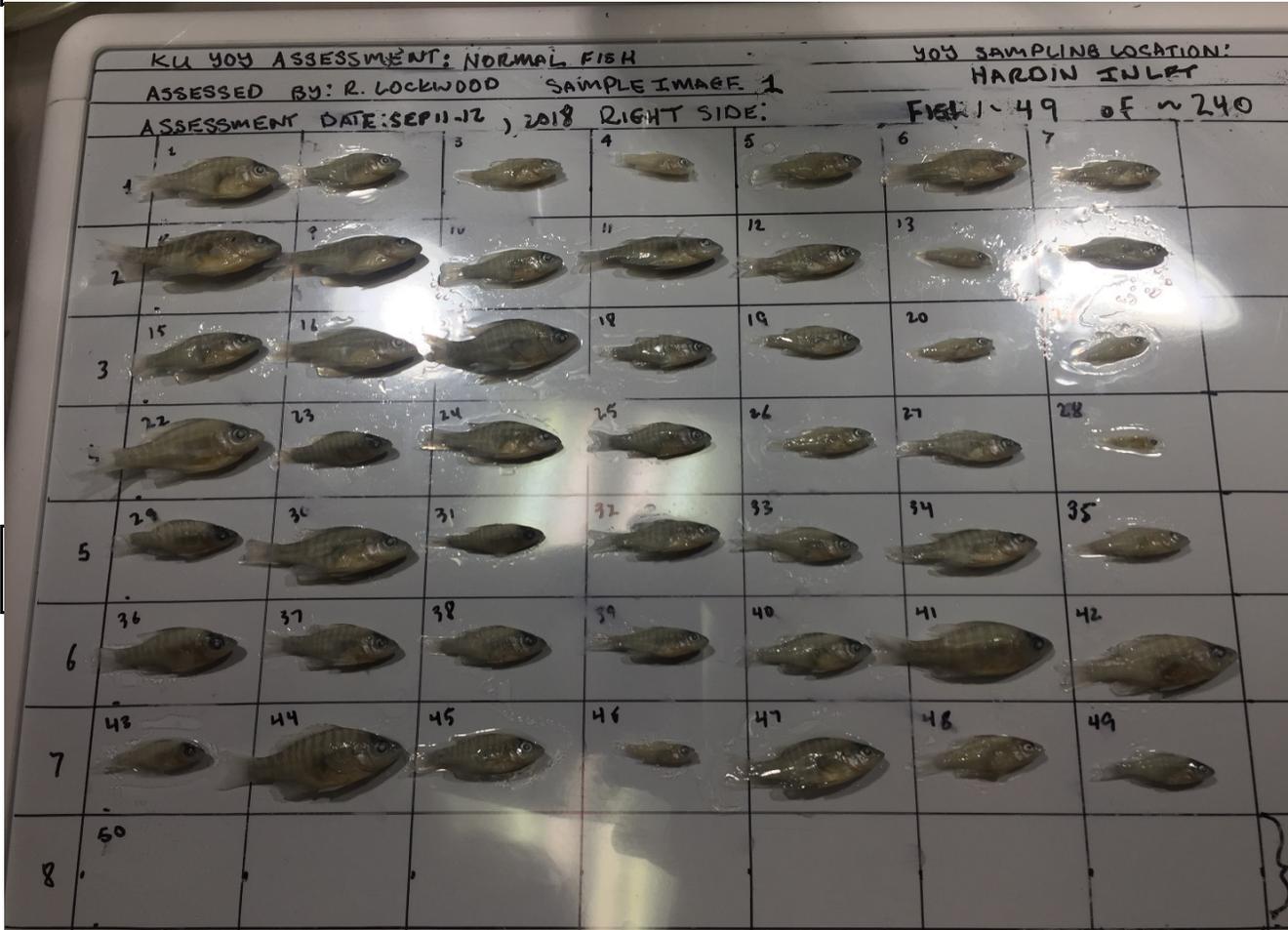
Abnormality Description(s): Popeye disease and pectoral fin deformity
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



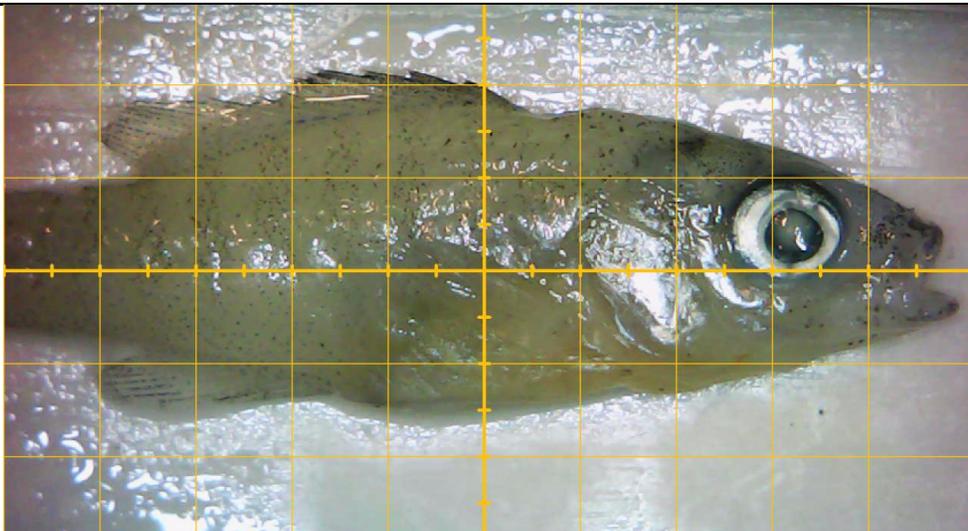
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=131	
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_Normal_Fish_1to50
Abnormality Description(s): NONE		



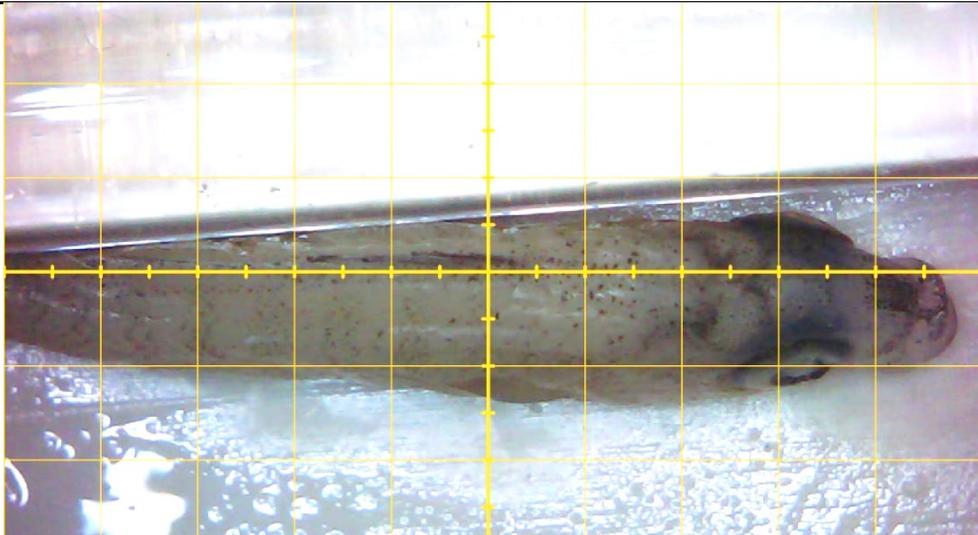
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Head and dorsal region		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_001_R, HI_001_D
Abnormality Description(s) : Indentation posterior to head		



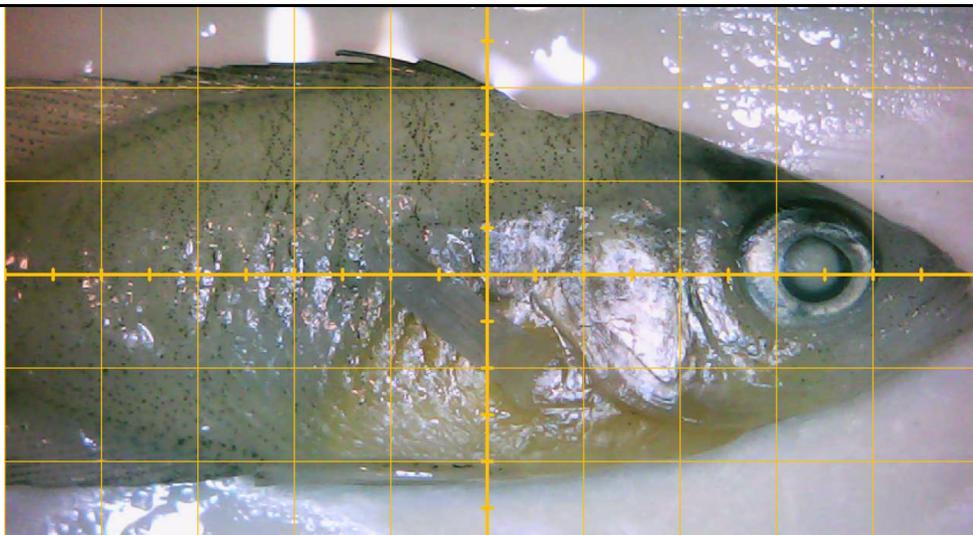
Abnormality Description(s): Indentation posterior to head
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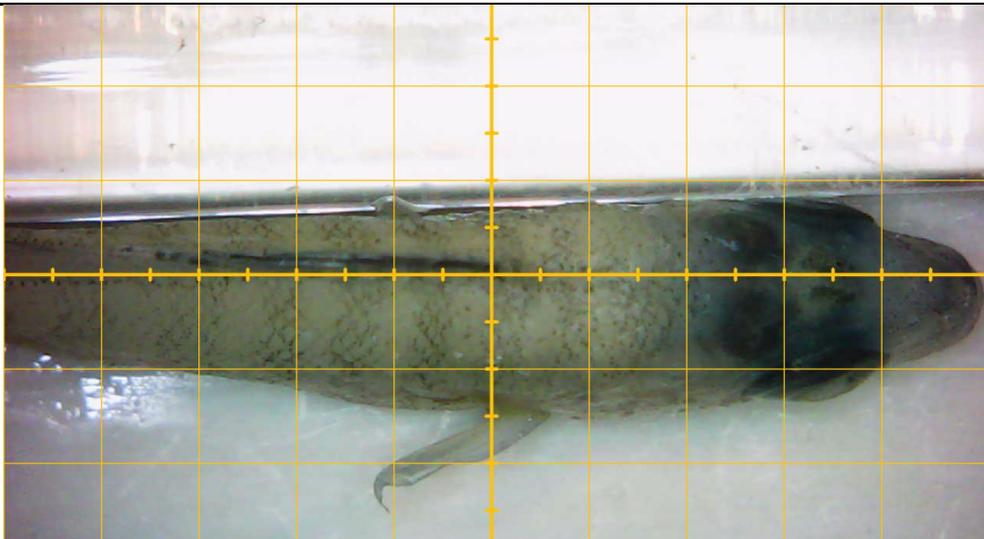
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Head and dorsal region		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_002_R, HI_002_D
Abnormality Description(s): Indentation posterior to the head		



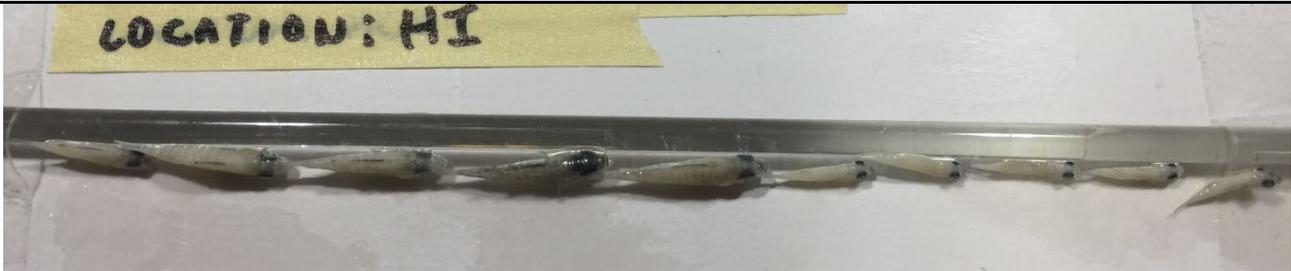
Abnormality Description(s): Indentation posterior to the head
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**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



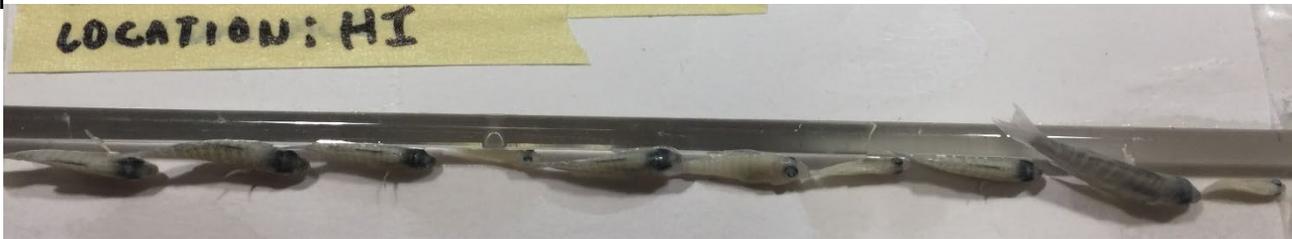
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_1-10_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



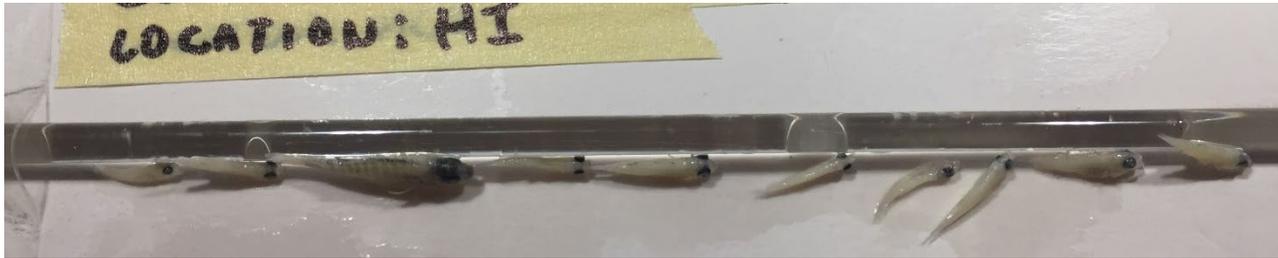
Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_11-20_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_21-30_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



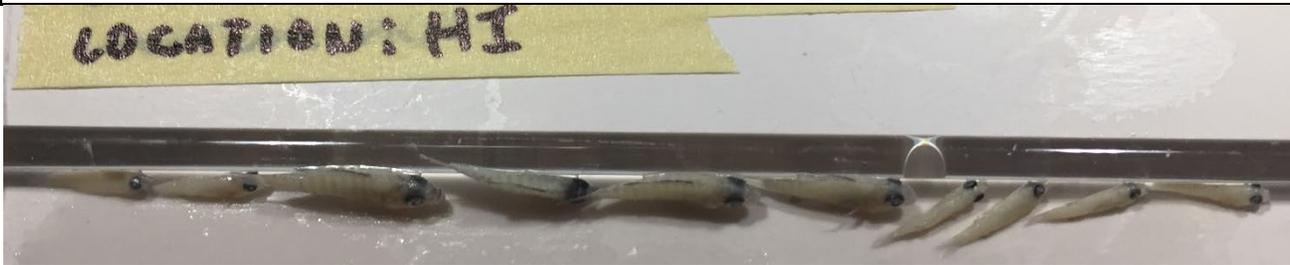
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_31-40_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



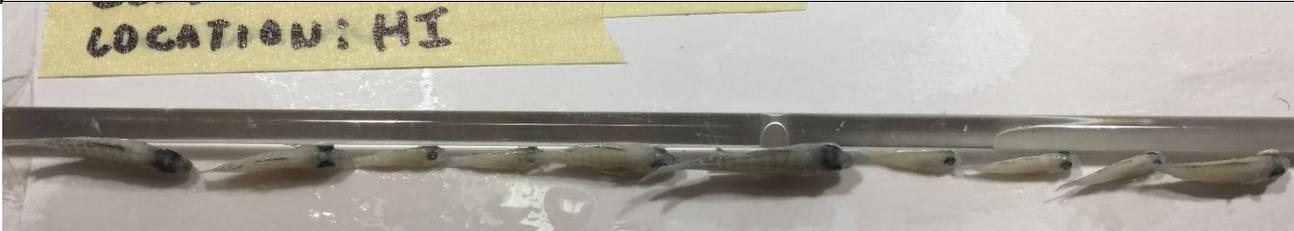
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_41-50_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



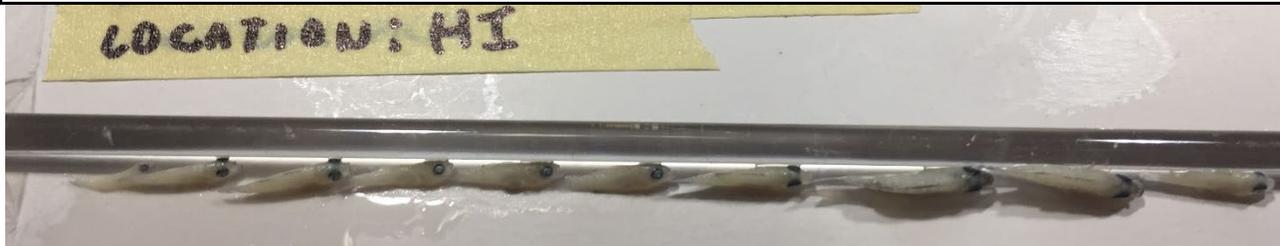
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_51-60_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



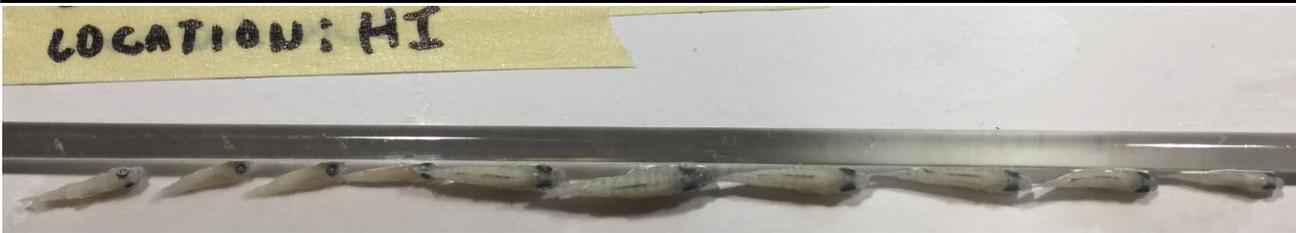
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_61-70_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_71-80_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_81-90_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_91-100_D
Abnormality Description(s): Popeye Disease		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



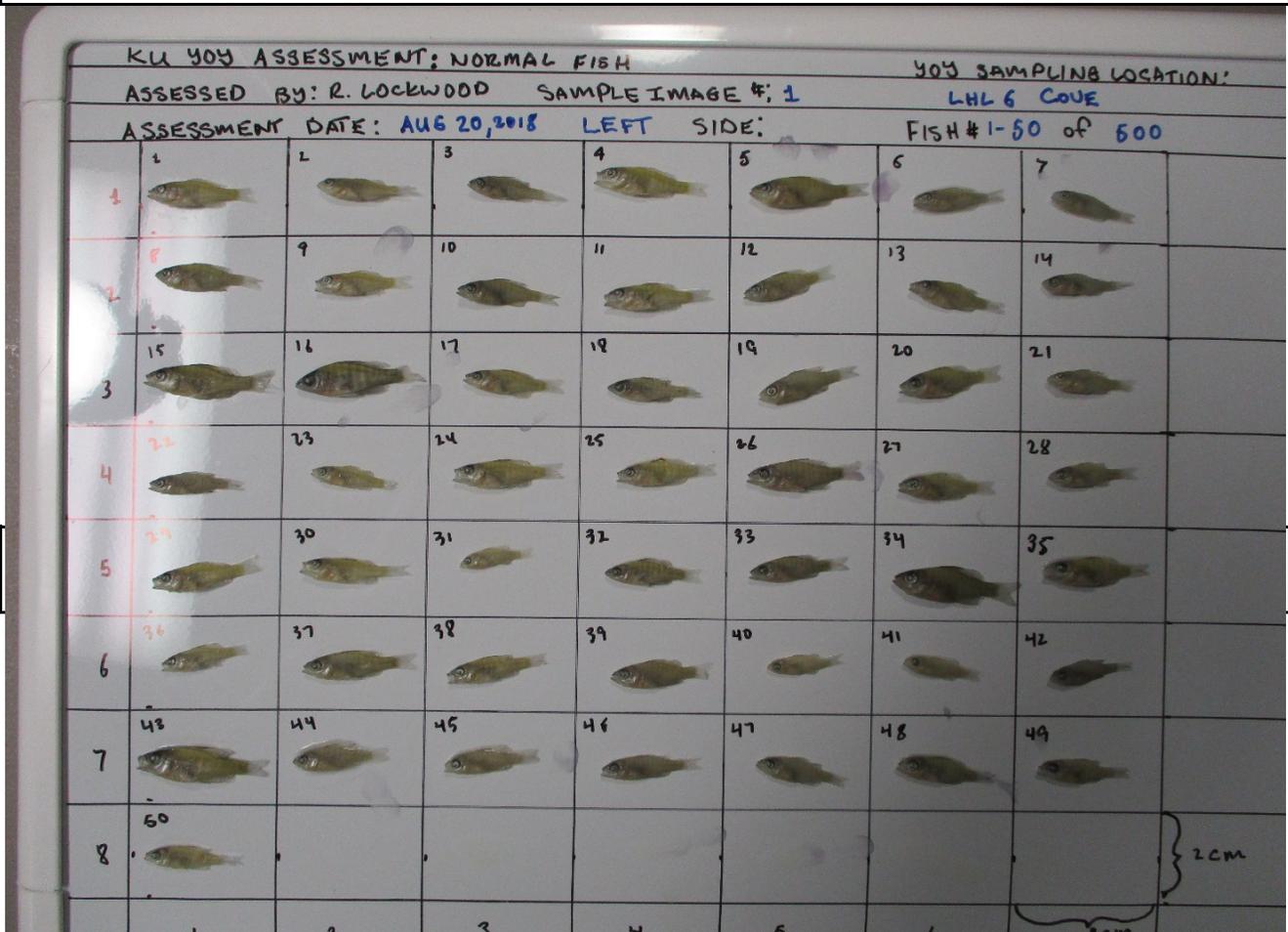
Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Sep 11-12, 2018		
Anatomical Category (e.g. spine, fin(s)): Eyes		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) <u>Hardin Inlet</u> LHL3 Cove LHL 6 Cove
Individual Sample ID: LHL1-YOY-005	Species: YOY Bluegill (Lepomis)	Photo Number(s): HI_popeye_101-107_D
Abnormality Description(s): Popeye Disease		



Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms



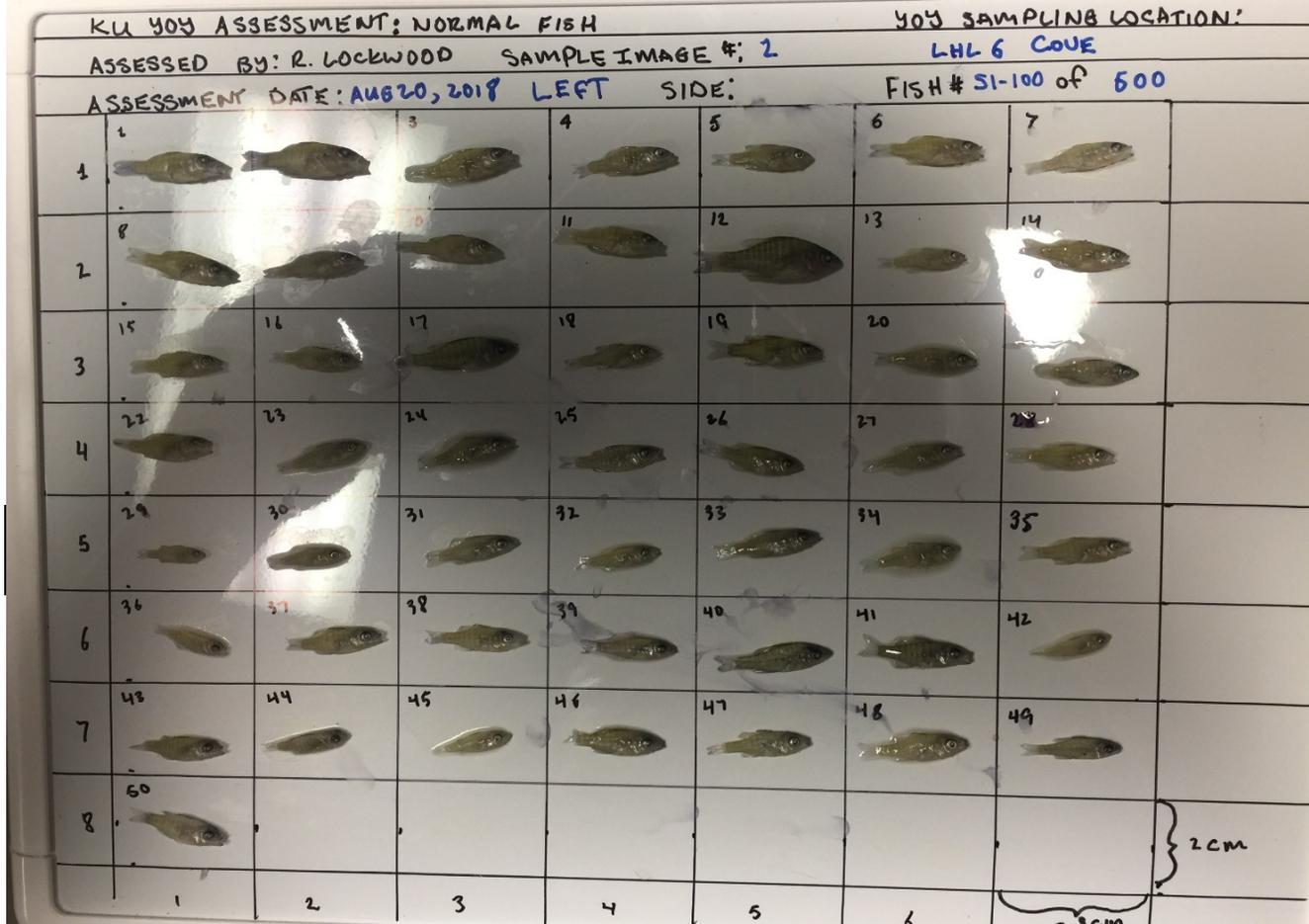
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_normal_fish_1to50
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



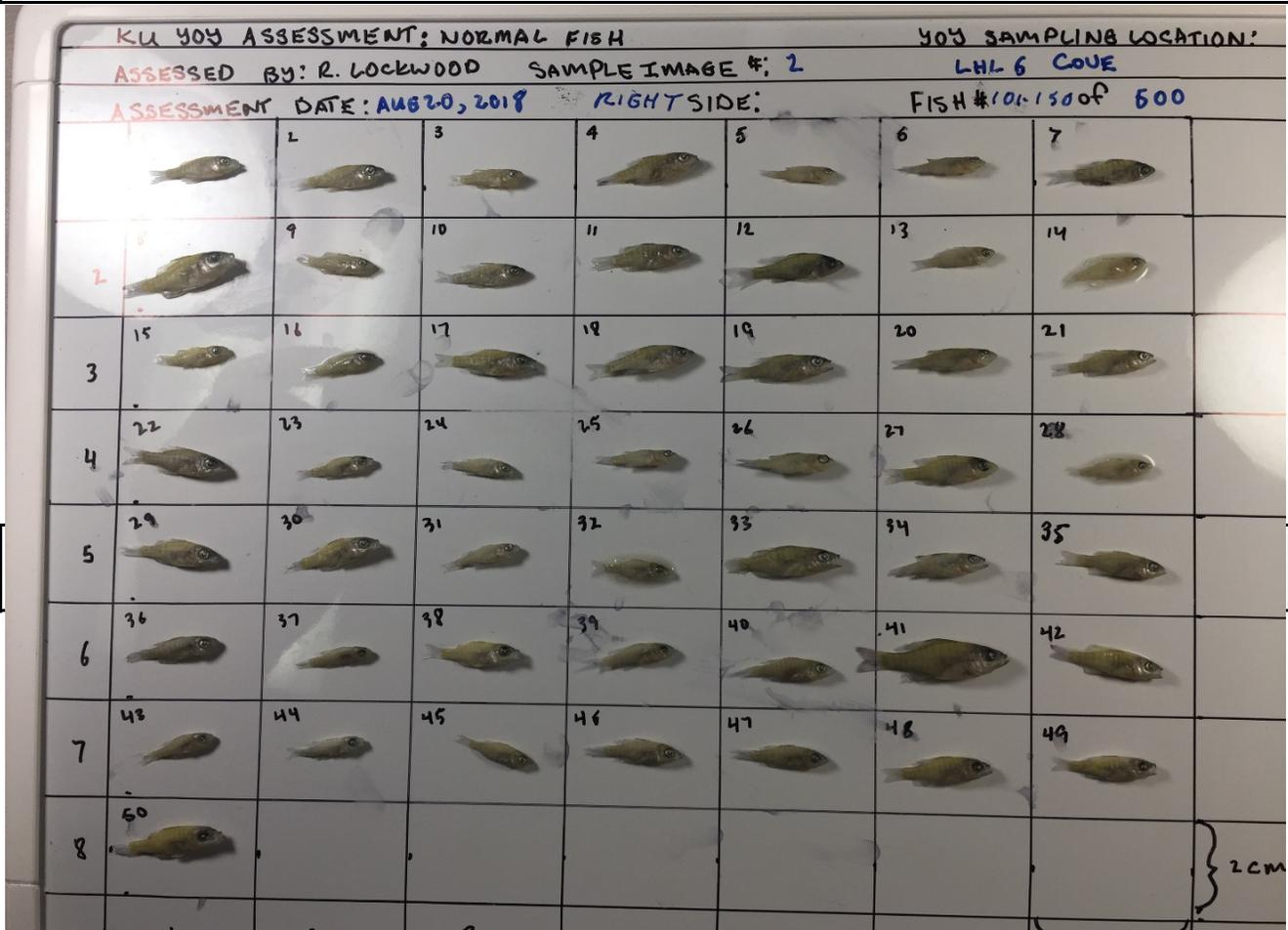
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_normal_fish_51to100
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



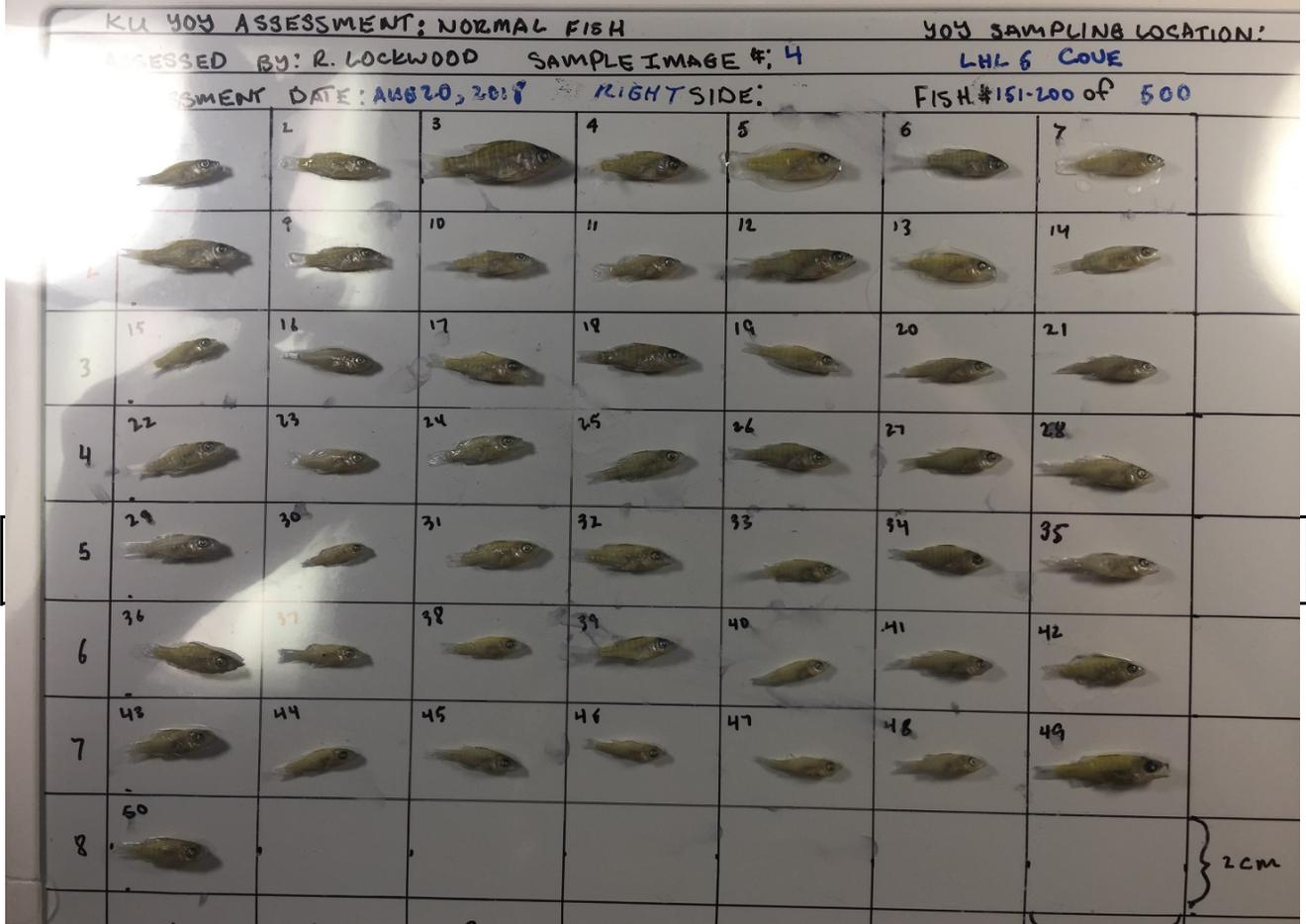
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6 normal fish 101to150
Abnormality Description(s): NONE		



Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms



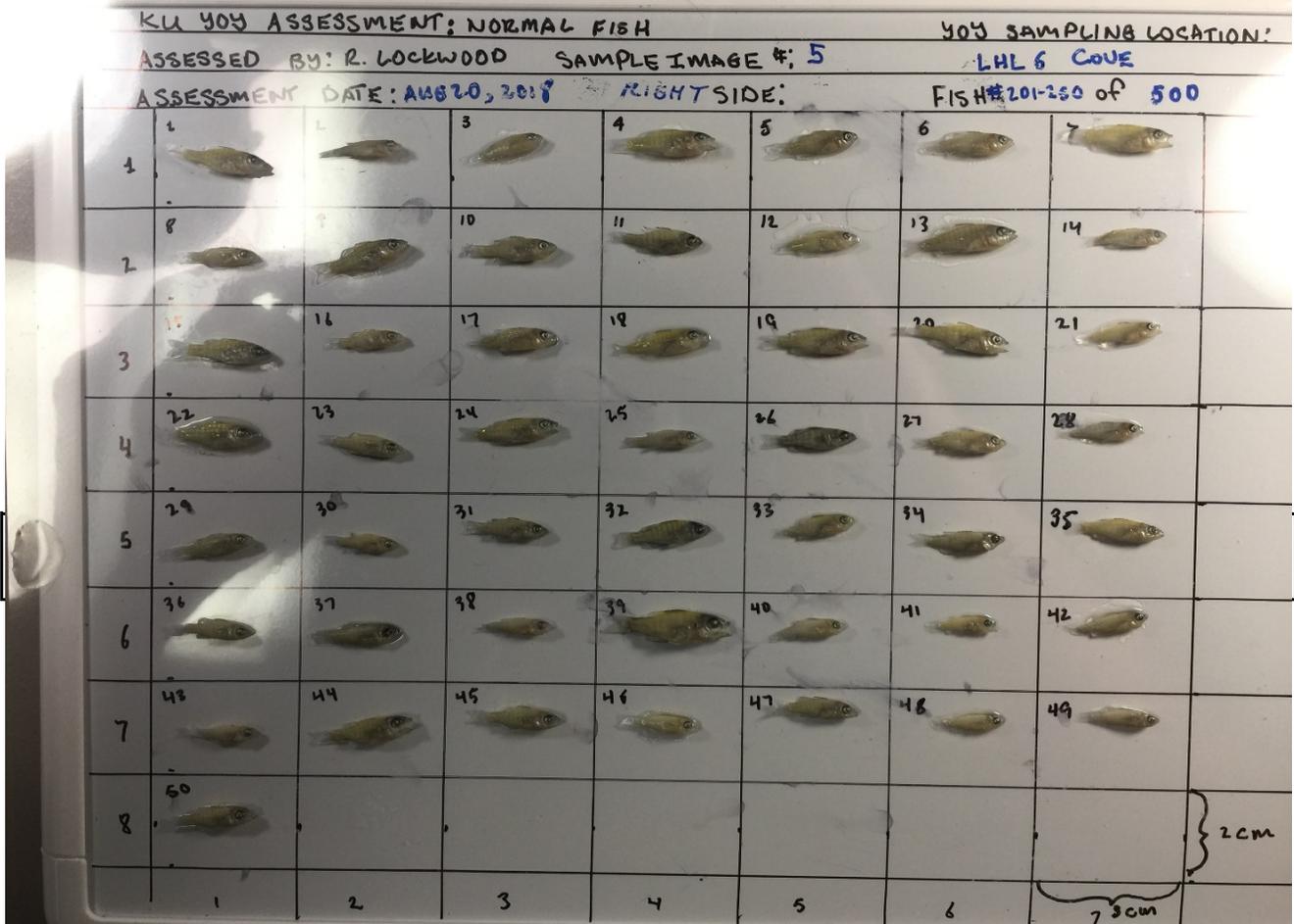
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_normal_fish_151to200
Abnormality Description(s): NONE		



Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms



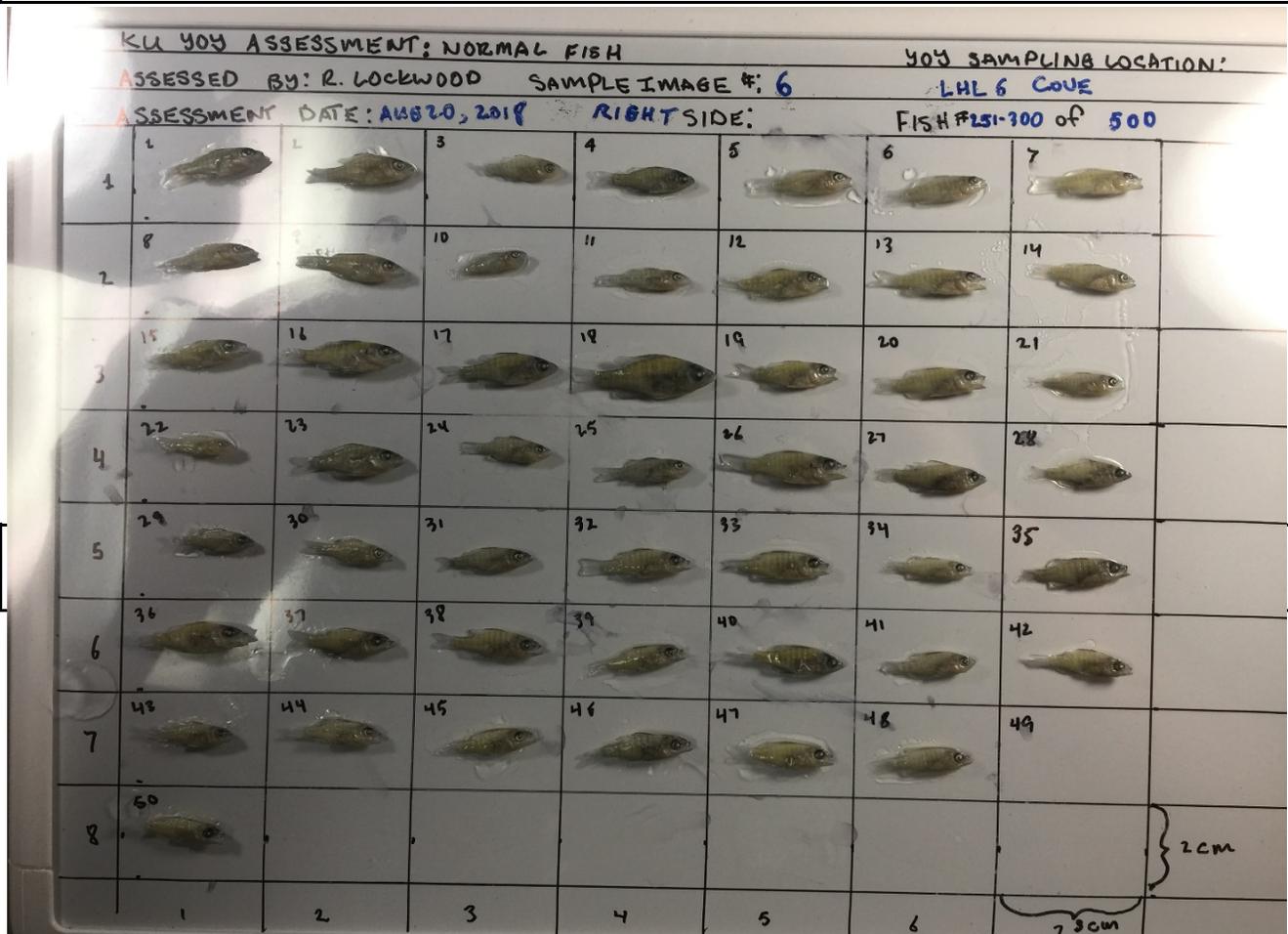
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_normal_fish_201to250
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



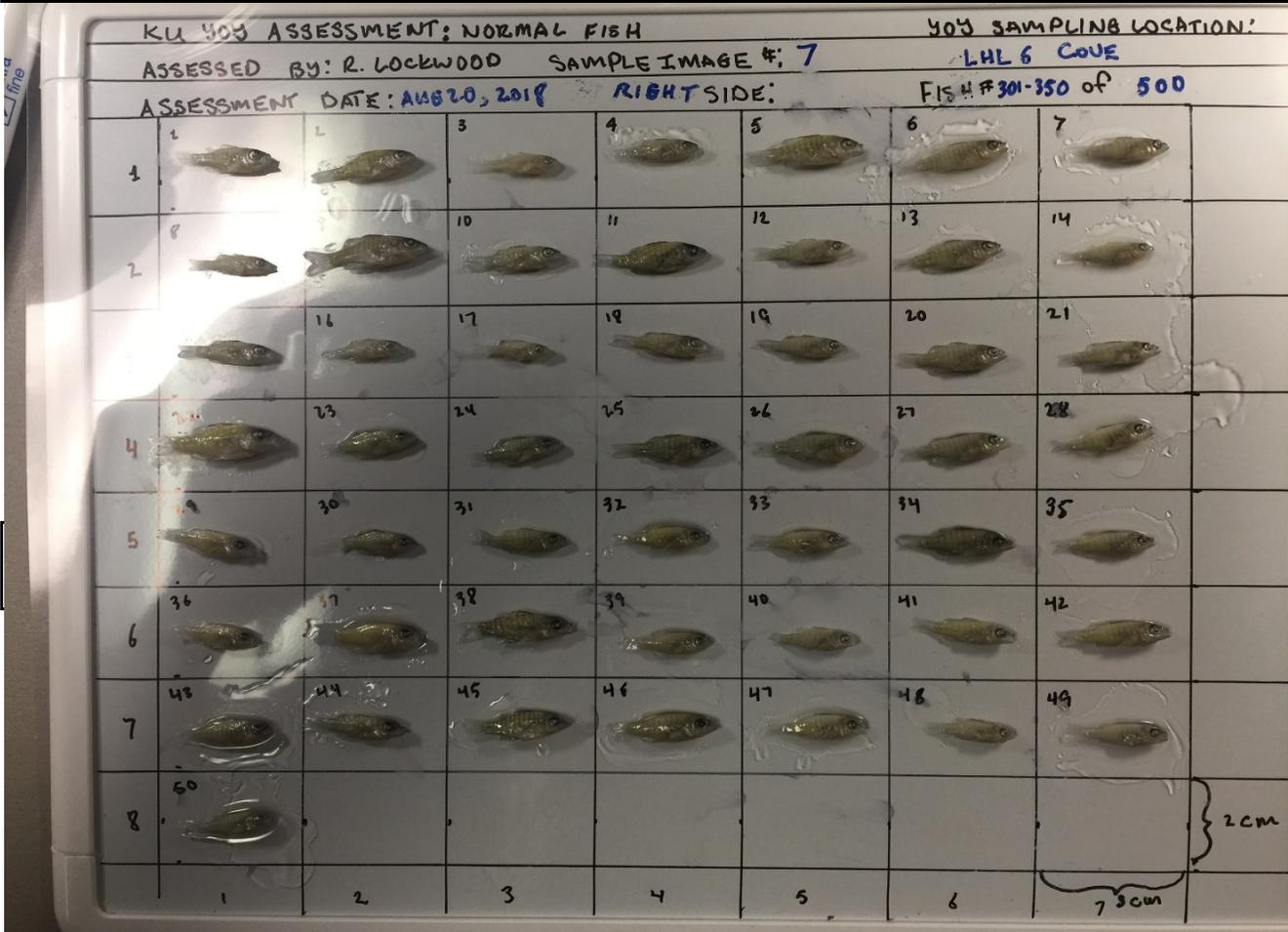
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_normal_fish_251to300
Abnormality Description(s): NONE		



**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



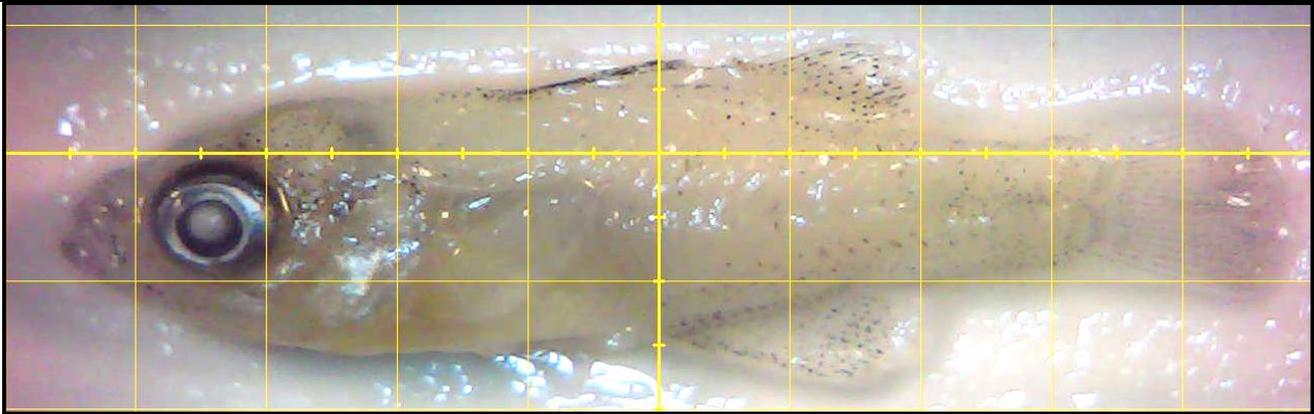
Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:	Example of fish with no deformities. Total without deformities N=496+	
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Normal		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6 normal fish 301to350
Abnormality Description(s): NONE		



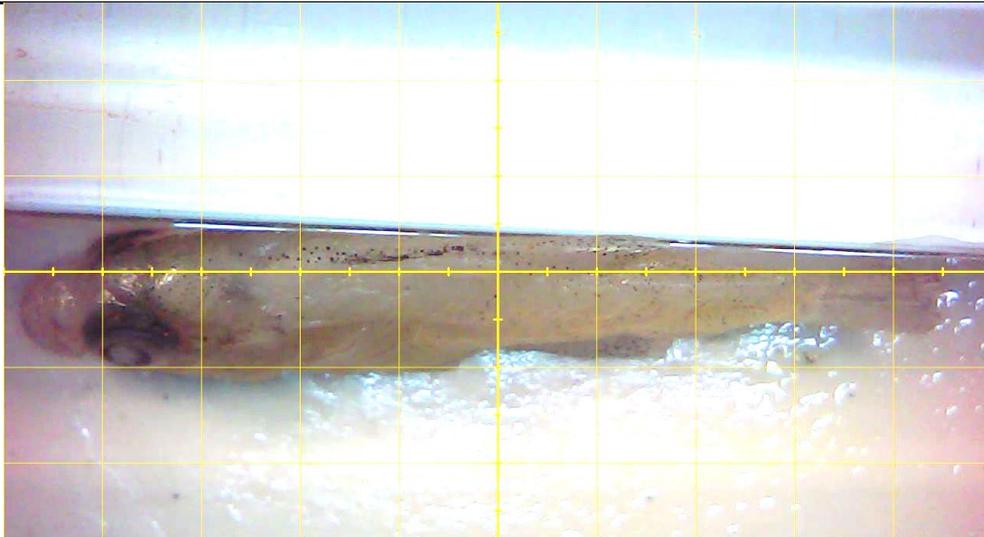
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm	
Primary Fish Health Assessor: RL		
Third-Party Assessor:		
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Mouth		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_001_L, LHL6_001_D
Abnormality Description(s): Mouth deformity		



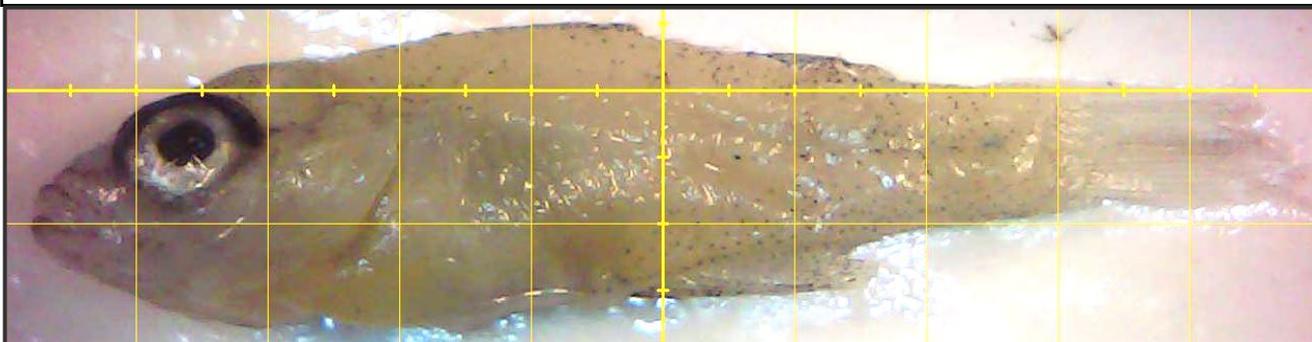
Abnormality Description(s): Mouth deformity
--



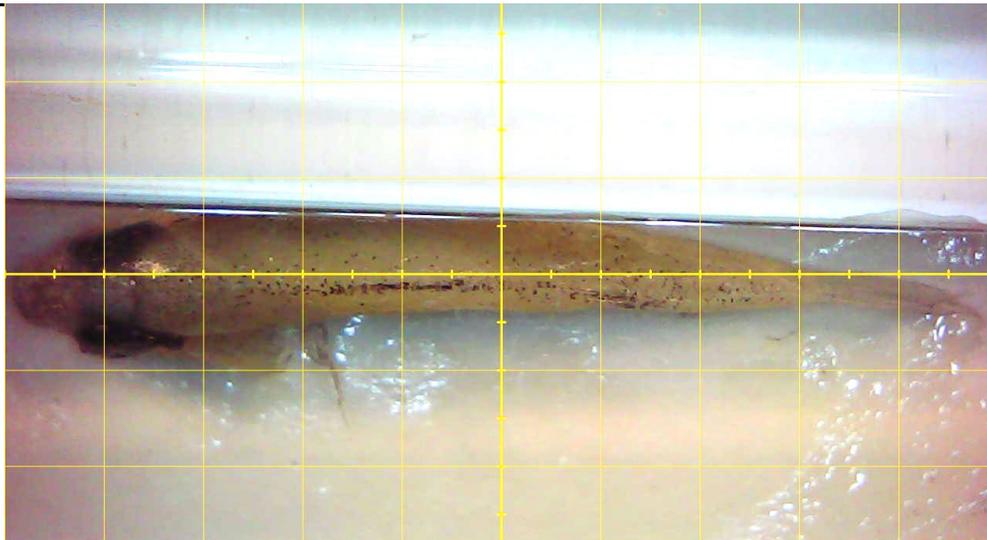
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes: Six yellow grids = 1 cm		
Primary Fish Health Assessor: RL			
Third-Party Assessor:			
Assessment Date(s): Aug 20-22, 2018			
Anatomical Category (e.g. spine, fin(s)): Gills			
Examples From YOY Bass Sampling Region (circle one):			
Curds Inlet	HQ Inlet	LHL1(Rocky Arm)	LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_002_L, LHL6_002_D	
Abnormality Description(s): Operculum deformity			



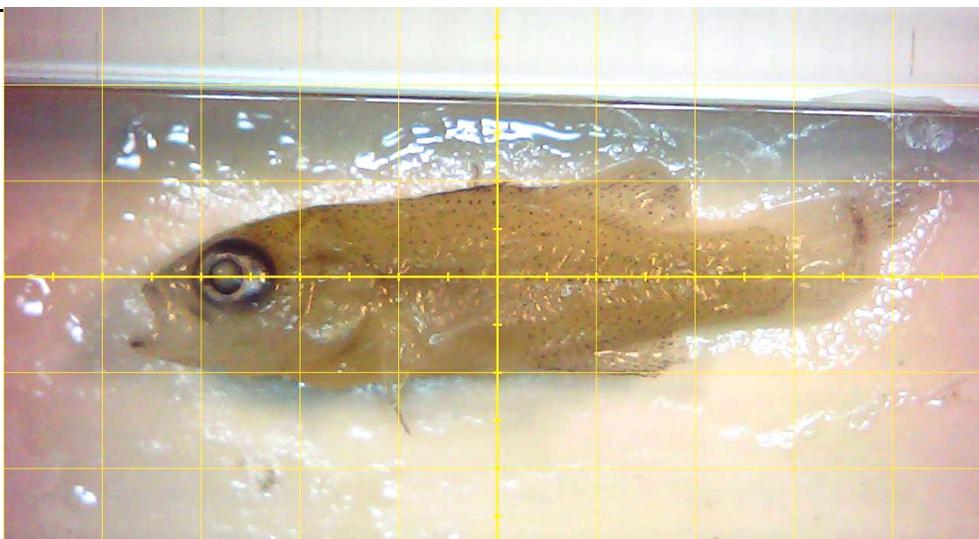
Abnormality Description(s): Operculum deformity
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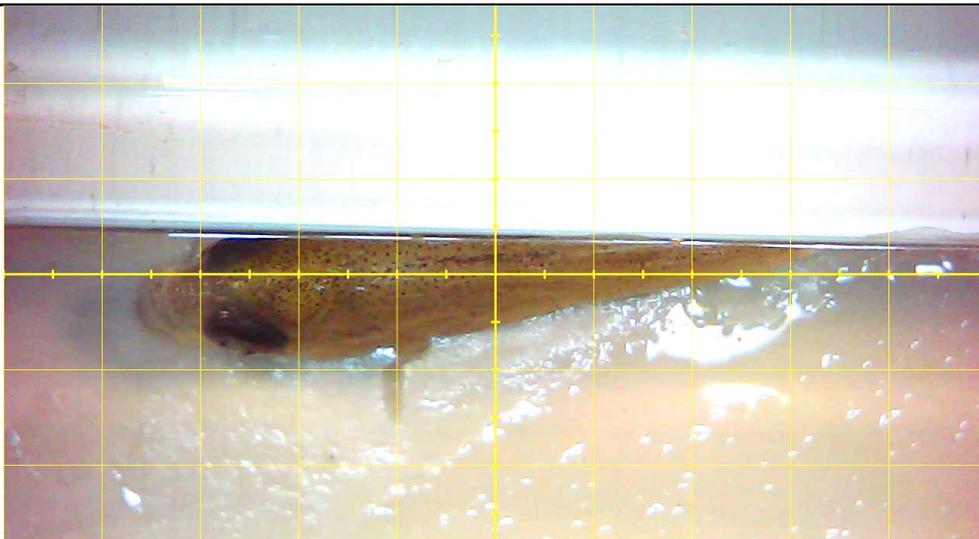
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Head		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_003_L, LHL6 003 D
Abnormality Description(s): Craniofacial deformity		



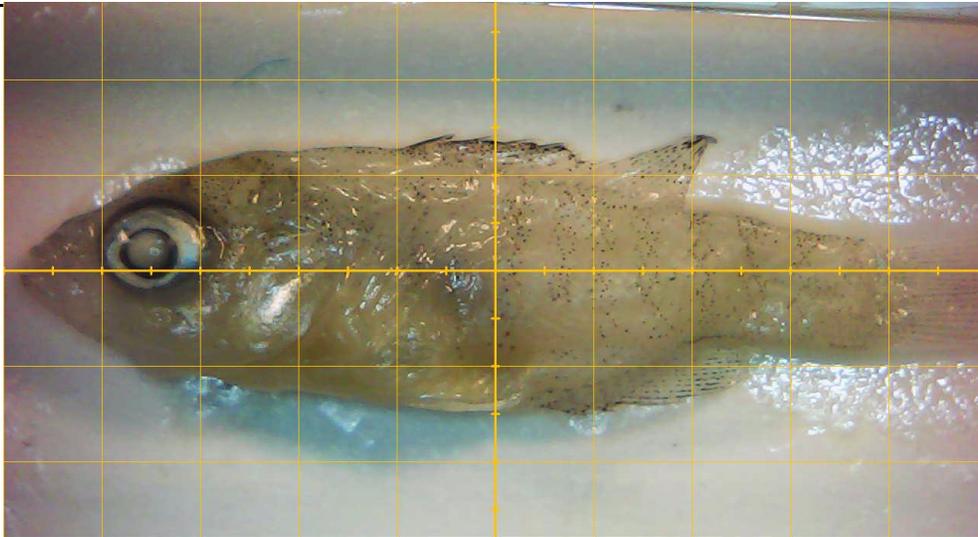
Abnormality Description(s): Craniofacial deformity



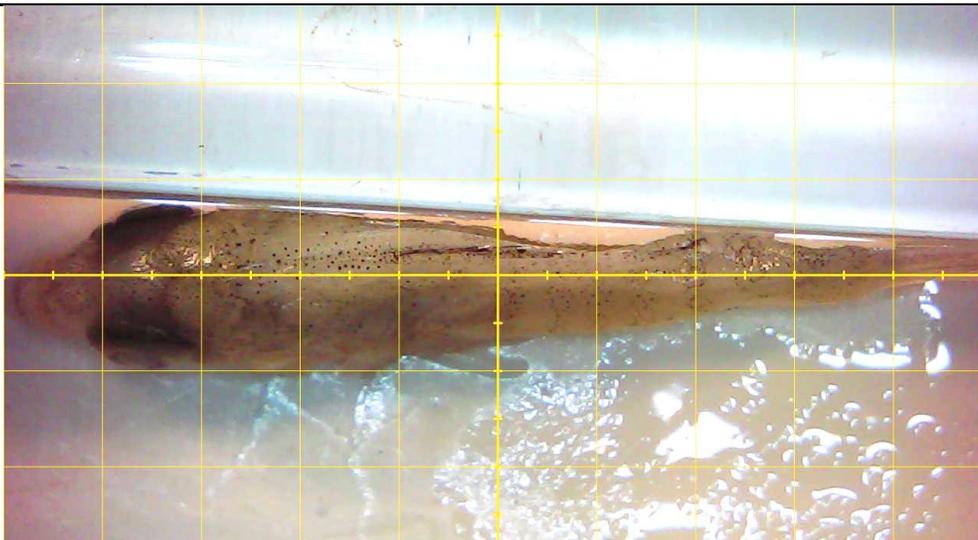
**Attachment I1-3
Completed Young-of-the-Year (YOY) Bluegill
Assessment Samples: Individual Assessment Forms**



Recorder: AJS	Notes:	
Primary Fish Health Assessor: RL	Six yellow grids = 1 cm	
Third-Party Assessor:		
Assessment Date(s): Aug 20-22, 2018		
Anatomical Category (e.g. spine, fin(s)): Spine		
Examples From YOY Bass Sampling Region (circle one):		
Curds Inlet	HQ Inlet	LHL1(Rocky Arm) LHL2(Dix Dam) LHL3 Cove <u>LHL 6 Cove</u>
Individual Sample ID:	Species: YOY Bluegill (Lepomis)	Photo Number(s): LHL6_004_L, LHL6_004_D
Abnormality Description(s): Scoliosis		



Abnormality Description(s): Scoliosis
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APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Attachment I1-4: Completed Third-Party (J. Hawke, LSU) Young-of-the-Year (YOY) Bluegill Assessment Forms



Department of Pathobiological Sciences • School of Veterinary Medicine • Louisiana State University • Baton Rouge, LA 70803

Preliminary assessment of bluegill for Herrington Lake deformity analysis.

LHL1

Normal 126

Abnormal 11 – abnormality: spinal curvature (scoliosis)

LHL6

Normal 125

Abnormal 4 – abnormalities: spinal curvature (scoliosis), atrophied dorsal muscle

HQ Inlet Non-Shock

Normal 72

Abnormal 5 – abnormalities: spinal curvature (scoliosis), atrophied dorsal muscle

HQ Inlet Shock

Normal 43

Abnormal 1 – abnormality: spinal curvature (lordosis)

Lower Curds Inlet

Normal 150

Abnormal 3 – abnormalities spinal curvature (scoliosis), anchor worm (*Lernaea* sp.)

Middle Curds Inlet

Normal 150

Abnormal – abnormalities: exophthalmia (93), Spinal curvature (5)

Upper Curds Inlet

Normal 150

Abnormal 5 – abnormality: curved caudal fin

Hardin Inlet

Normal 68

Abnormal 88 – abnormalities: exophthalmia (85), atrophied dorsal muscle (3)

John P. Hawke PhD

Professor, Department of Pathobiological Sciences

Section Head, Aquatic Diagnostic Laboratory

LSU School of Veterinary Medicine

Baton Rouge, LA 70803



Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/16/18	# of YOY in sample: 155

YOY Fish Sampling Location: Upper Curds Inlet	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
--	---

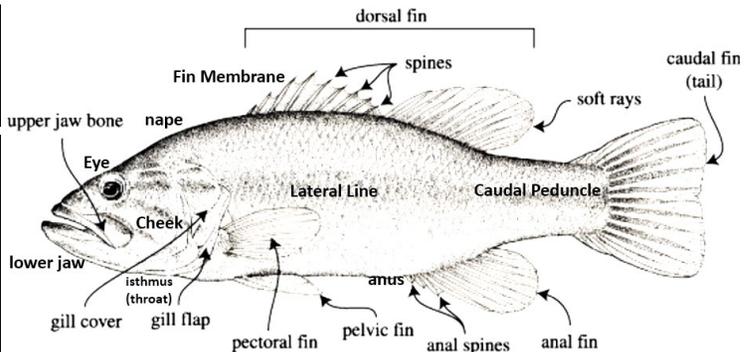
# of Normal Fish (no visible deformities): 150			<u>Assessment Guide for YOY Centrarchidae</u>		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	155			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		Craniofacial defects - mouth, jaw, and gill cover
	normal:		normal:		
	exophthalmic:		exophthalmic:		Edema - fluid accumulation
	opaque:		opaque:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
	missing:		missing:		
Other (list):		Other (list):			

Fins	Fins all normal:	150	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:	5		
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:						

Spine	Spine normal:	155	Craniofacial	Head Normal:	155
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:			gill cover:	
	Other (list):			Other (list):	

Edema	normal:	155
	Edema:	
	Other (list):	

Other (List)		



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/17/18	# of YOY in sample: 248

YOY Fish Sampling Location: Mid Curds Inlet	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
--	---

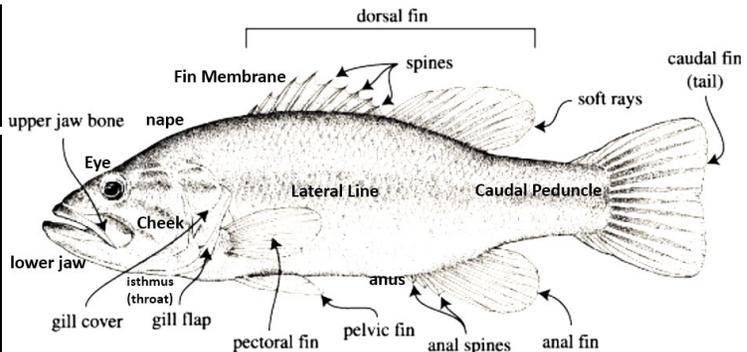
# of Normal Fish (no visible deformities): 150			<u>Assessment Guide for YOY Centrarchidae</u>		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	155			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		
	normal:		normal:		
	exophthalmic:	93	exophthalmic:	93	Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	opaque:		opaque:		
	missing:		missing:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
Other (list):		Other (list):			

Fins	Fins all normal:	248	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:			
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:						

Spine	Spine normal:	243	Craniofacial	Head Normal:	248
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:	5		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	248
	Edema:	
	Other (list):	

Other (List)		



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/16/18	# of YOY in sample: 153

YOY Fish Sampling Location: Lower Curds Inlet	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
--	---

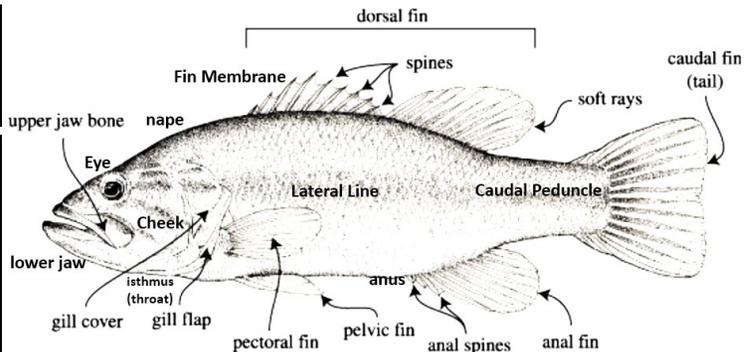
# of Normal Fish (no visible deformities): 150			<u>Assessment Guide for YOY Centrarchidae</u>		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	153			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		
	normal:		normal:		
	exophthalmic:		exophthalmic:		Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	opaque:		opaque:		
	missing:		missing:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
Other (list):		Other (list):			

Fins	Fins all normal:	153	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:			
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:						

Spine	Spine normal:	151	Craniofacial	Head Normal:	153
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:	2		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	
	Edema:	
	Other (list):	

Other (List)	Anchor worm	1



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/17/18	# of YOY in sample: 77

YOY Fish Sampling Location: HQ Inlet Not Shock	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
---	---

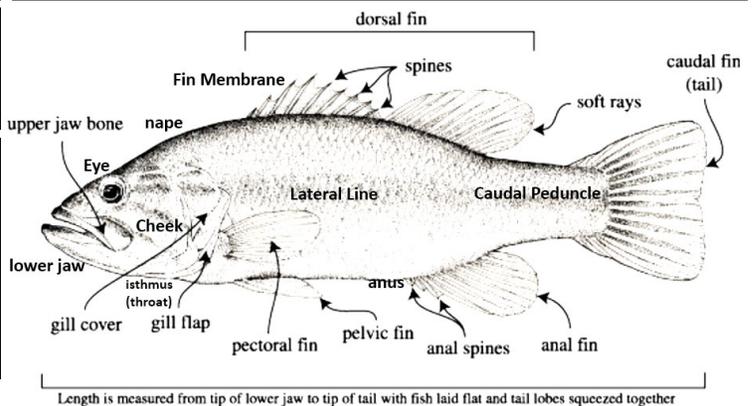
# of Normal Fish (no visible deformities): 72			Assessment Guide for YOY Centrarchidae		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	77			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		
	normal:		normal:		
	exophthalmic:		exophthalmic:		Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	opaque:		opaque:		
	missing:		missing:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
Other (list):		Other (list):			

Fins	Fins all normal:	77	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:			
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:		Other (list):				

Spine	Spine normal:	75	Craniofacial	Head Normal:	77
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:	2		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	77
	Edema:	
	Other (list):	

Other (List)	atrophied dorsal muscle	3





Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/17/18	# of YOY in sample: 44

YOY Fish Sampling Location: HQ Inlet shock	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
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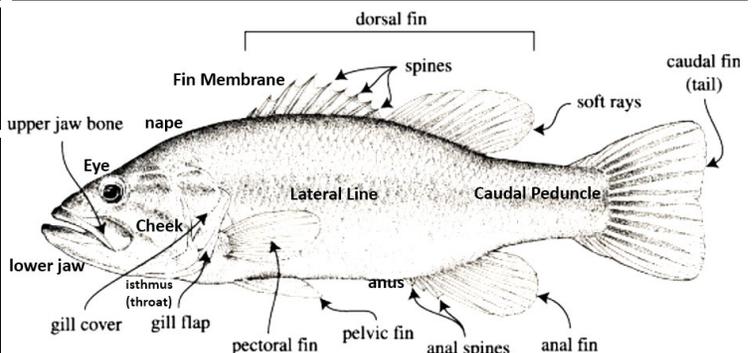
# of Normal Fish (no visible deformities): 43			Assessment Guide for YOY Centrarchidae		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	44			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		Craniofacial defects - mouth, jaw, and gill cover
	normal:		normal:		
	exophthalmic:		exophthalmic:		Edema - fluid accumulation
	opaque:		opaque:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
	missing:		missing:		
Other (list):		Other (list):			

Fins	Fins all normal:	44	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:			
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:						

Spine	Spine normal:	43	Craniofacial	Head Normal:	44
	kyphosis:			mouth:	
	lordosis:	1		jaw:	
	scoliosis:			gill cover:	
	Other (list):			Other (list):	

Edema	normal:	44
	Edema:	
	Other (list):	

Other (List)		



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	Notes: Most of the fish had frayed caudal fins believed to be an artifact of collection and fixation. Some fish had more than 1 abnormality resulting in the total abnormalities of 15.
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/16/18	
# of YOY in sample: 137	

YOY Fish Sampling Location: LHL-1	Species distribution in sample (e.g. 80% percent largemouth bass): bluegill 100%
--	---

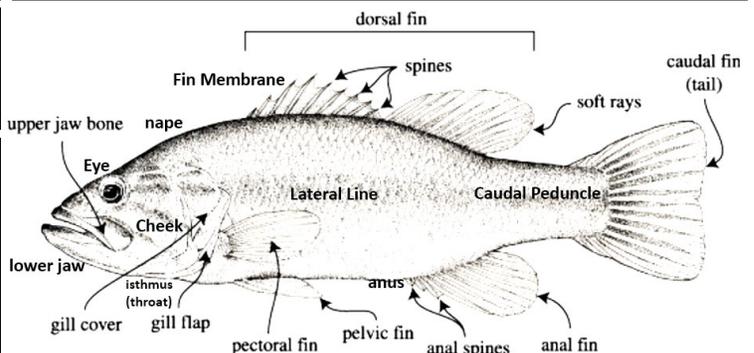
# of Normal Fish (no visible deformities): 126				Assessment Guide for YOY Centrarchidae	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	136			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		Craniofacial defects - mouth, jaw, and gill cover
	normal:		normal:		
	exophthalmic:	1	exophthalmic:		Edema - fluid accumulation
	opaque:		opaque:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
	missing:		missing:		
Other (list):		Other (list):			

Fins	Fins normal:	137	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:		Dorsal fin	
	missing:		twisted:			
	twisted:		Anal fin		partly missing:	
	Right pectoral		partly missing:		missing:	
	partly missing:		missing:		twisted:	
	missing:		twisted:		fins other (list):	
twisted:						

Spine	Spine normal:	131	Craniofacial	Head Normal:	132
	kyphosis:			mouth:	3
	lordosis:	1		jaw:	
	scoliosis:	5		gill cover:	2
	Other (list):			Other (list): muscle atrophy behind head	2

Edema	normal:	137
	Edema:	
	Other (list):	

Other (List) Hypertrophy of tissue in gill chamber	hypertrophy	1



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	<u>Notes: Some fish had multiple abnormalities.</u>
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/17/18	# of YOY in sample: 156

YOY Fish Sampling Location: Hardin Inlet	Species distribution in sample (e.g. 80% percent largemouth bass): 100% bluegill
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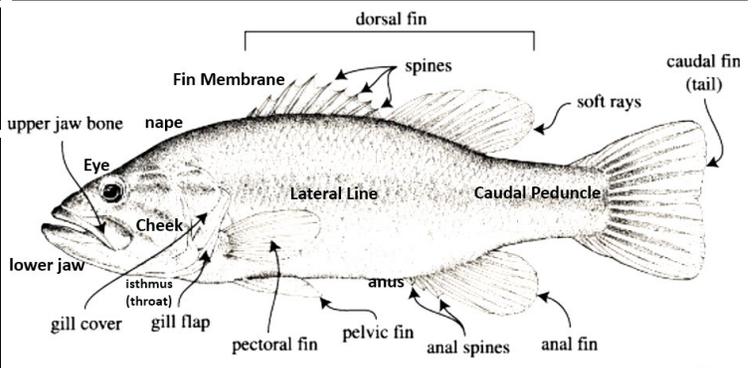
# of Normal Fish (no visible deformities): 71			Assessment Guide for YOY Centrarchidae		
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish	Eye abnormalities - including lens cataracts and exophthalmos
					Fin irregularities - missing, misshaped, partly missing (aka vestigial)
Eyes	Eyes both normal:	71			Spinal curvature - kyphosis, lordosis, and scoliosis
	Left		Right		
	normal:		normal:		
	exophthalmic:	85	exophthalmic:	85	Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation
	opaque:		opaque:		
	missing:		missing:		Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.
Other (list):		Other (list):			

Fins	Fins all normal:	155	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:			
	missing:		twisted:		Dorsal fin	
	twisted:				partly missing:	2
	Right pectoral		Anal fin		missing:	
	partly missing:		partly missing:		twisted:	
	missing:		missing:		fins other (list):	
twisted:		twisted:				

Spine	Spine normal:	157	Craniofacial	Head Normal:	157
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:			gill cover:	
	Other (list):			Other (list):	

Edema	normal:	157
	Edema:	
	Other (list):	

Other (List) _atrophied dorsal muscle_	atrophied dorsal muscle	3



Length is measured from tip of lower jaw to tip of tail with fish laid flat and tail lobes squeezed together



Recorder:	Notes:
Primary Fish Health Assessor:	
Third-Party Assessor: John P. Hawke	
Assessment Date(s): 9/16/18	
# of YOY in sample: 129	

YOY Fish Sampling Location: LHL-6	Species distribution in sample (e.g. 80% percent largemouth bass): bluegill 100%
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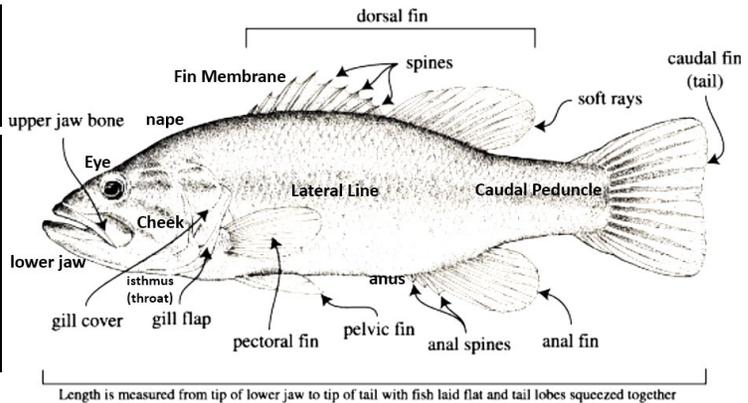
# of Normal Fish (no visible deformities): 125			Assessment Guide for YOY Centrarchidae Eye abnormalities - including lens cataracts and exophthalmos Fin irregularities - missing, misshaped, partly missing (aka vestigial) Spinal curvature - kyphosis, lordosis, and scoliosis Craniofacial defects - mouth, jaw, and gill cover Edema - fluid accumulation Note: To avoid multiple-counting of fish with multiple deformities, this form counts the prominent deformity and digital images and details of specific fish will also be recorded.	
Fish Anatomy	Anatomical Anomaly	# of fish	Anatomical Anomaly	# of fish
Eyes	Eyes both normal:	129		
	Left		Right	
	normal:		normal:	
	exophthalmic:		exophthalmic:	
	opaque:		opaque:	
	missing:		missing:	
Other (list):			Other (list):	

Fins	Fins normal:	129	Caudal fin (tail)		Anatomical Anomaly	# of fish
	Left pectoral		partly missing:			
	partly missing:		missing:			
	missing:		twisted:			
	twisted:		Dorsal fin			
	Right pectoral		partly missing:			
	partly missing:		missing:			
	missing:		twisted:			
twisted:		Anal fin		fins other (list):		
		partly missing:				
		missing:				
		twisted:				

Spine	Spine normal:	125	Craniofacial	Head Normal:	129
	kyphosis:			mouth:	
	lordosis:			jaw:	
	scoliosis:	3		gill cover:	
	Other (list):			Other (list):	

Edema	normal:	129
	Edema:	
	Other (list):	

Other (List)	atrophied dorsal muscle	1



APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Attachment I1-5: Young-of-the-Year (YOY) Bluegill Analytical Samples: Digital Image Log

UPPER CURDS INLET



DRAFTED BY: AEM

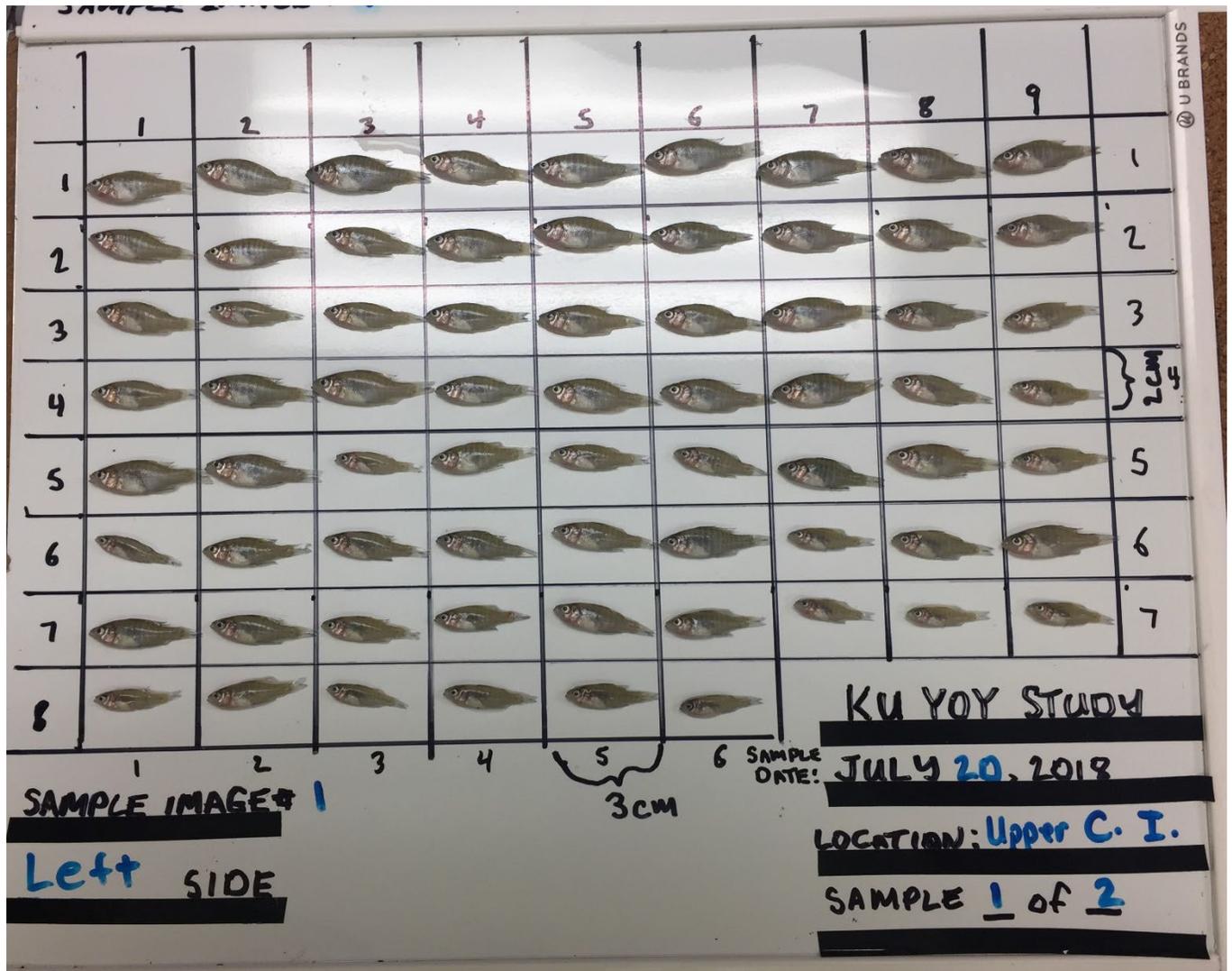
DATE: 8/27/2018

ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Page

PHOTO 1



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #1: Left Side



PHOTO 2

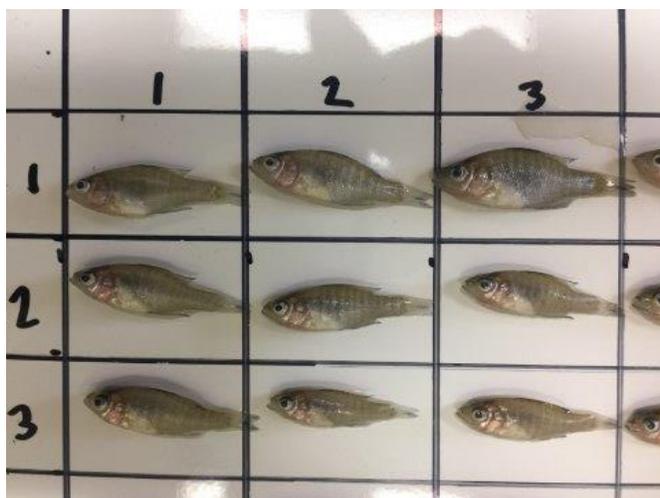


PHOTO 3

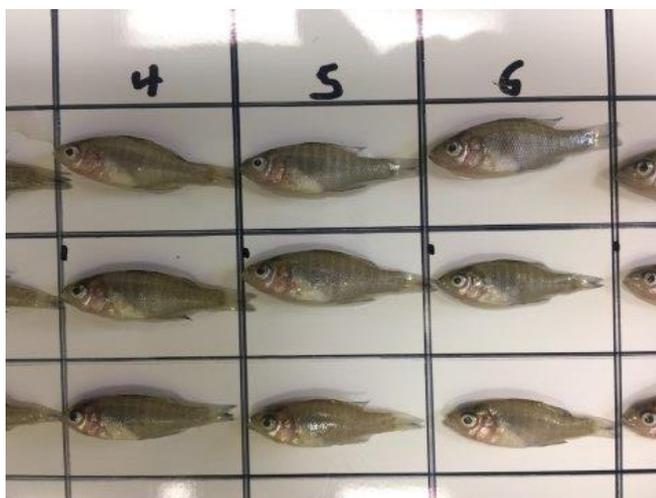
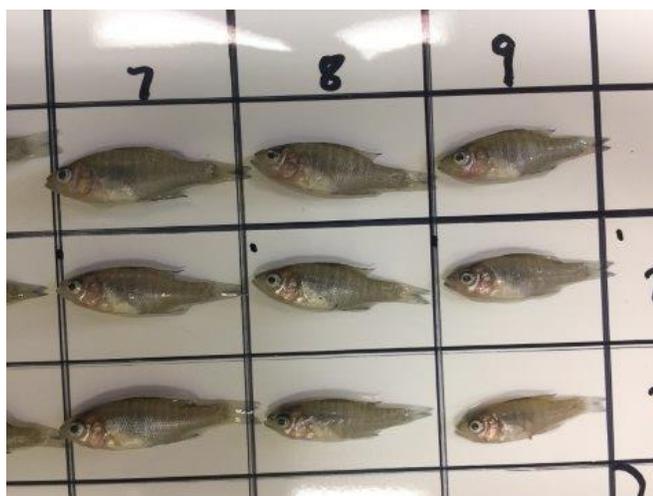
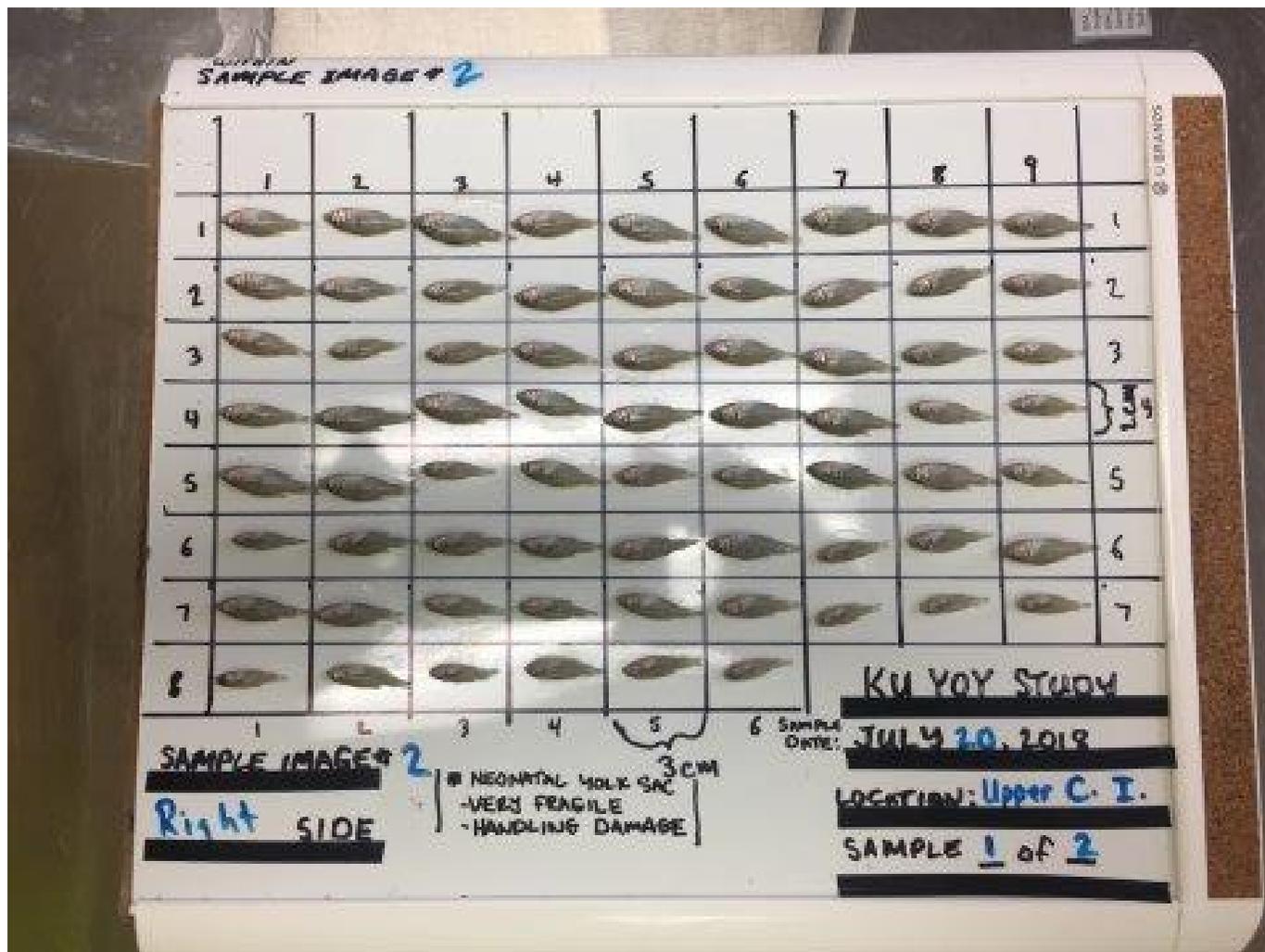


PHOTO 4



Sample 1 Image #1: Left Side, Closeup photos

PHOTO 5



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #2: Right Side



PHOTO 6

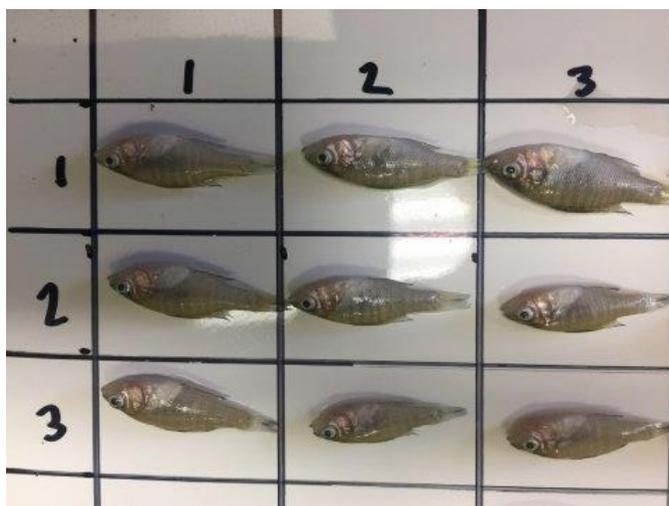


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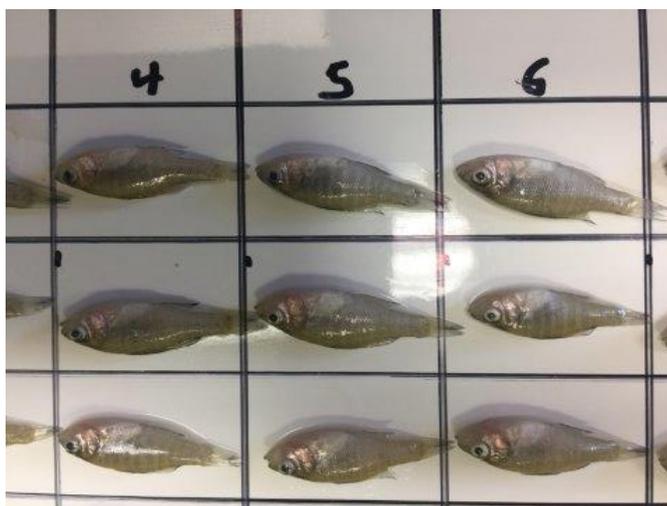
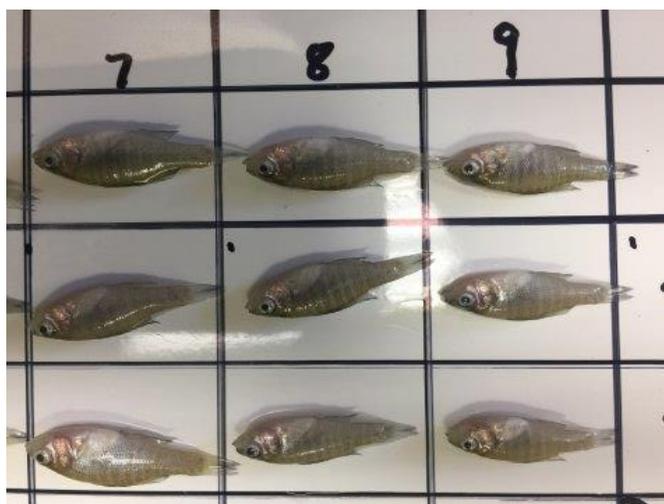
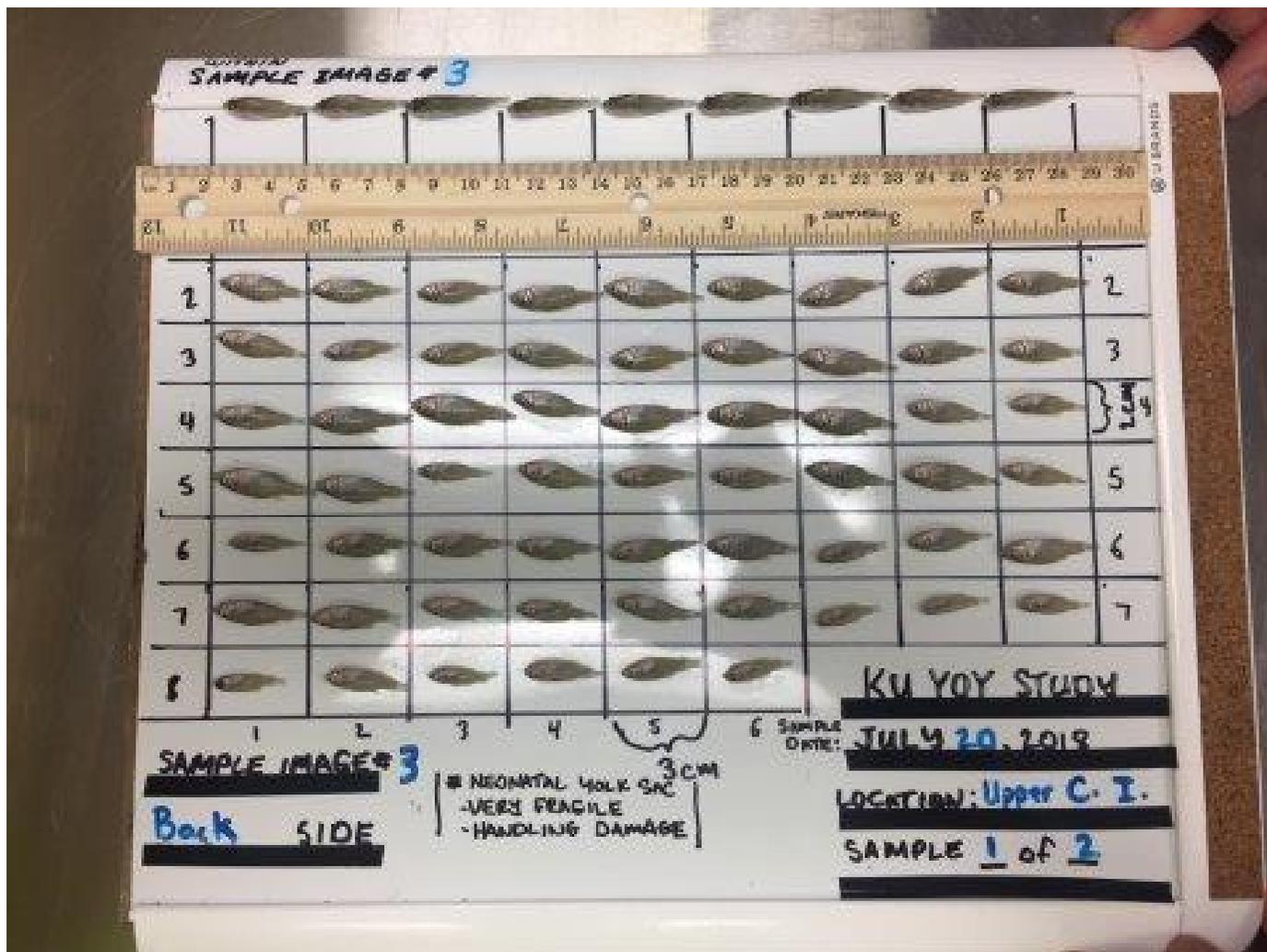


PHOTO 8



Sample 1 Image #2: Right Side, Closeup photos

PHOTO 9



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #3: Dorsal Side, Row 1



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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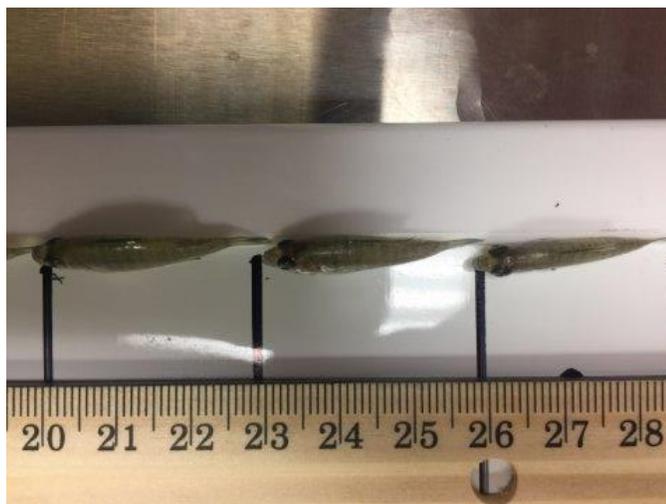
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PHOTO 11

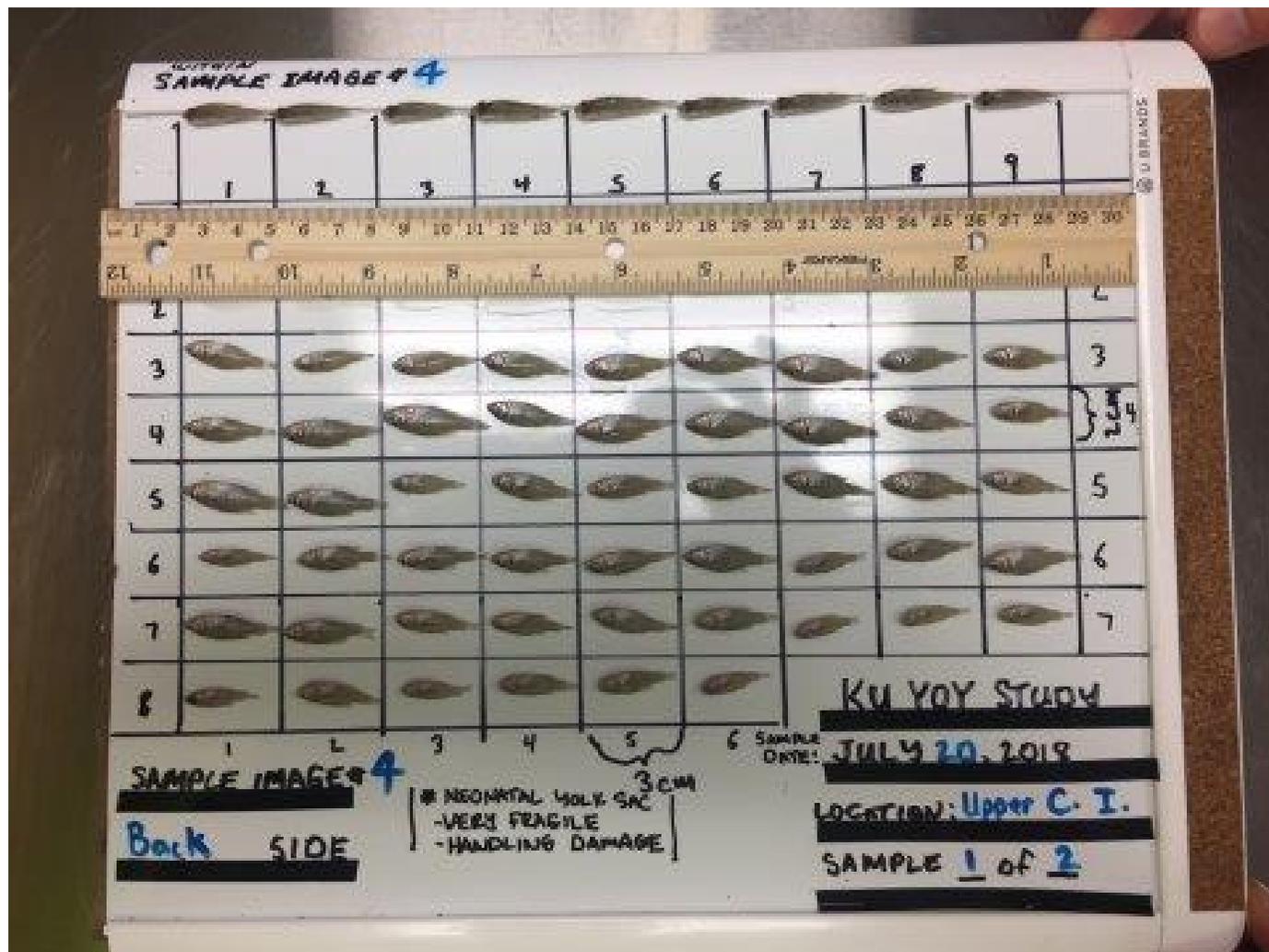


PHOTO 12



Sample 1 Image #3: Dorsal Side, Row 1, Closeup photos

PHOTO 13



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #4: Dorsal Side, Row 2



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

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PHOTO 14



PHOTO 15

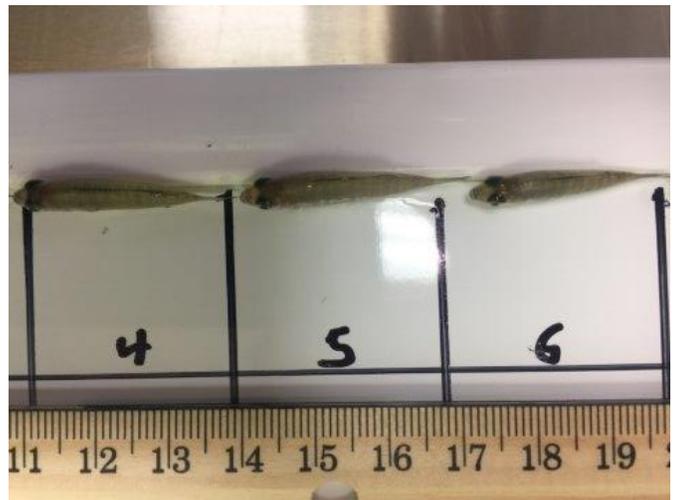
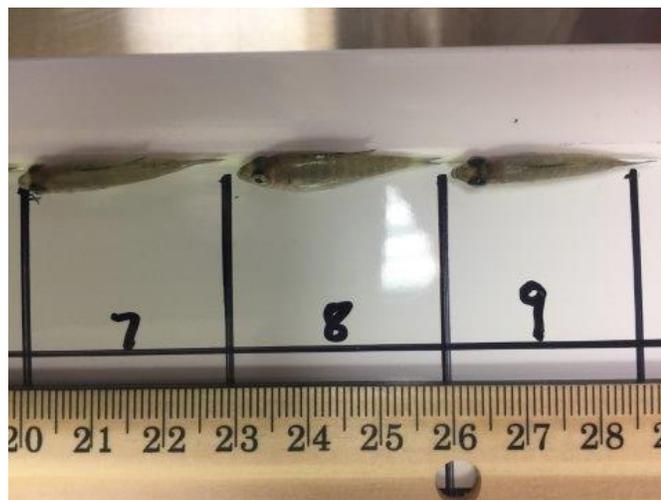
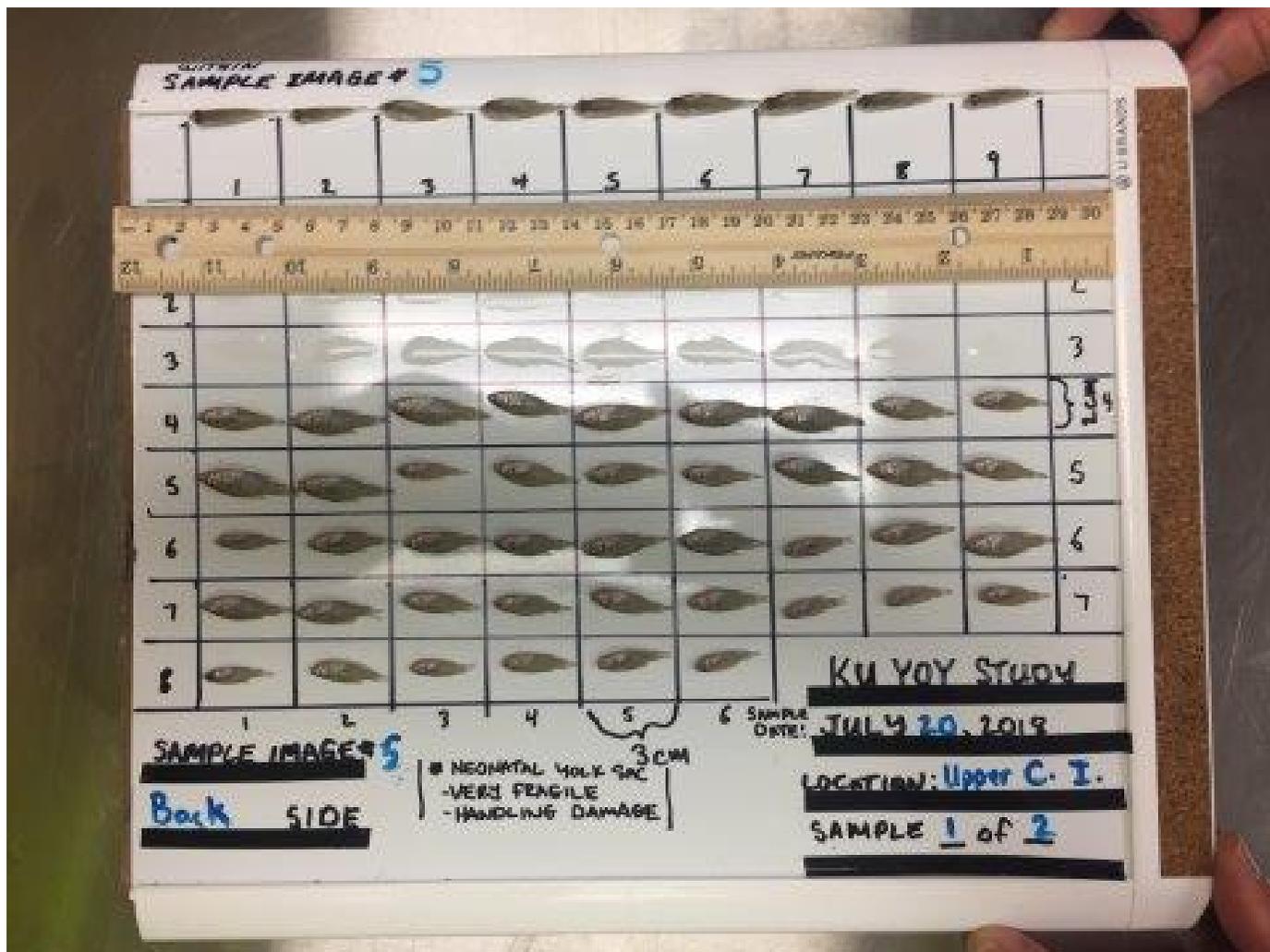


PHOTO 16



Sample 1 Image #4: Dorsal Side, Row 2, Closeup photos

PHOTO 17



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #5: Dorsal Side, Row 3



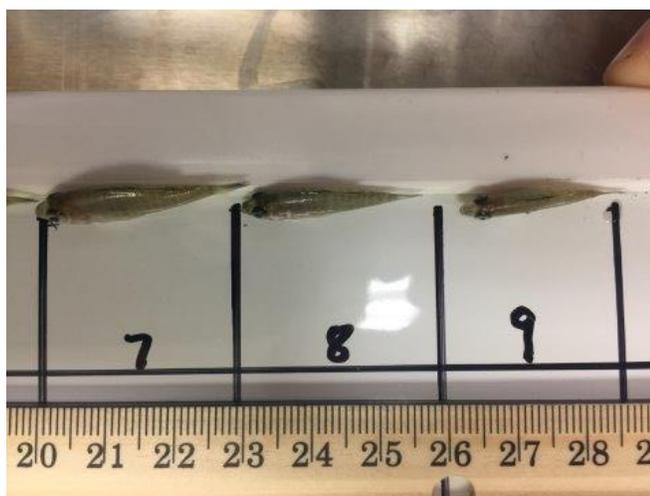
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PHOTO 19

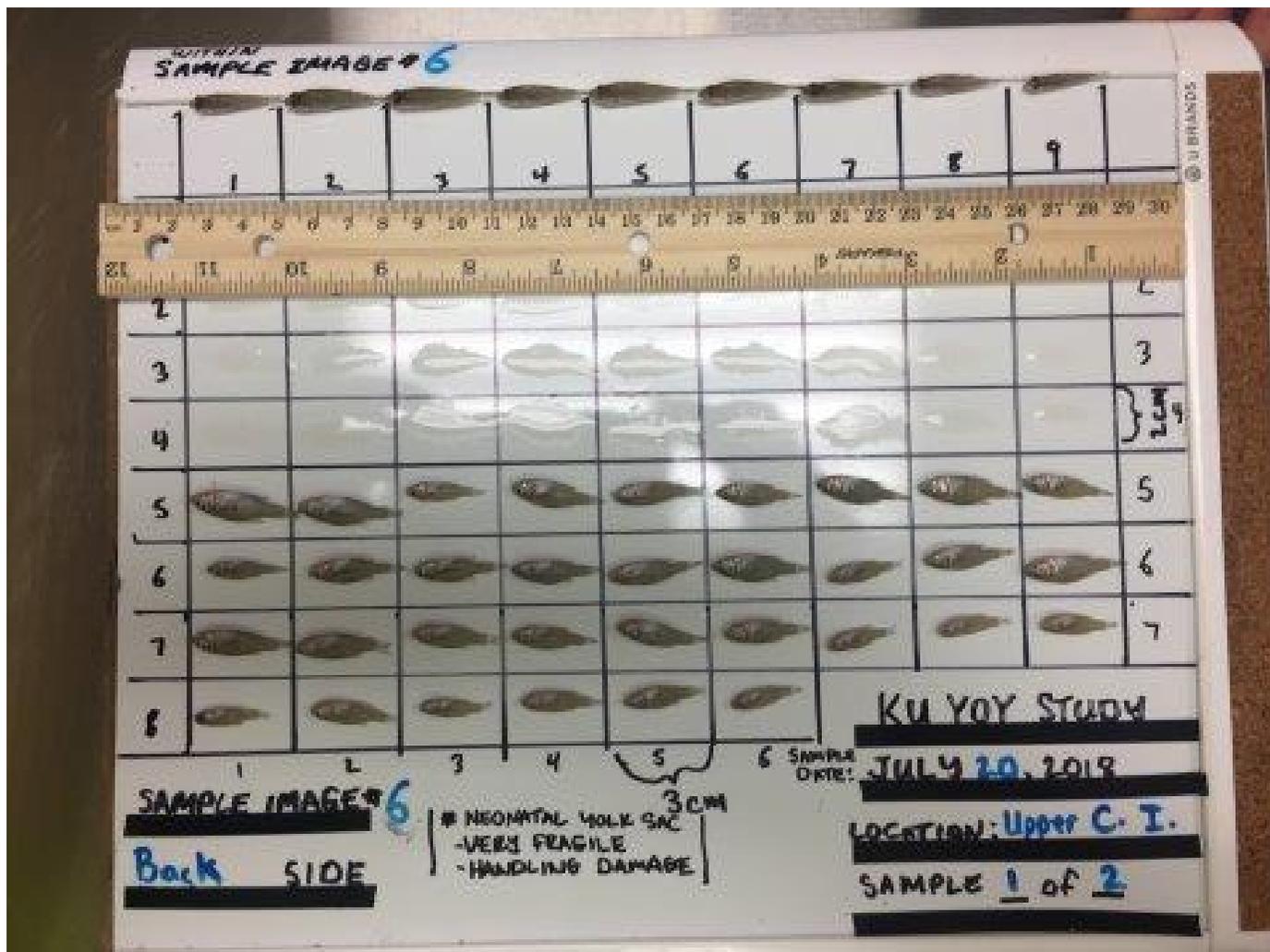


PHOTO 20



Sample 1 Image #5: Dorsal Side, Row 3, Closeup photos

PHOTO 21



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #6: Dorsal Side, Row 4



PHOTO 22

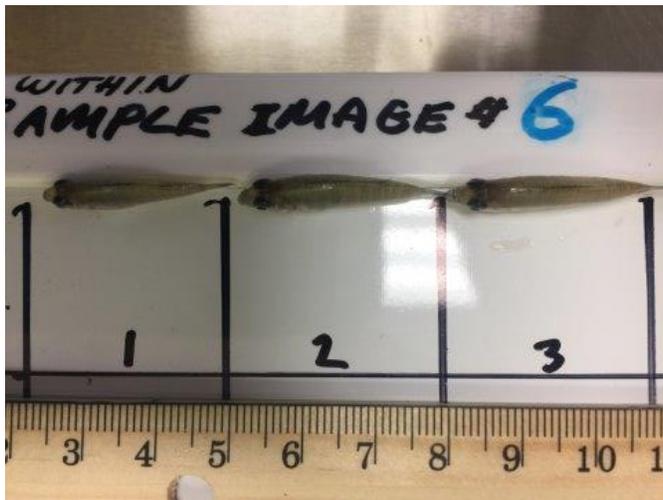


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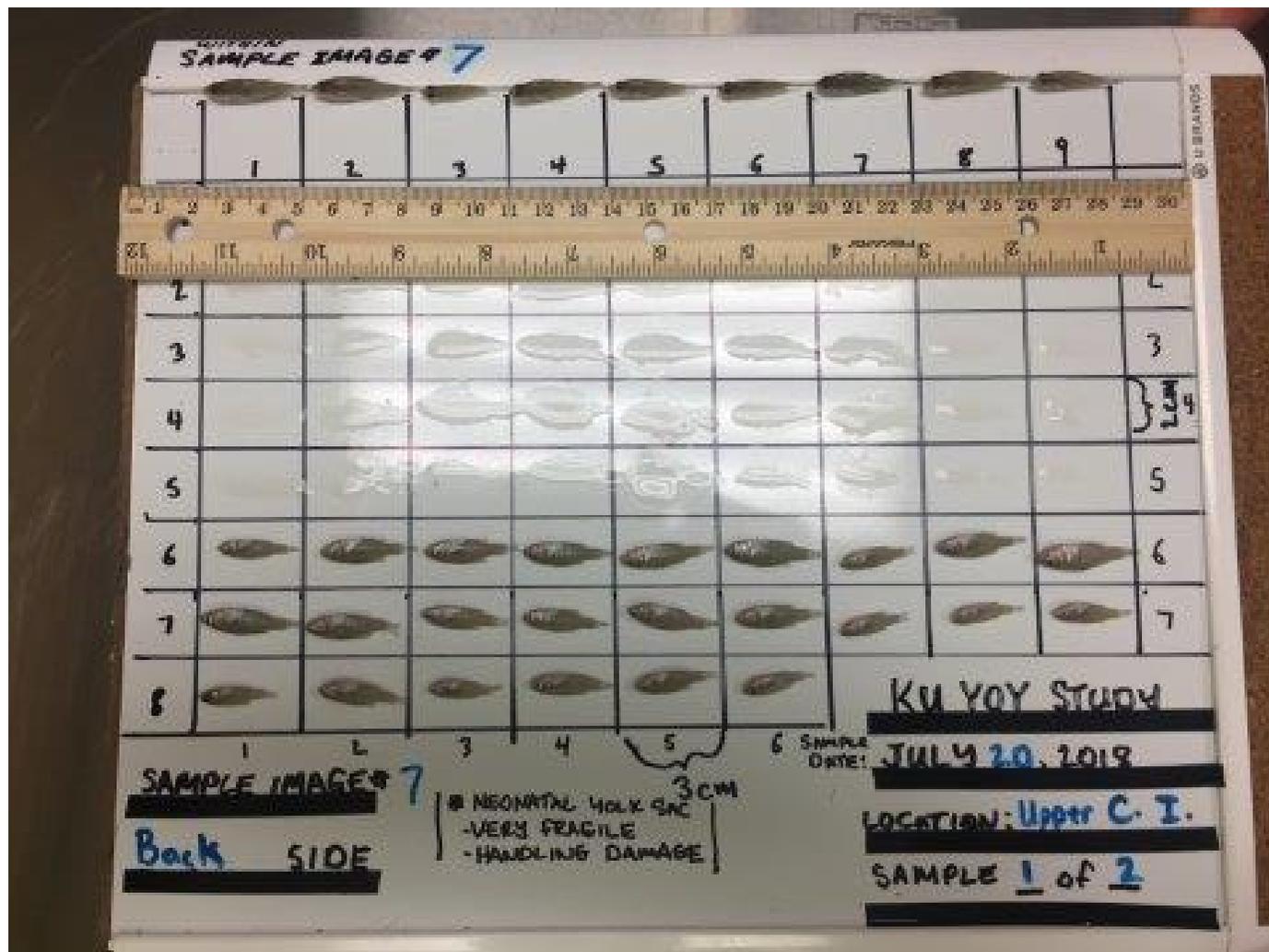


PHOTO 24



Sample 1 Image #6: Dorsal Side, Row 4, Closeup photos

PHOTO 25



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #7: Dorsal Side, Row 5



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 26

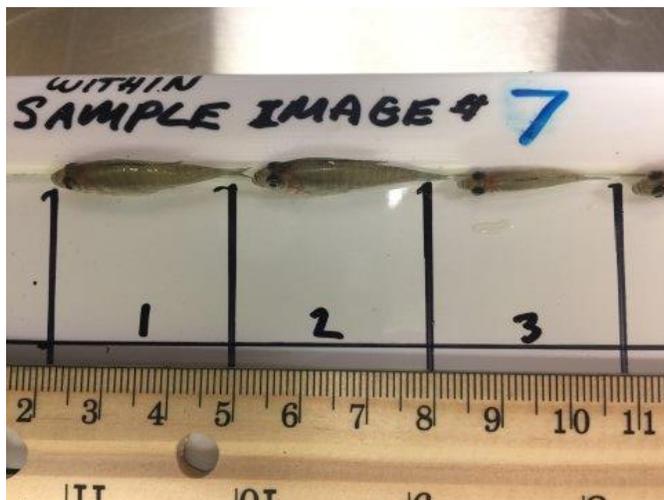


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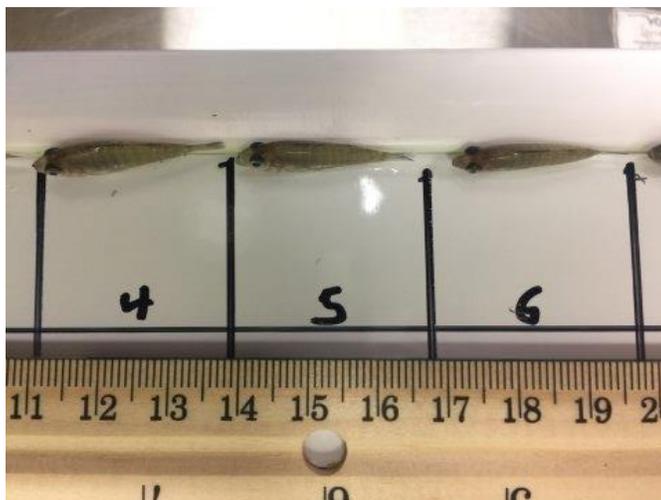


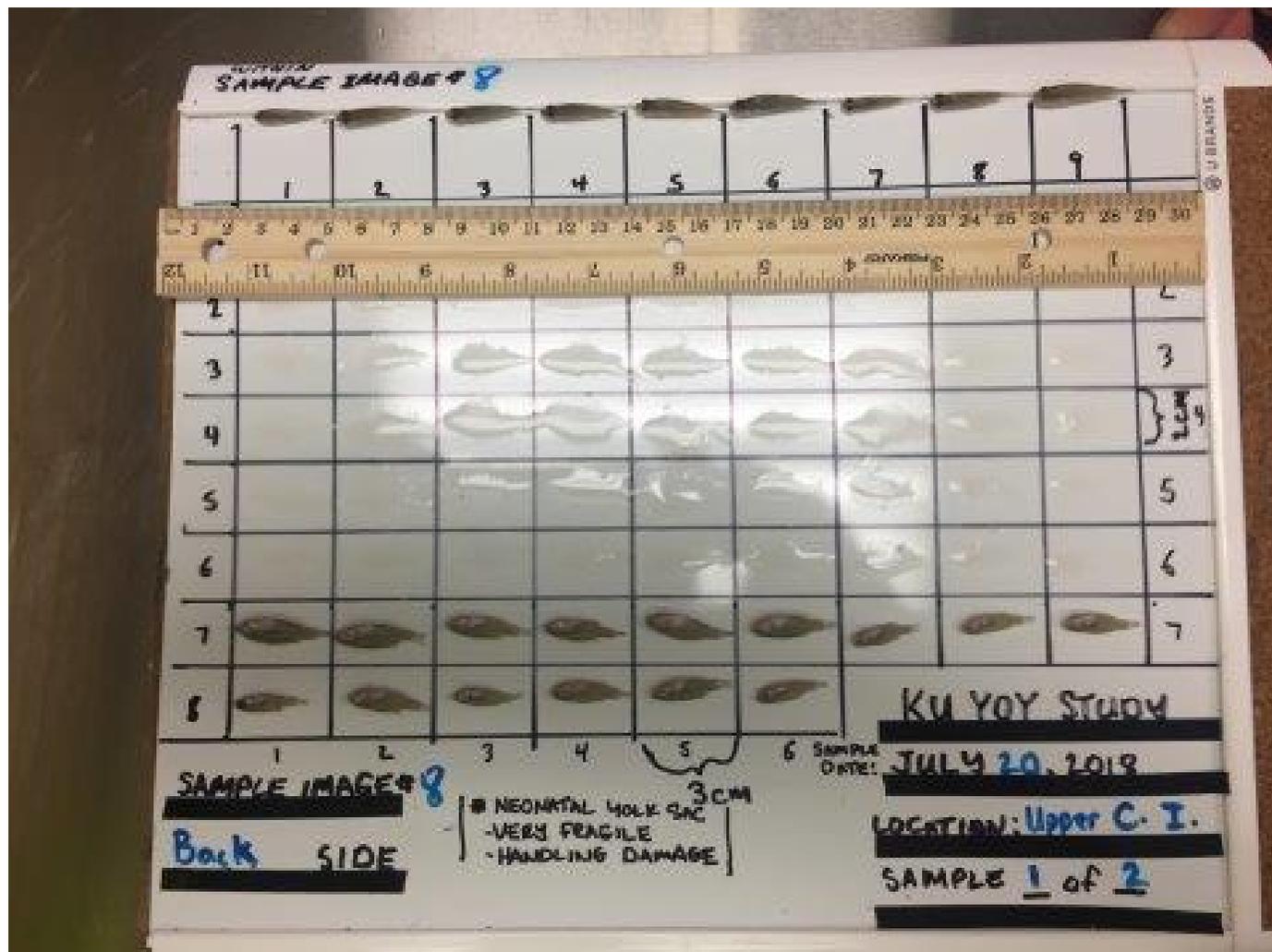
PHOTO 28



Sample 1 Image #7: Dorsal Side, Row 5, Closeup photos



PHOTO 29



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #8: Dorsal Side, Row 6



PHOTO 30

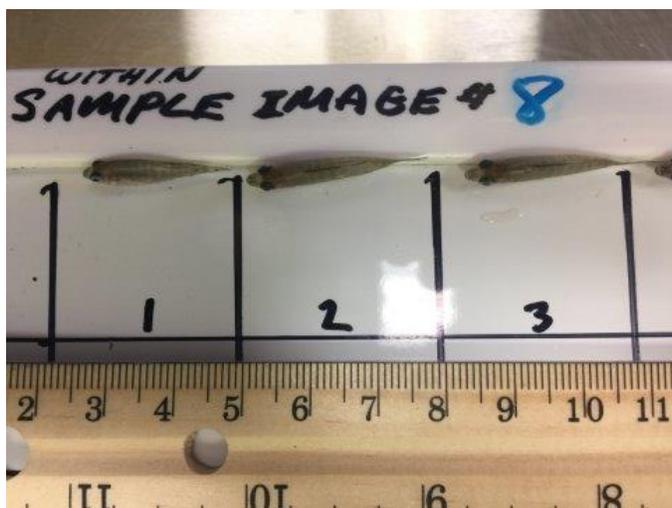


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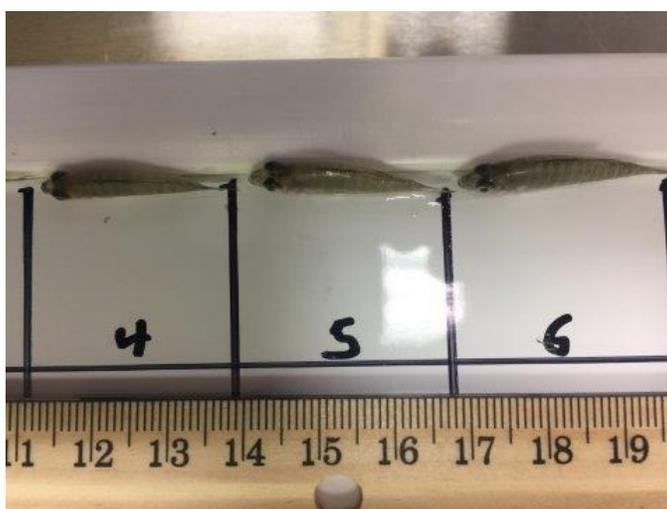
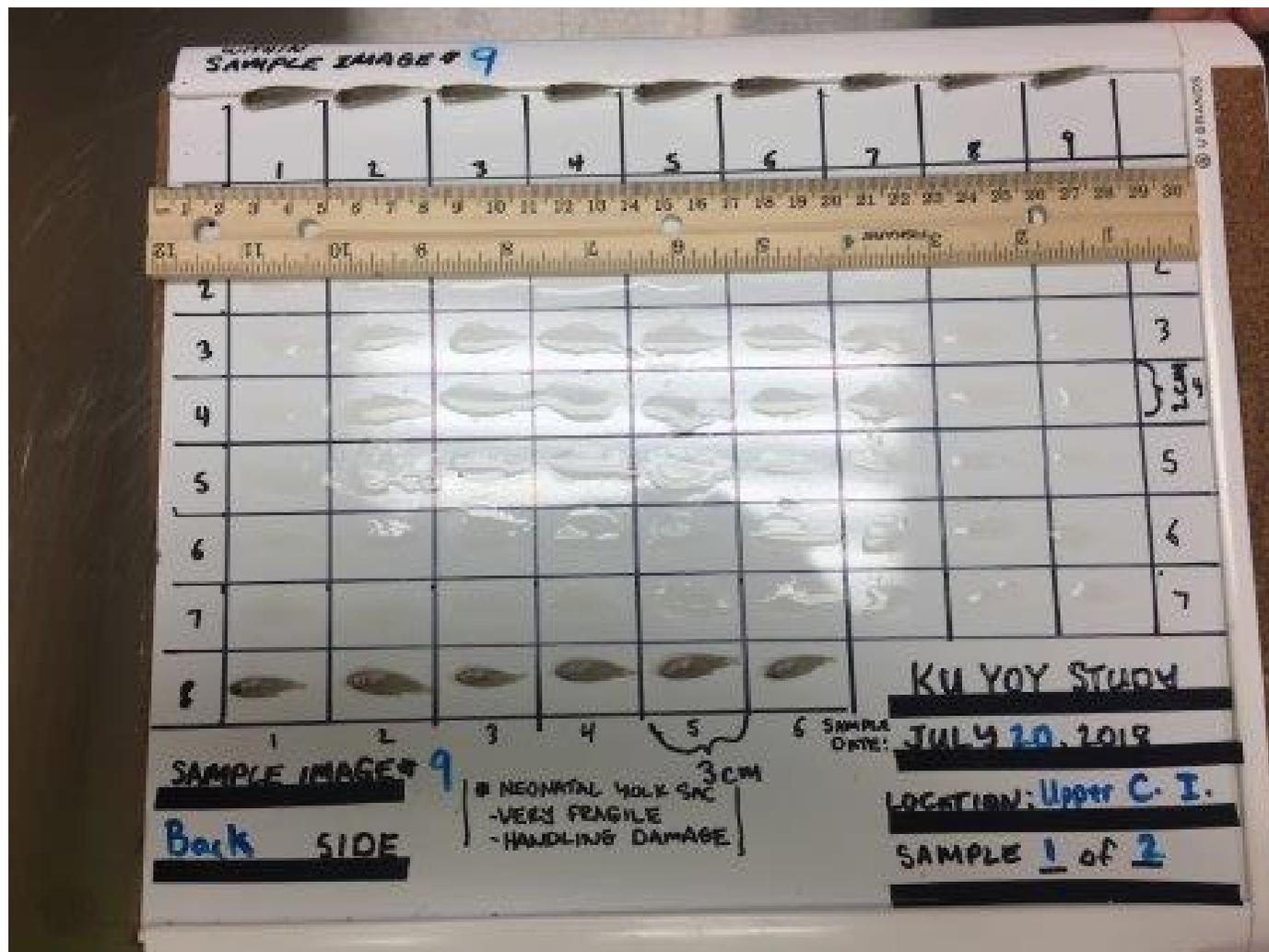


PHOTO 32



Sample 1 Image #8: Dorsal Side, Row 6, Closeup photos

PHOTO 33



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #9: Dorsal Side, Row 7



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PHOTO 34

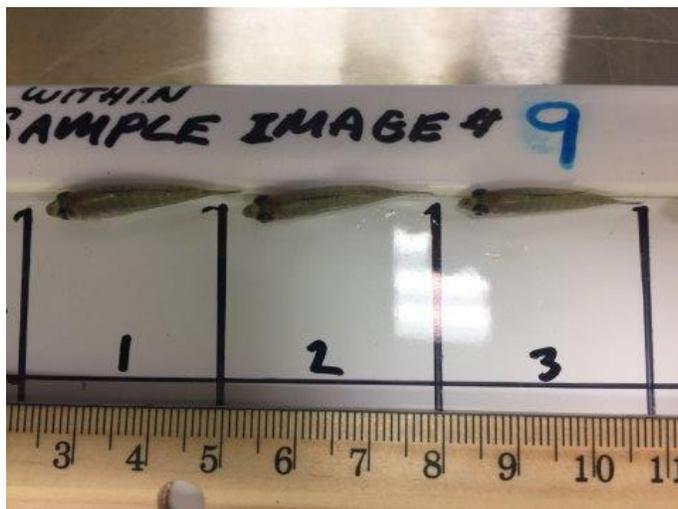
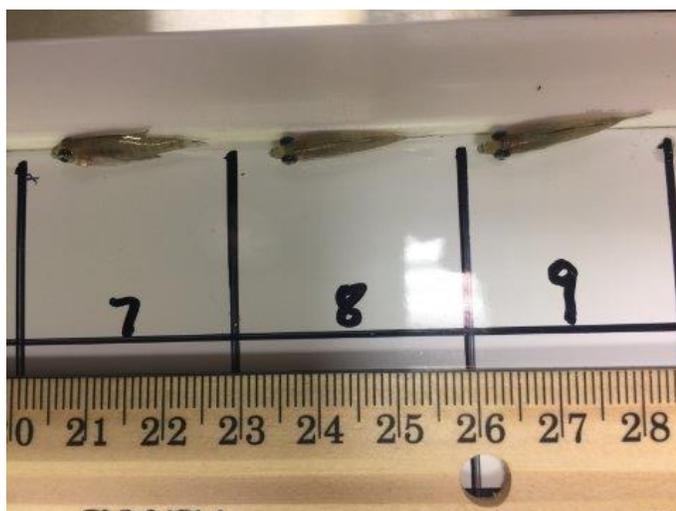


PHOTO 35

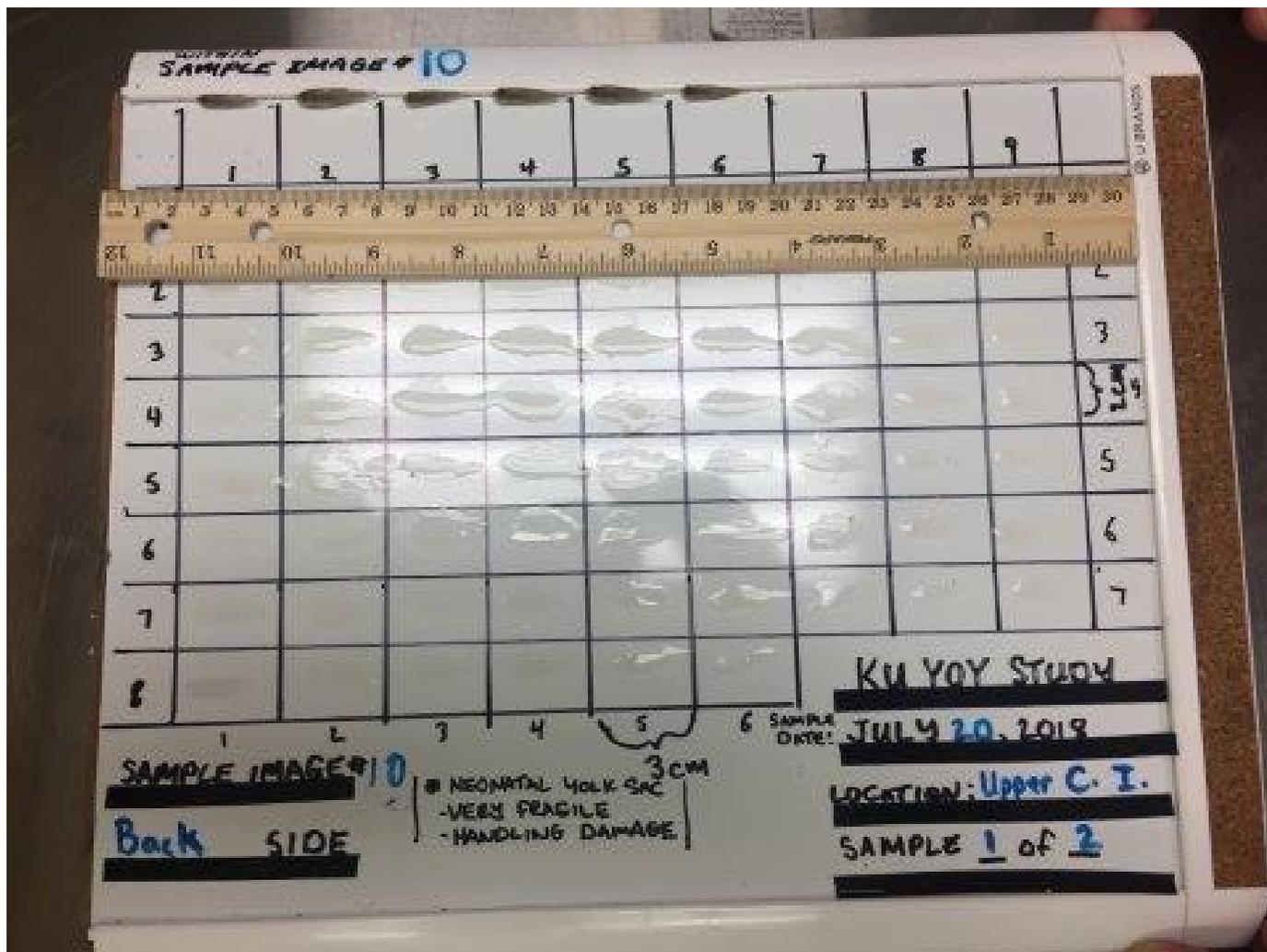


PHOTO 36



Sample 1 Image #9: Dorsal Side, Row 7, Closeup photos

PHOTO 37



Upper Curds Inlet Bluegill Analytical Sample (1 of 2)
N=69

Sample ID: YOY-001-UCI

Sample 1 Image #10: Dorsal Side, Row 8

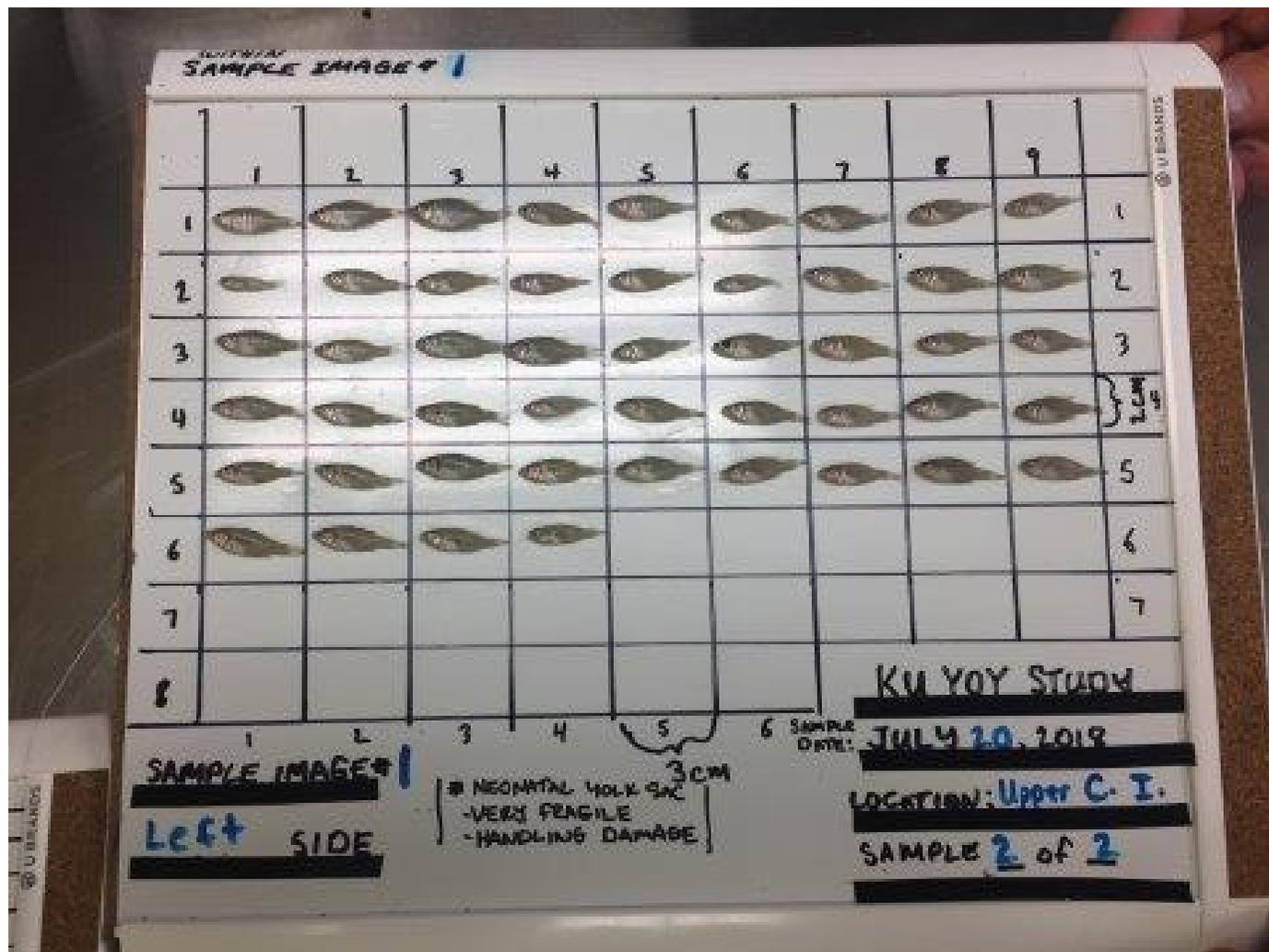


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PHOTO 38



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #1: Left Side



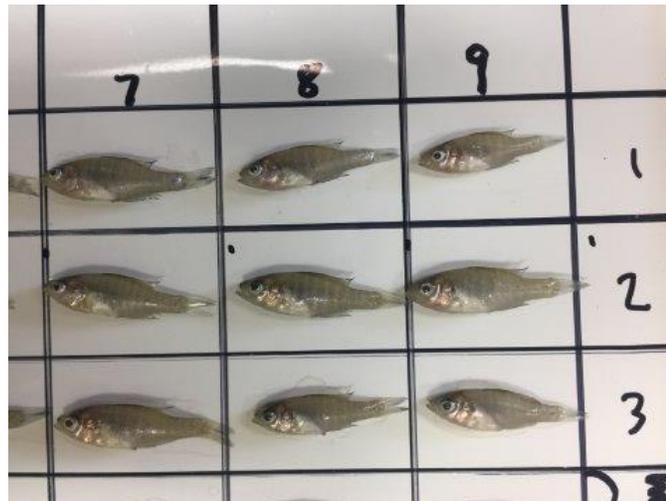
PHOTO 39



PHOTO 40

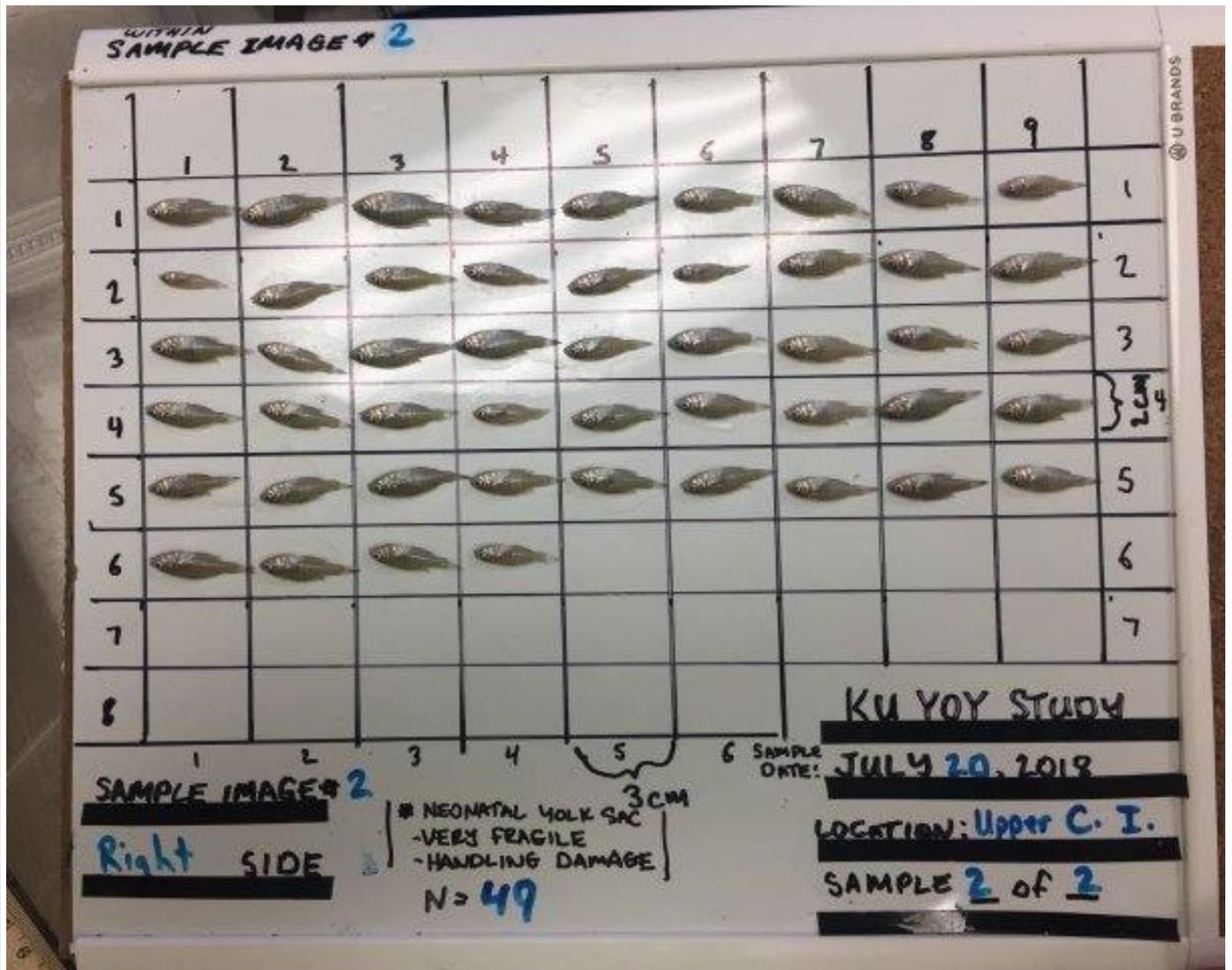


PHOTO 41



Sample 2 Image #1: Left Side, closeup photos

PHOTO 42



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #2: Right Side



PHOTO 43



PHOTO 44

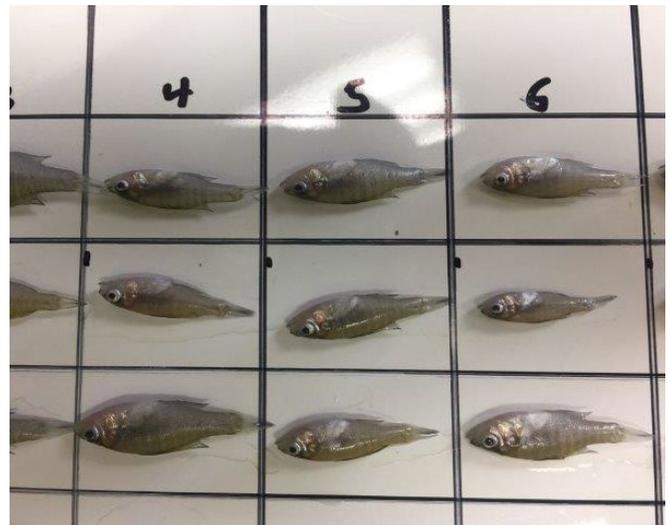
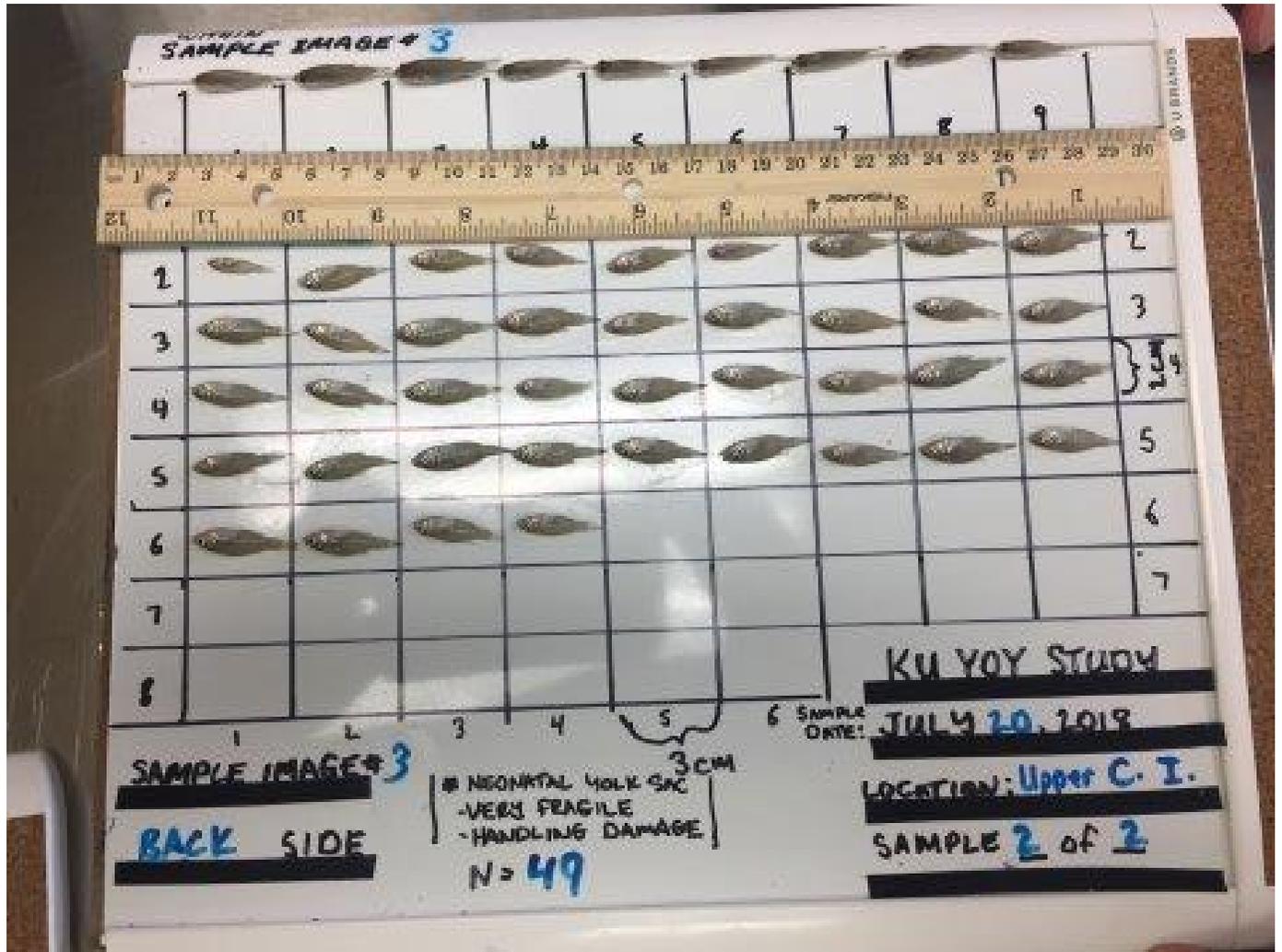


PHOTO 45



Sample 2 Image #2: Right Side, closeup photos

PHOTO 46



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #3: Dorsal side, Row 1



PHOTO 47



PHOTO 48

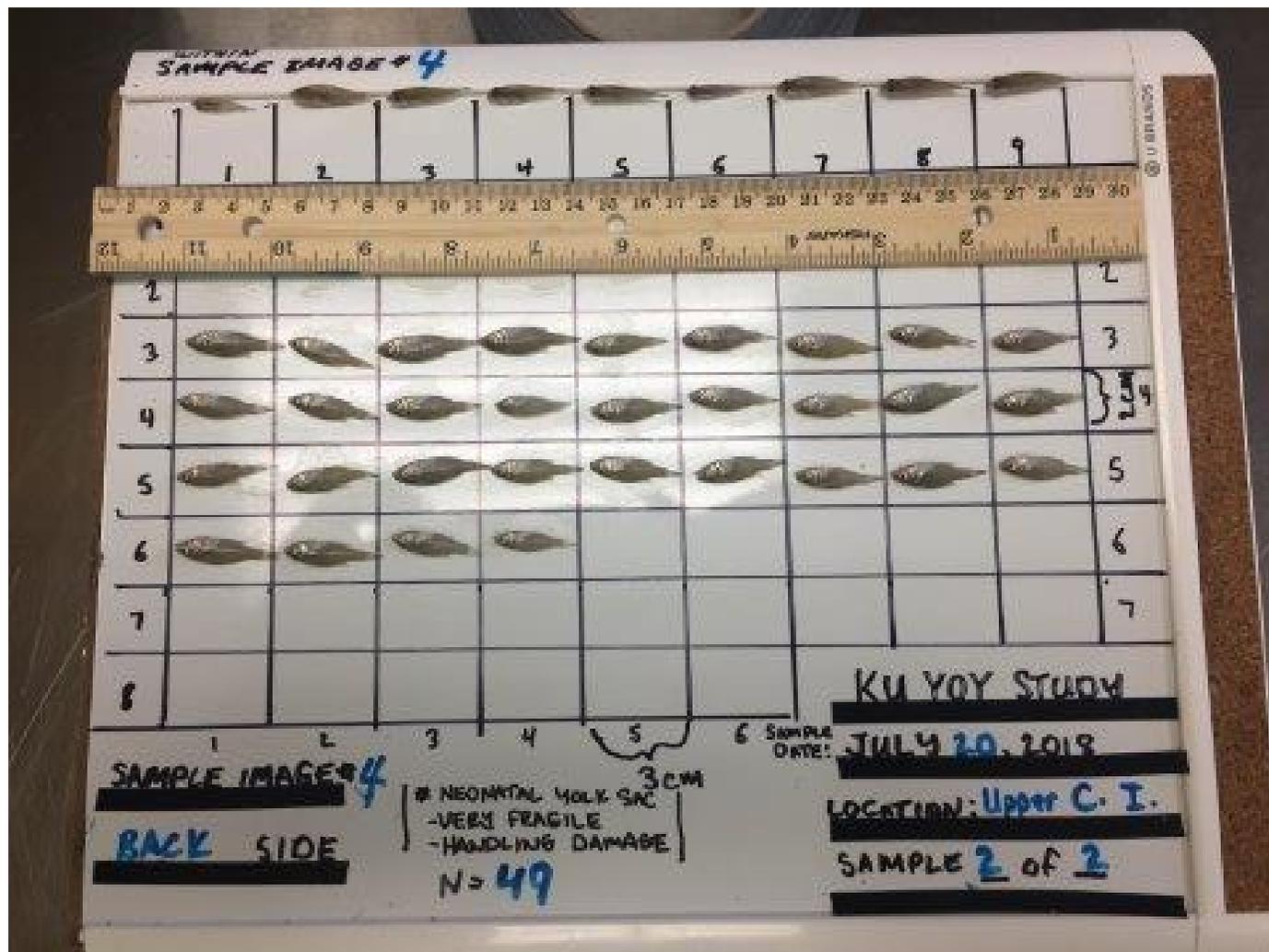


PHOTO 49



Sample 2 Image #3: Dorsal side, Row 1, closeup photos

PHOTO 50



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #4: Dorsal side, Row 2



PHOTO 51



PHOTO 52

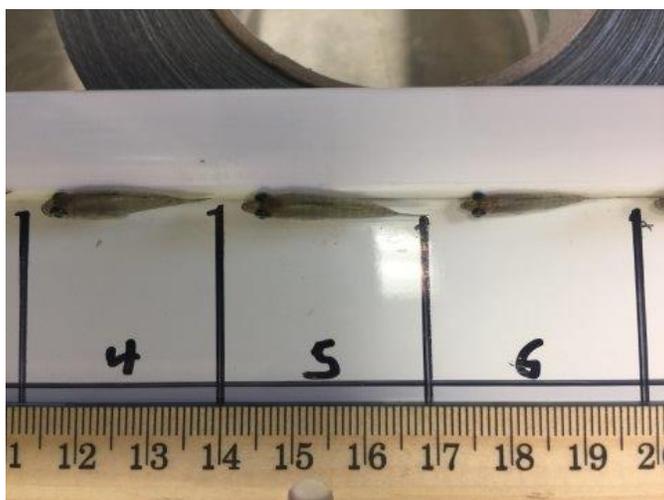
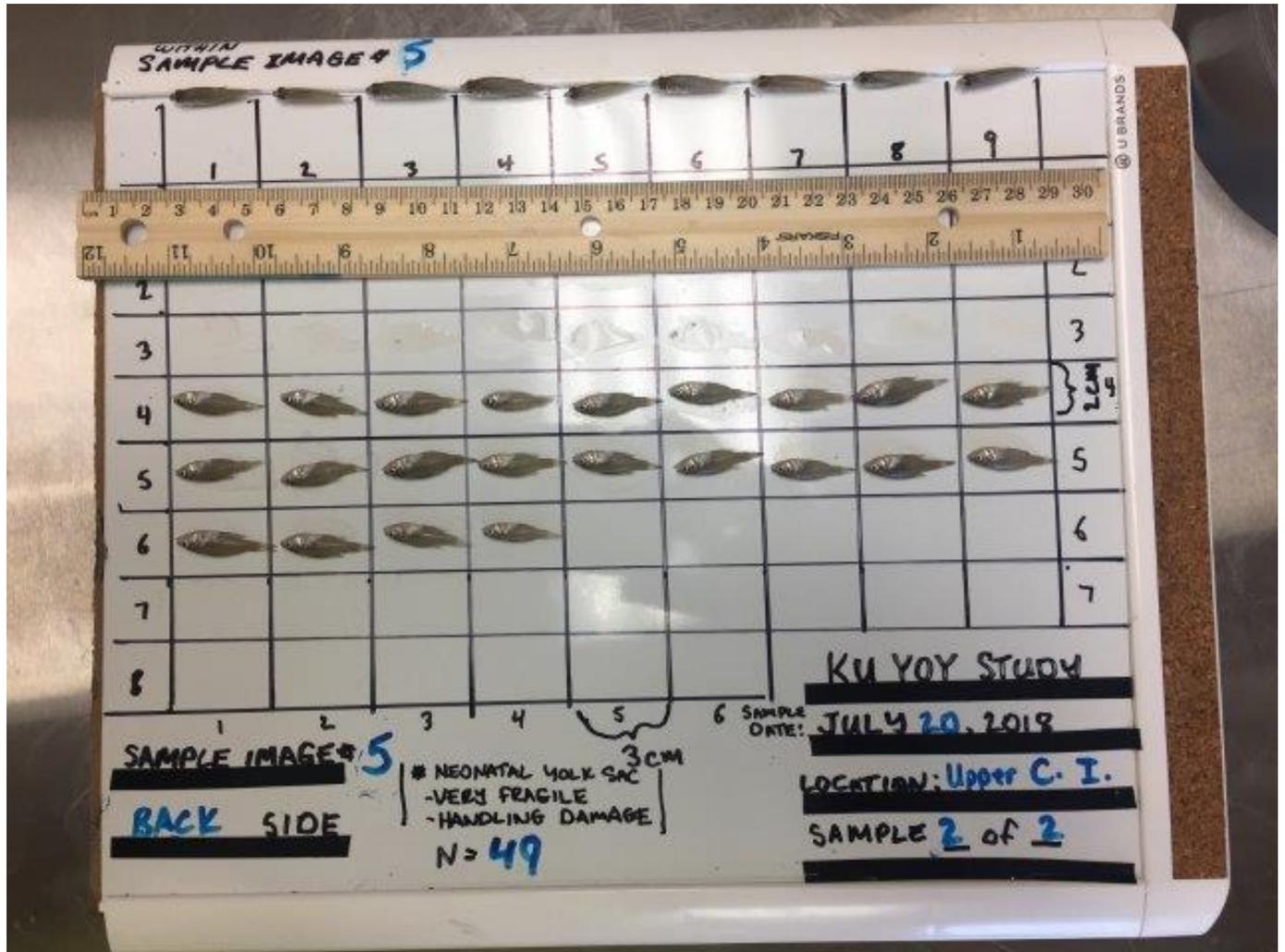


PHOTO 53



Sample 2 Image #4: Dorsal side, Row 2, closeup photos

PHOTO 54



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #5: Dorsal side, Row 3



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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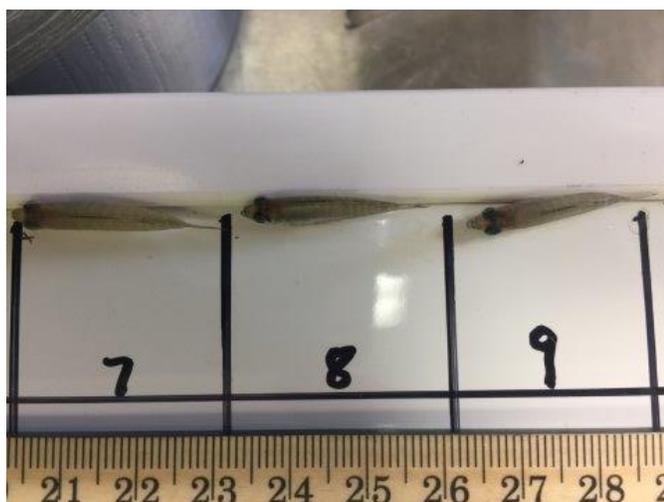
PHOTO 55



PHOTO 56

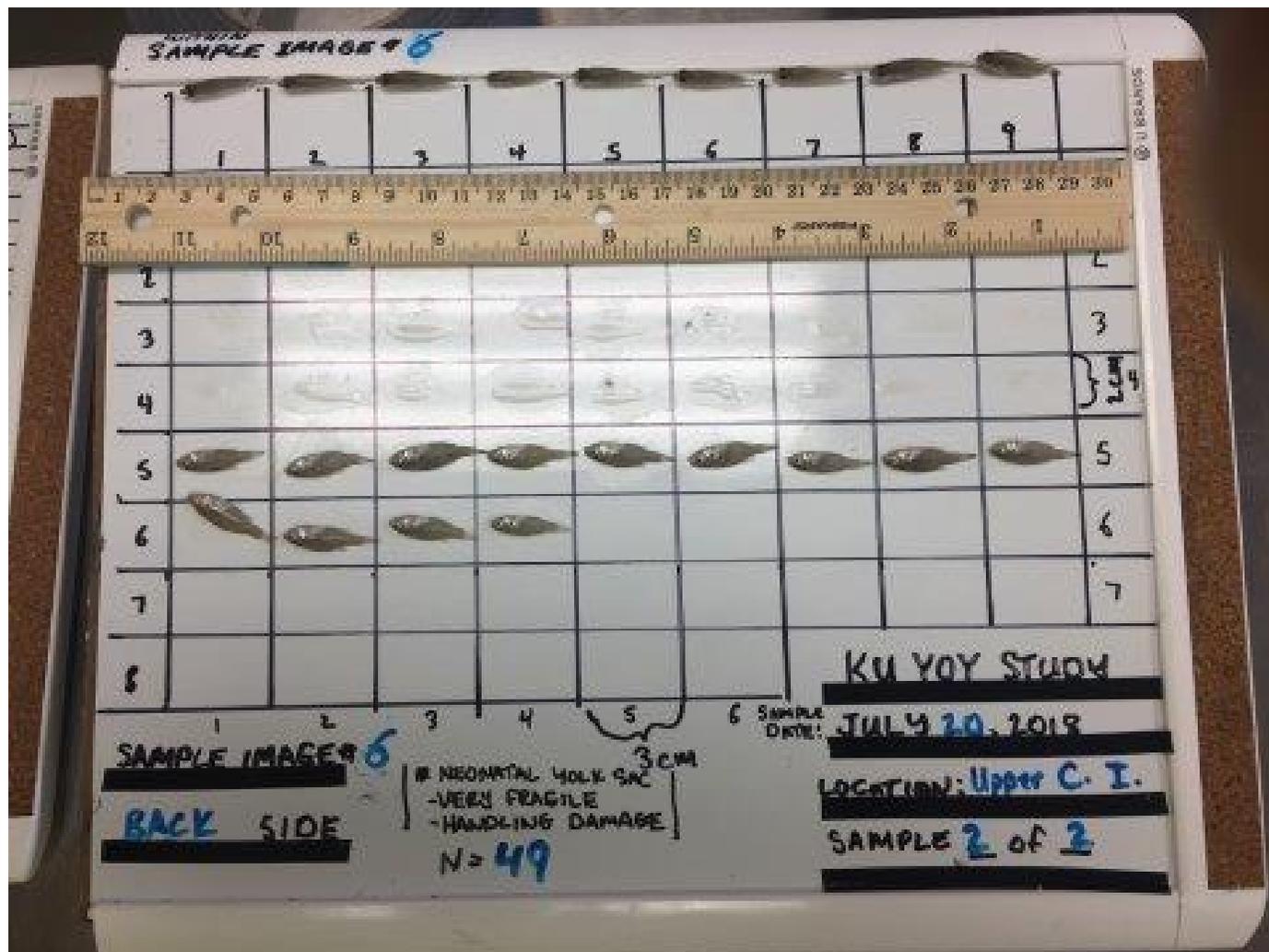


PHOTO 57



Sample 2 Image #5: Dorsal side, Row 3, closeup photos

PHOTO 58



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #6: Dorsal side, Row 4



PHOTO 59

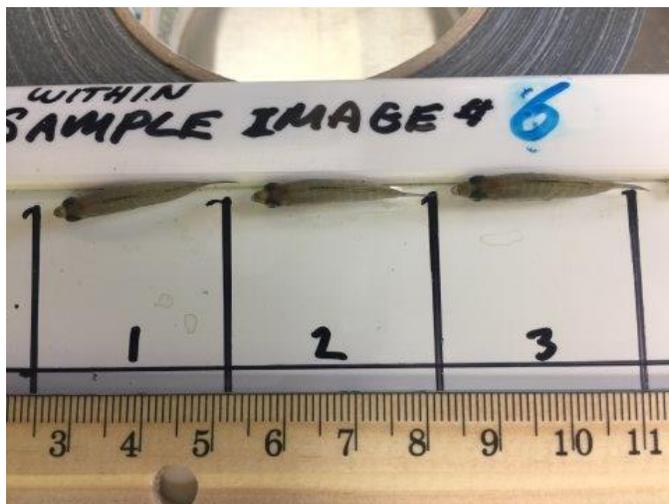


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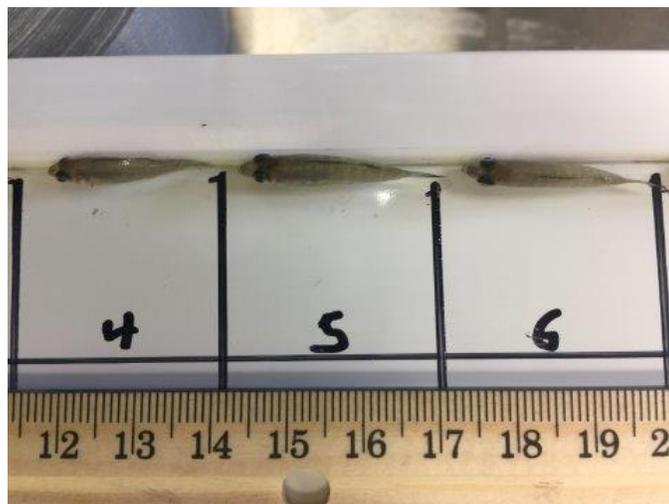
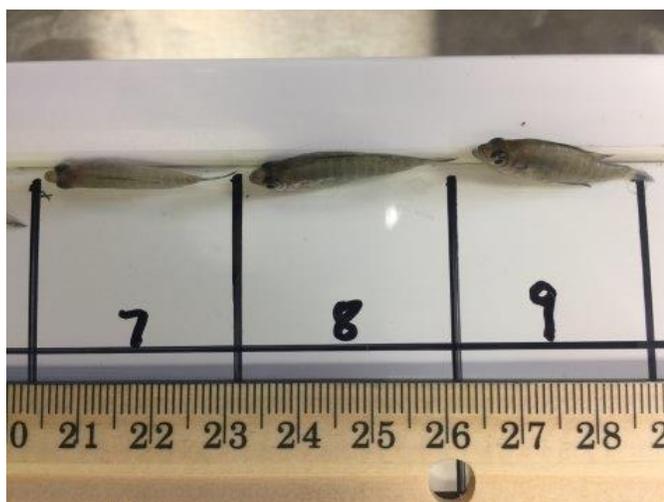
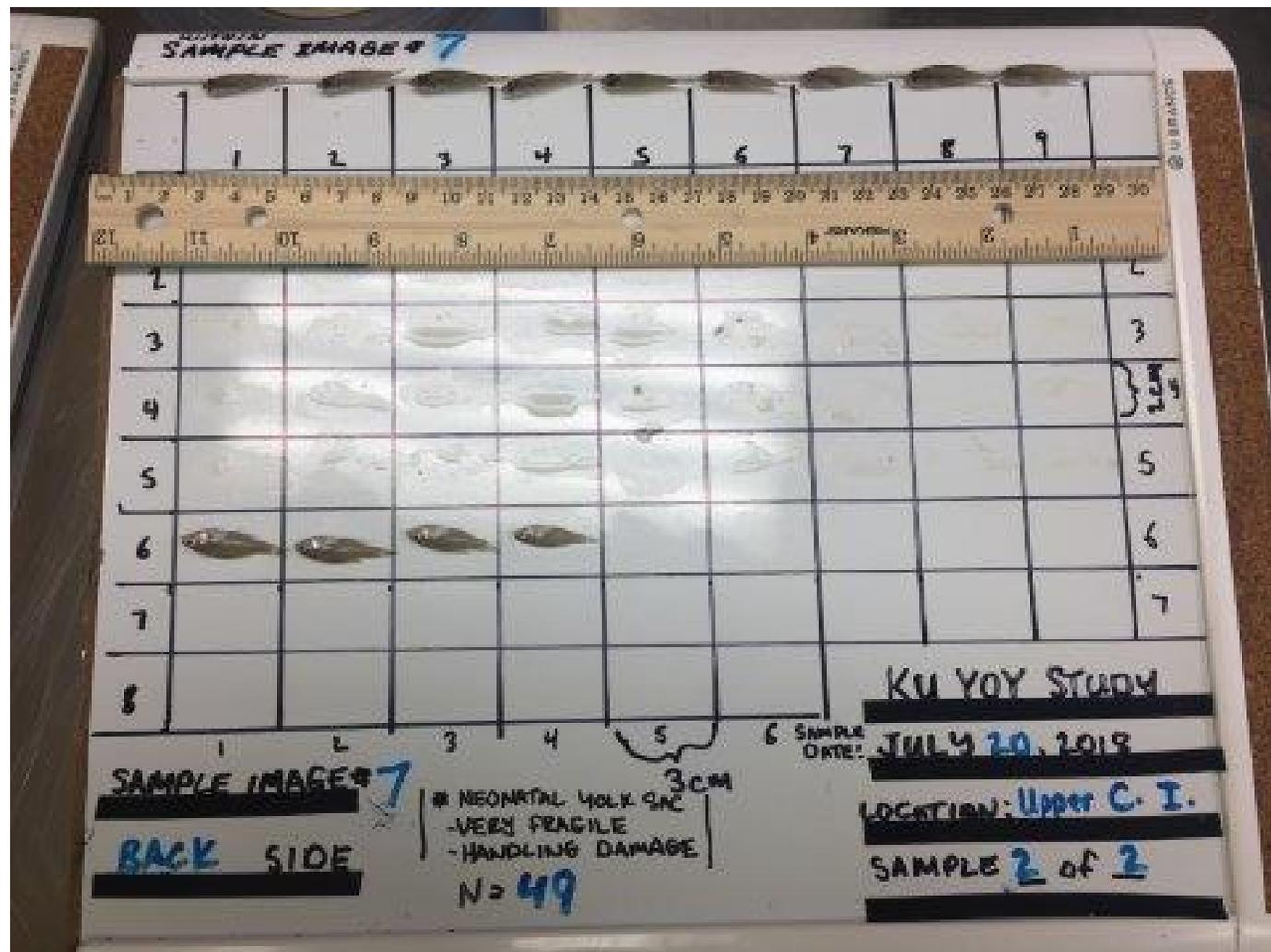


PHOTO 61



Sample 2 Image #6: Dorsal side, Row 4, closeup photos

PHOTO 62



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #7: Dorsal side, Row 5

PHOTO 63



PHOTO 64



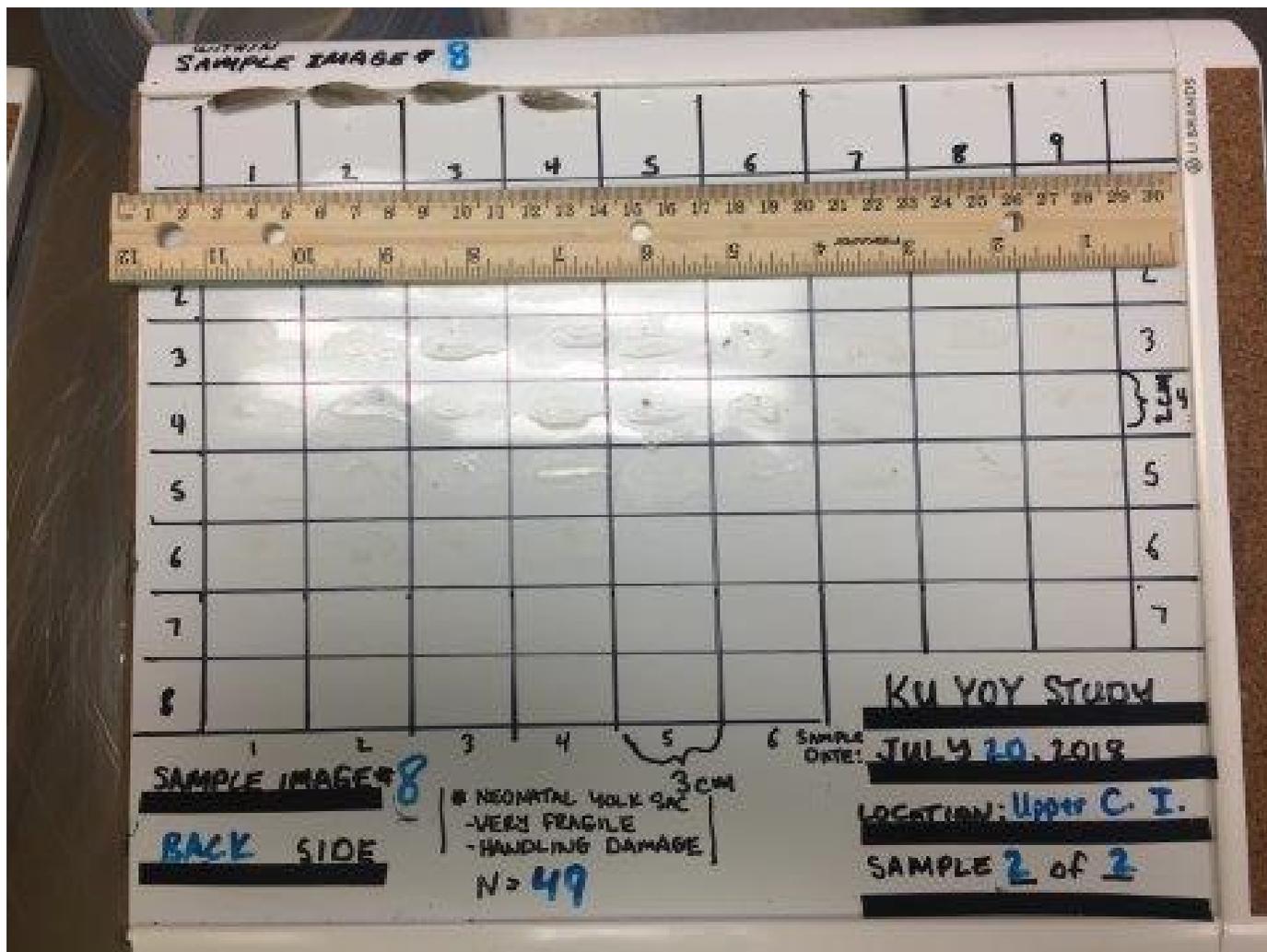
PHOTO 65



Sample 2 Image #7: Dorsal side, Row 5, closeup photos



PHOTO 66



Upper Curds Inlet Bluegill Analytical Sample (2 of 2)
N=49

Sample ID: YOY-002-UCI

Sample 2 Image #8: Dorsal side, Row 6



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 67



PHOTO 68



Sample 2 Image #8: Dorsal side, Row 6, closeup photos

MIDDLE CURDS INLET



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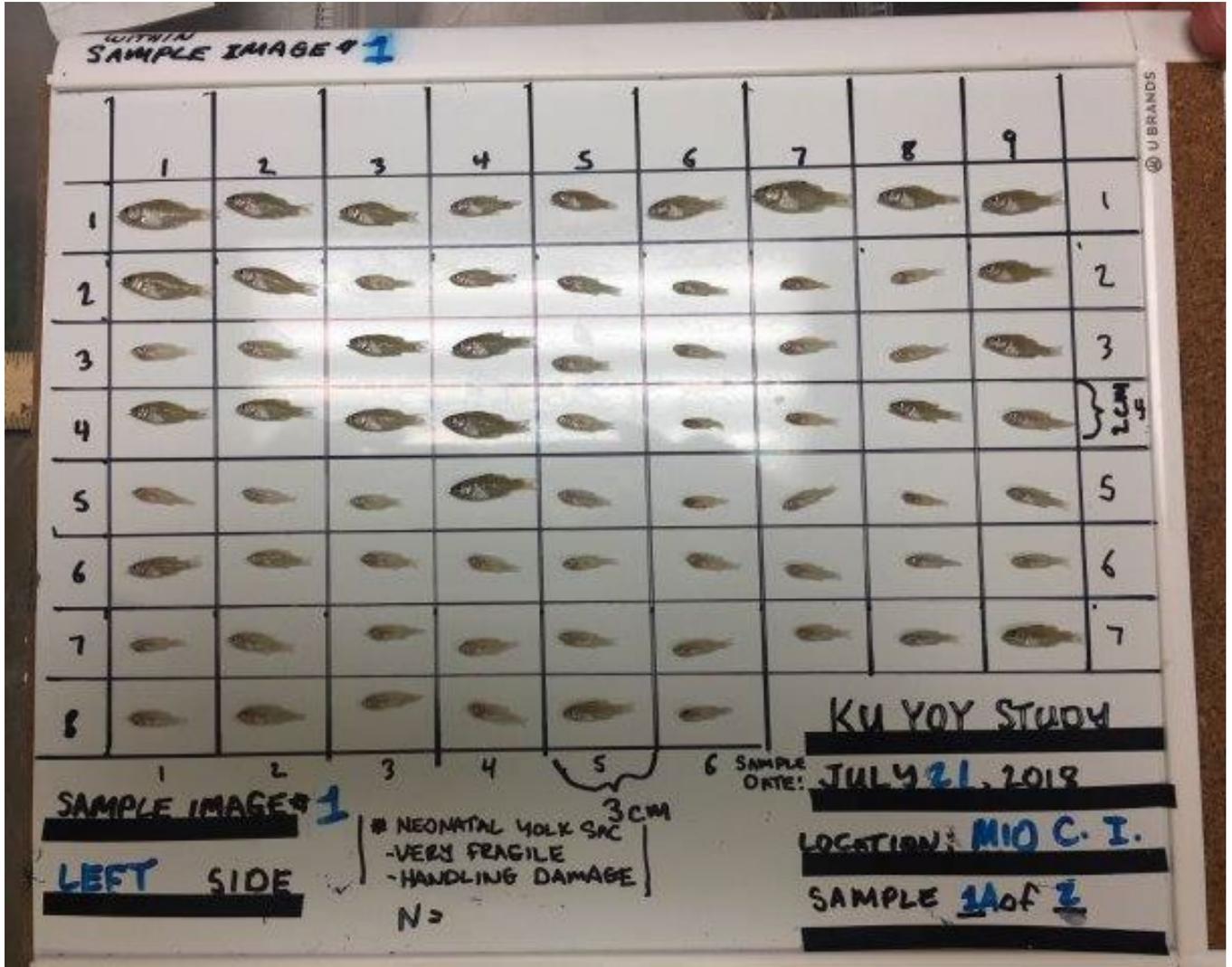
DATE: 8/27/2018

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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 1



Middle Curds Inlet Bluegill Analytical Sample 1A
 N= 108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #1: Left Side

PHOTO 2

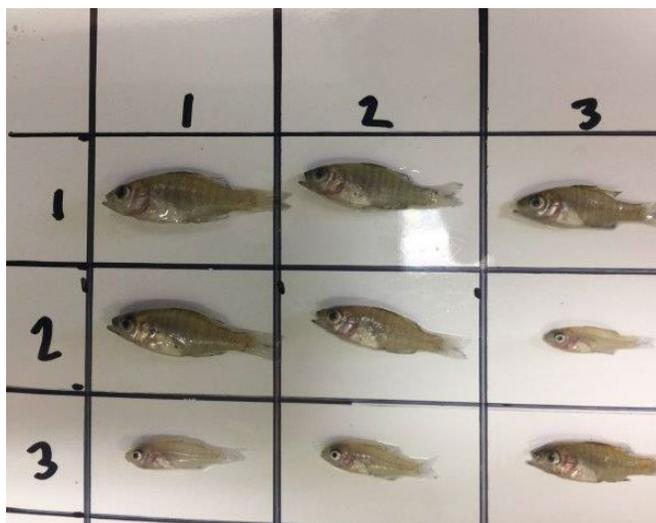


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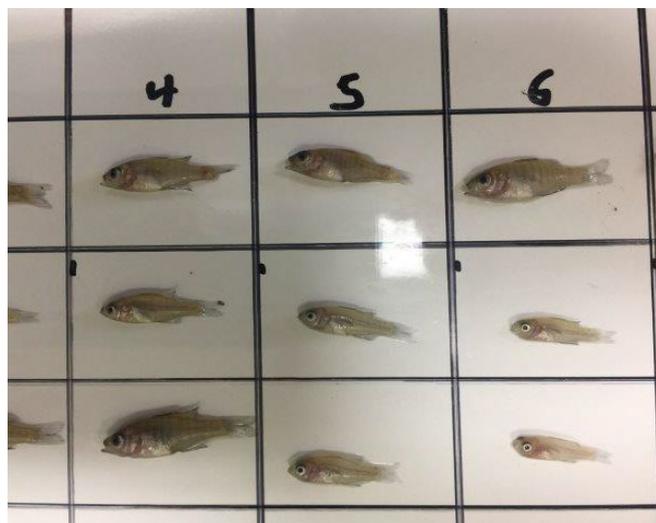
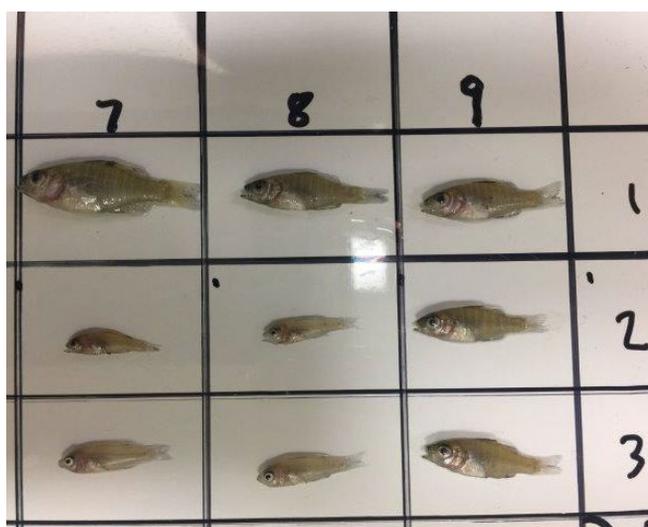
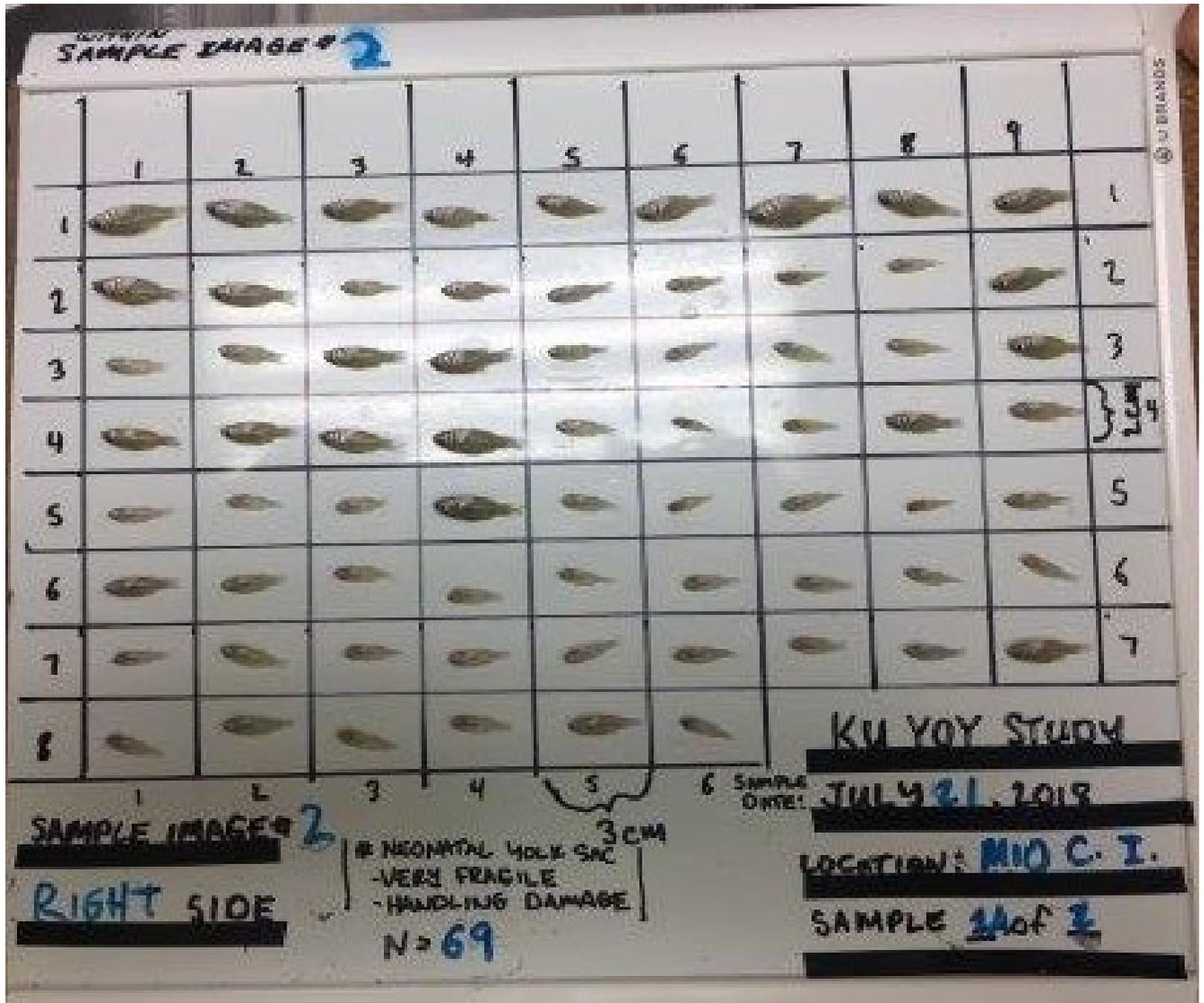


PHOTO 4



Sample 1A Image #1: Left side, closeup photos

PHOTO 5



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #2: Right Side



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 6



PHOTO 7

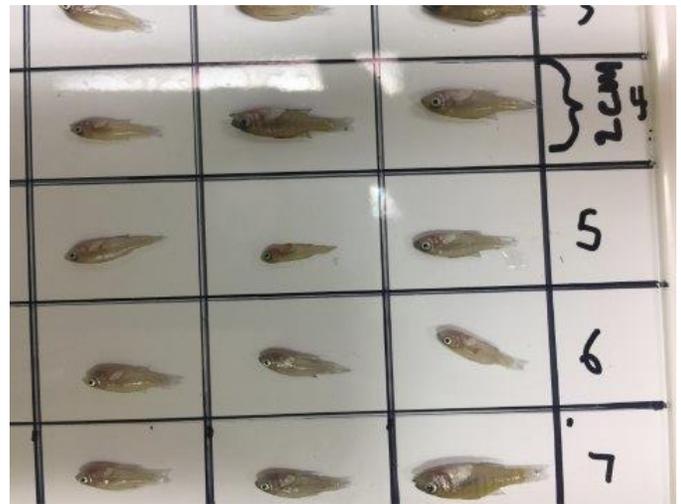
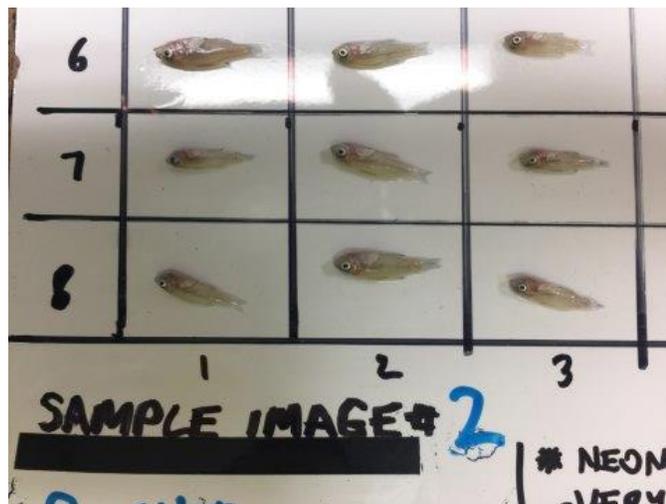
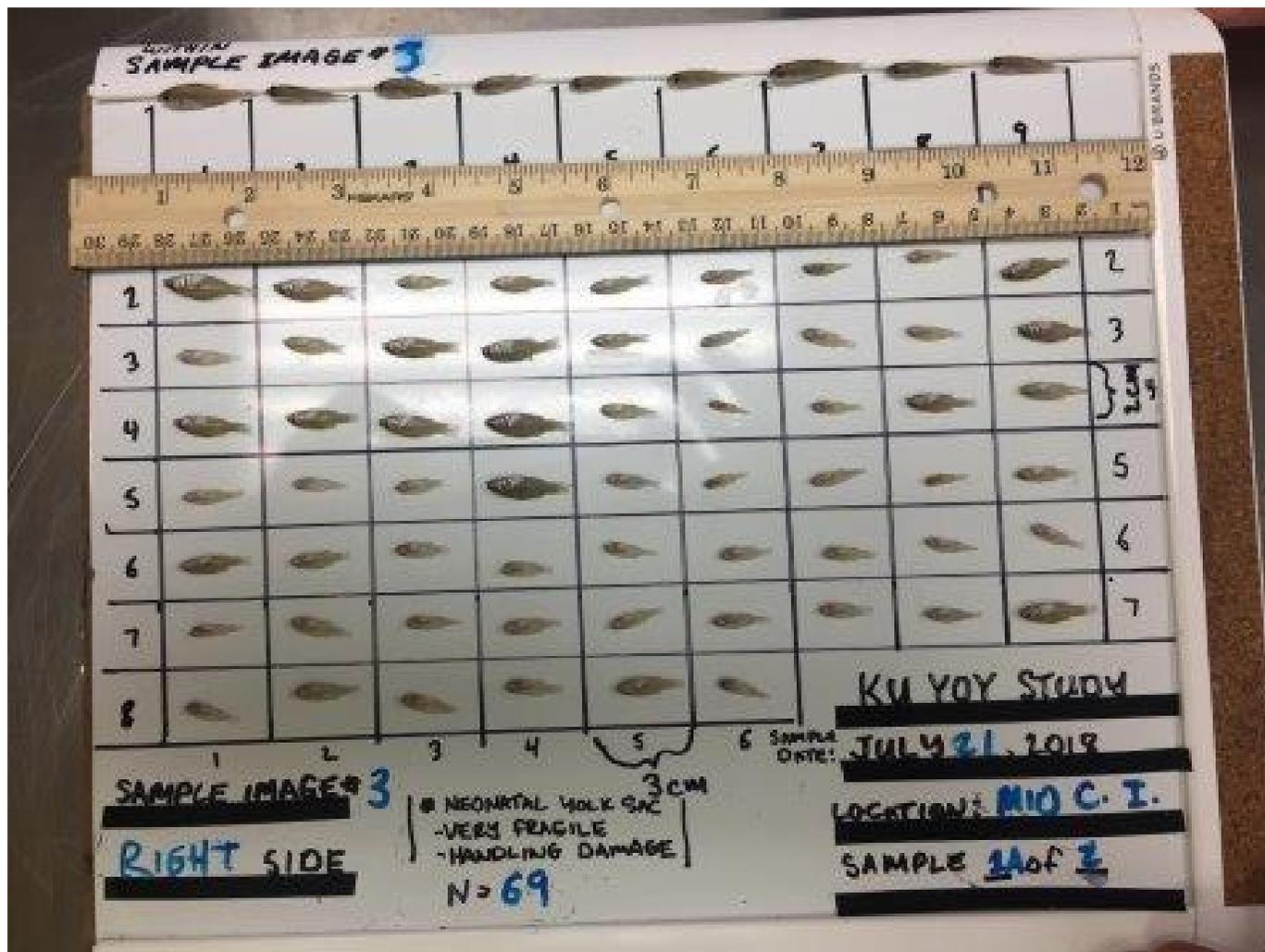


PHOTO 8



Sample 1A Image #2: Right Side, closeup photos

PHOTO 9



Middle Curds Inlet Bluegill Analytical Sample 1A
N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #3: Dorsal Side, Row 1
(See above wooden ruler)



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PHOTO 10



PHOTO 11

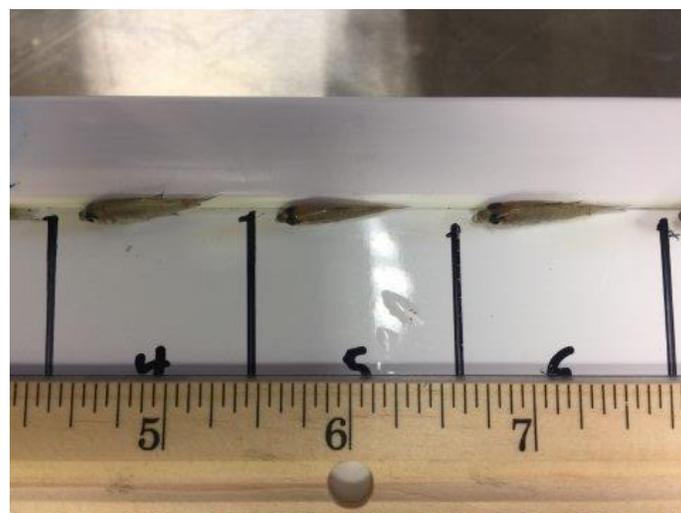
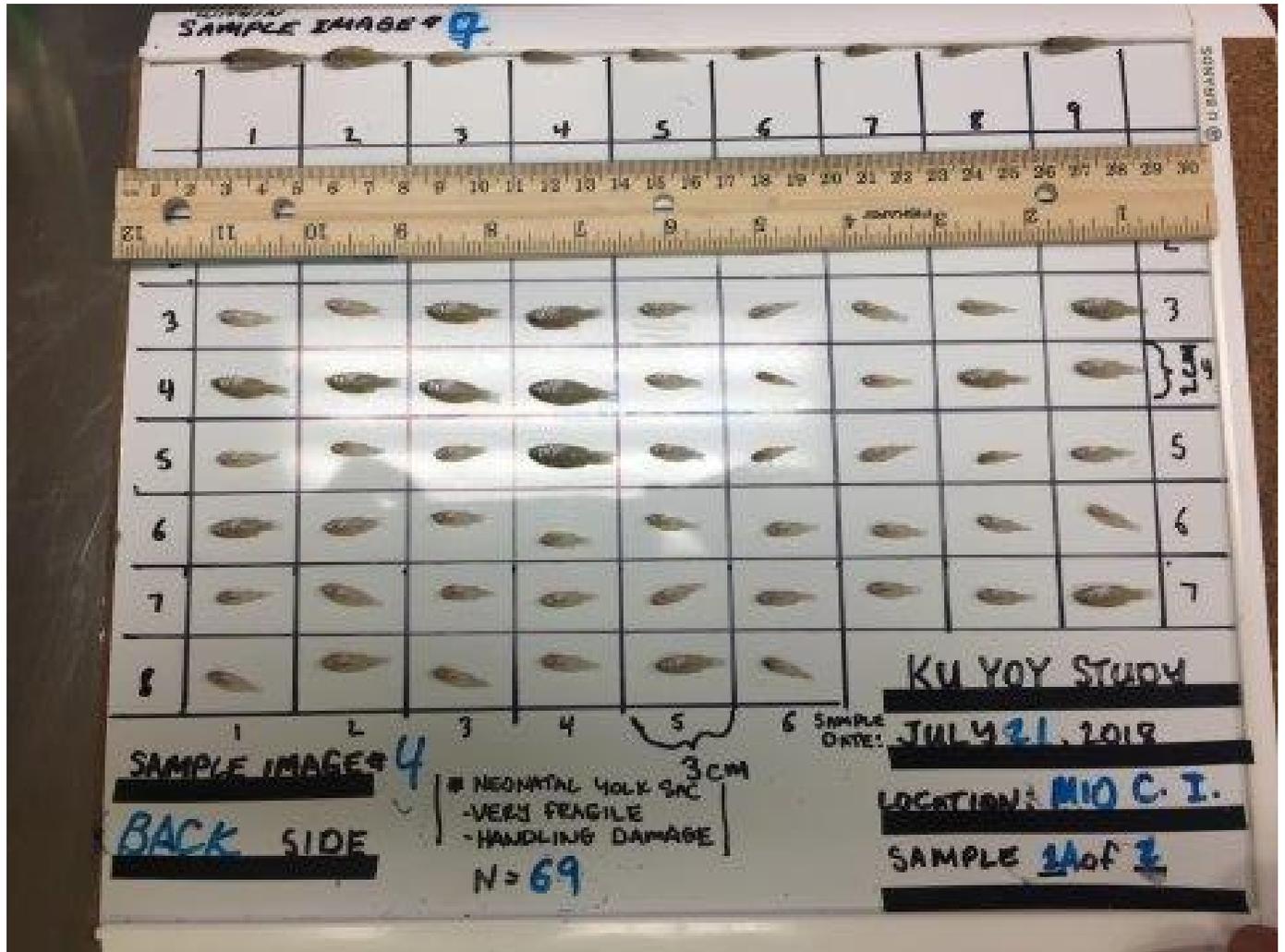


PHOTO 12



Sample 1A Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 13



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #4: Dorsal Side, Row 2
 (See above wooden ruler)



PHOTO 14

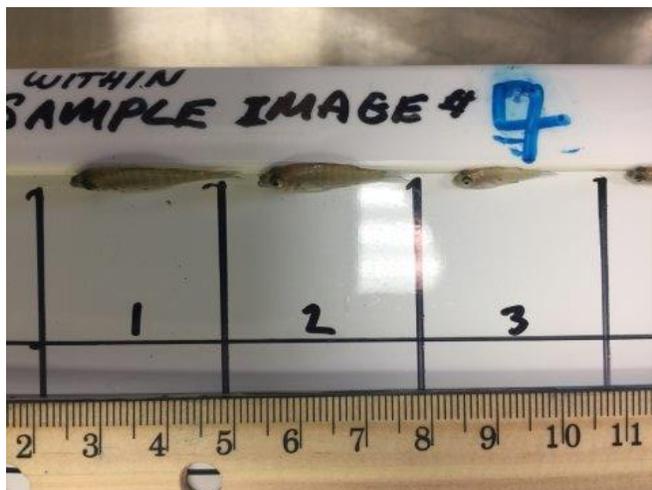


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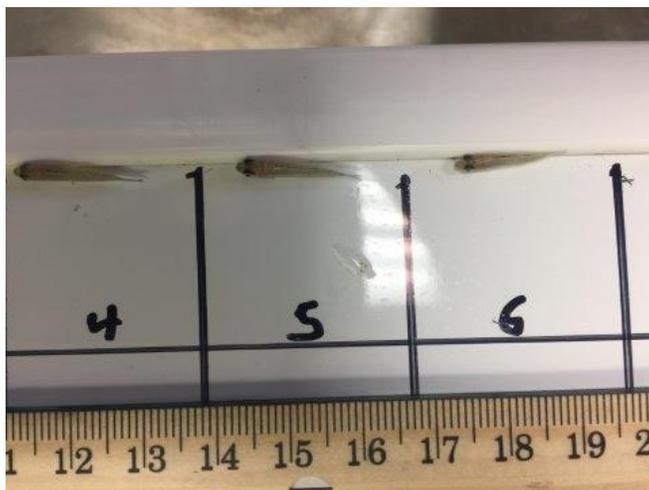
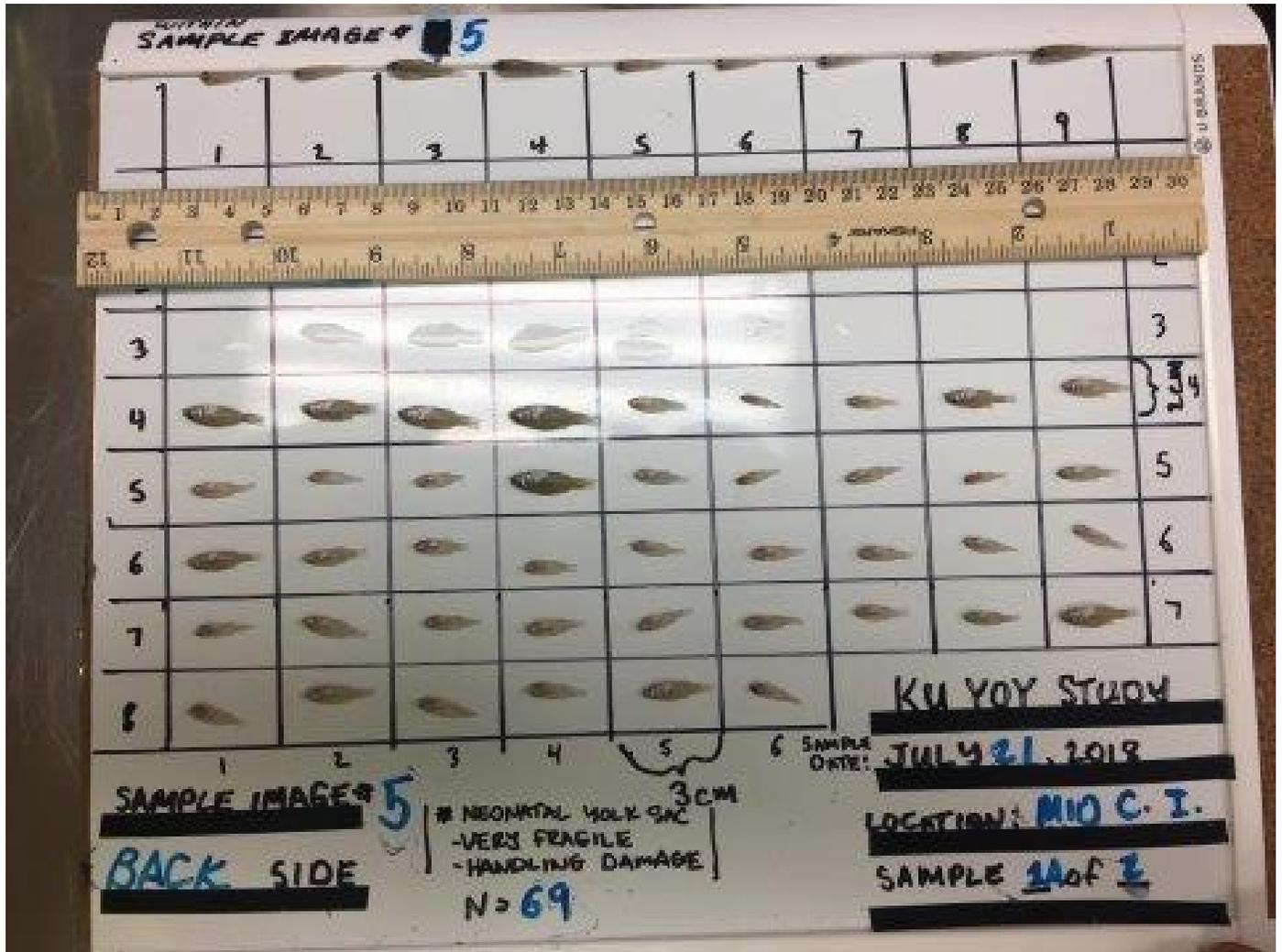


PHOTO 16



Sample 1A Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 17



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #5: Dorsal Side, Row 3
 (See above wooden ruler)



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG

PHOTO 18

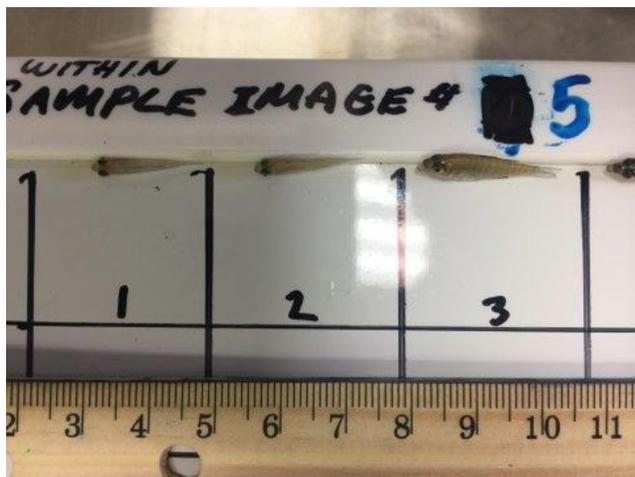
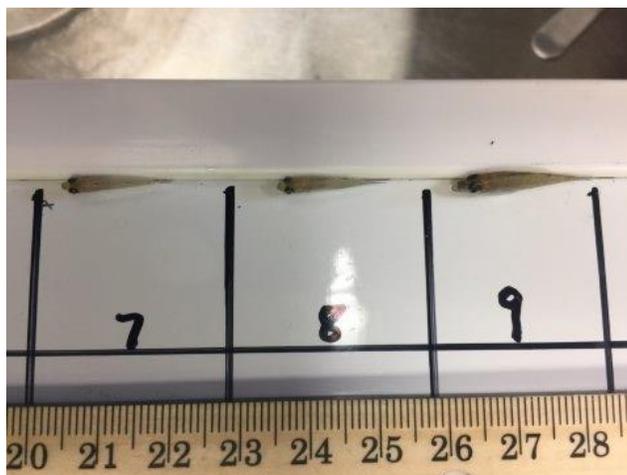


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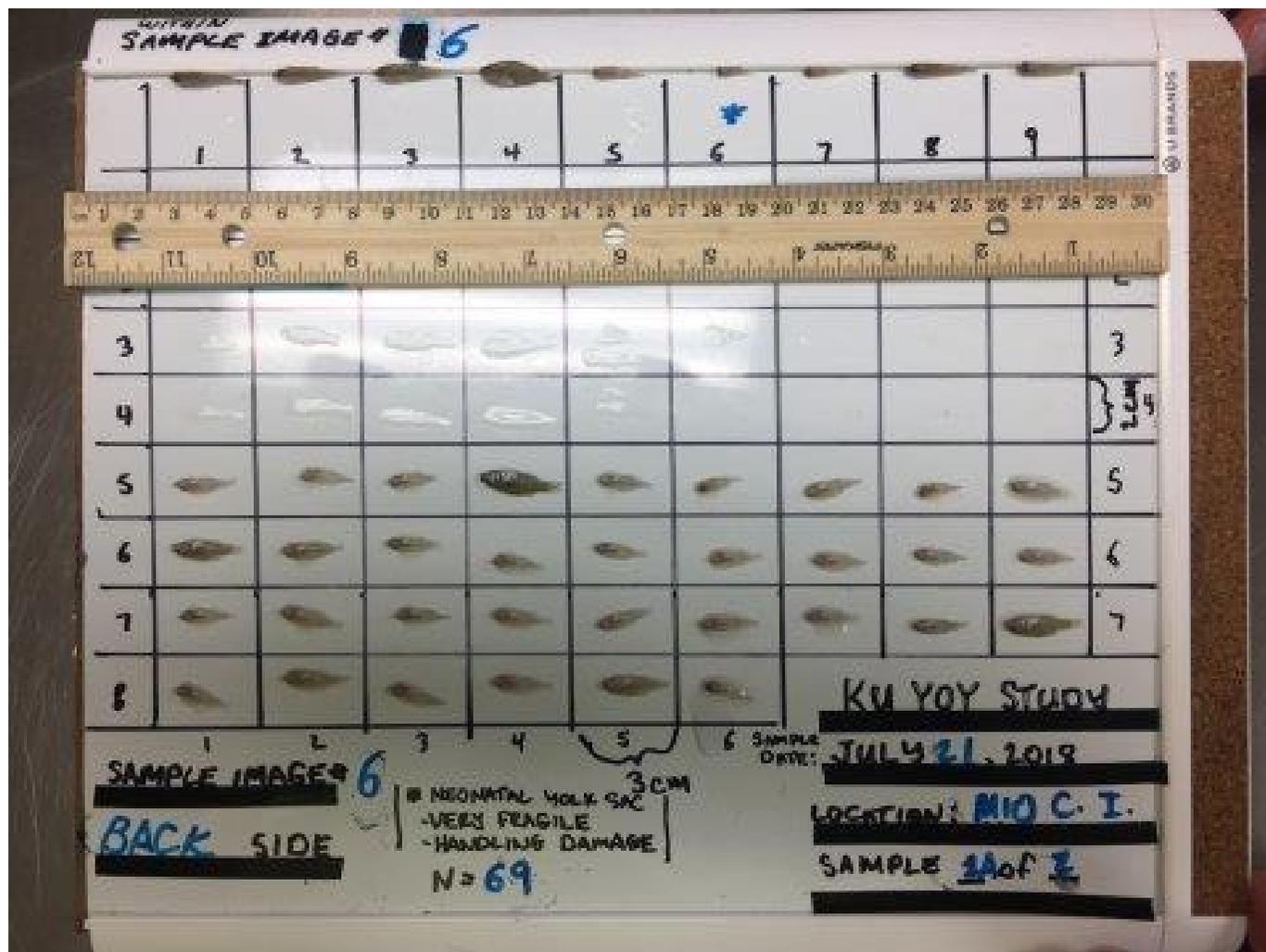


PHOTO 20



Sample 1A Image #5: Dorsal Side, Row 3, closeup photos

PHOTO 21



Middle Curds Inlet Bluegill Analytical Sample 1A
N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #6: Dorsal Side, Row 4
(See above wooden ruler)



PHOTO 22



PHOTO 23

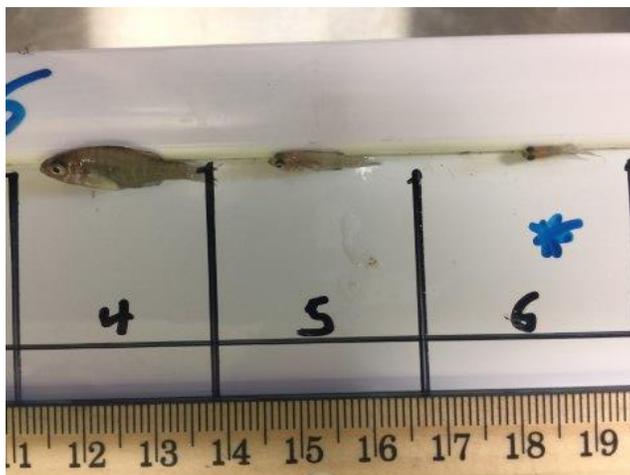
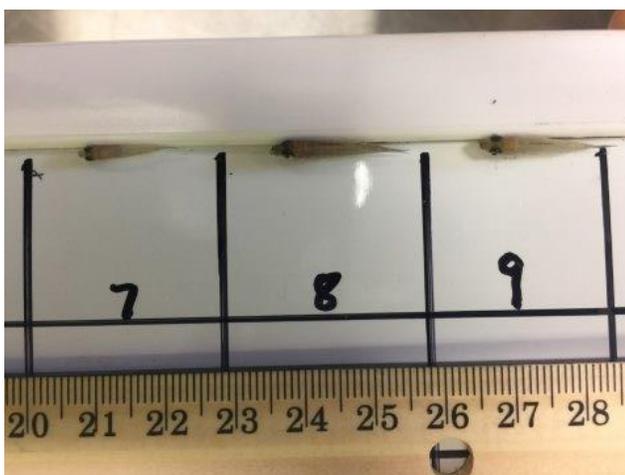
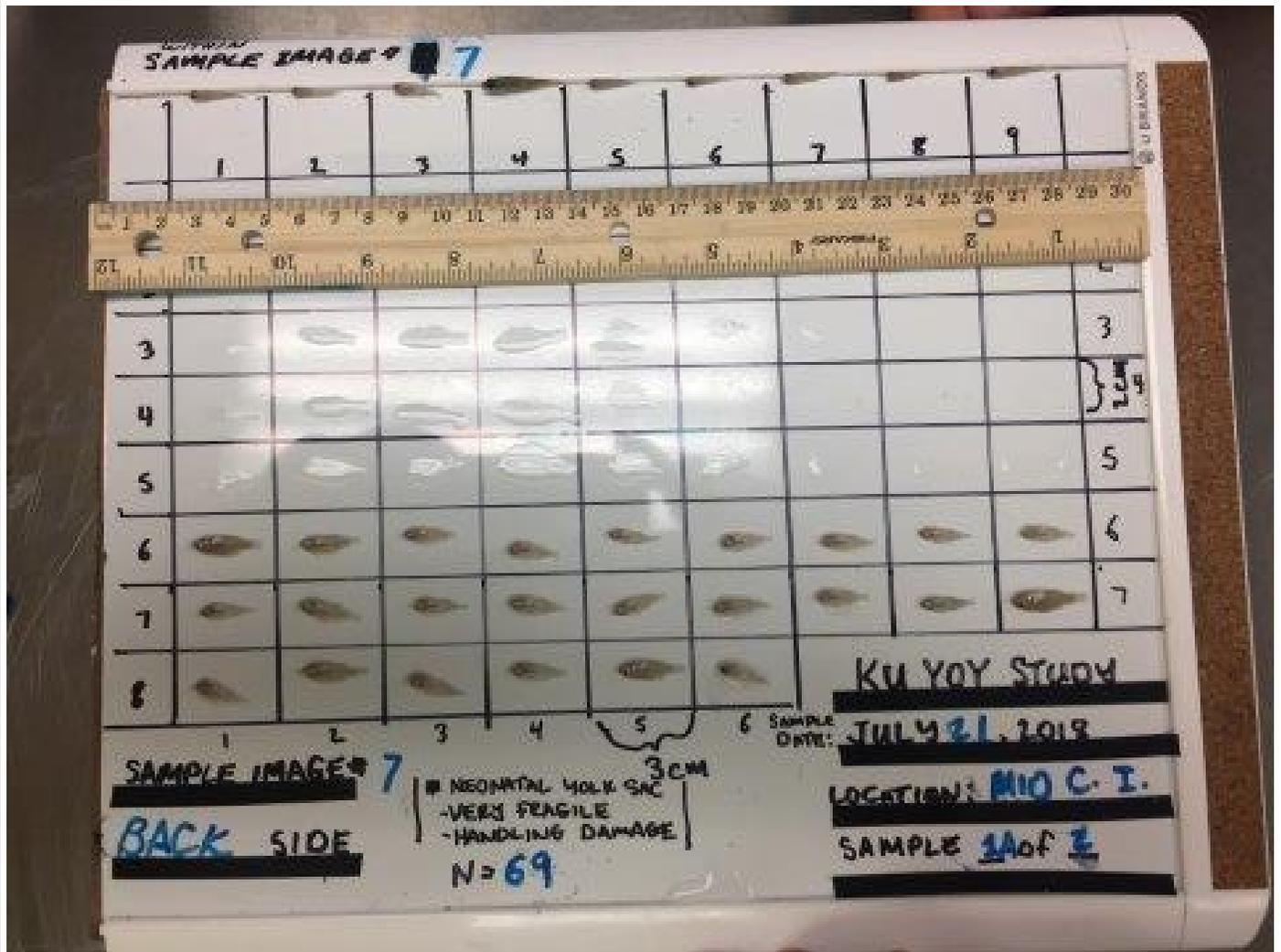


PHOTO 24



Sample 1A Image #6: Dorsal Side, Row 4, closeup photos

PHOTO 25



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #7: Dorsal Side, Row 5
 (See above wooden ruler)



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PHOTO 26

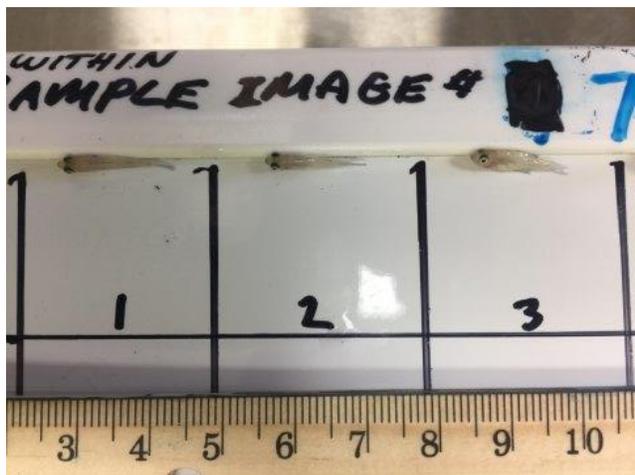


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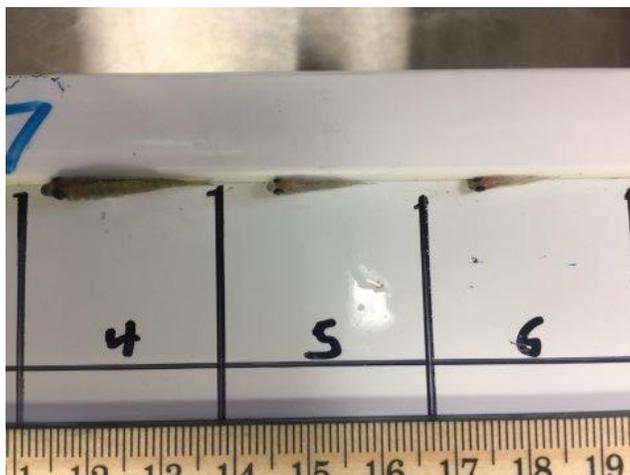
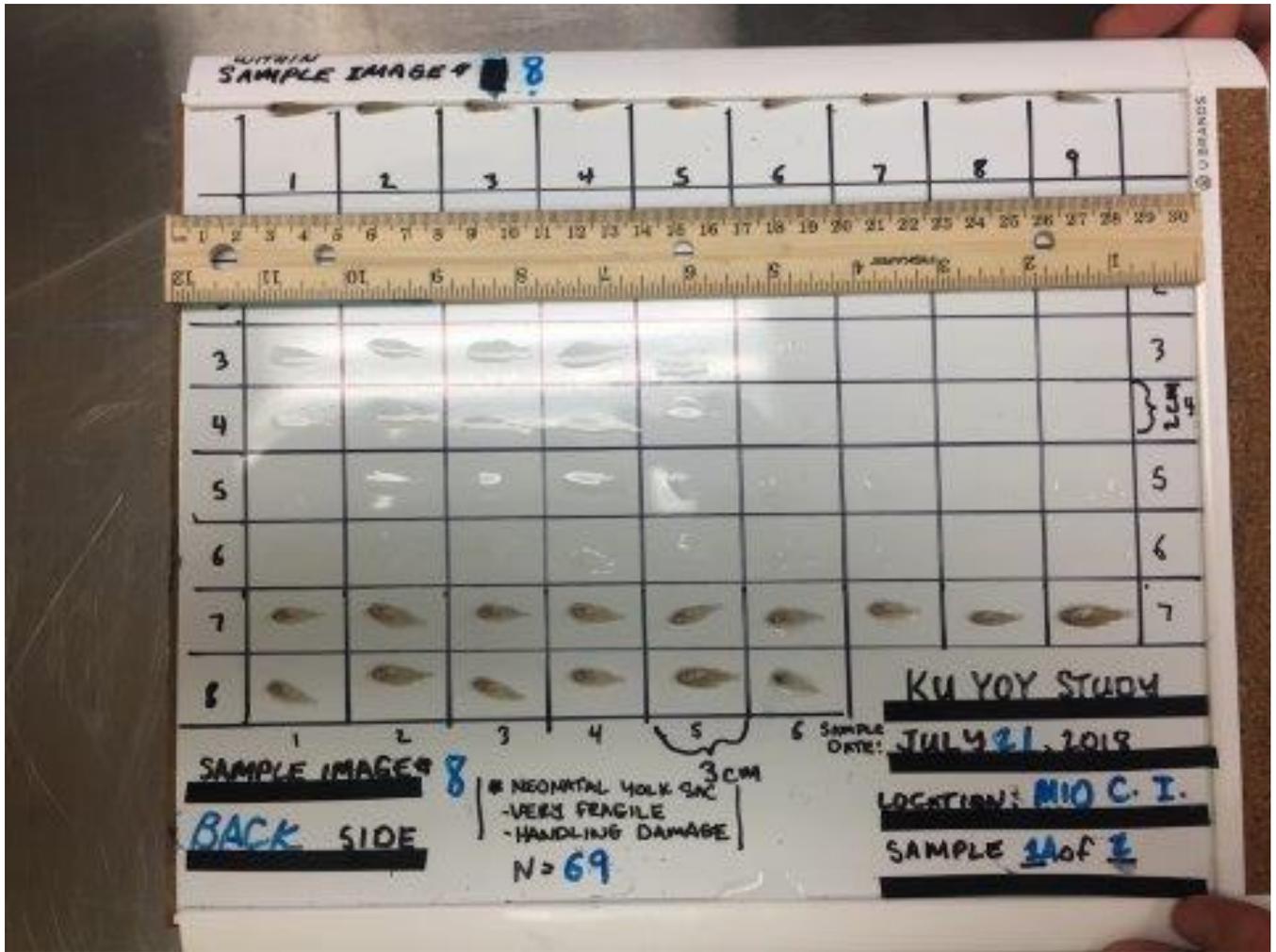


PHOTO 28



Sample 1A Image #7: Dorsal Side, Row 5, closeup photos

PHOTO 29



Middle Curds Inlet Bluegill Analytical Sample 1A
N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #8: Dorsal Side, Row 6
(See above wooden ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

PHOTO 30

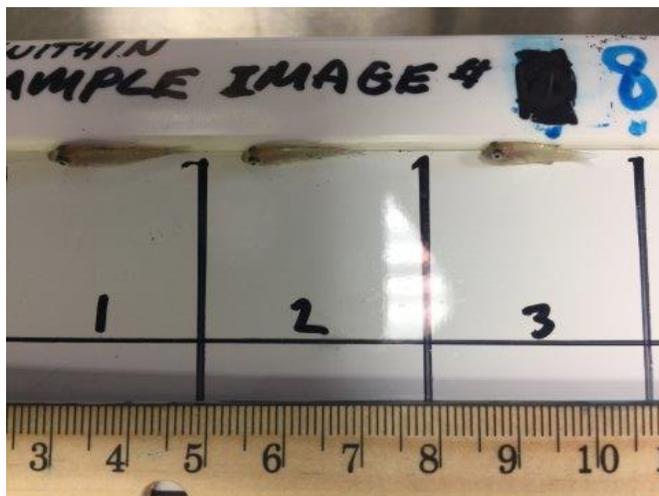


PHOTO 31

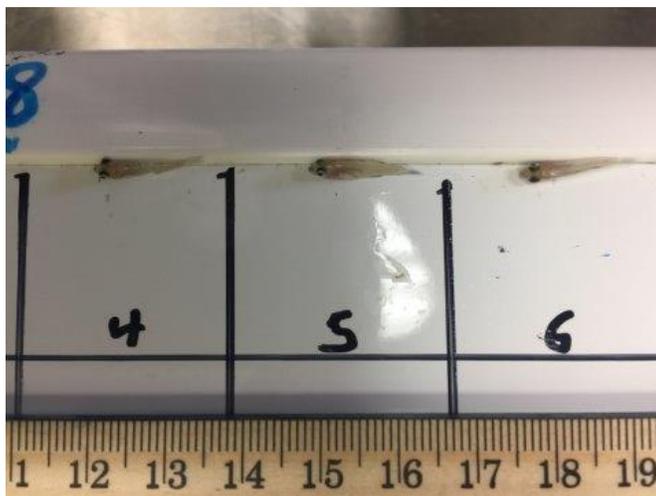
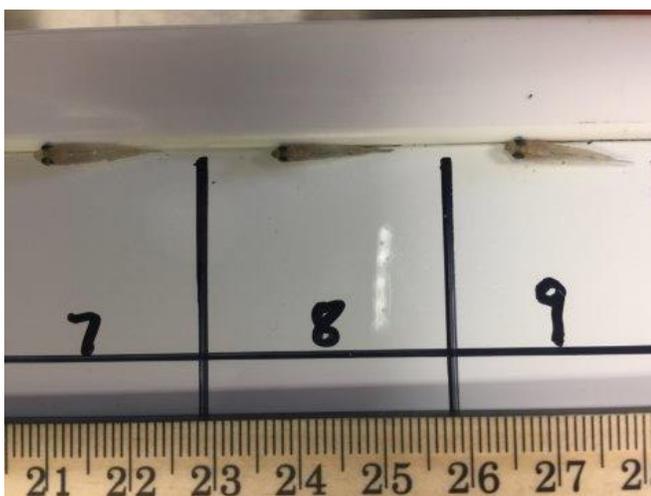


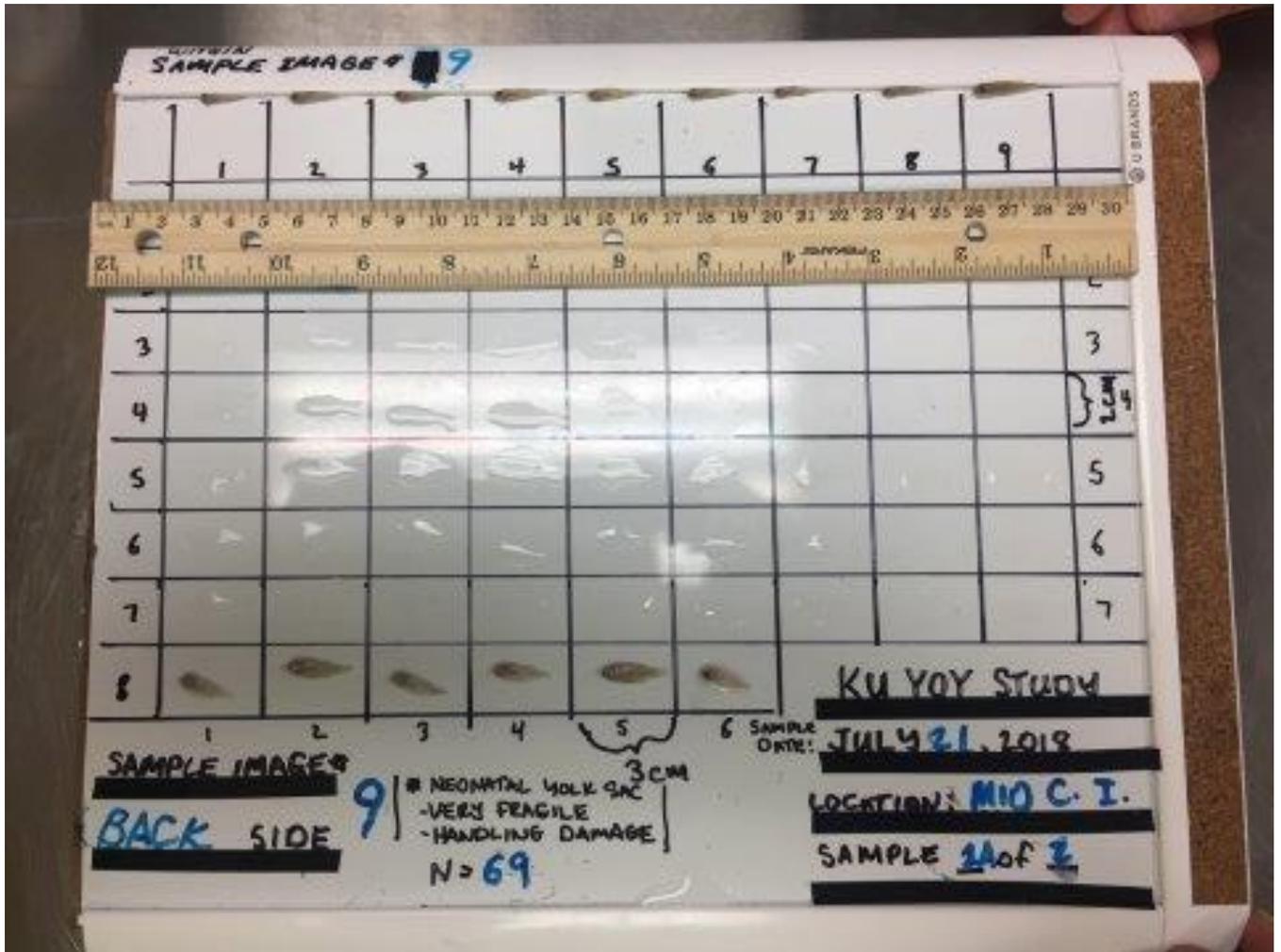
PHOTO 32



Sample 1A Image #8: Dorsal Side, Row 6, closeup photos



PHOTO 33



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #9: Dorsal Side, Row 7
 (See above wooden ruler)



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG

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 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

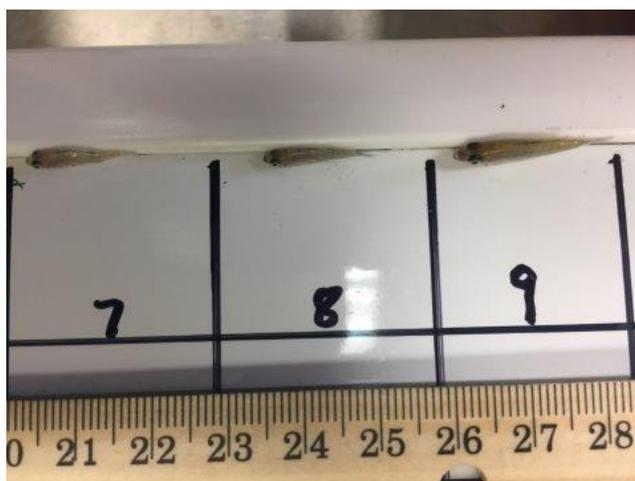
PHOTO 34



PHOTO 35

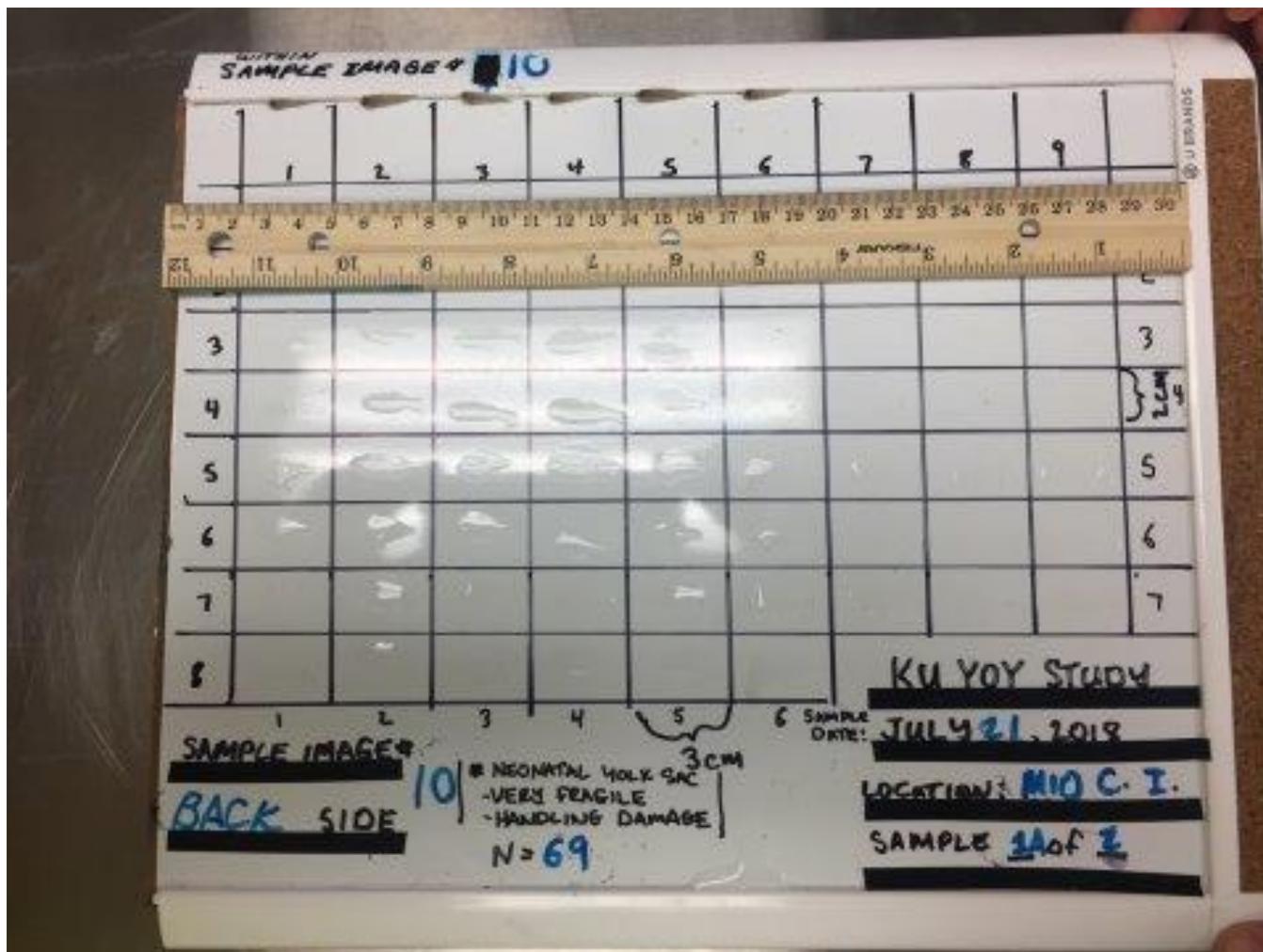


PHOTO 36



Sample 1A Image #9: Dorsal Side, Row 7, closeup photos

PHOTO 37



Middle Curds Inlet Bluegill Analytical Sample 1A
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1A Image #10: Dorsal Side, Row 8
 (See above wooden ruler)



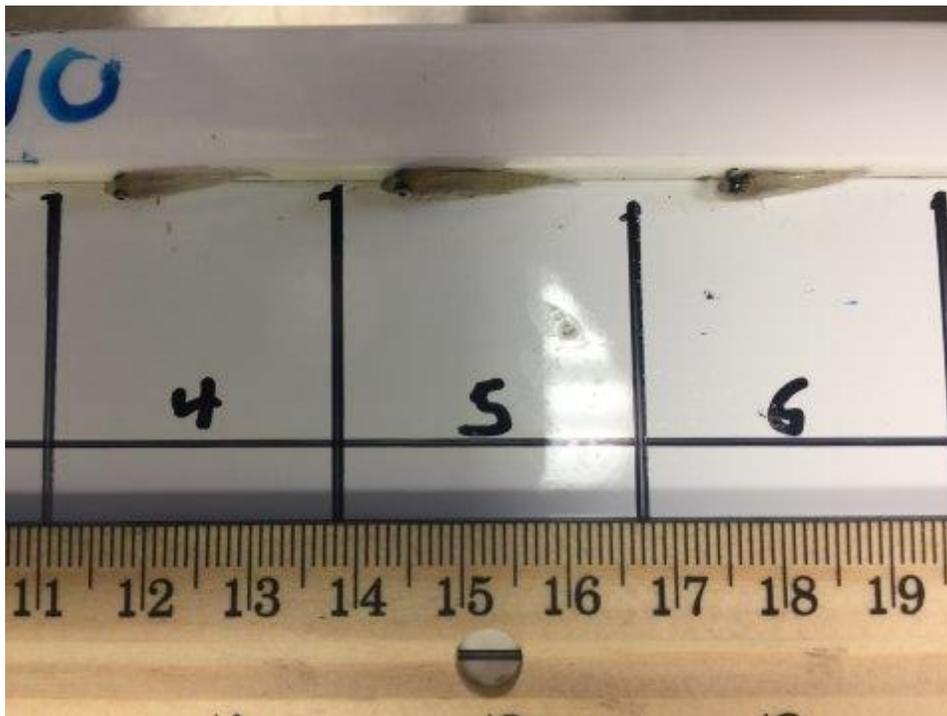
**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

PHOTO 38



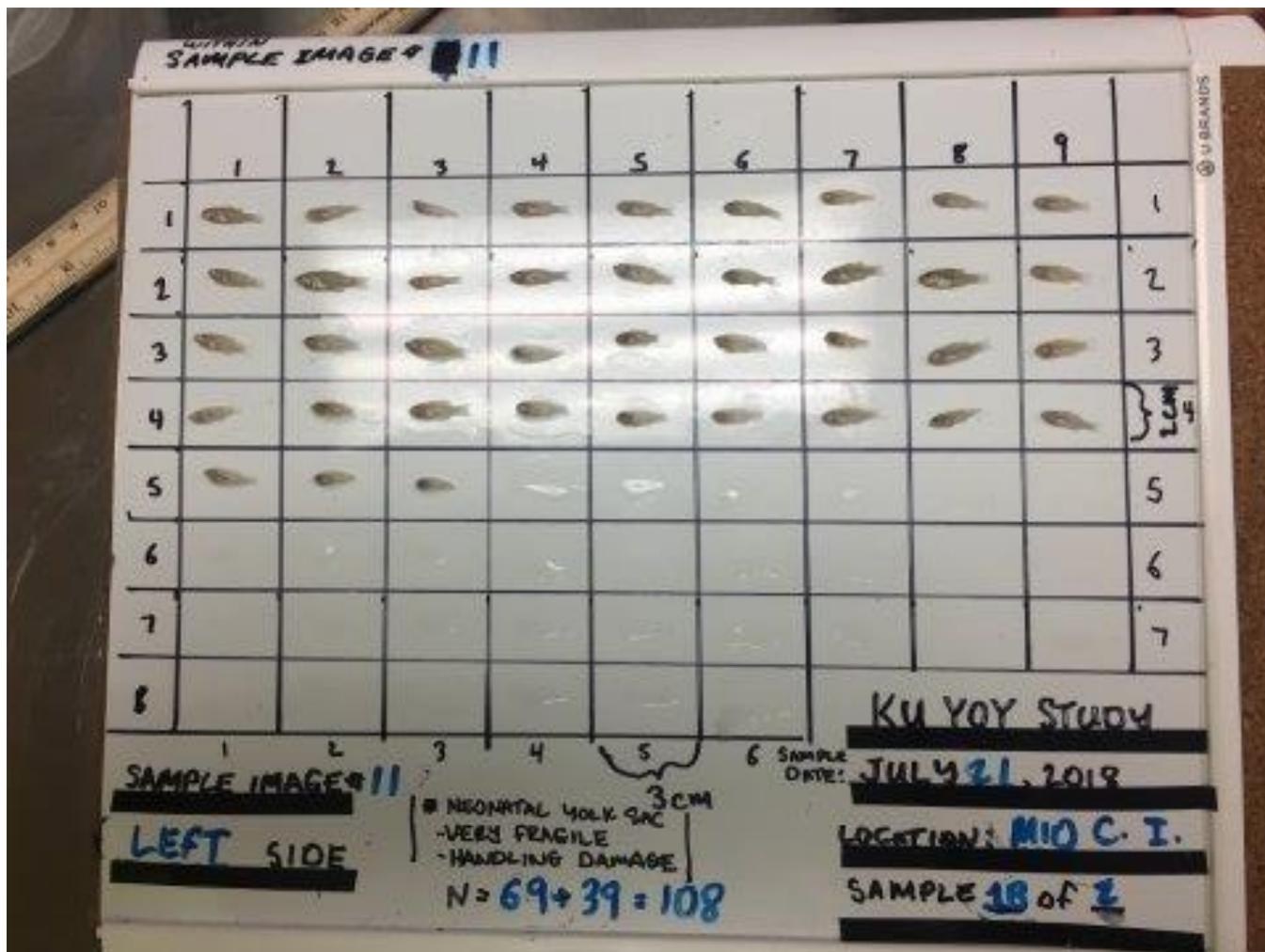
PHOTO 39



Sample 1A Image #10: Dorsal Side, Row 8, closeup photos



PHOTO 40



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #11: Left Side



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 41

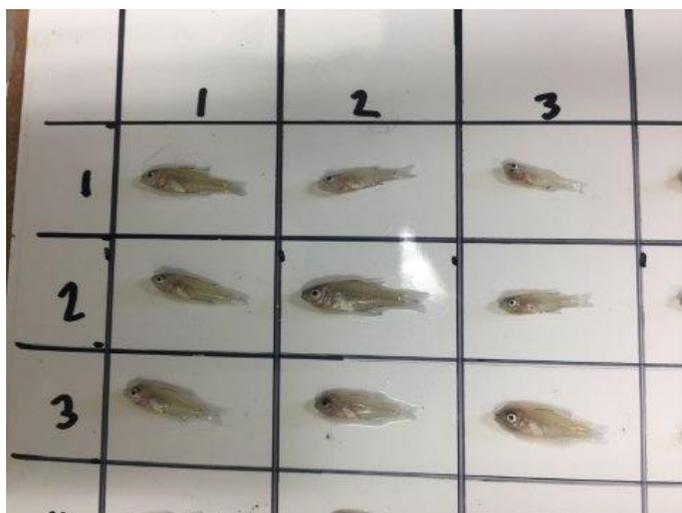


PHOTO 42

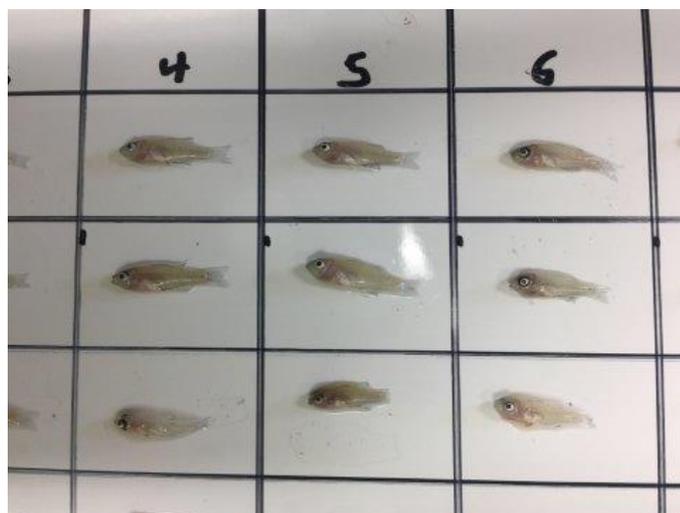
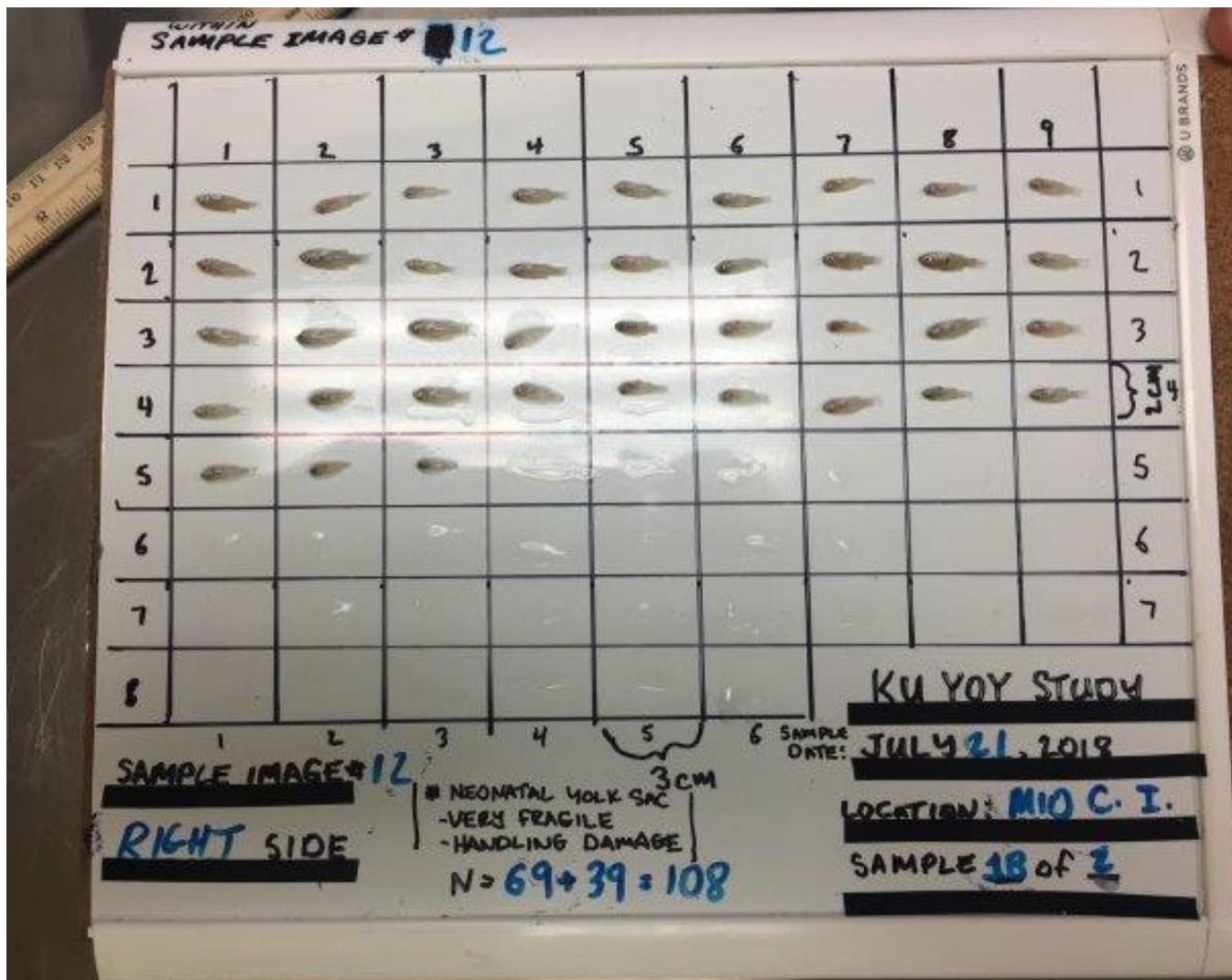


PHOTO 43



Sample 1B Image #11: Left side, closeup photos

PHOTO 44



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #12: Right Side



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG

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PHOTO 45

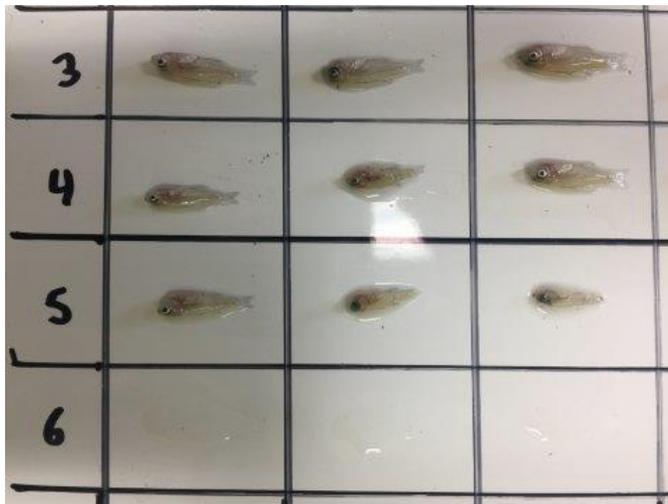


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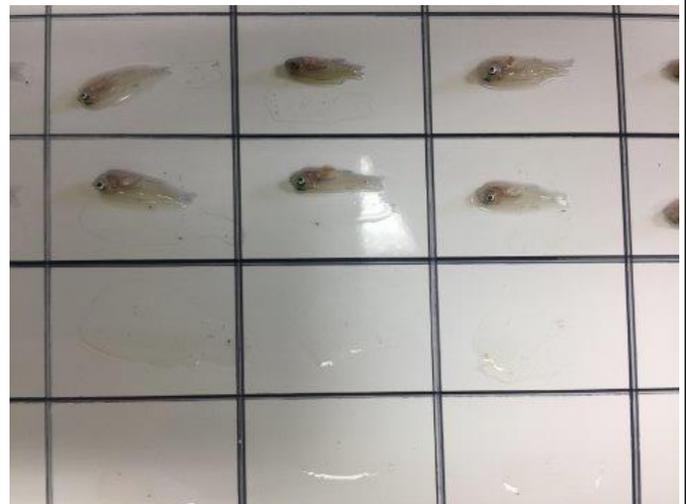
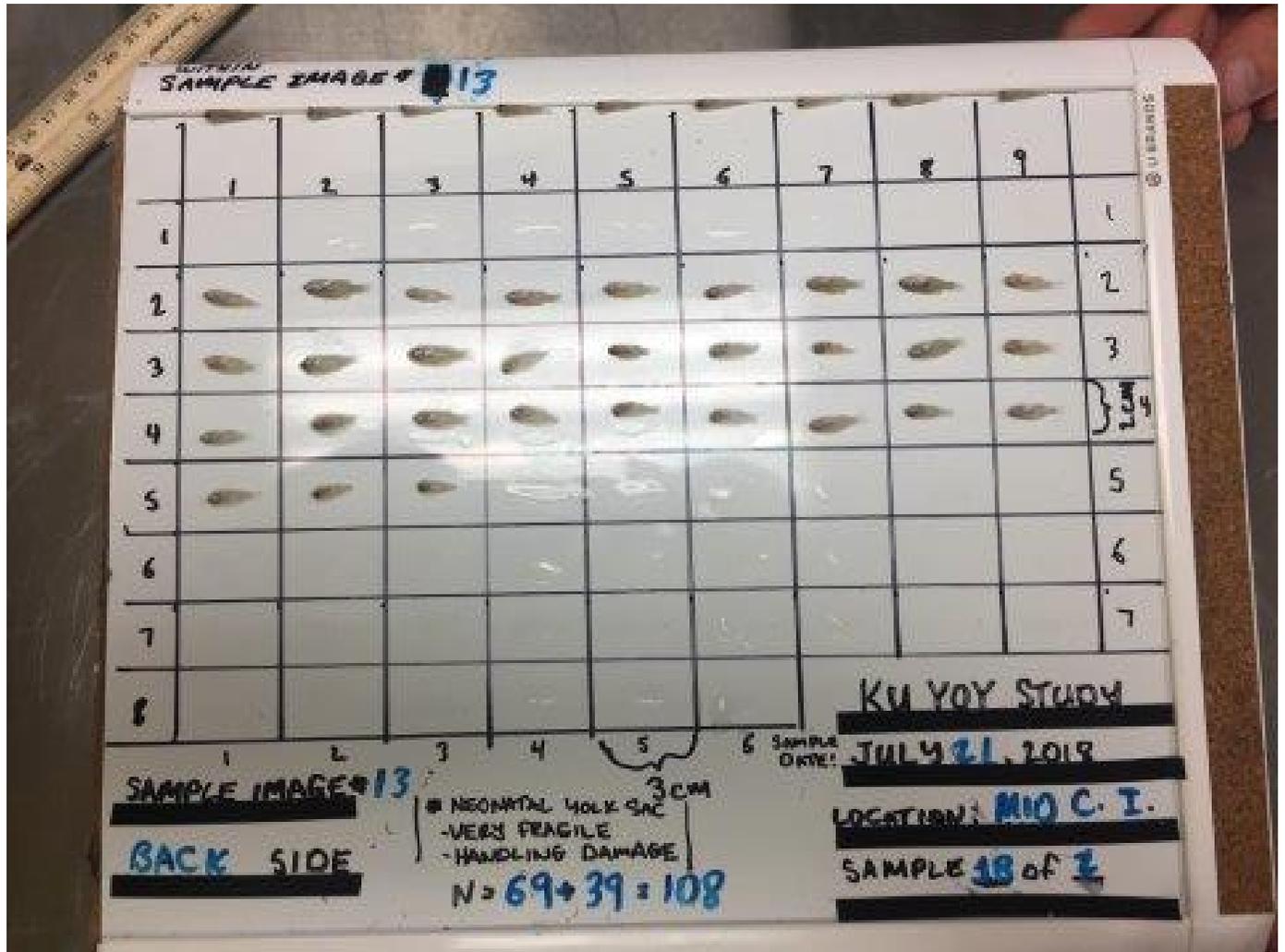


PHOTO 47



Sample 1B Image #12: Right side, closeup photos

PHOTO 48



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #13: Dorsal Side, Row 1
 (See top of whiteboard)



**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

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 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

PHOTO 49



PHOTO 50

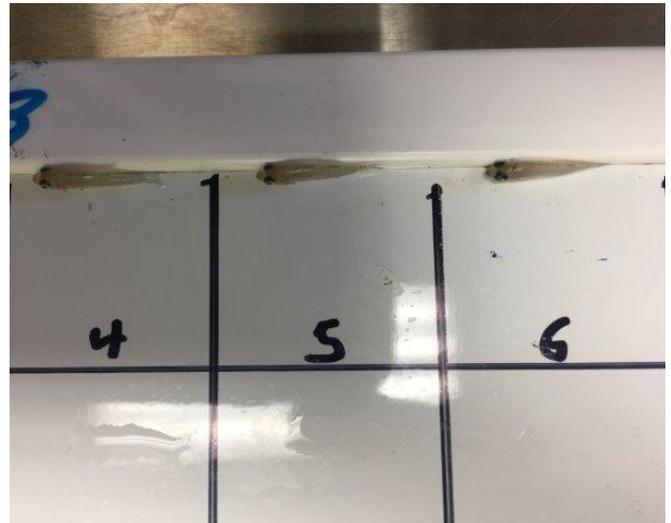
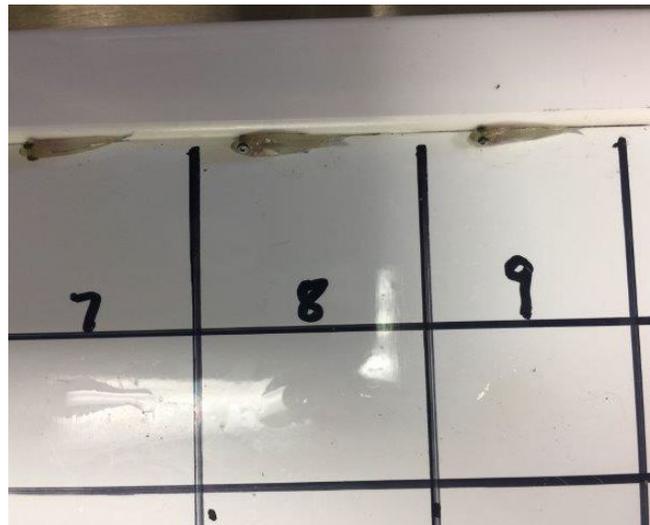
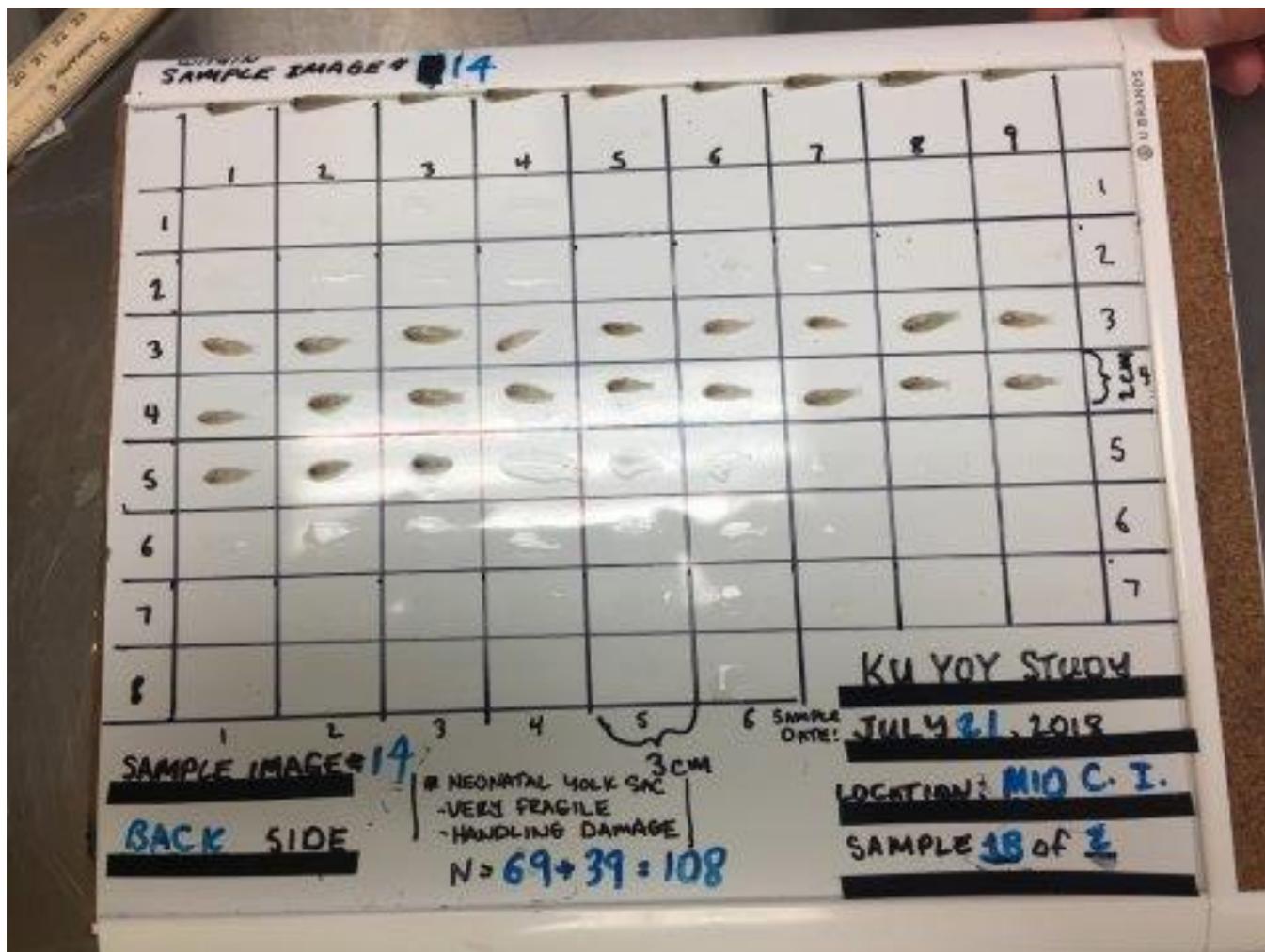


PHOTO 51



Sample 1B Image #13: Dorsal Side, Row 1, Closeup Photos

PHOTO 52



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #14: Dorsal Side, Row 2
 (See top of whiteboard)



**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

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 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

PHOTO 53



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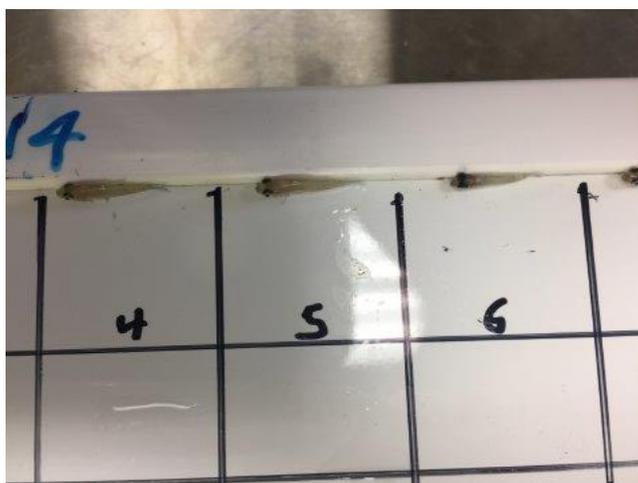
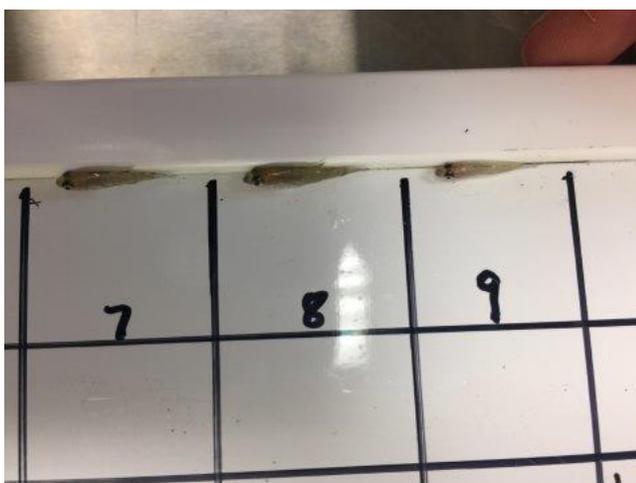
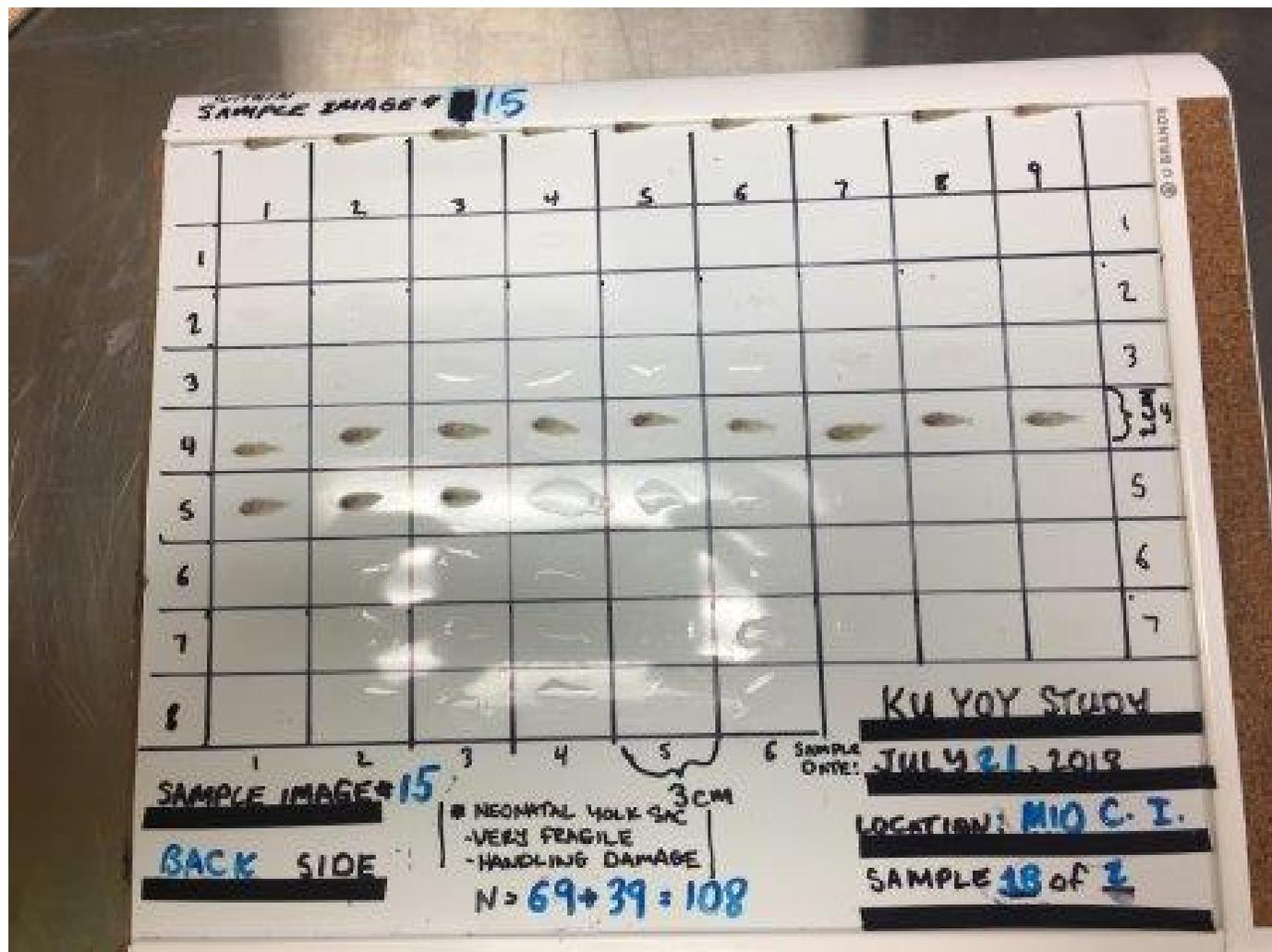


PHOTO 55



Sample 1B Image #14: Dorsal Side, Row 2, Closeup Photos

PHOTO 56



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #15: Dorsal Side, Row 3
 (See top of whiteboard)



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG

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PHOTO 57



PHOTO 58

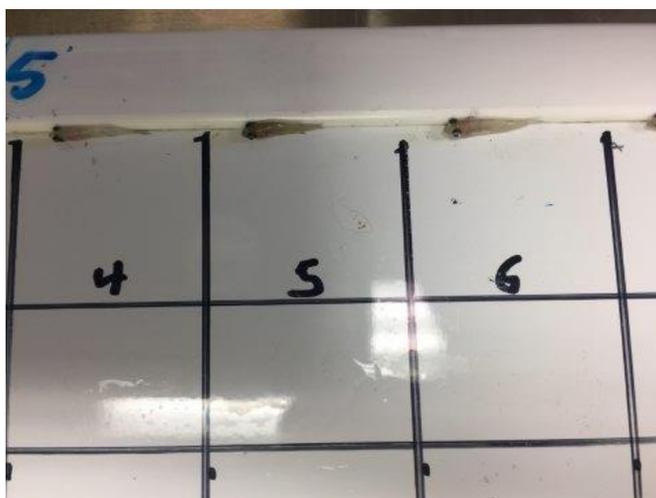
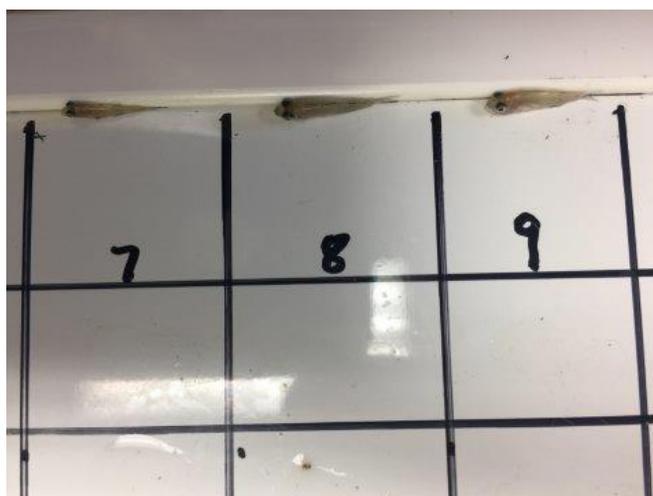
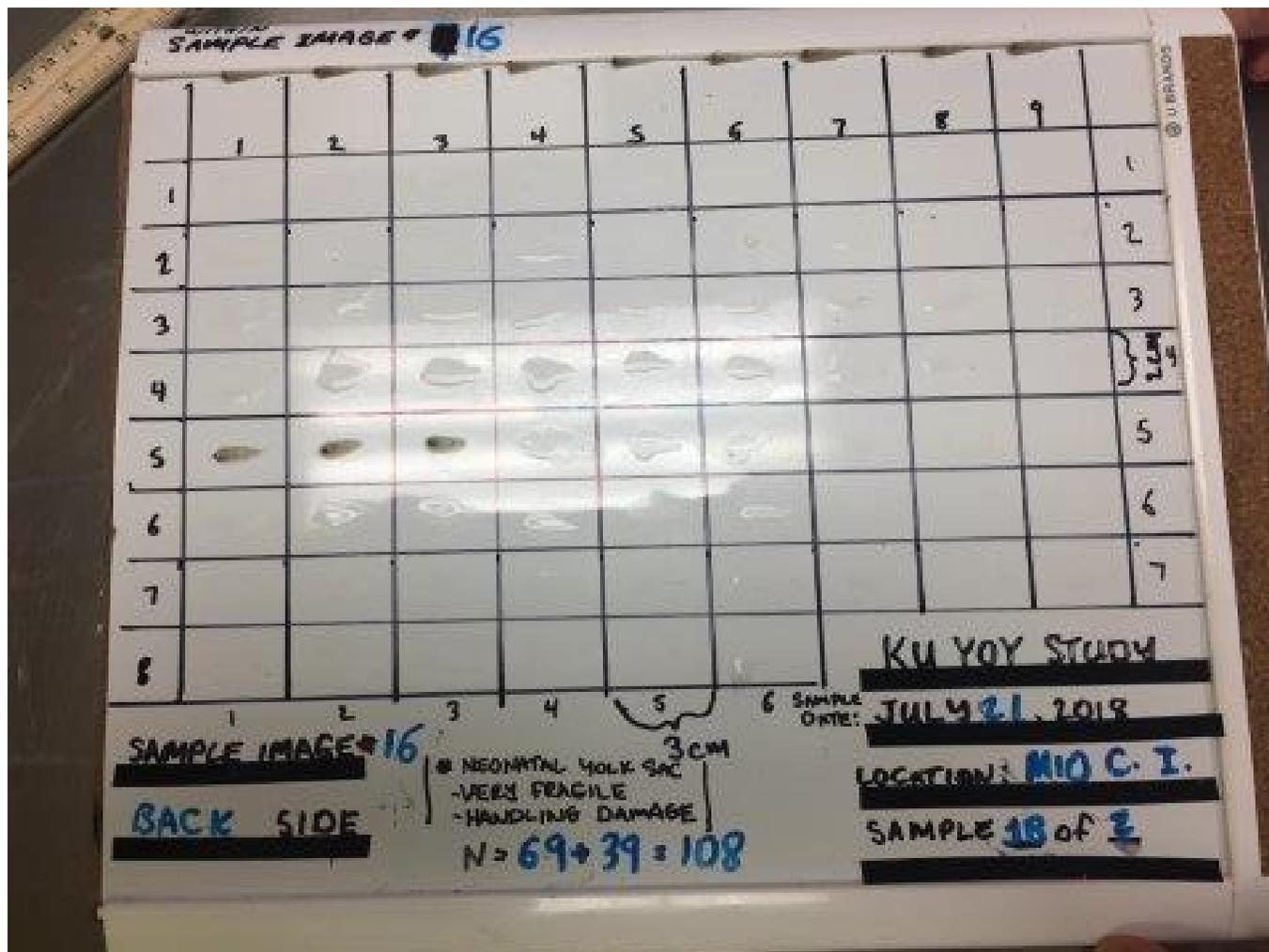


PHOTO 59



Sample 1B Image #15: Dorsal Side, Row 3, Closeup Photos

PHOTO 60



Middle Curds Inlet Bluegill Analytical Sample 1B
 N=108 (1A+1B)

Sample ID: YOY-003-MCI

Sample 1B Image #16: Dorsal Side, Row 4
 (See top of whiteboard)



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 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 61



PHOTO 62

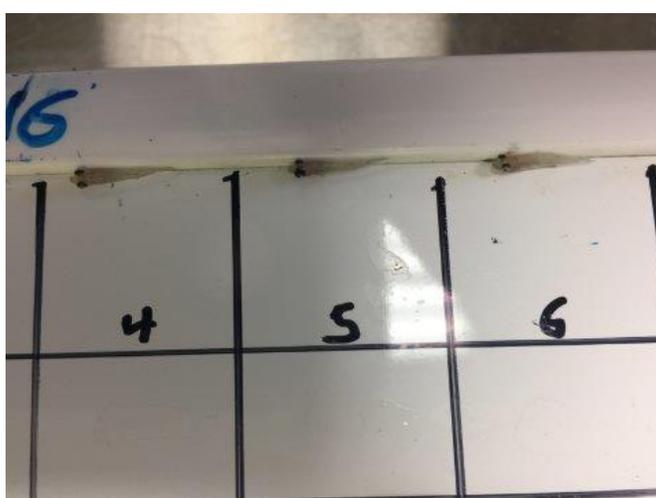
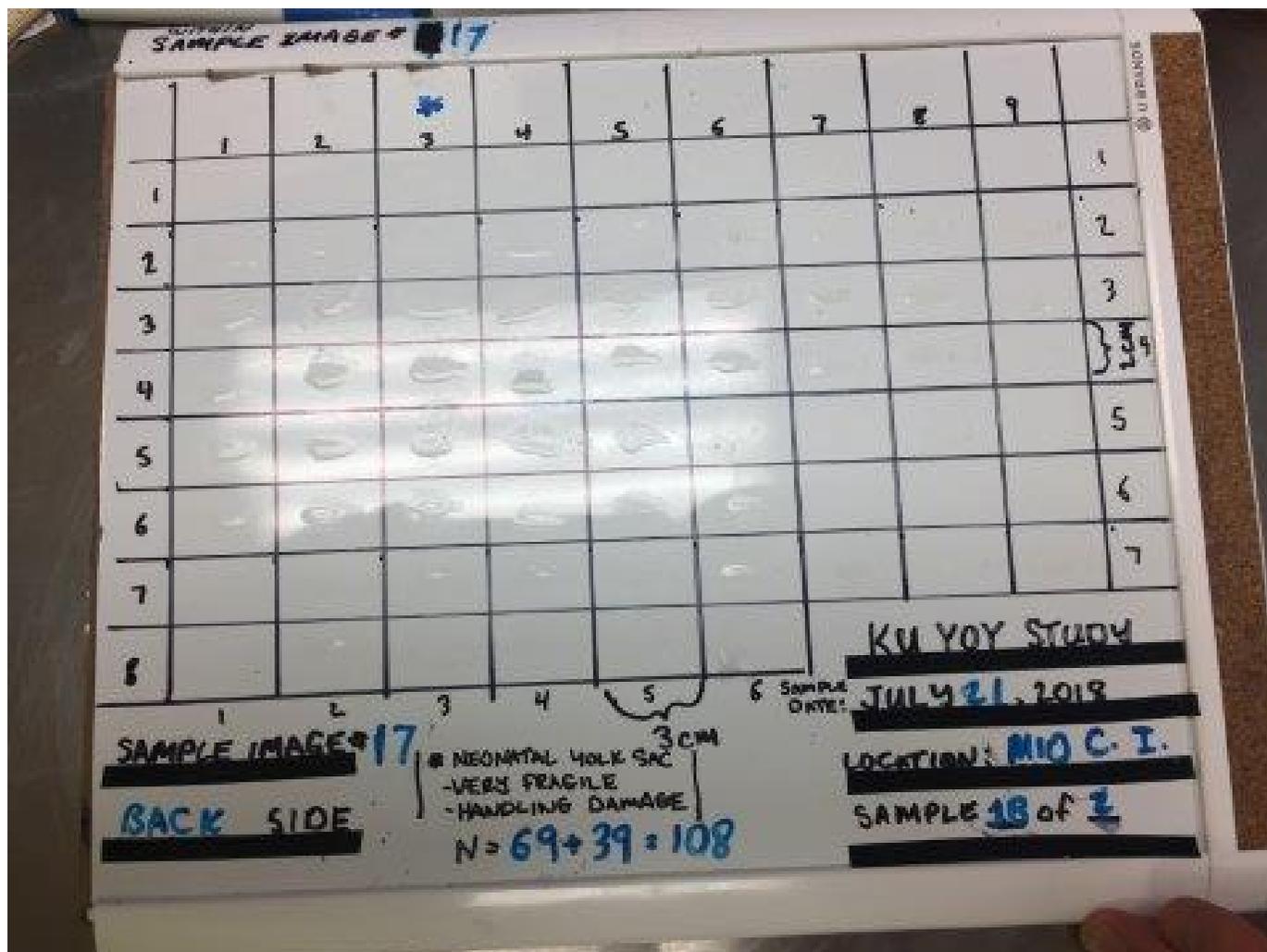


PHOTO 63



Sample 1B Image #16: Dorsal Side, Row 4, Closeup Photos

PHOTO 64



Middle Curds Inlet Bluegill Analytical Sample 1B
N=108 (1A+1B)

Sample ID: YOY-003-MCI

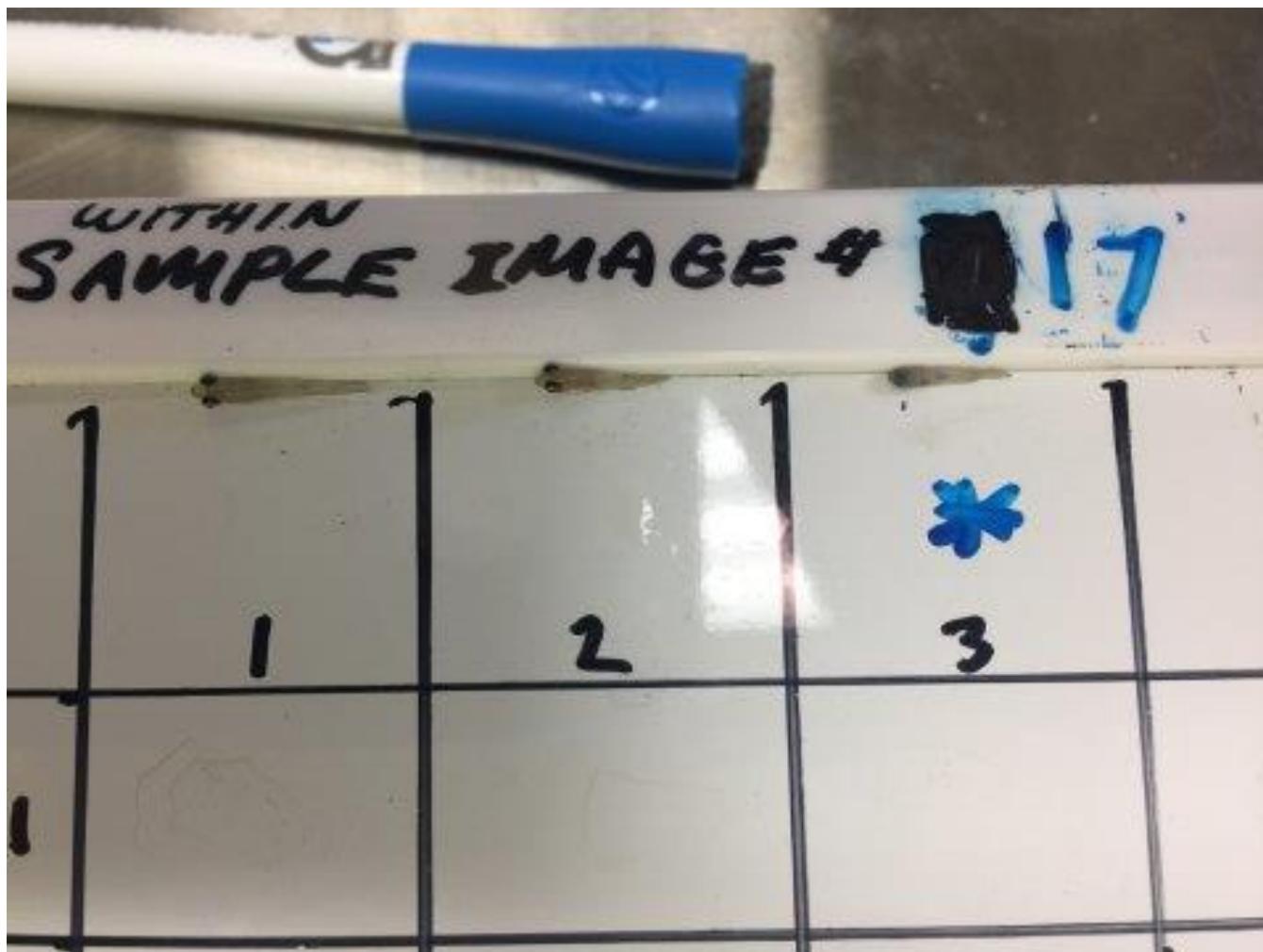
Sample 1B Image #17: Dorsal Side, Row 5
(See top of whiteboard)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

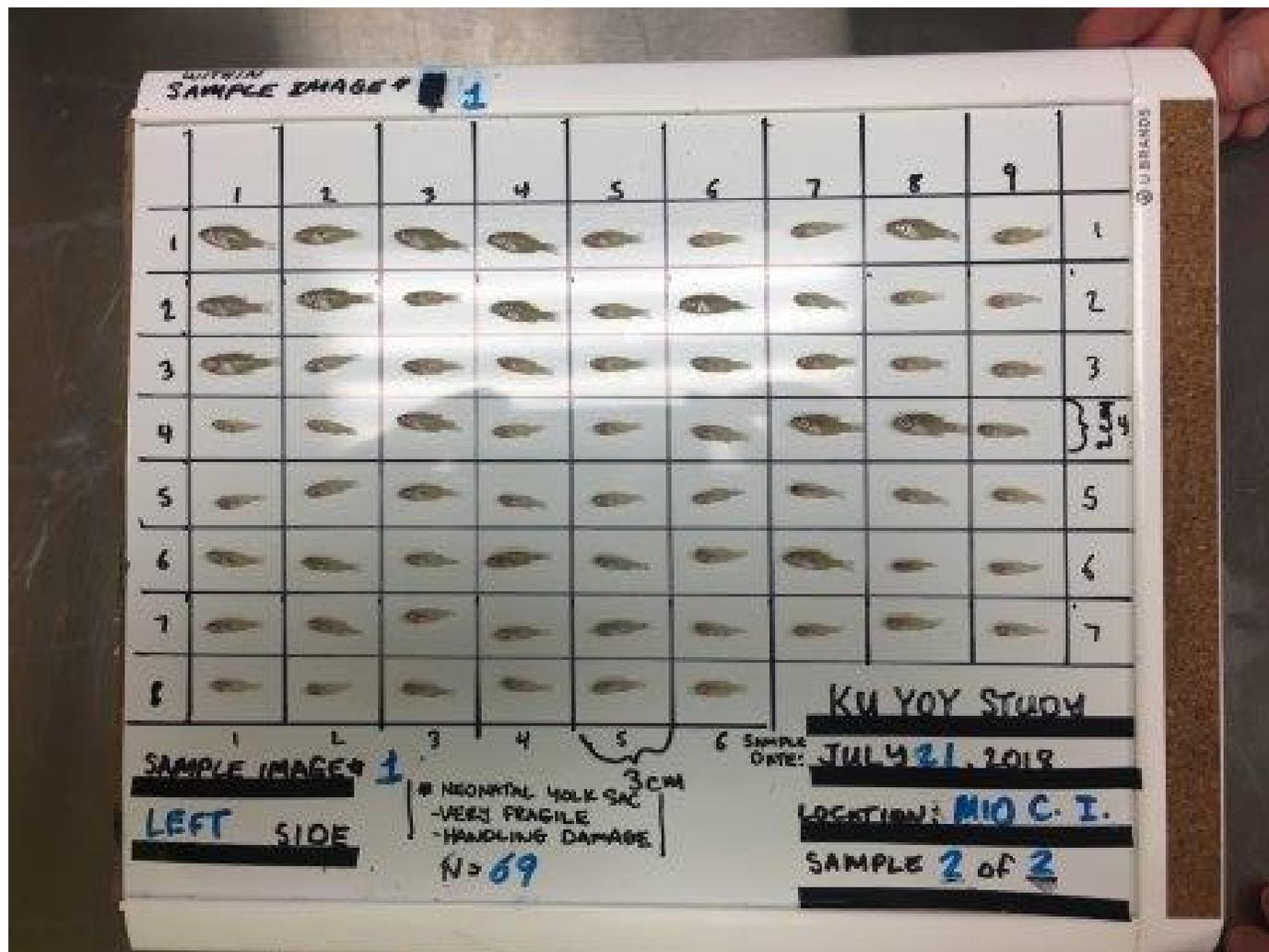
Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
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PHOTO 65



Sample 1B Image #17: Dorsal Side, Row 5, Closeup Photo

PHOTO 66



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #1:Left Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 68

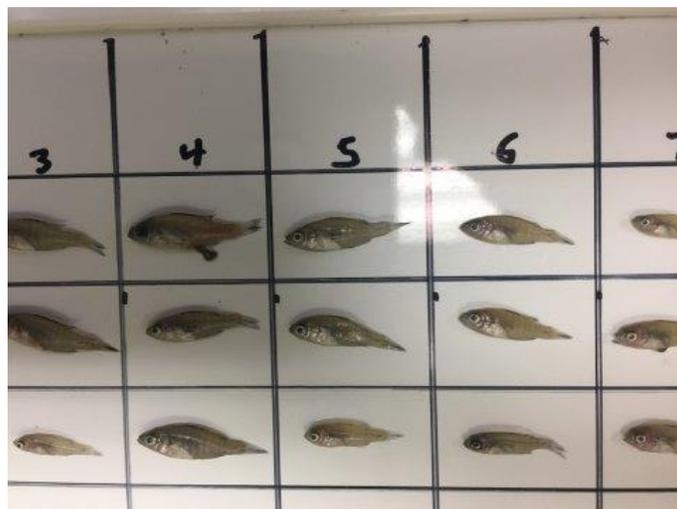
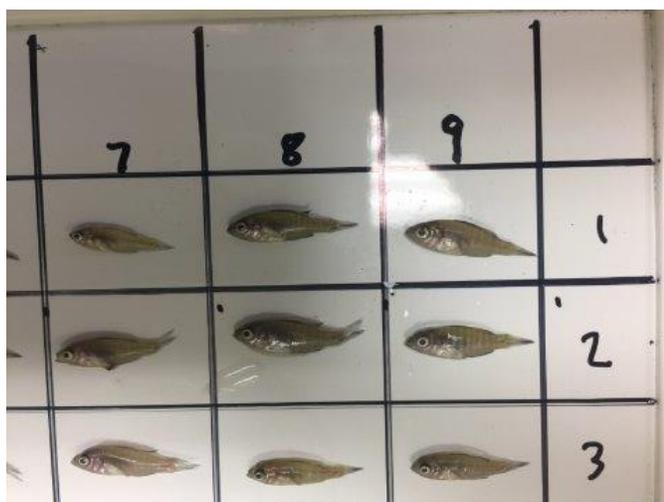
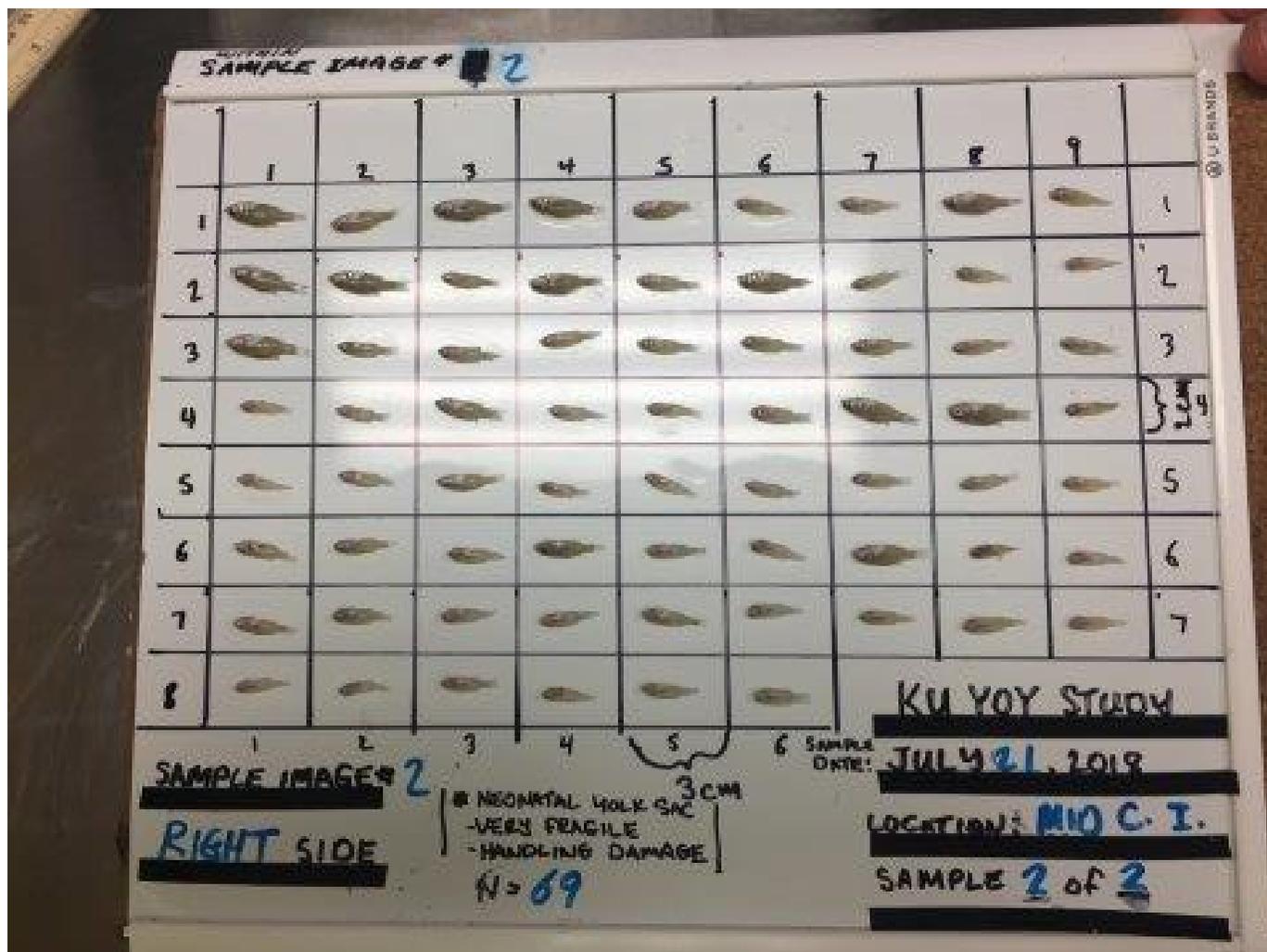


PHOTO 69



Sample 2 Image #1: Left Side, Closeup Photos

PHOTO 70



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #2:Right Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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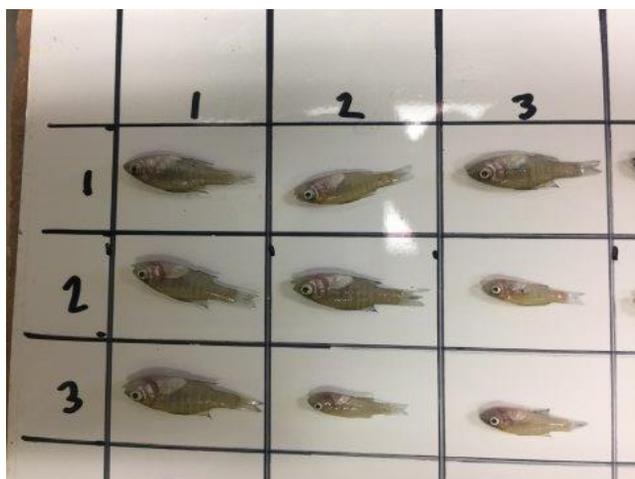


PHOTO 72

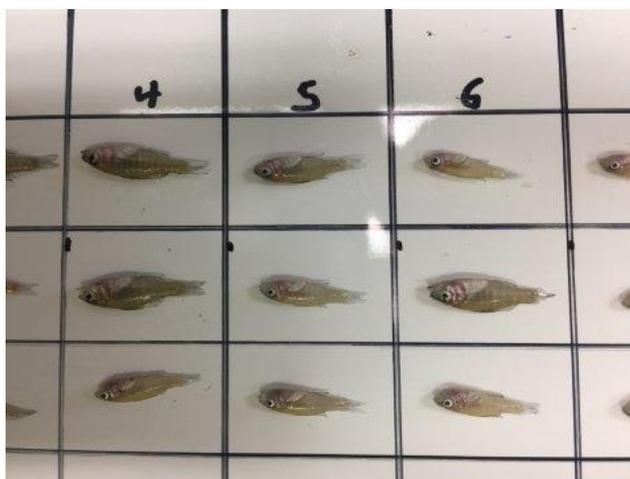
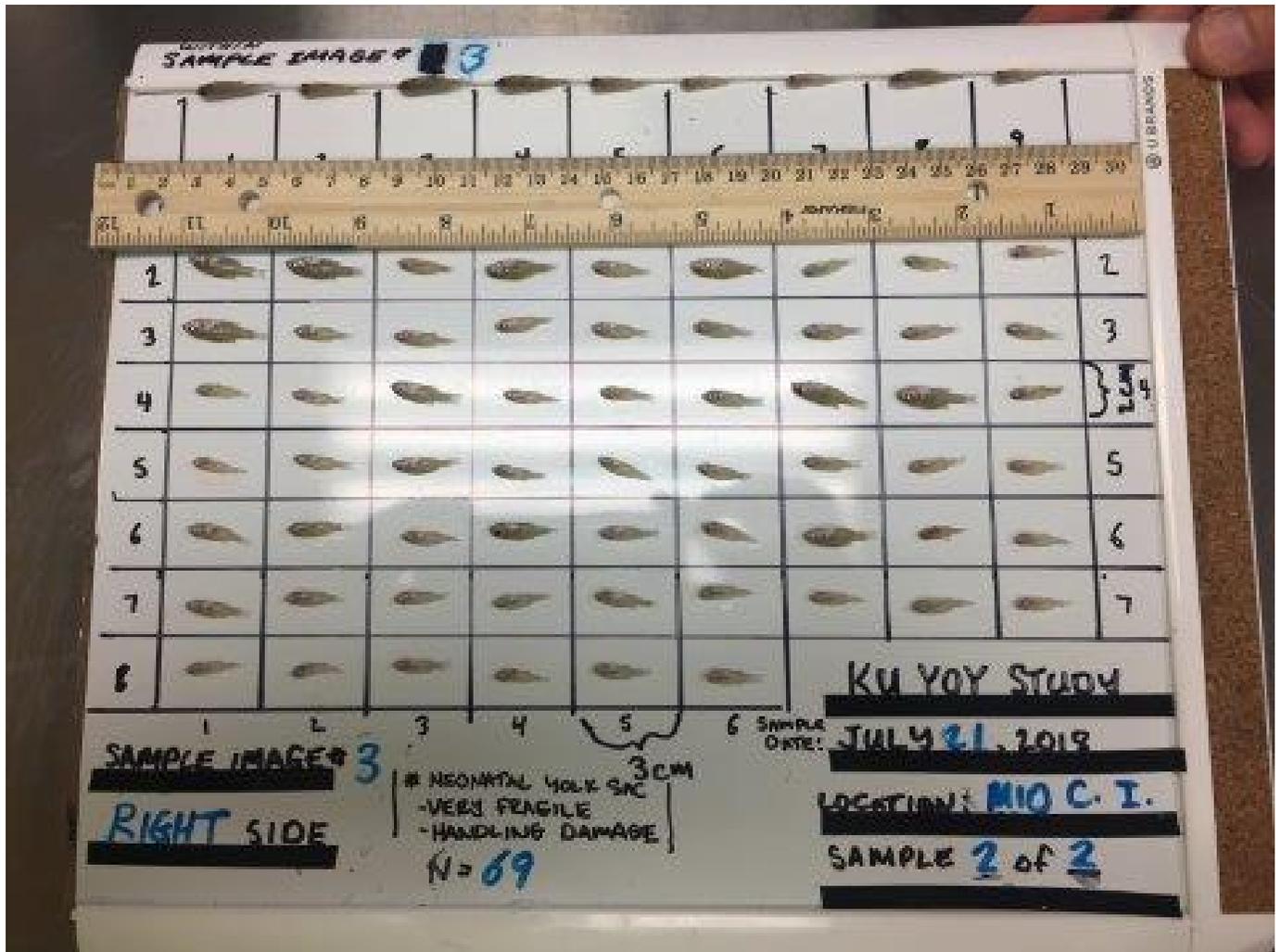


PHOTO 73



Sample 2 Image #2: Right Side, Closeup Photos

PHOTO 74



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #3: Dorsal Side, Row 1
(See Above Wooden Ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG
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PHOTO 76

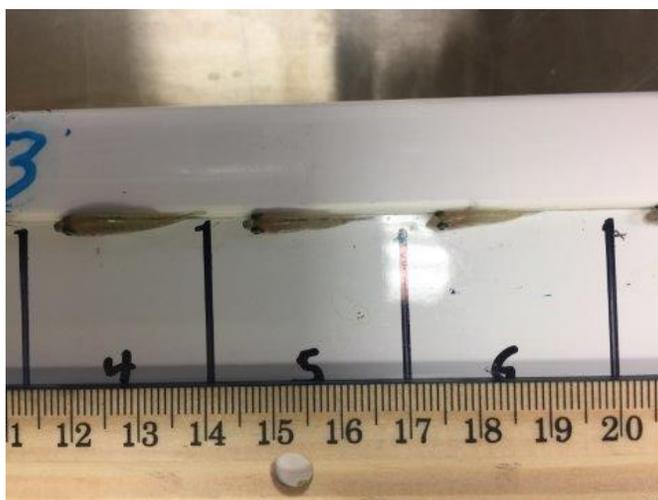
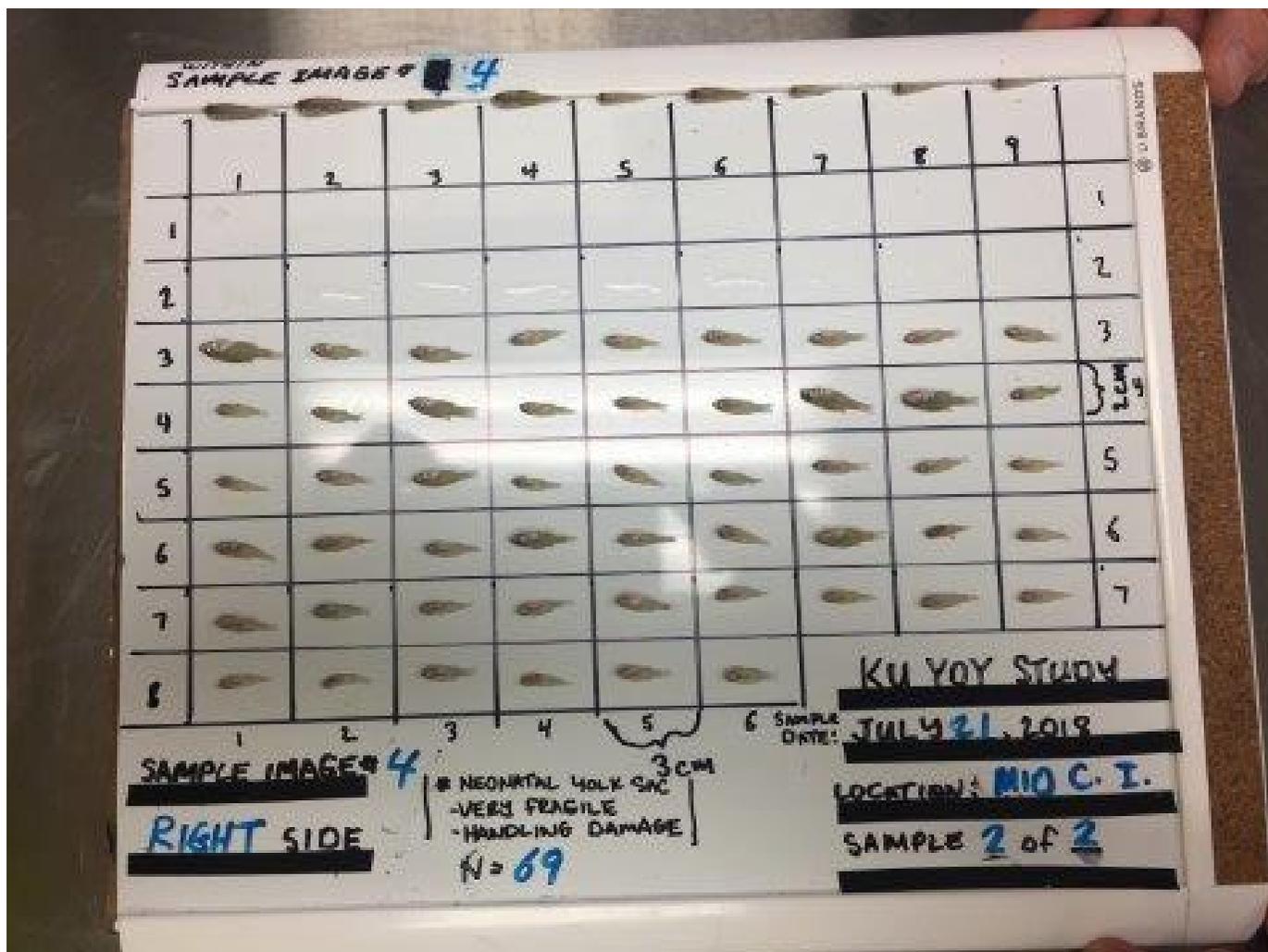


PHOTO 77



Sample 2 Image #3: Dorsal Side, Row 1, Closeup Photos

PHOTO 78



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #4: Dorsal Side, Row 2
(See Above Wooden Ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 80

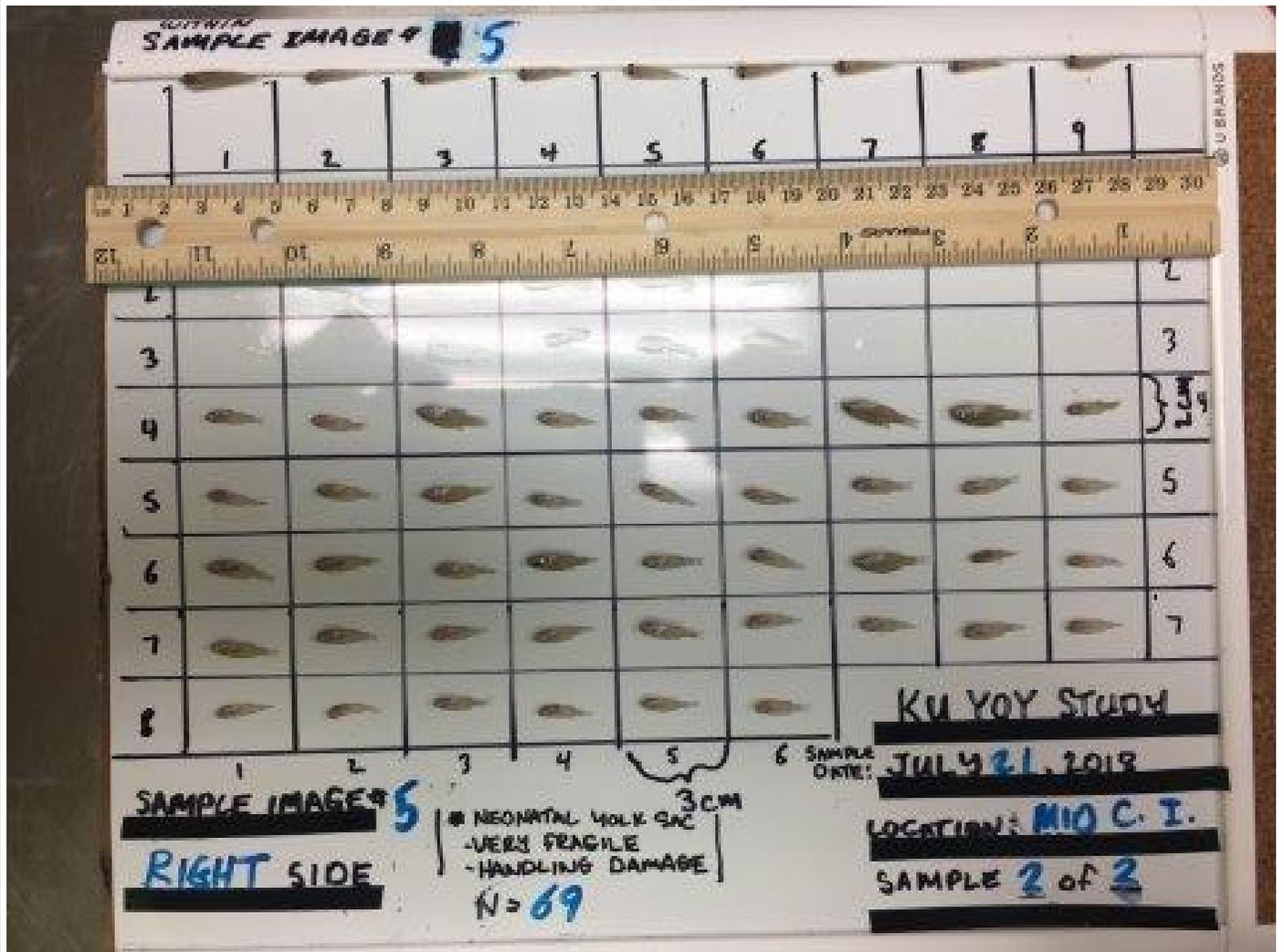


PHOTO 81



Sample 2 Image #4: Dorsal Side, Row 2, Closeup Photos

PHOTO 82



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #5: Dorsal Side, Row 3
(See Above Wooden Ruler)



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 83

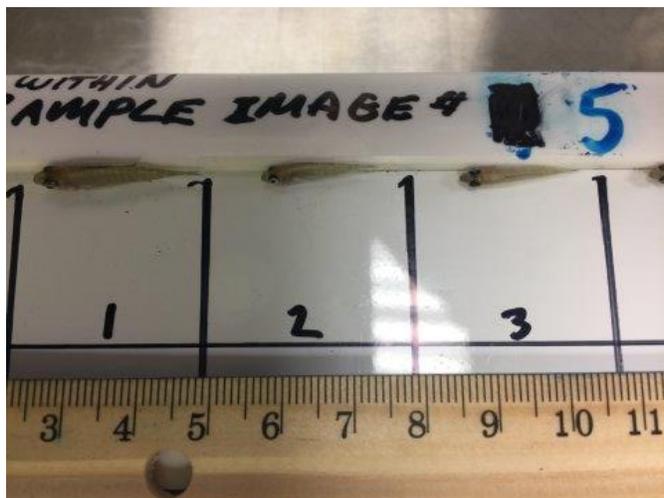
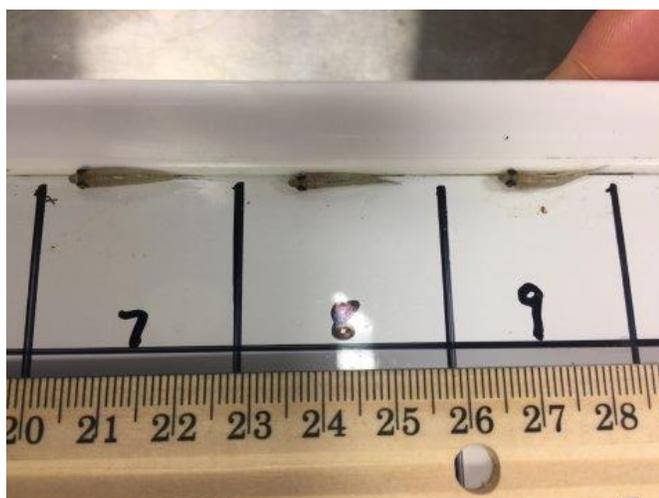


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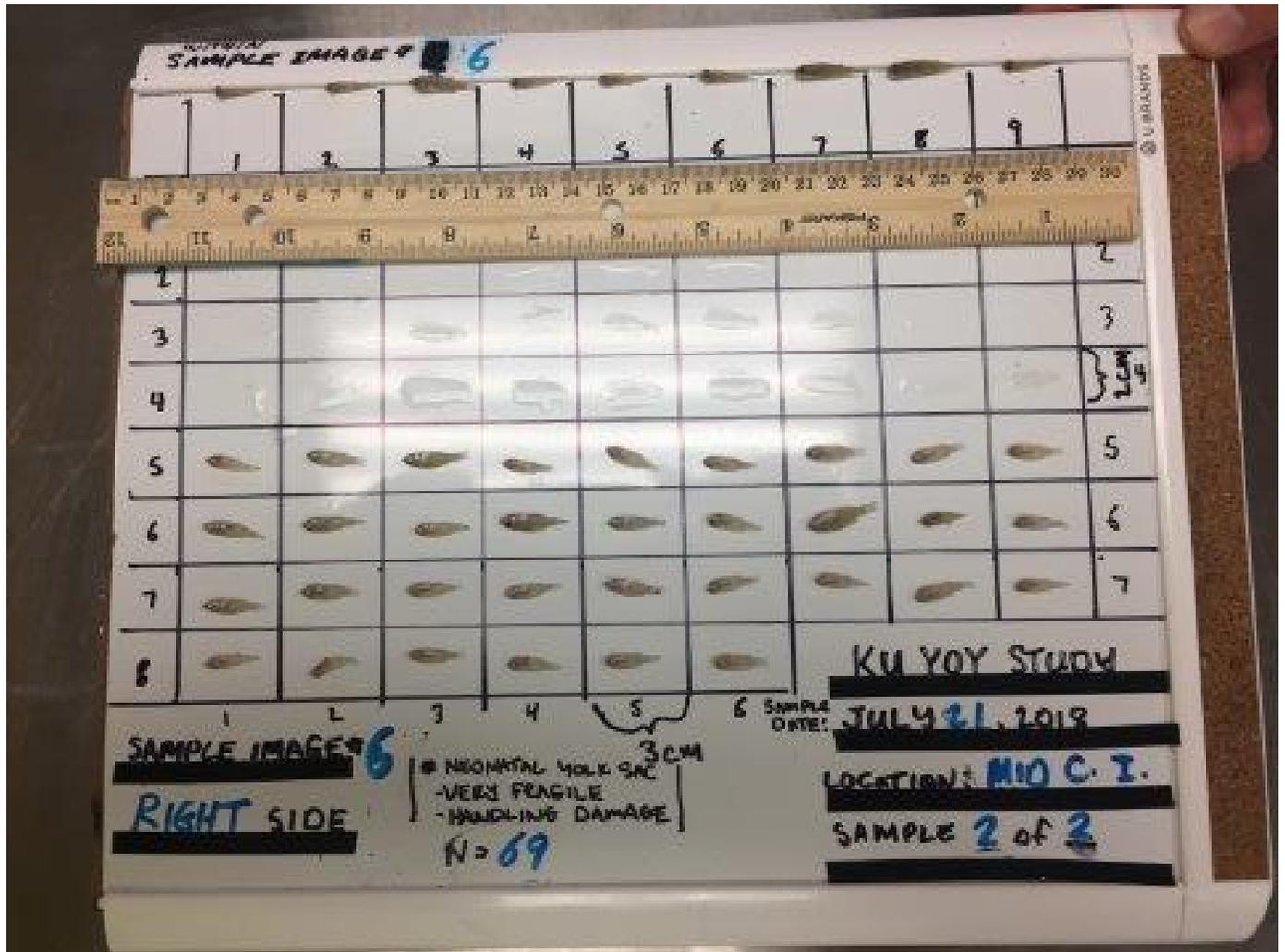


PHOTO 85



Sample 2 Image #5: Dorsal Side, Row 3, Closeup Photos

PHOTO 86



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #6: Dorsal Side, Row 4
(See Above Wooden Ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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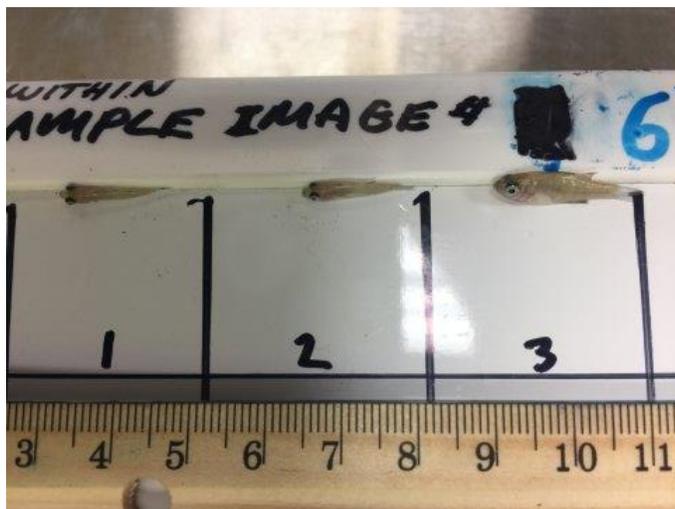


PHOTO 88

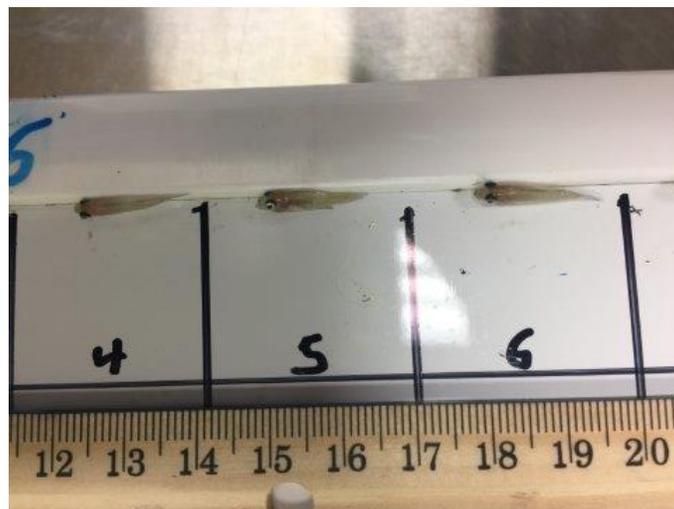
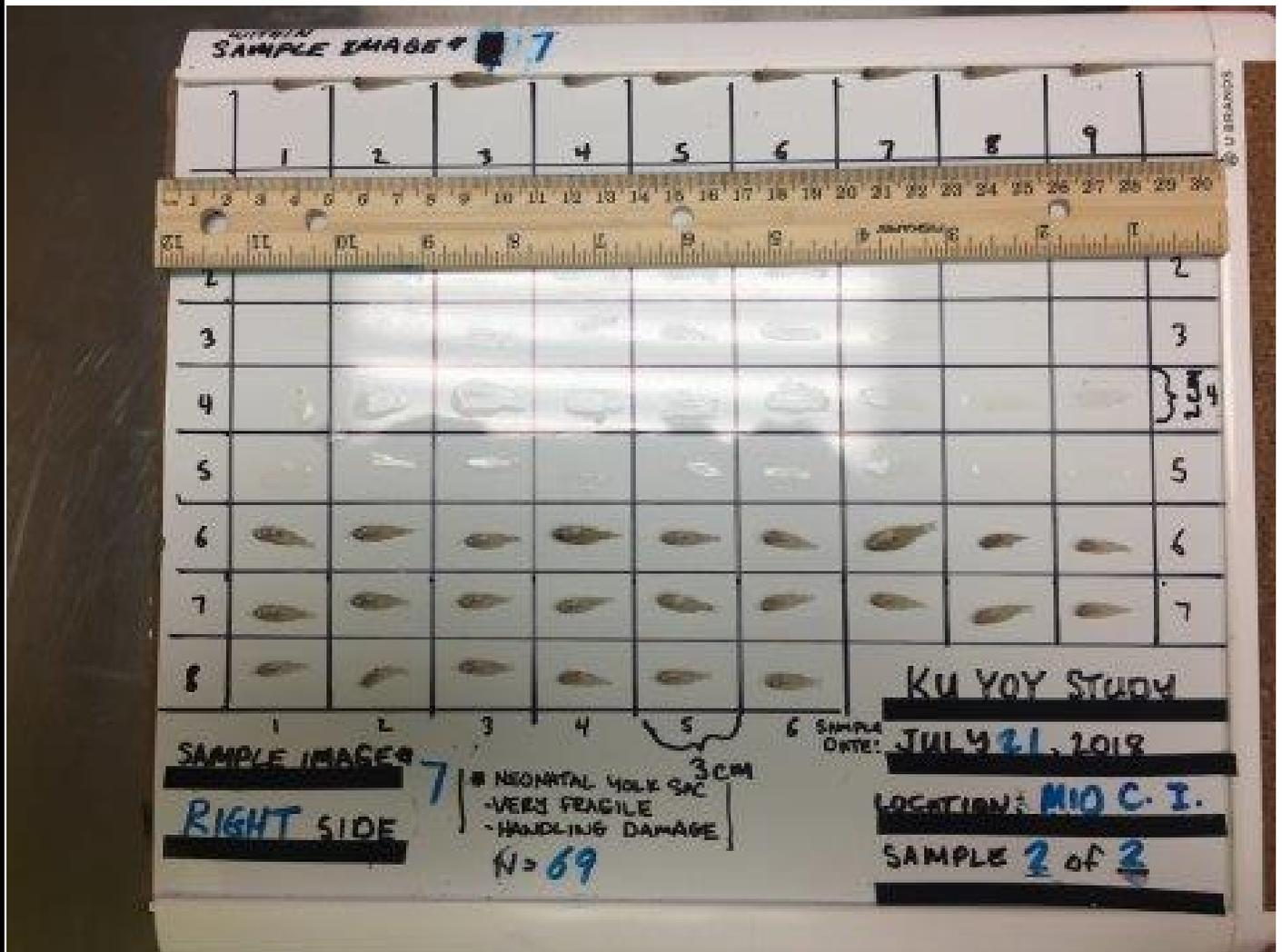


PHOTO 89



Sample 2 Image #6: Dorsal Side, Row 4, Closeup Photos

PHOTO 90



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #7: Dorsal Side, Row 5
(See Above Wooden Ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 91

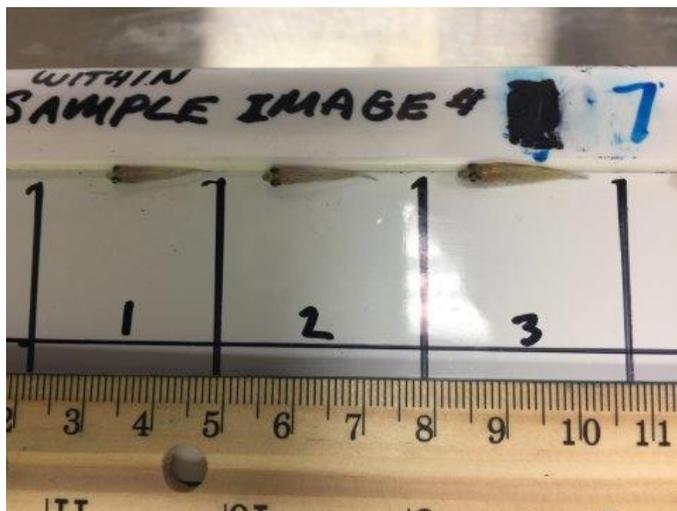


PHOTO 92

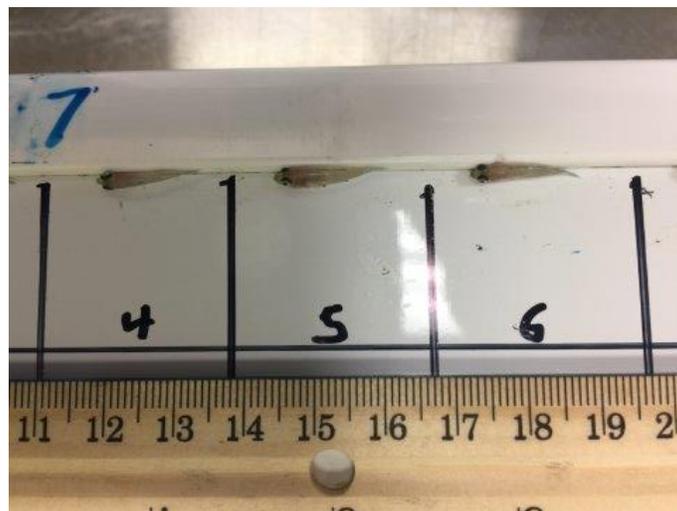
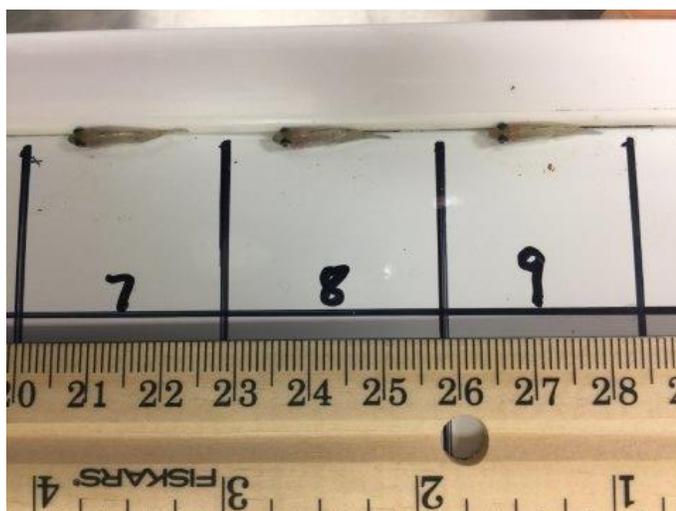
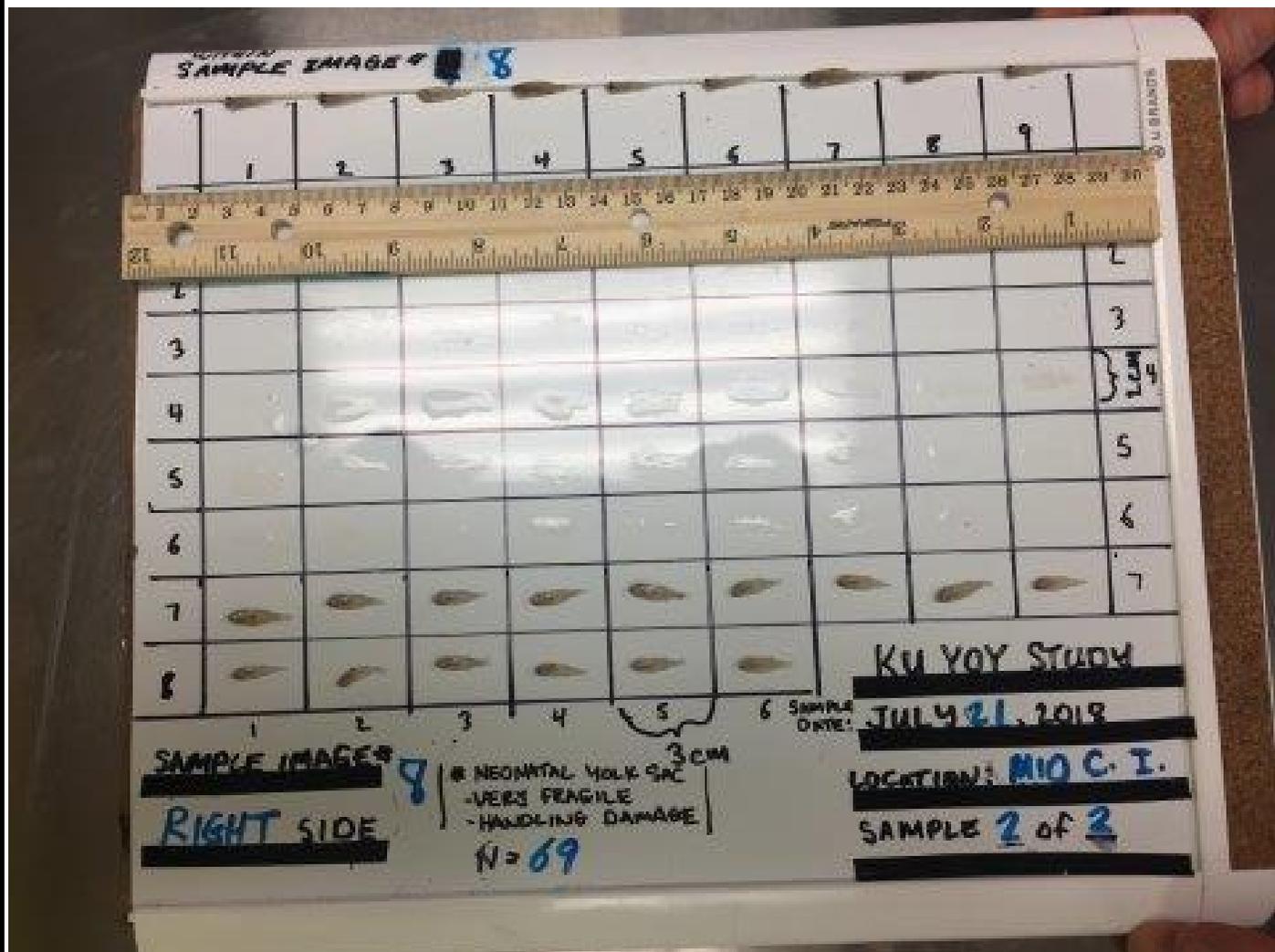


PHOTO 93



Sample 2 Image #7: Dorsal Side, Row 5, Closeup Photos

PHOTO 94



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #8: Dorsal Side, Row 6
(See Above Wooden Ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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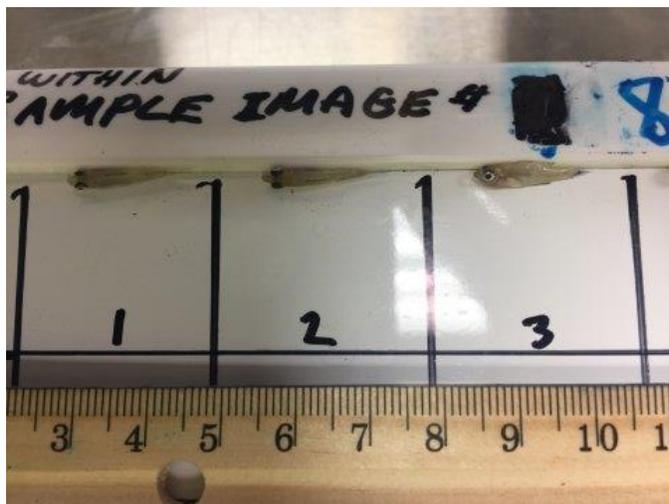


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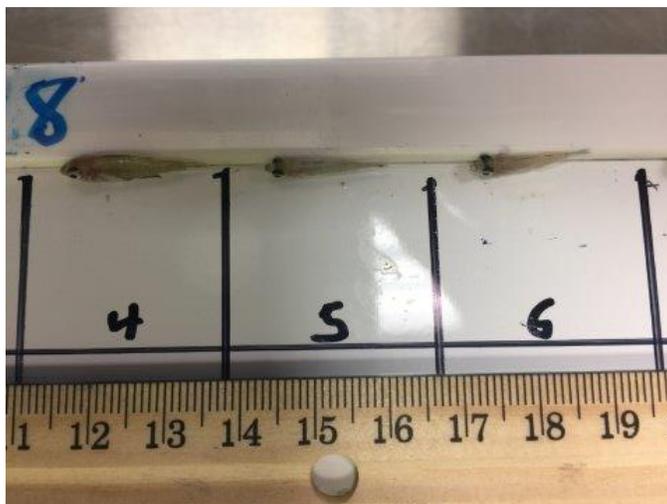


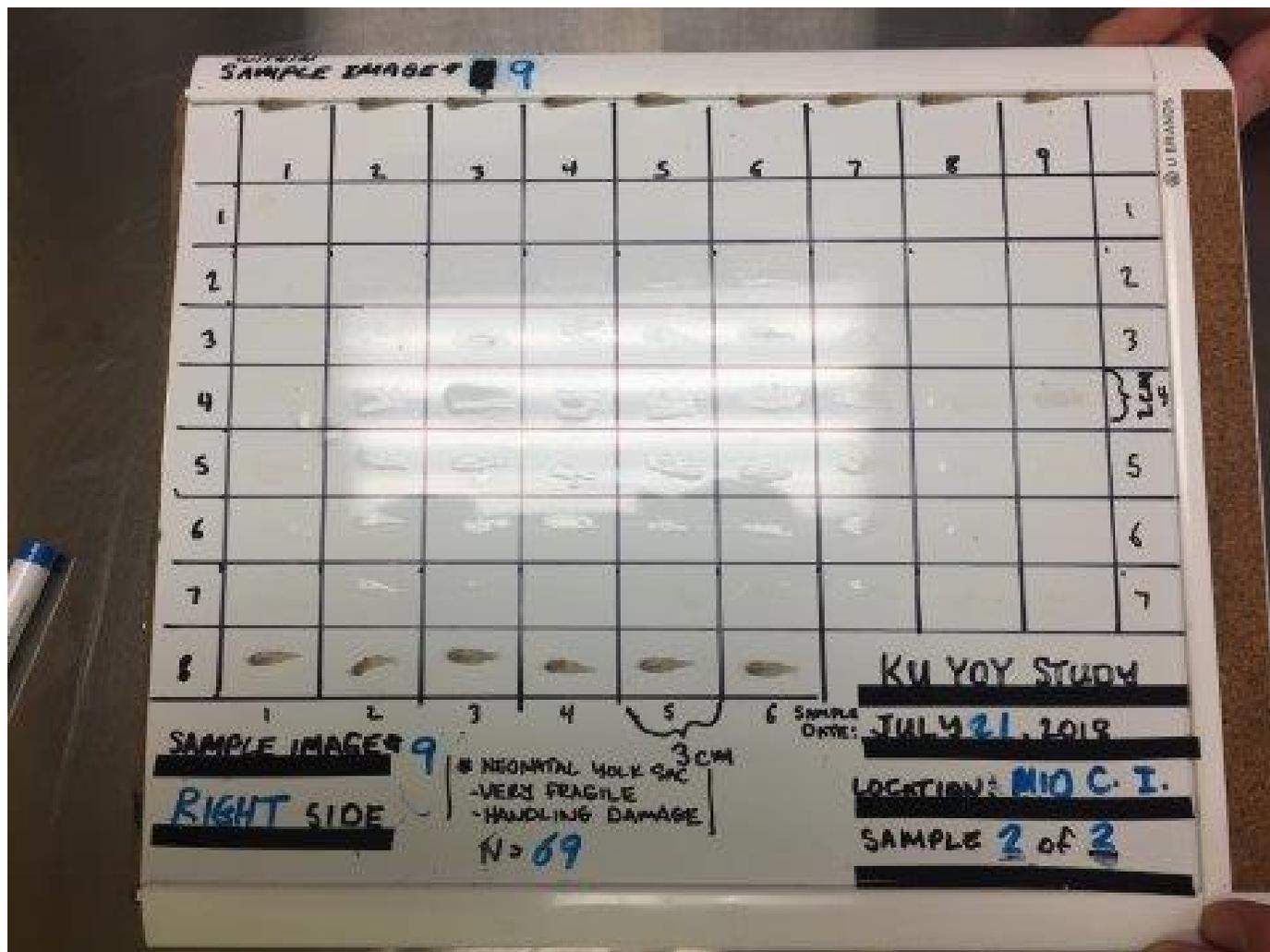
PHOTO 97



Sample 2 Image #8: Dorsal Side, Row 6, Closeup Photos



PHOTO 98



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #9: Dorsal Side, Row 7
(See Above Wooden Ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 100

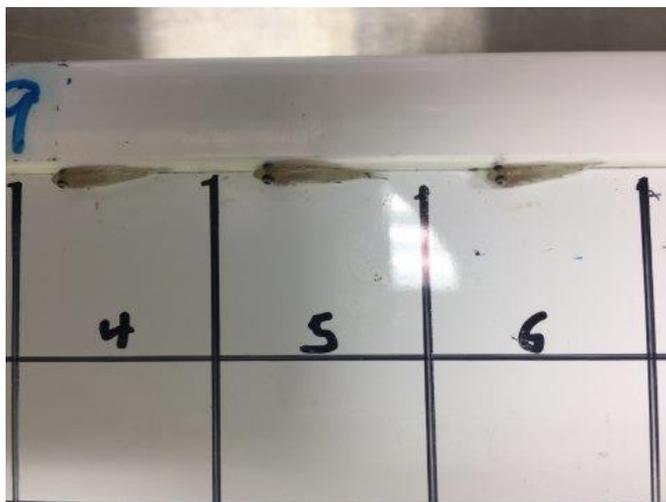
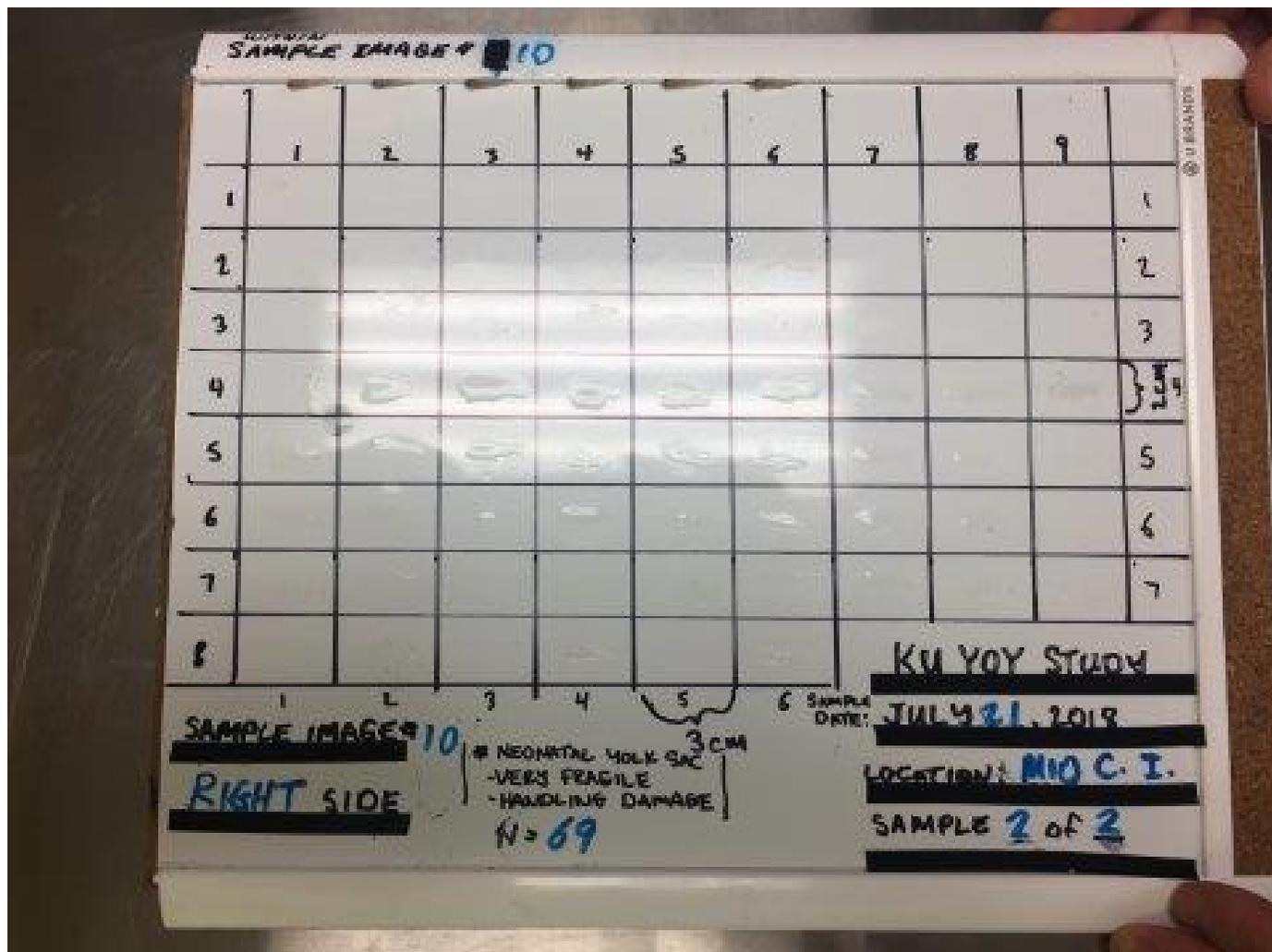


PHOTO 101



Sample 2 Image #9: Dorsal Side, Row 7, Closeup Photos

PHOTO 102



Middle Curds Inlet Bluegill Analytical Sample 2
N=69

Sample ID: YOY-004-MCI

Sample 2 Image #10: Dorsal Side, Row 8
(See Above Wooden Ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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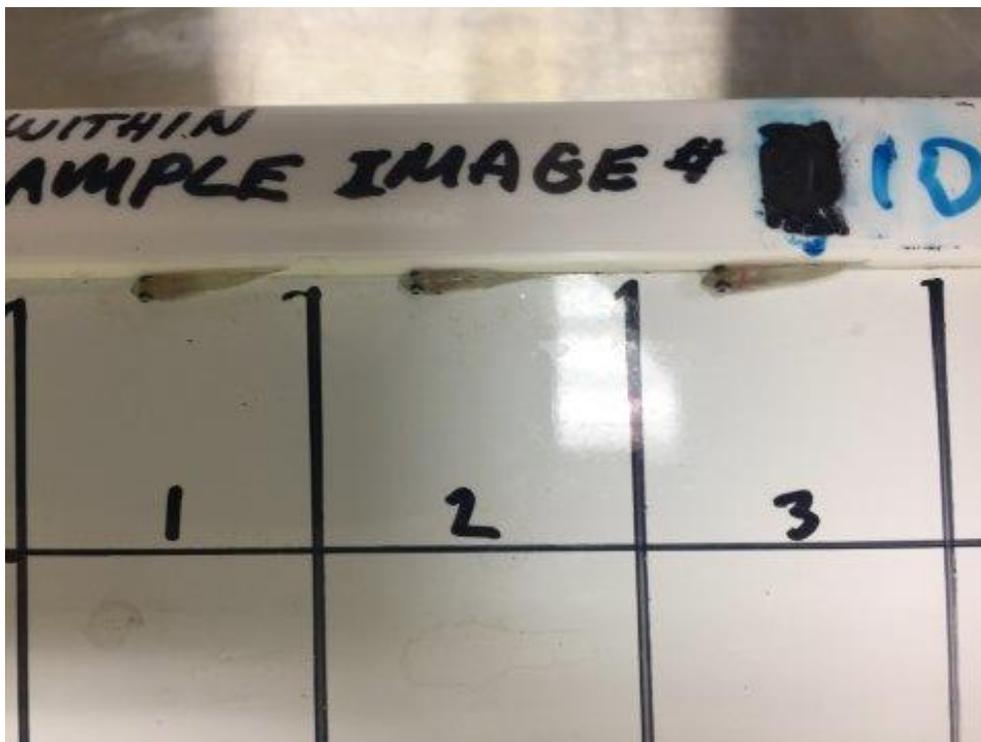
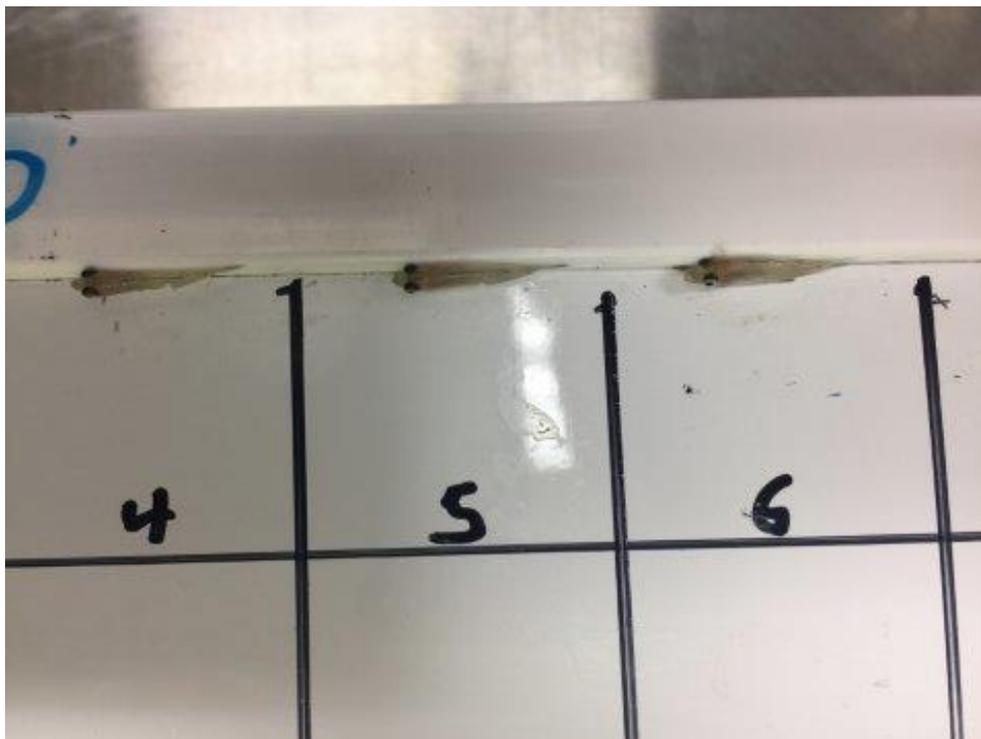


PHOTO 104



Sample 2 Image #10: Dorsal Side, Row 8, Closeup Photos



LOWER CURDS INLET



DRAFTED BY: AEM

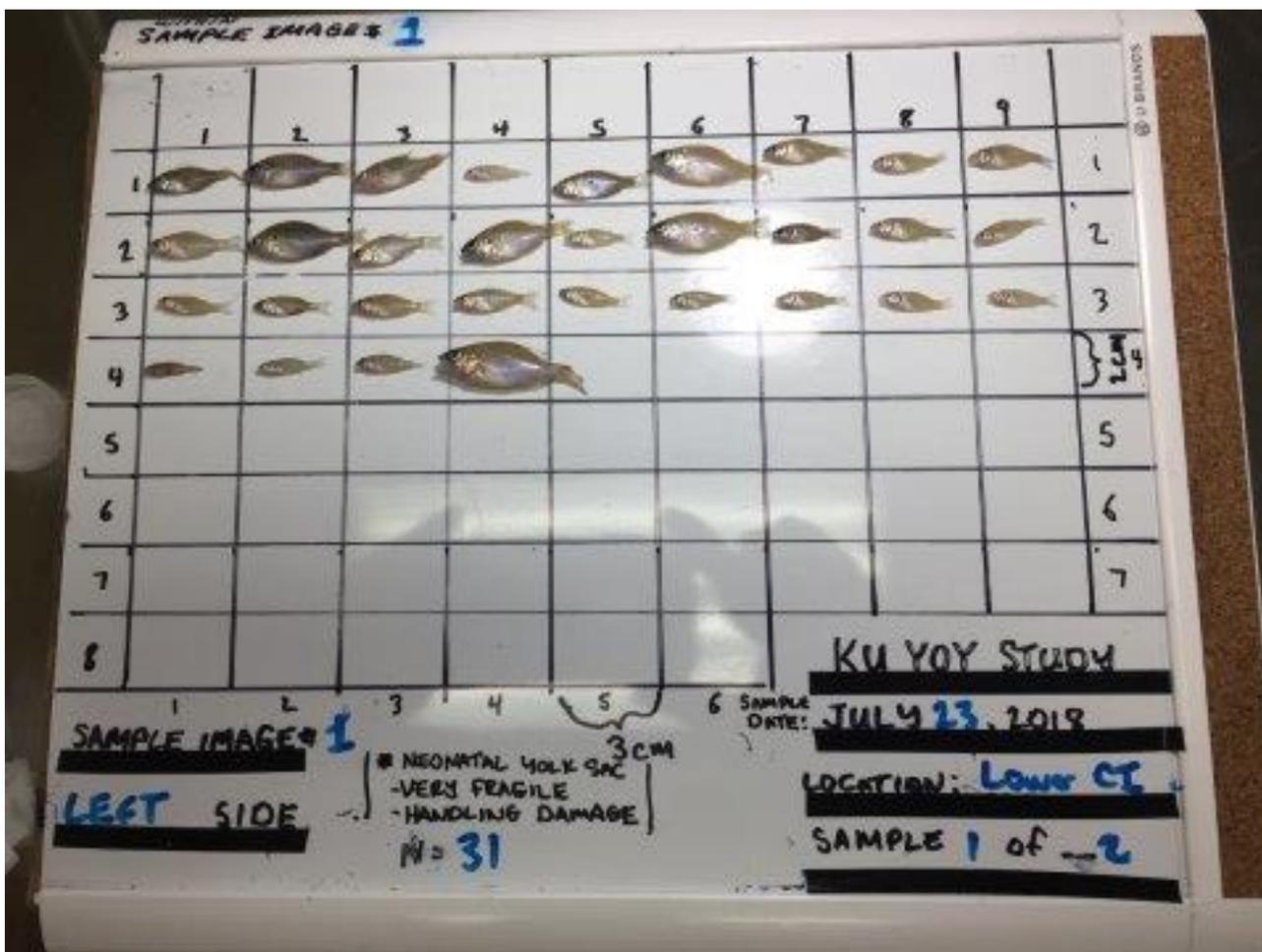
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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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Photo 1



Lower Curds Inlet Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-005-LCI

Sample Image #1: Left Side



Photo 2



Photo 3

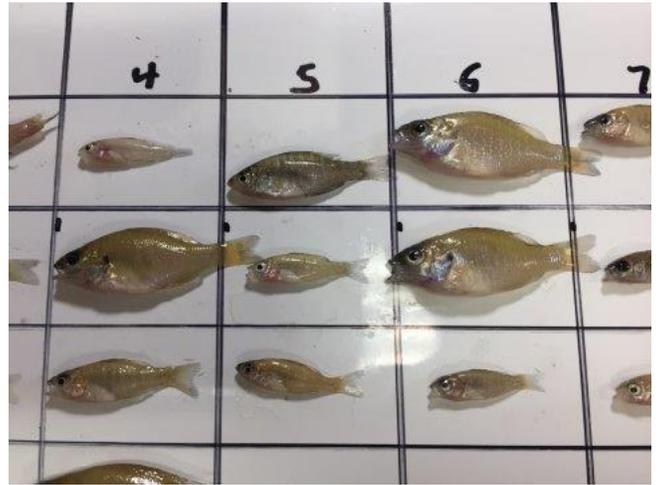
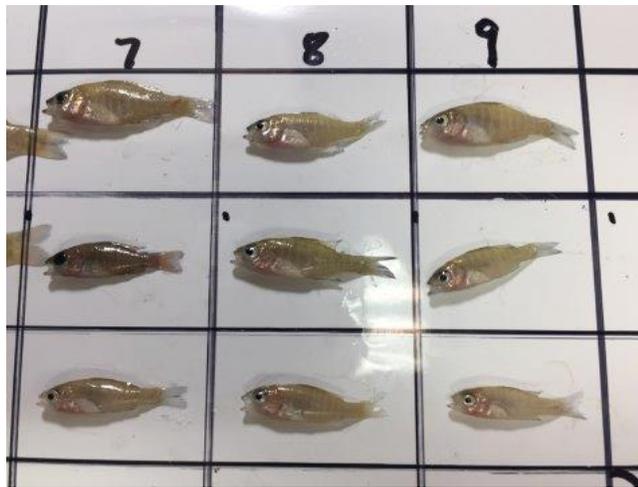
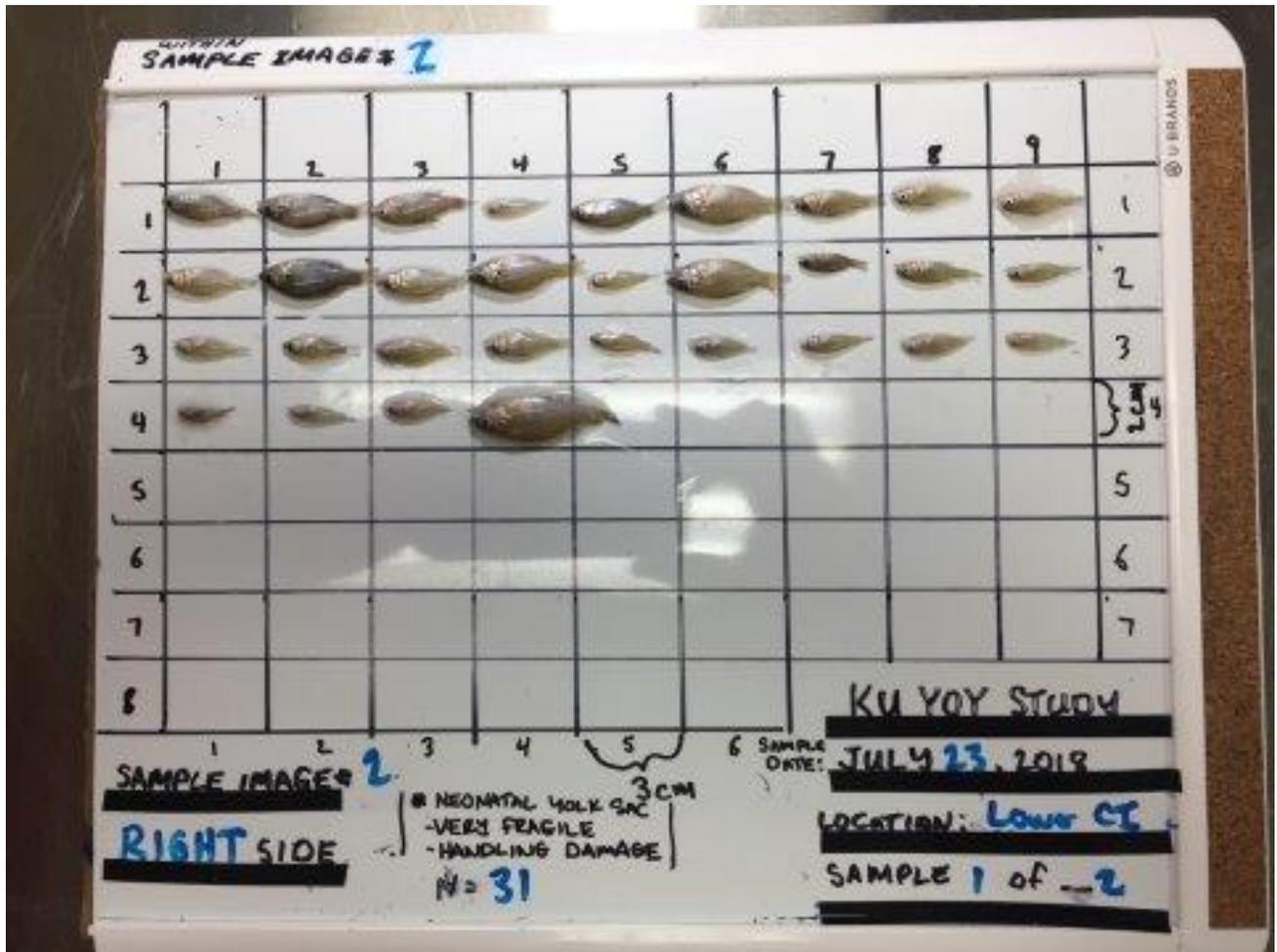


Photo 4



Sample Image #1: Left side, closeup photos

Photo 5



Lower Curds Inlet Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-005-LCI

Sample Image #2: Right Side

Photo 6

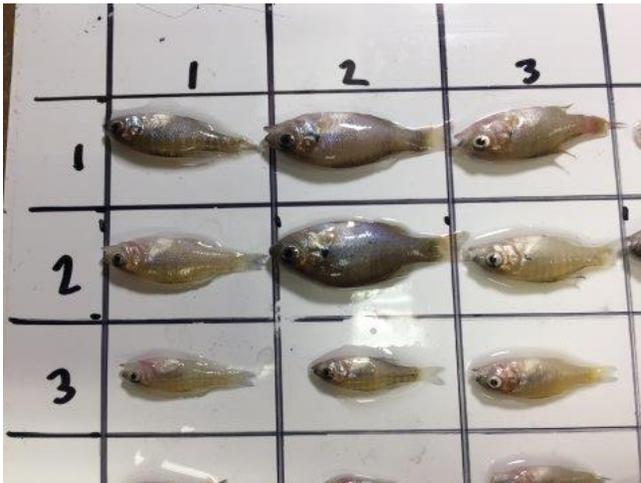


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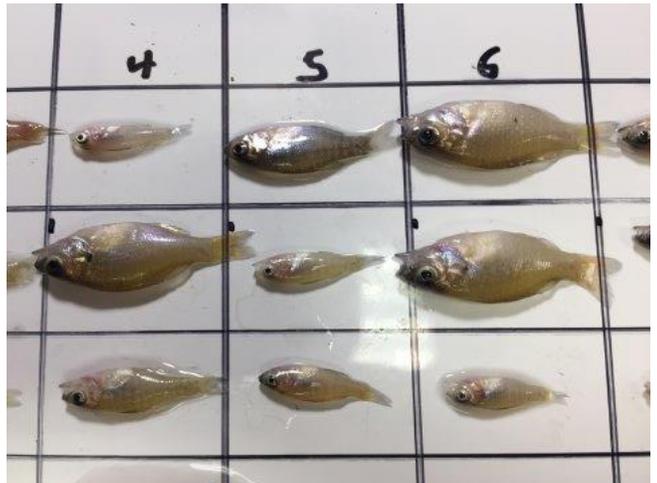
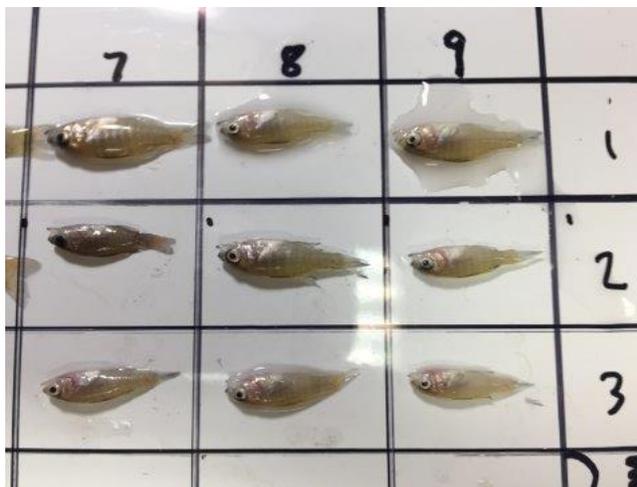


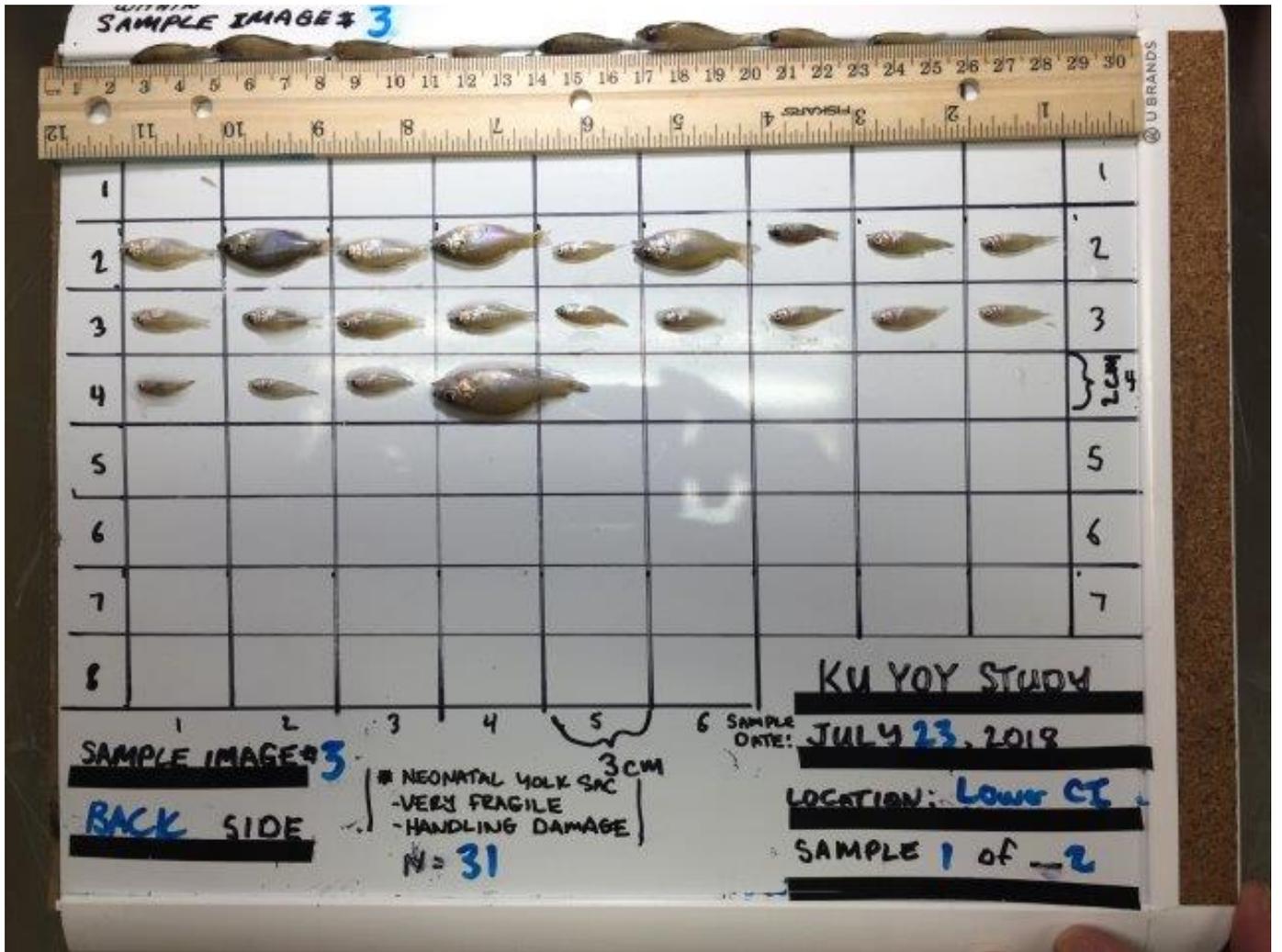
Photo 8



Sample Image #2: Right side, closeup photos



Photo 9



Lower Curds Inlet Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-005-LCI

Sample Image #3: Dorsal Side, Row 1
(See above wooden ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

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Photo 10



Photo 11



Photo 12



Sample Image #3: Dorsal Side, Row 1, Closeup photos

Photo 14



Photo 15

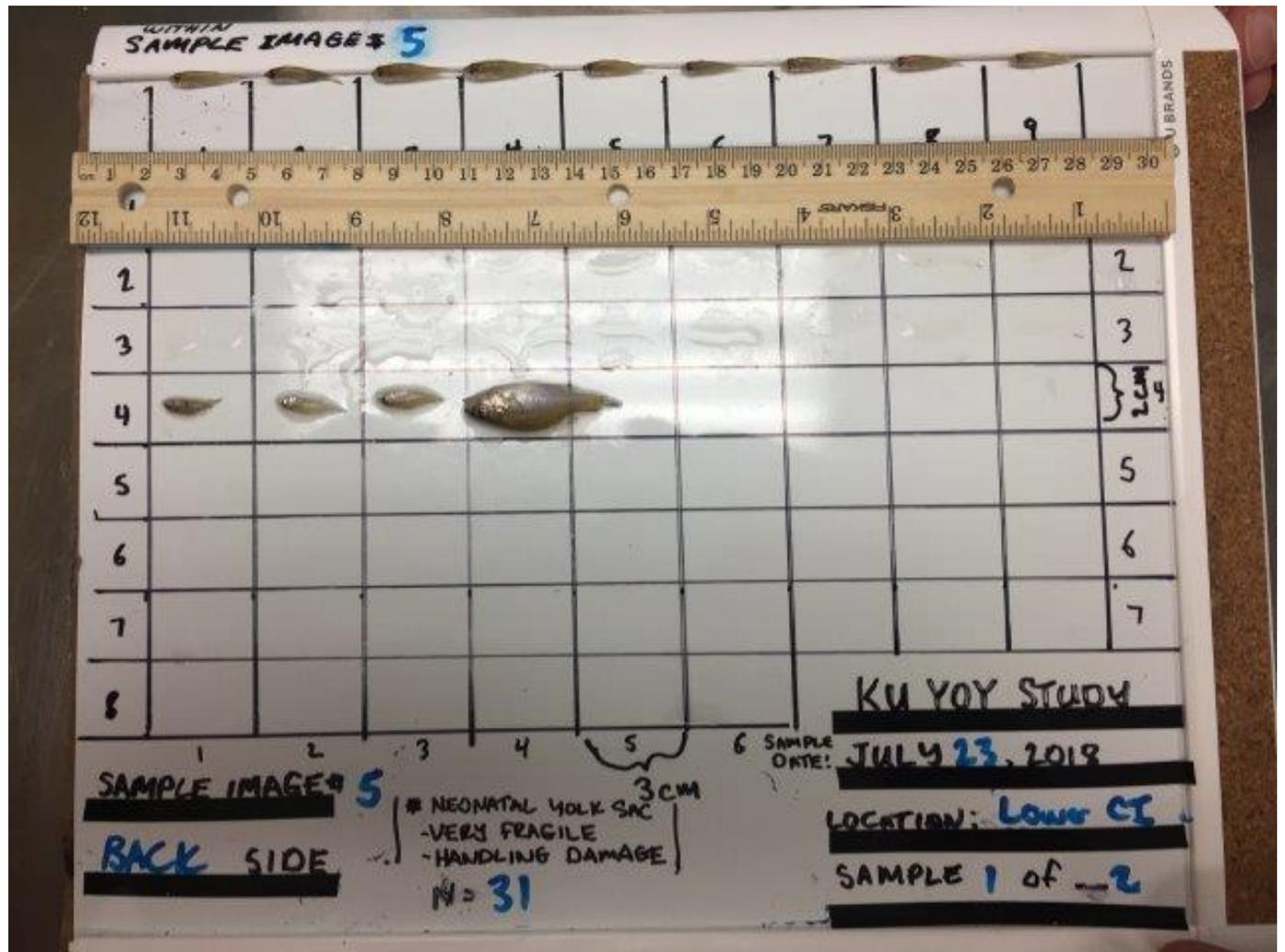


Photo 16



Sample Image #4: Dorsal Side, Row 2, Closeup photos

Photo 17



Lower Curds Inlet Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-005-LCI

Sample Image #5: Dorsal Side, Row 3
(See above wooden ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

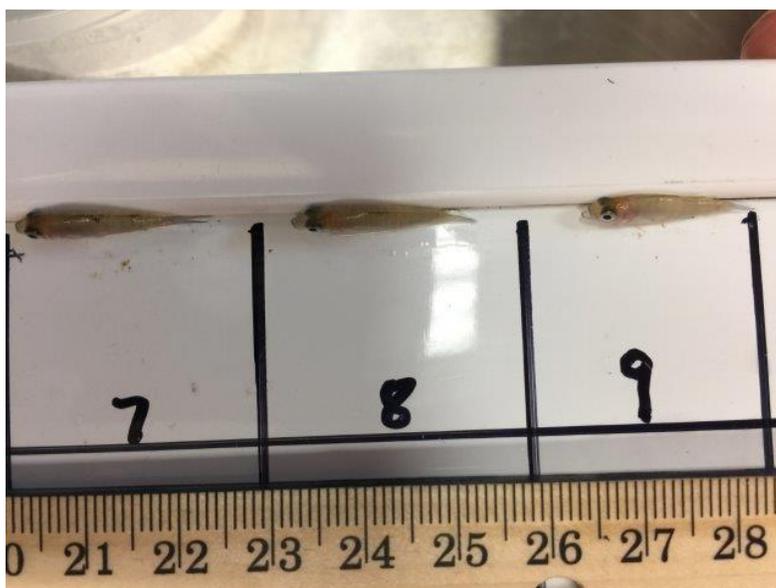
Photo 18



Photo 19

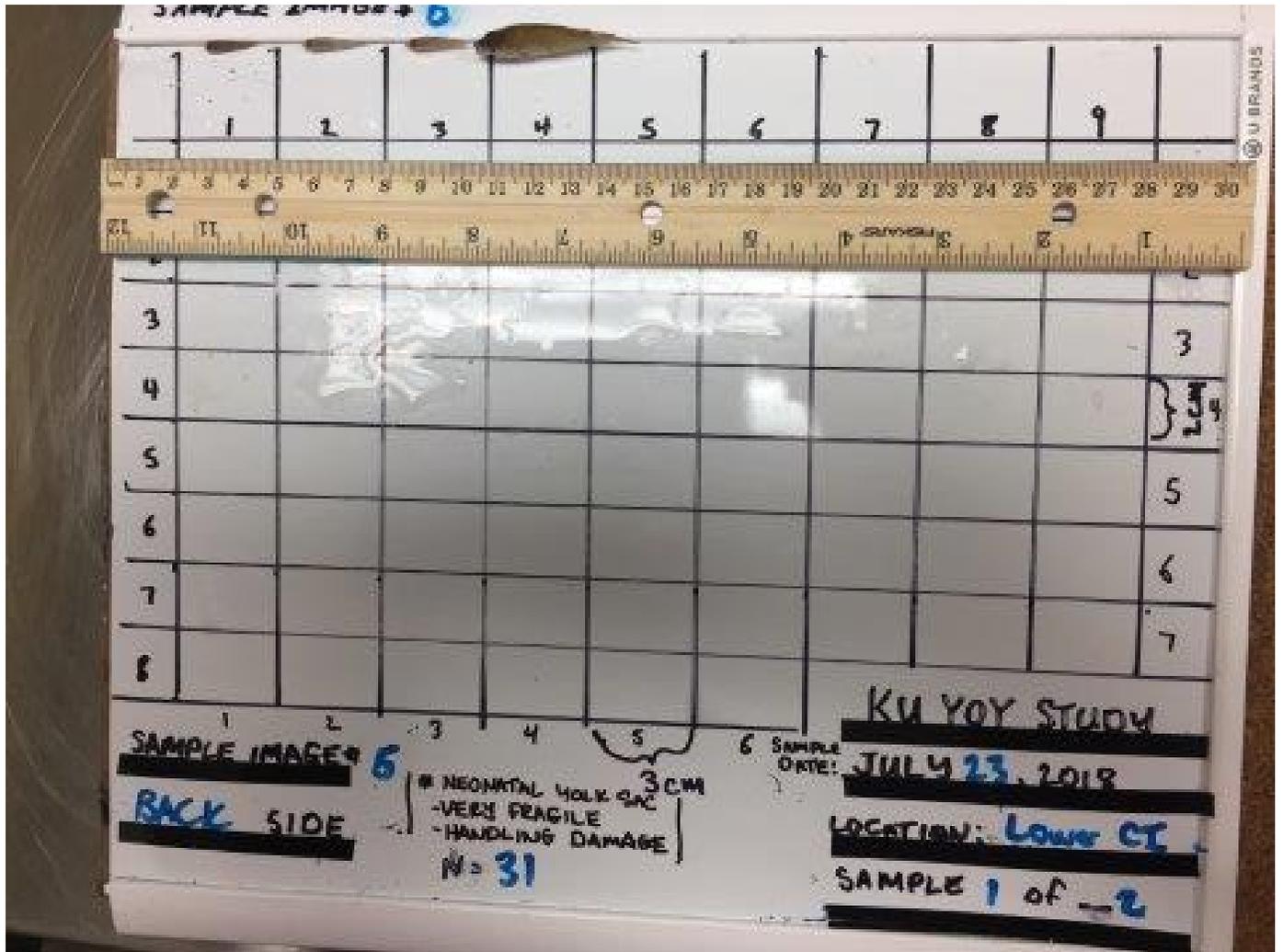


Photo 20



Sample Image #5: Dorsal Side, Row 3, Closeup photos

Photo 21



Lower Curds Inlet Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-005-LCI

Sample Image #6: Dorsal Side, Row 4
(See above wooden ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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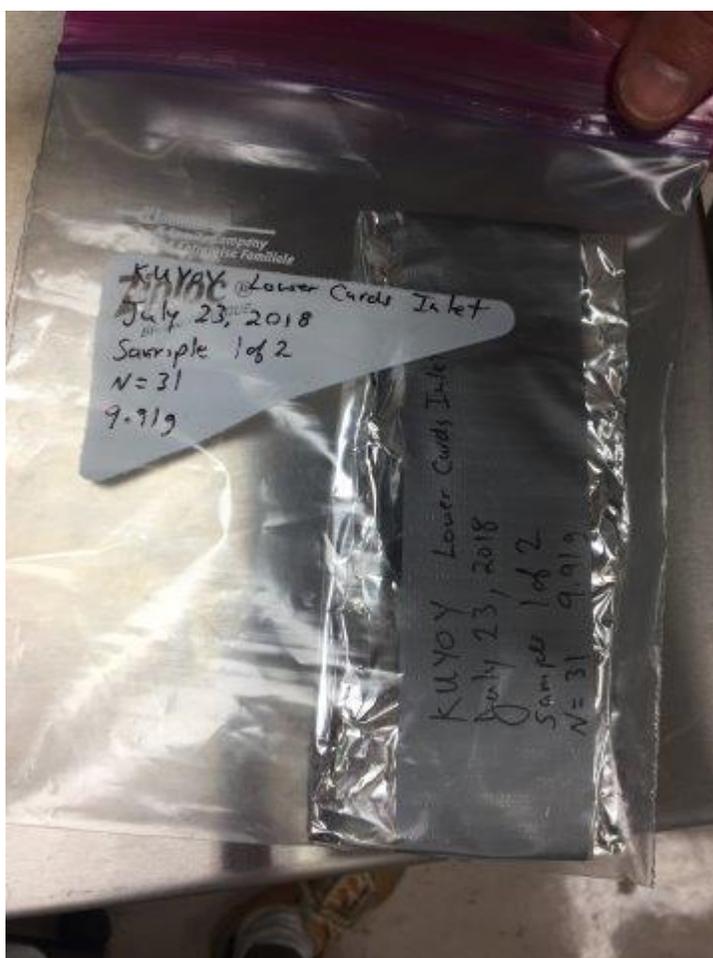
DRAFTED BY: AEM DATE: 8/27/2018

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Photo 22



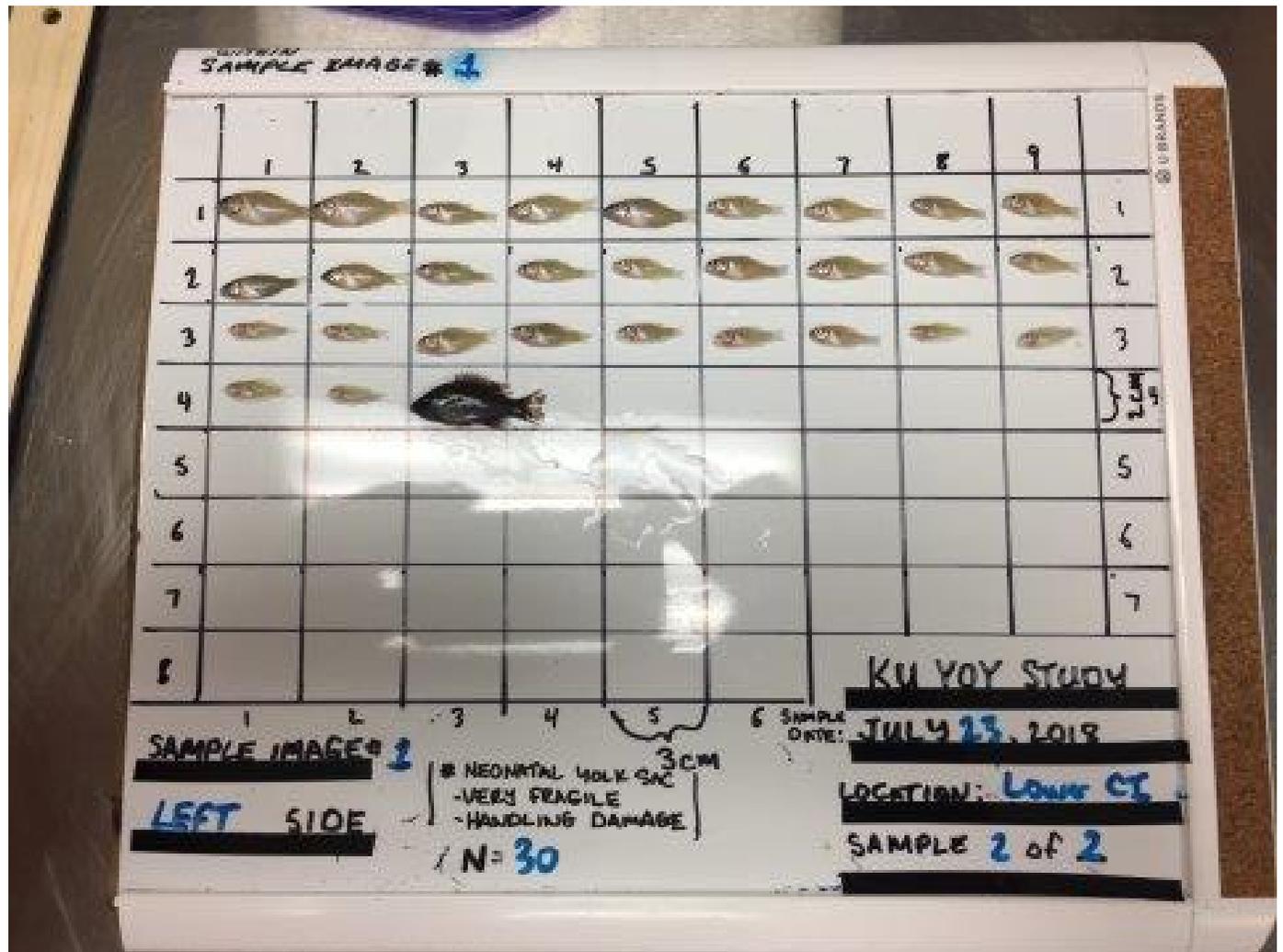
Photo 23



Sample Image #6: Dorsal Side, Row 4, Closeup photo and sample bag



Photo 24



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

Sample Image #1: Left Side

Large green sunfish located at column 3, row 4 was excluded from the sample



Photo 25

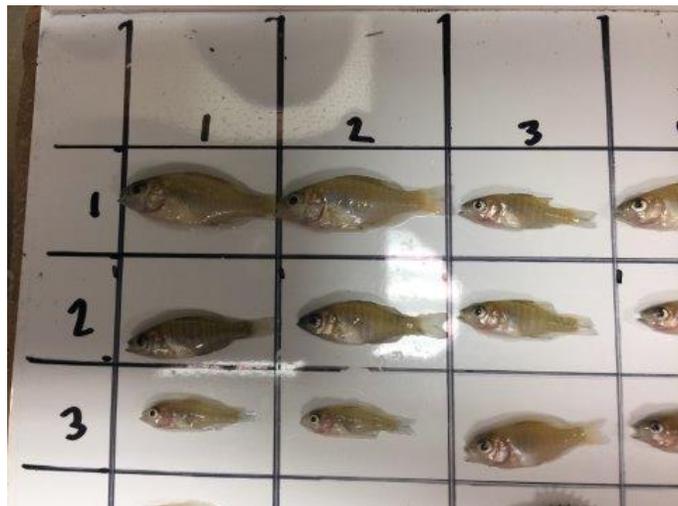


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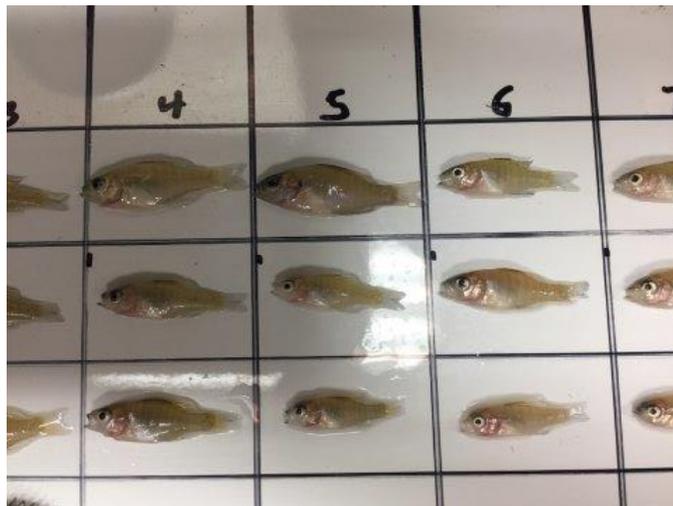


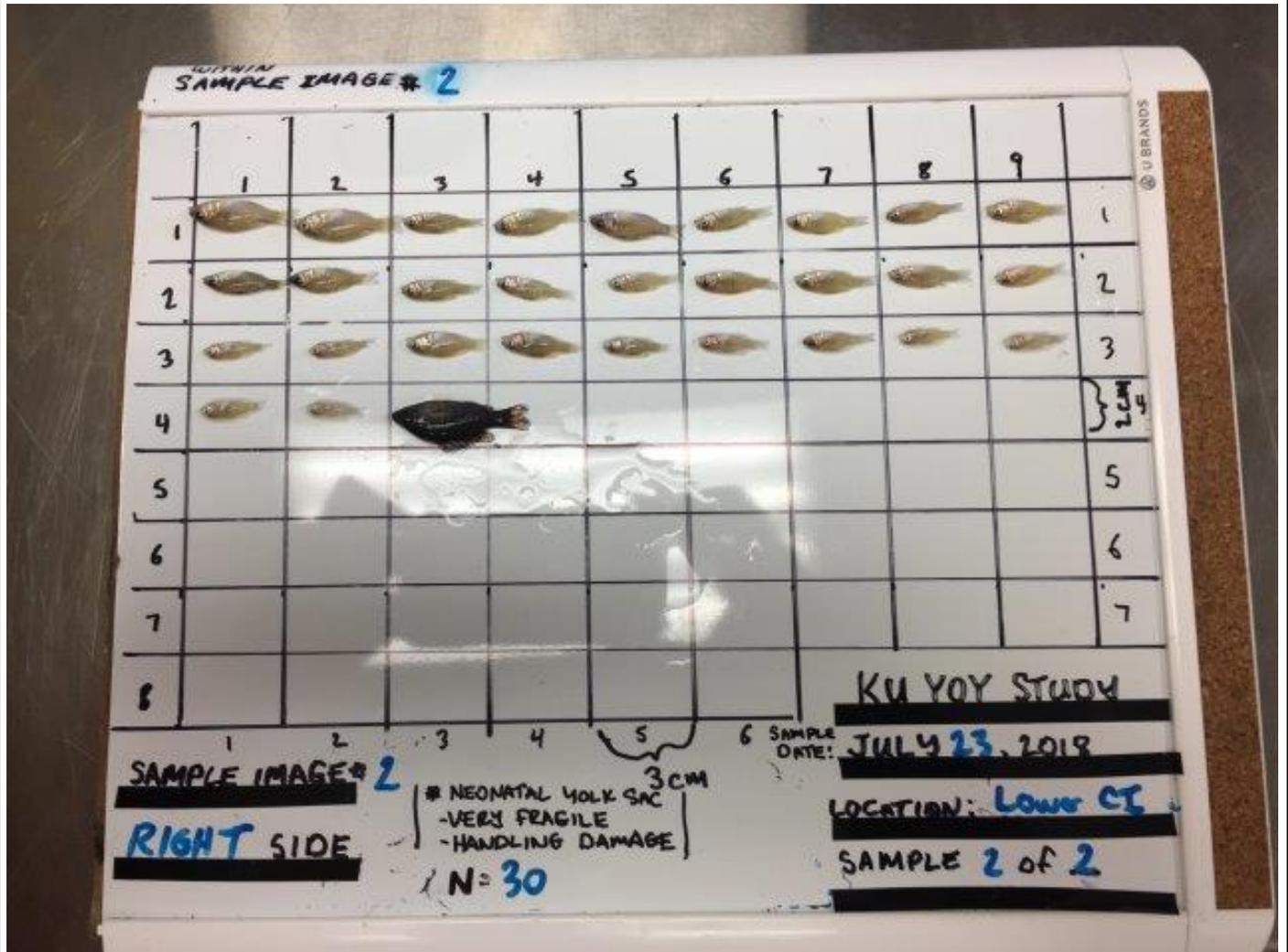
Photo 27



Sample Image #1: Left Side, Closeup photos



Photo 28



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

Sample Image #2: Right Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Photo 29



Photo 30

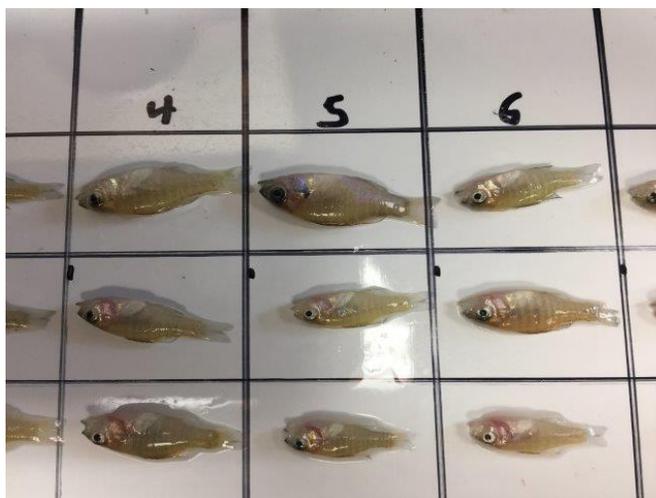
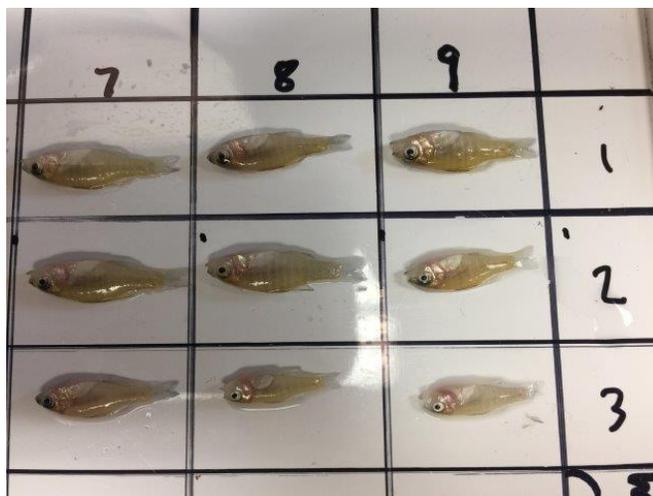


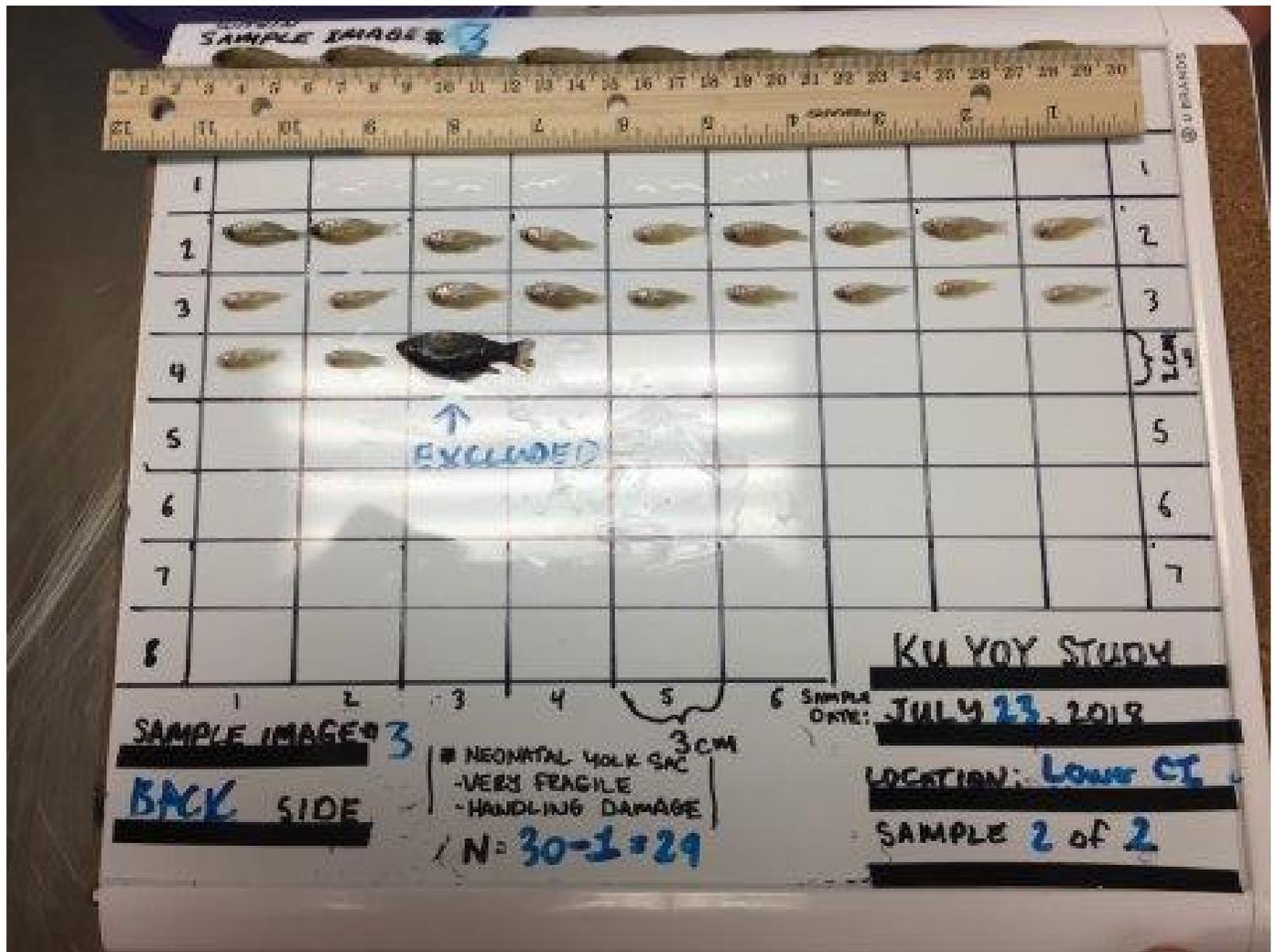
Photo 31



Sample Image #2: Right Side, Closeup photos



Photo 32



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

Sample Image #3: Dorsal Side, Row 1
(See above wooden ruler)



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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Photo 33



Photo 34



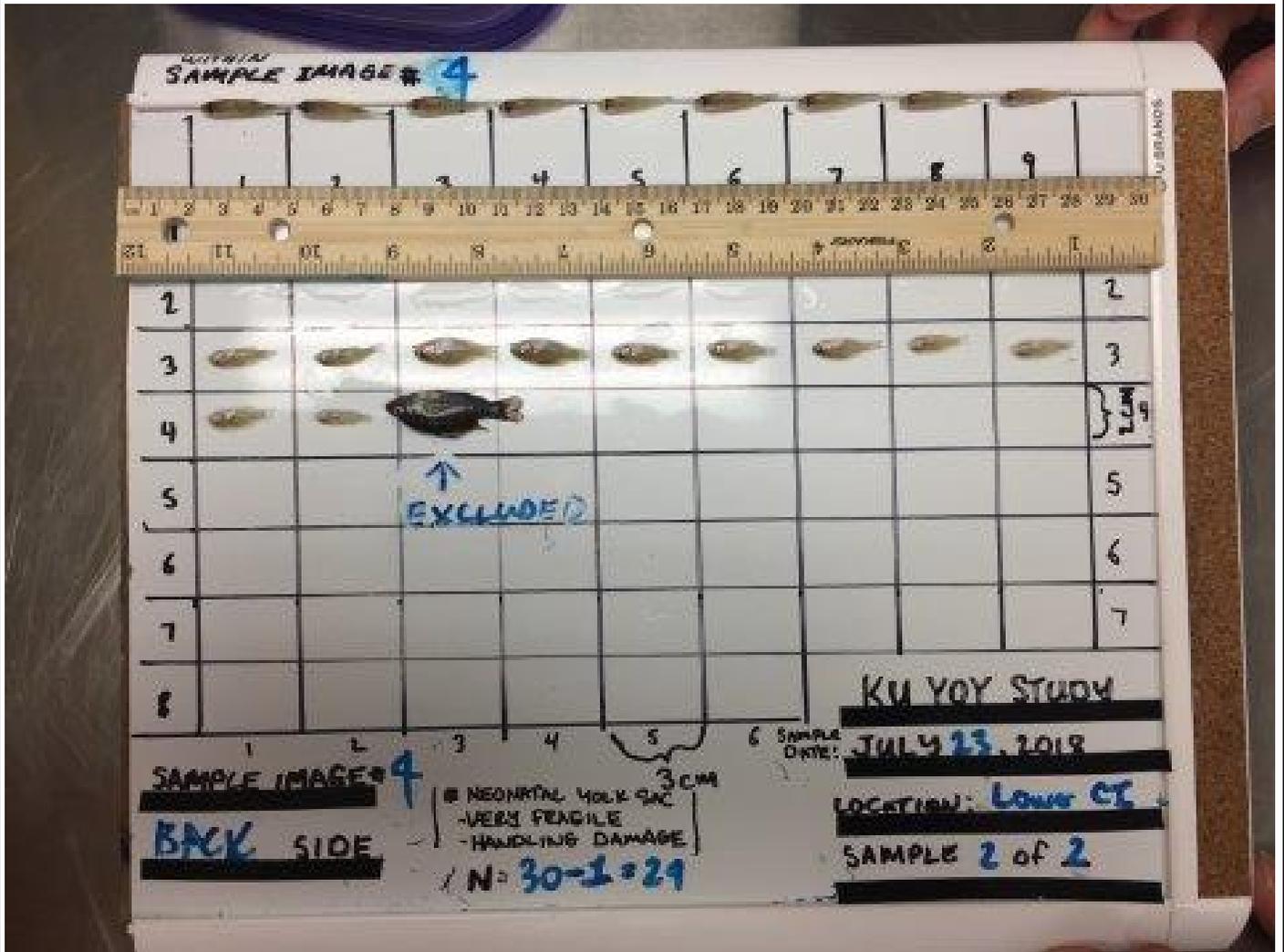
Photo 35



Sample Image #3: Dorsal Side, Row 1, Closeup photos
(See above wooden ruler)



Photo 36



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

Sample Image #4: Dorsal Side, Row 2
(See above wooden ruler)



Photo 37



Photo 38



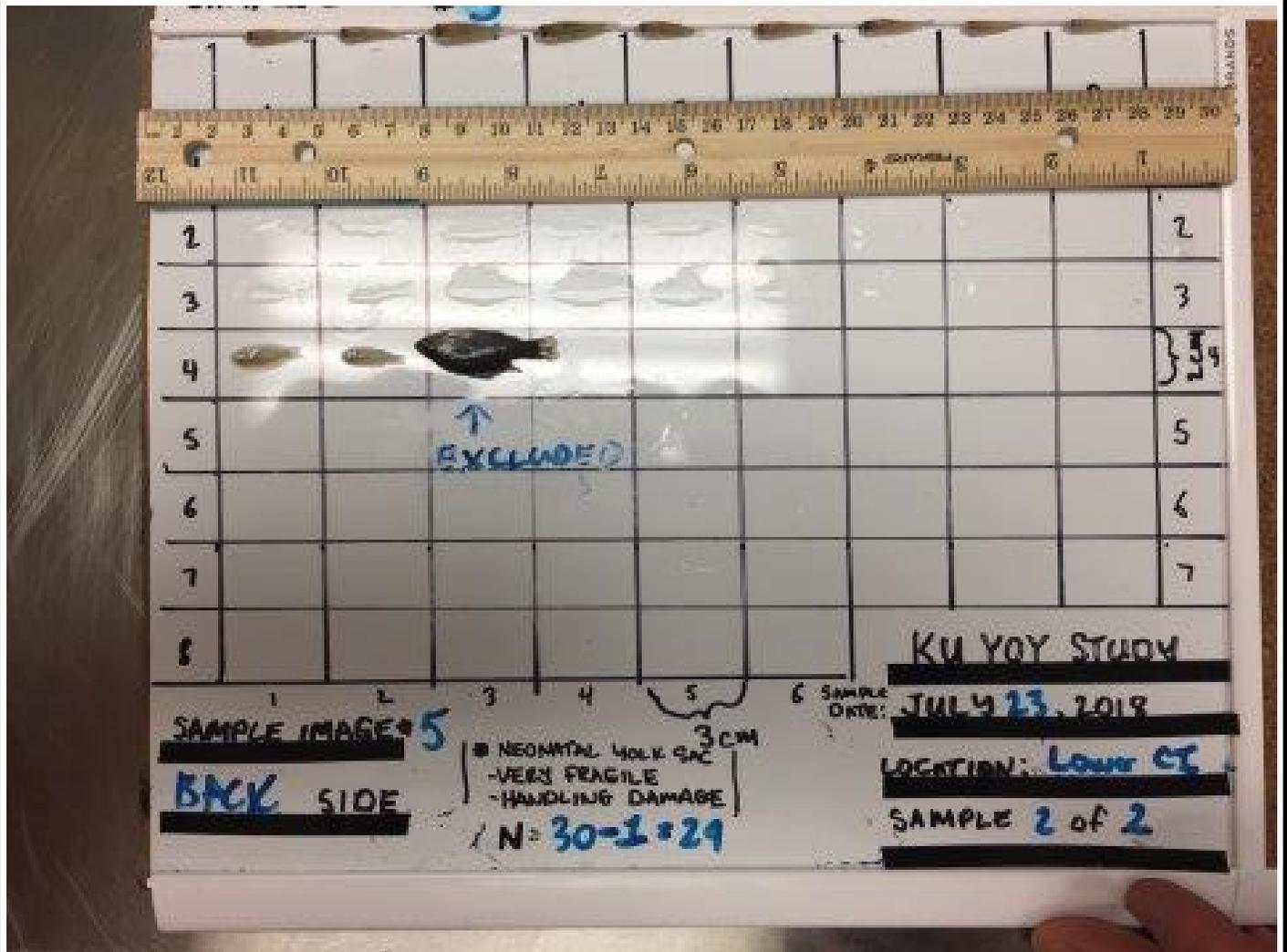
Photo 39



Sample Image #4: Dorsal Side, Row 2, Closeup Photos



Photo 40



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

Sample Image #5: Dorsal Side, Row 3
(See above wooden ruler)



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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Photo 41

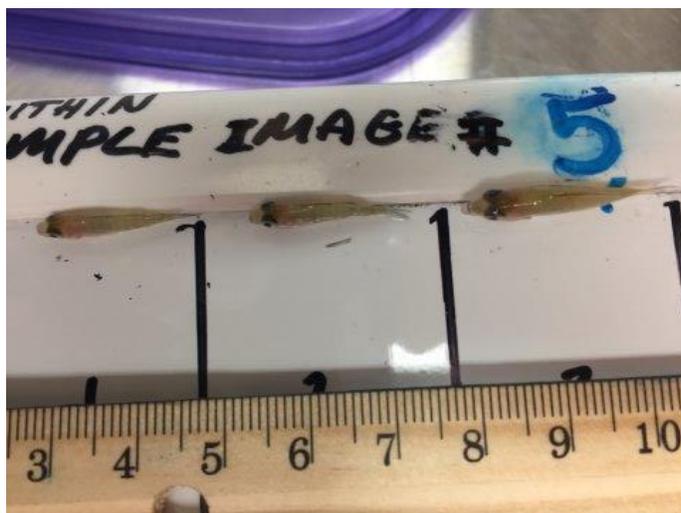


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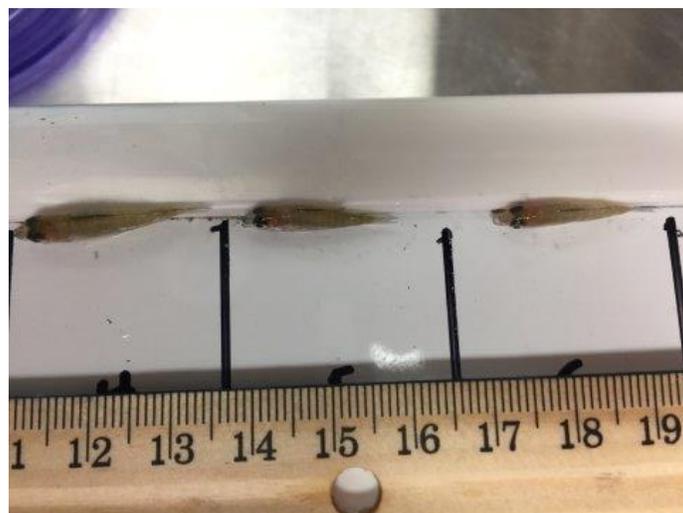


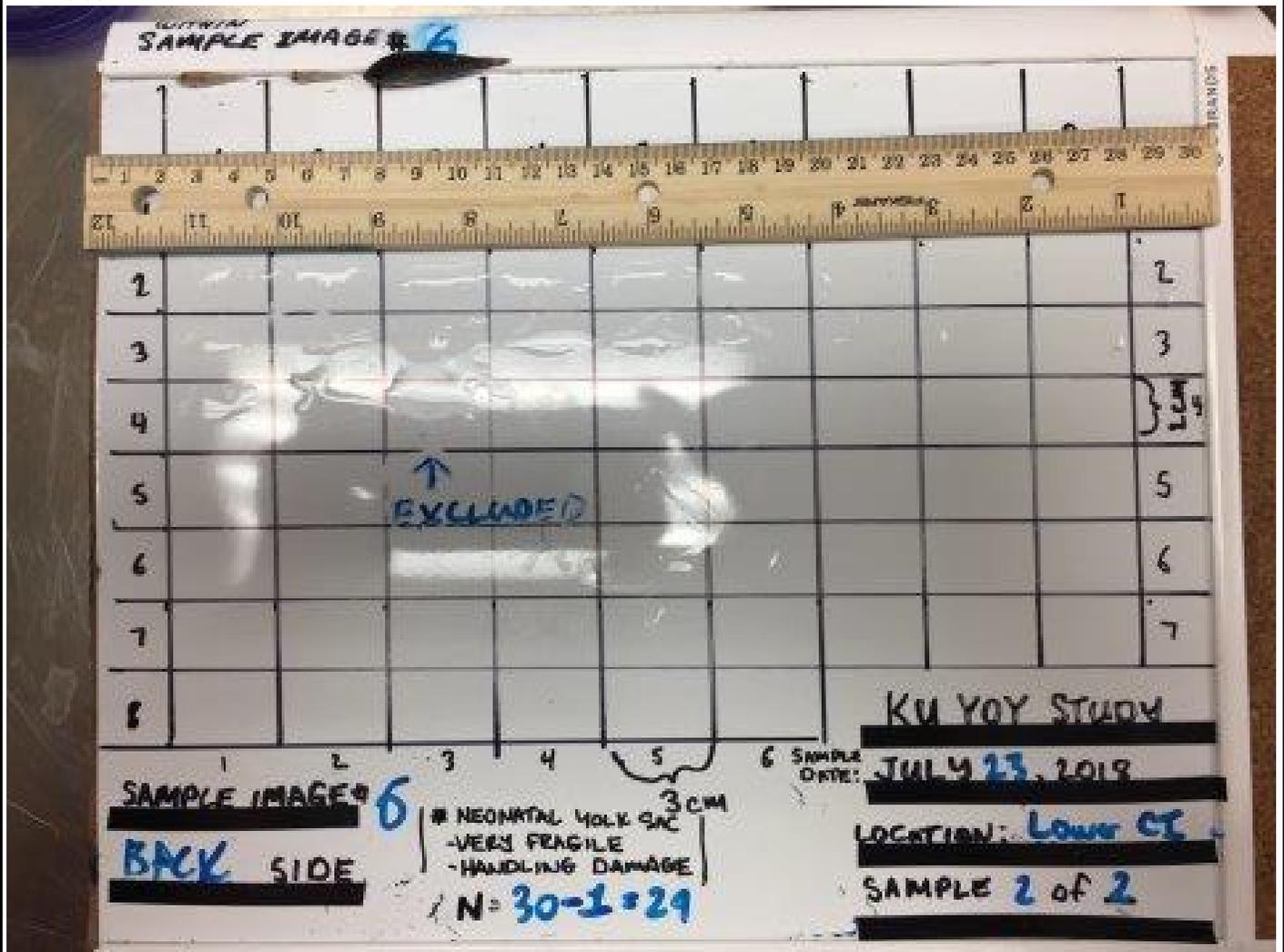
Photo 43



Sample Image #5: Dorsal Side, Row 3, Closeup Photos



Photo 44



Lower Curds Inlet Bluegill Analytical Sample (2 of 2)
N=29

Sample ID: YOY-006-LCI

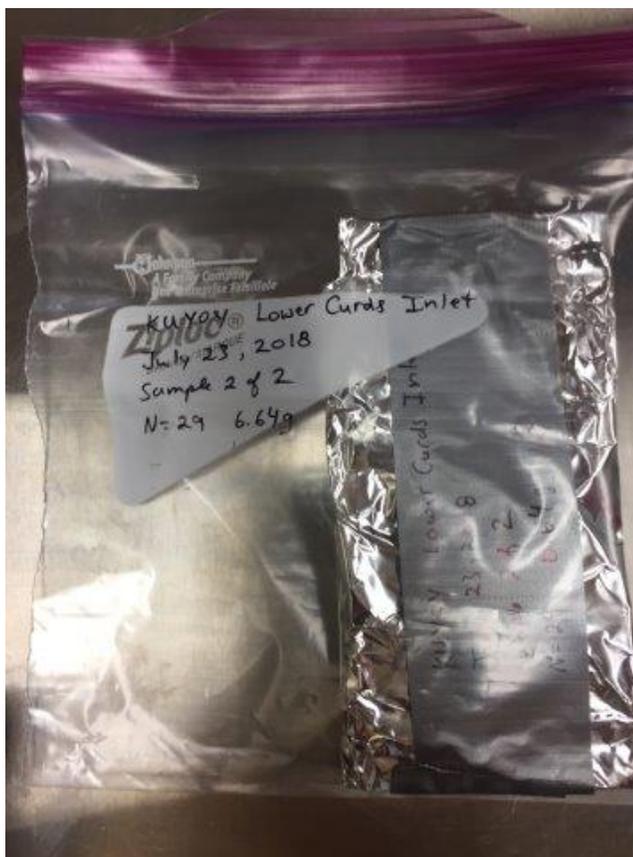
Sample Image #6: Dorsal Side, Row 4
(See above wooden ruler)



Photo 45



Photo 46



Sample Image #6: Dorsal Side, Row 4, Closeup photo and sample bag



HQ INLET



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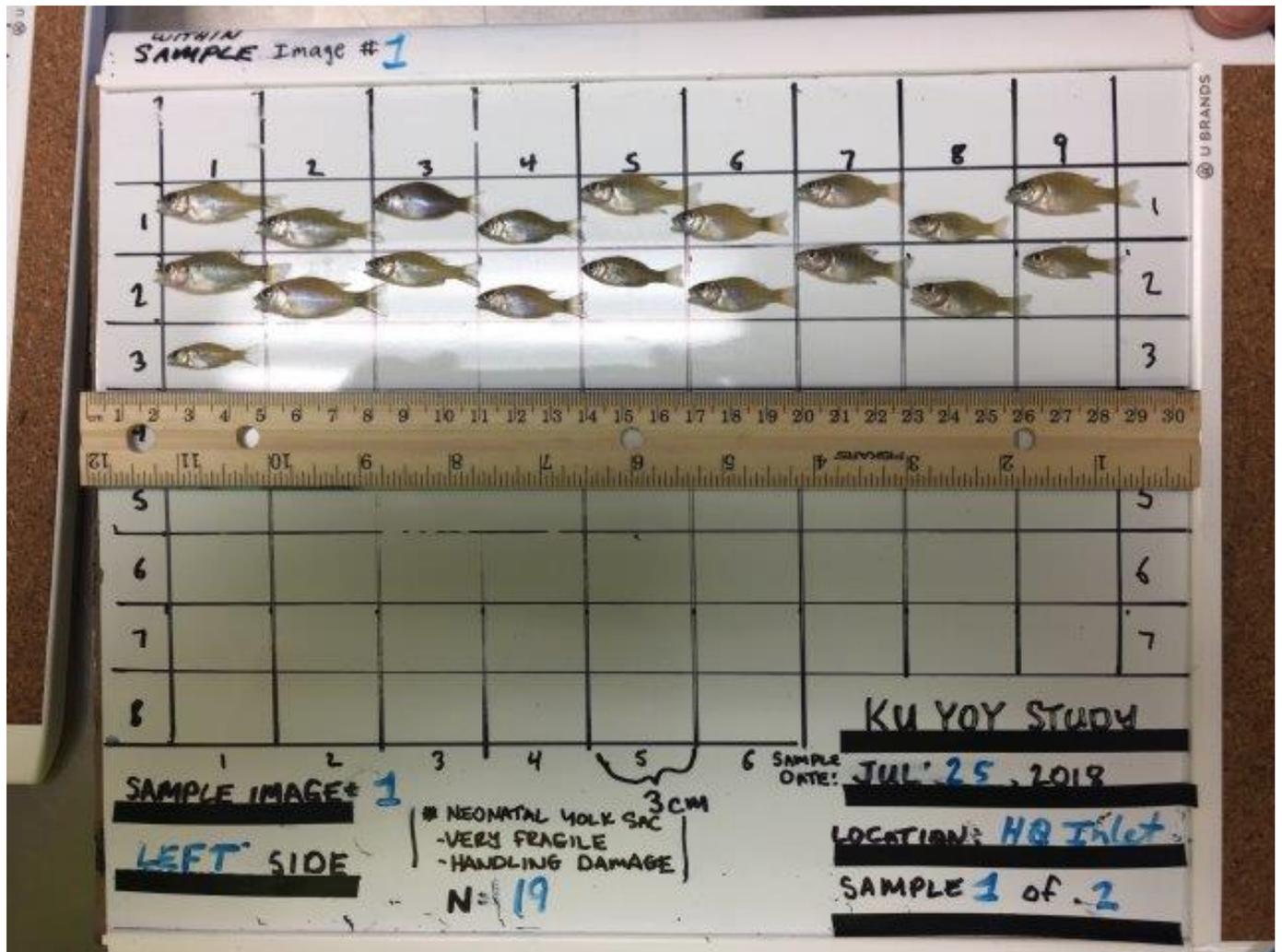
DATE: 8/27/2018

ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 1



HQ Inlet Bluegill Analytical Sample (1 of 2)
N=19

Sample ID: YOY-007-HQI

Sample 1 Image #1: Left Side



PHOTO 2



PHOTO 3

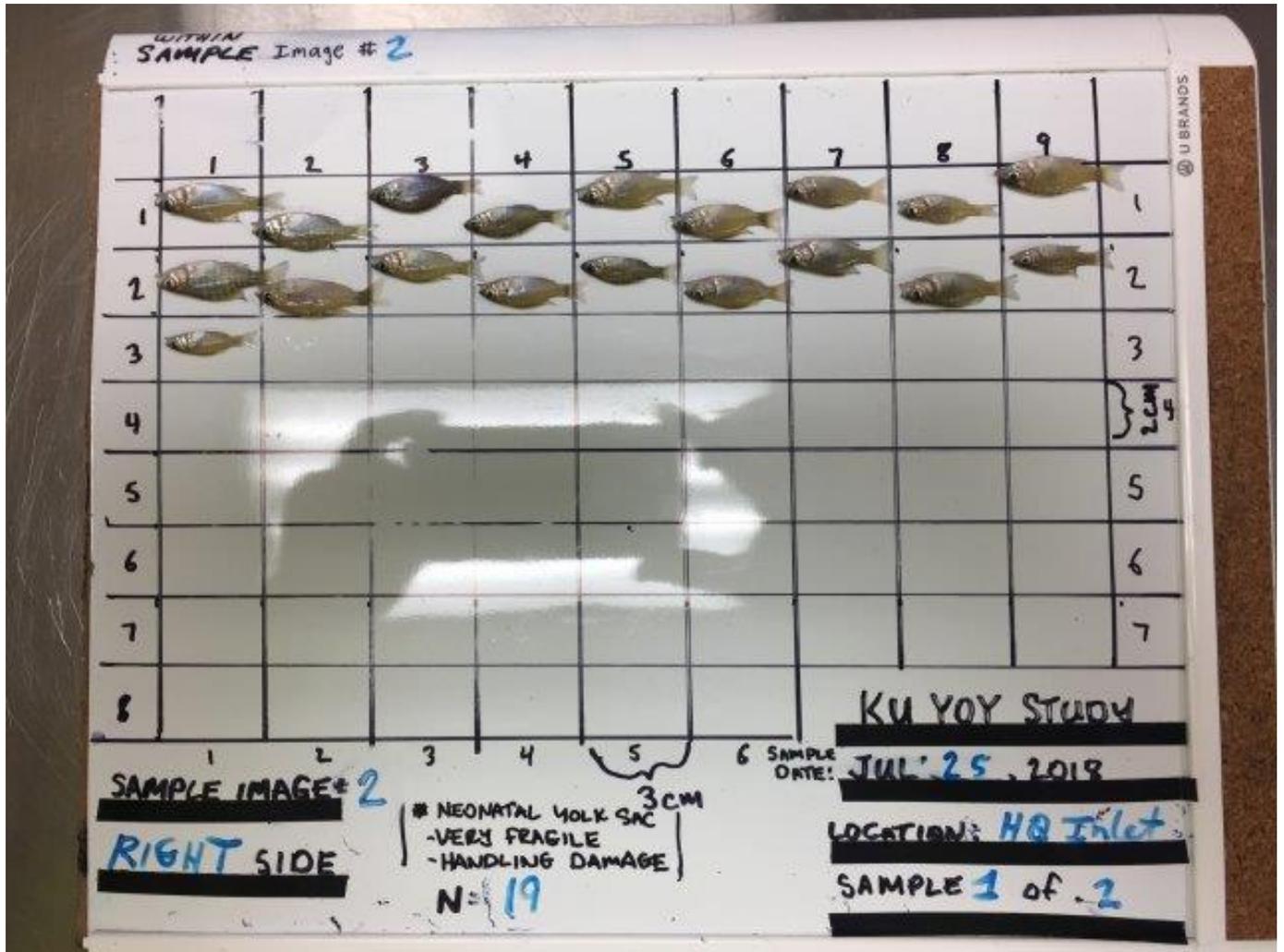


PHOTO 4



Sample 1 Image #1: Left Side, closeup photos

PHOTO 5



HQ Inlet Bluegill Analytical Sample (1 of 2)
N=19

Sample ID: YOY-007-HQI

Sample 1 Image #2: Right Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 6



PHOTO 7



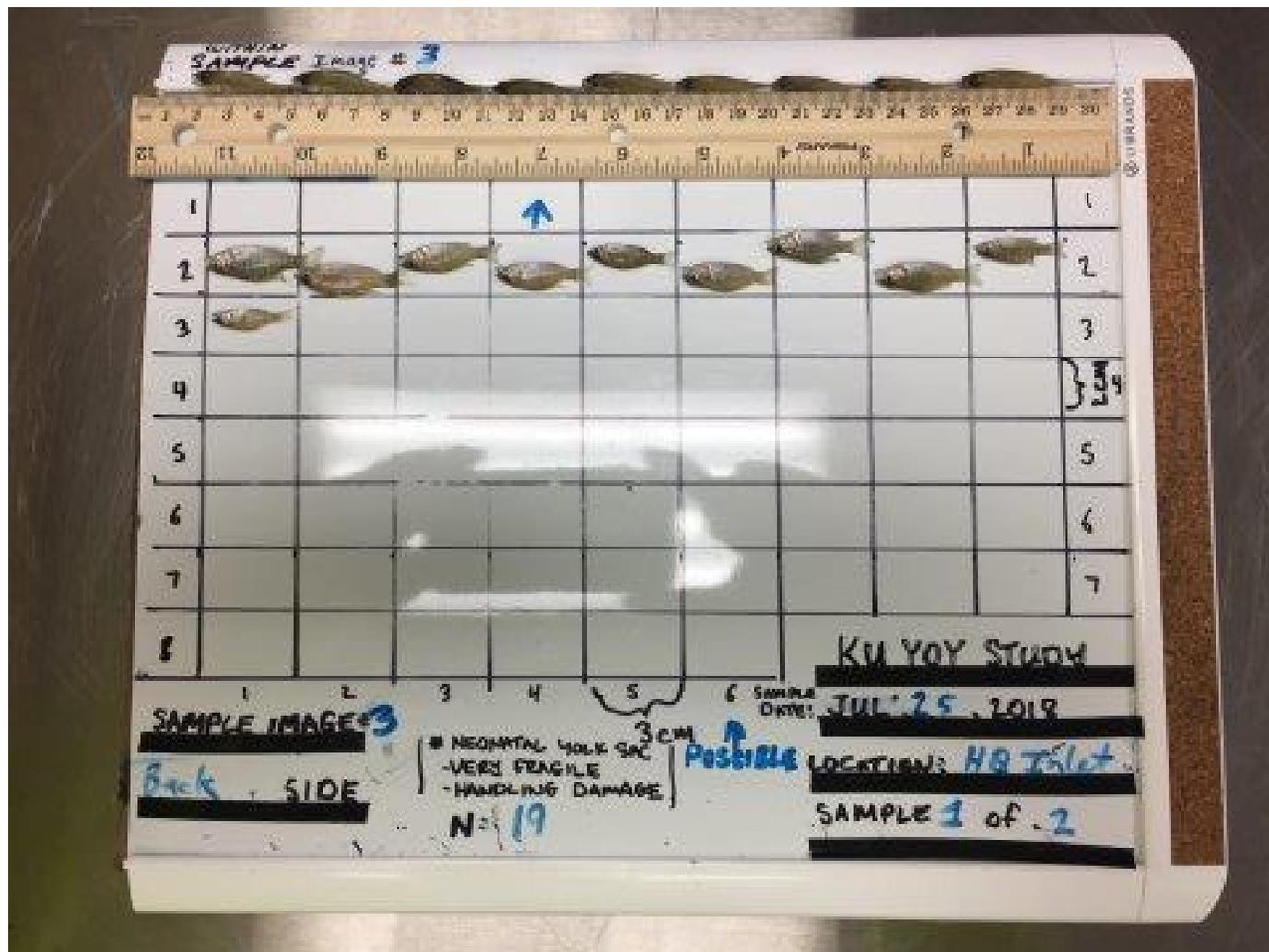
PHOTO 8



Sample 1 Image #2: Right Side, closeup photos



PHOTO 9



HQ Inlet Bluegill Analytical Sample (1 of 2)
N=19

Sample ID: YOY-007-HQI

Sample 1 Image #3: Dorsal Side, Row 1



PHOTO 10



PHOTO 11

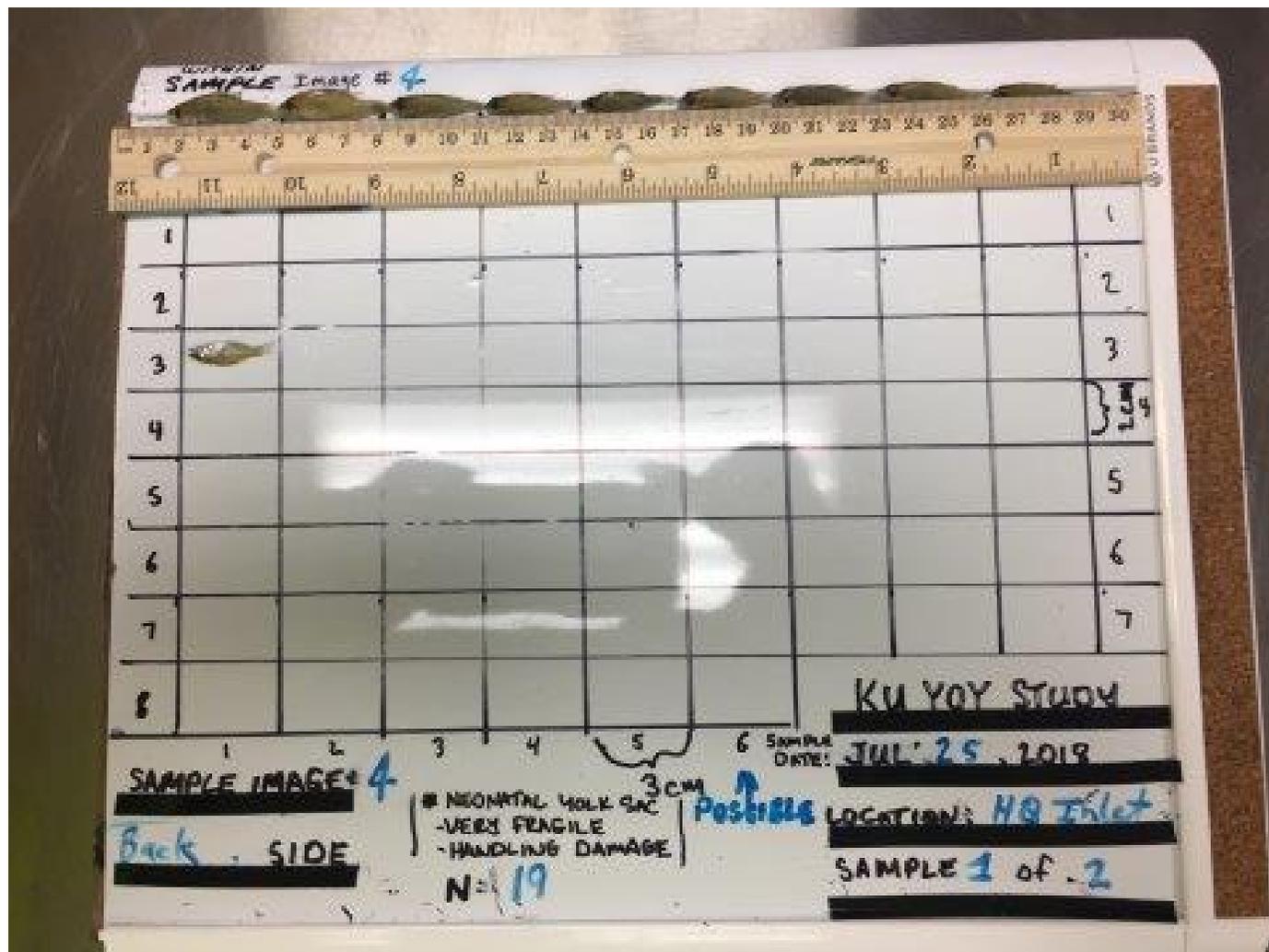


PHOTO 12



Sample 1 Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 13



HQ Inlet Bluegill Analytical Sample (1 of 2)
N=19

Sample ID: YOY-007-HQI

Sample 1 Image #4: Dorsal Side, Row 2



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 14



PHOTO 15

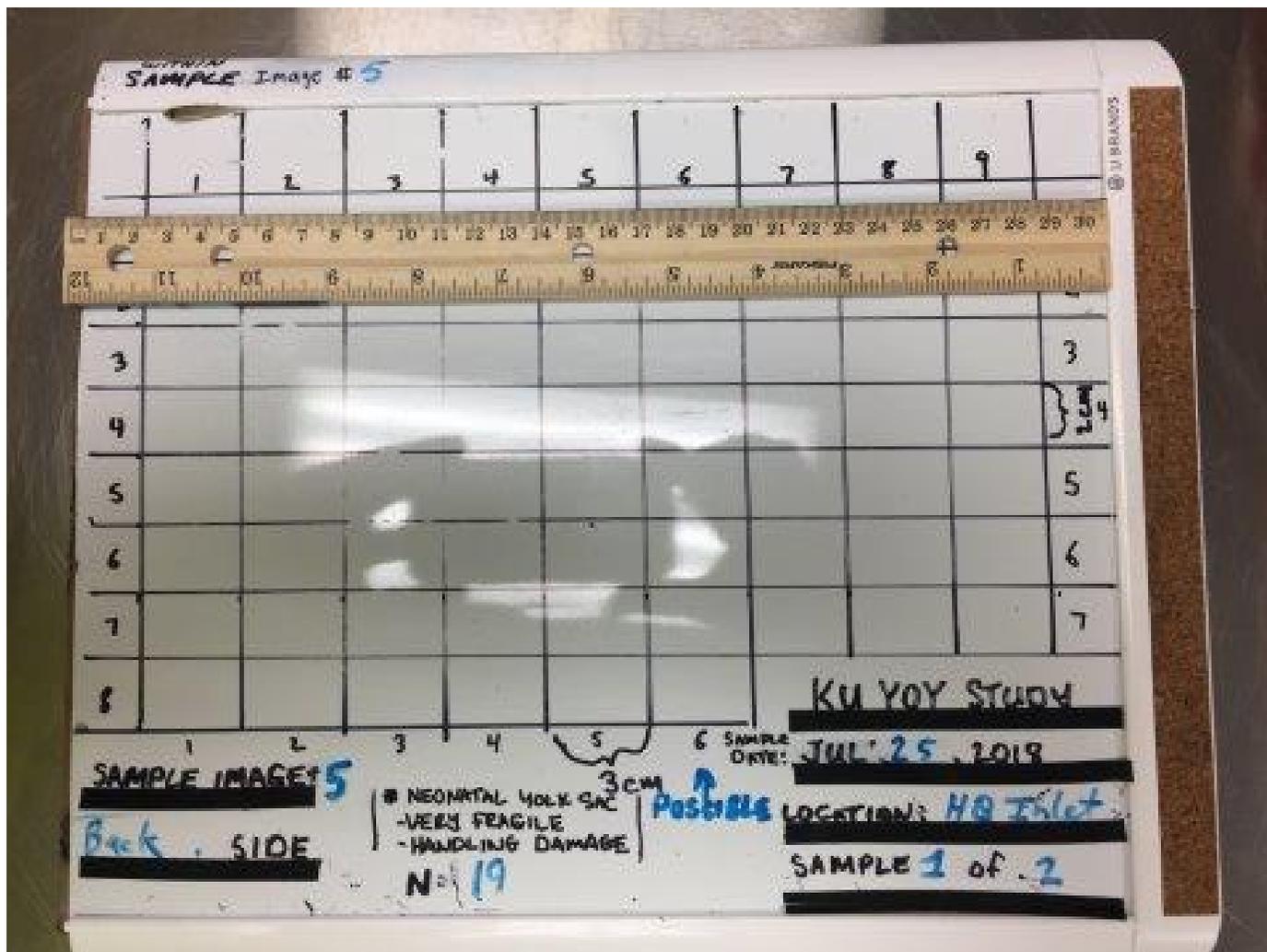


PHOTO 16



Sample 1 Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 17



HQ Inlet Bluegill Analytical Sample (1 of 2)
N=19

Sample ID: YOY-007-HQI

Sample 1 Image #5: Dorsal Side, Row 3



PHOTO 18

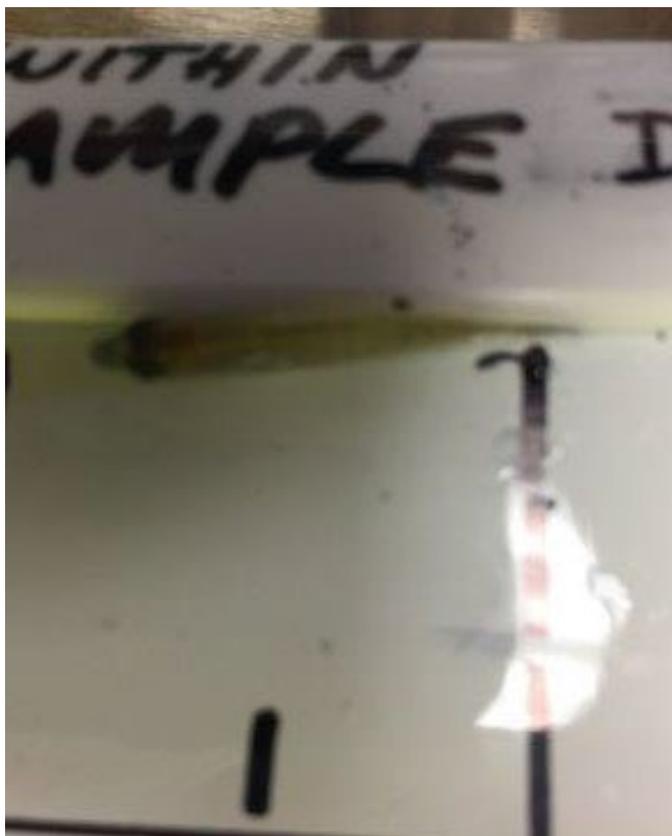
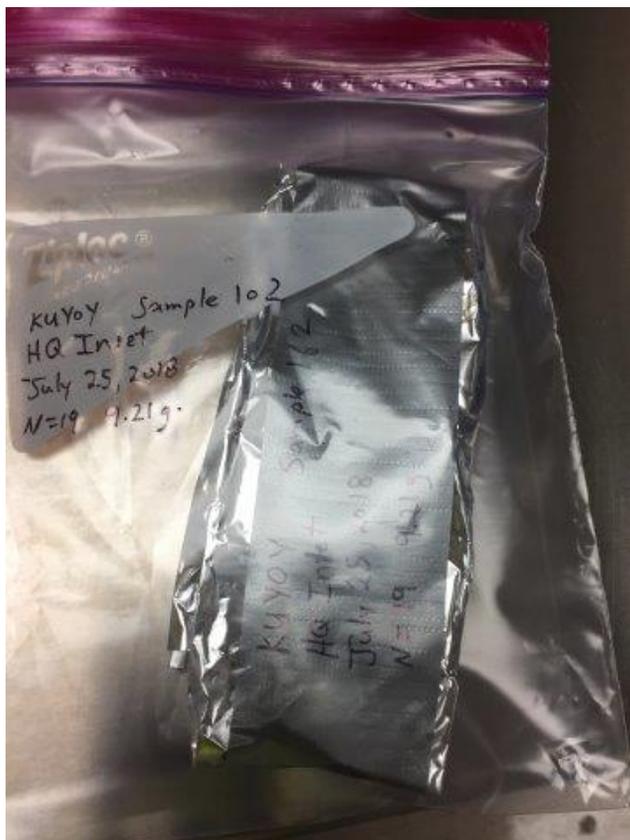
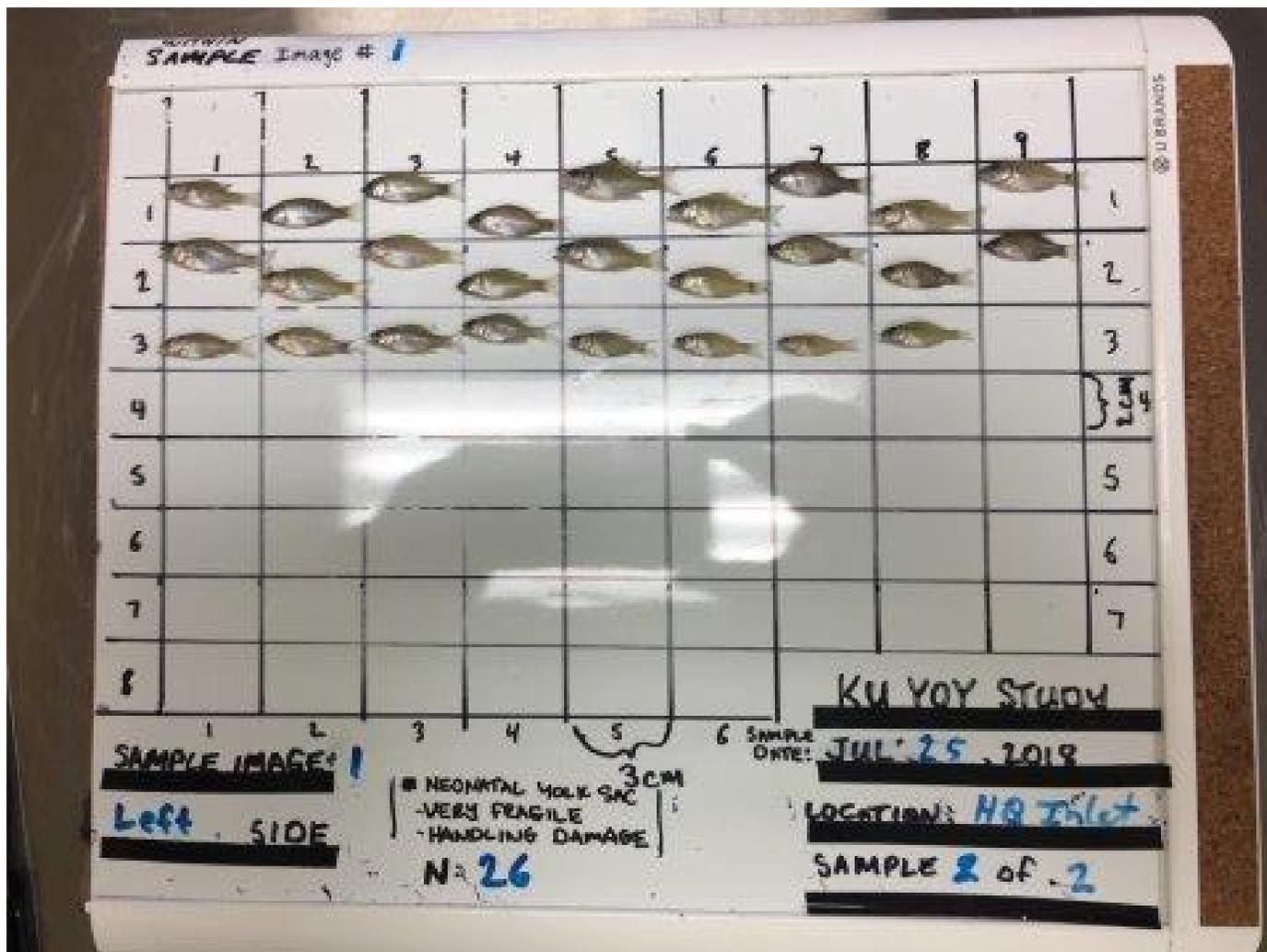


PHOTO 19



Sample 1 Image #5: Dorsal Side, Row 3, closeup photo and sample bag

PHOTO 20



HQ Inlet Bluegill Analytical Sample (2 of 2)
N=26

Sample ID: YOY-008-HQI

Sample 2 Image #1: Left Side



PHOTO 21



PHOTO 22

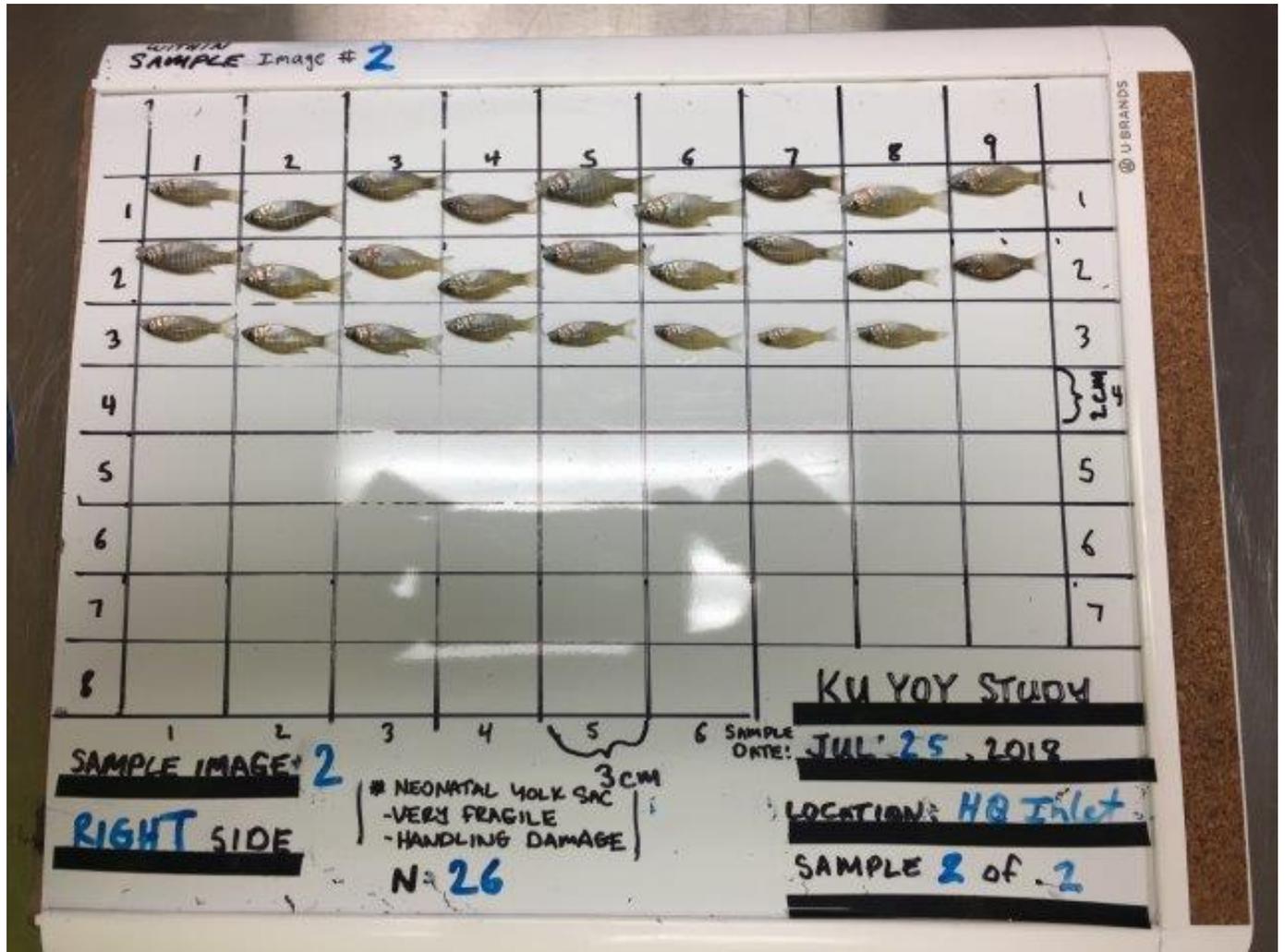


PHOTO 23



Sample 2 Image #1: Left Side, closeup photos

PHOTO 24



HQ Inlet Bluegill Analytical Sample (2 of 2)
N=26

Sample ID: YOY-008-HQI

Sample 2 Image #2: Right Side



PHOTO 25



PHOTO 26

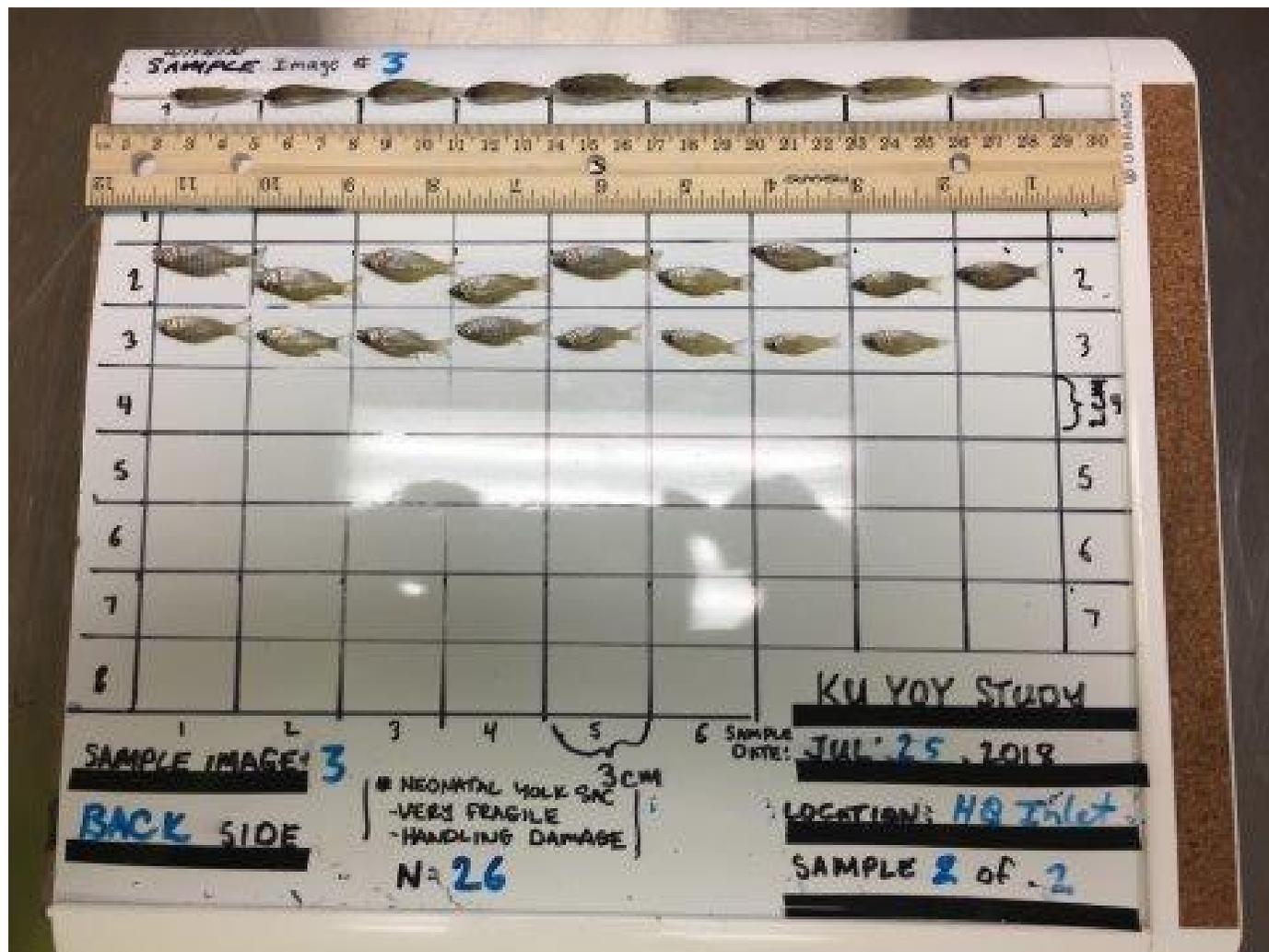


PHOTO 27



Sample 2 Image #2: Right Side, closeup photos

PHOTO 28



HQ Inlet Bluegill Analytical Sample (2 of 2)
N=26

Sample ID: YOY-008-HQI

Sample 2 Image #3: Dorsal Side, Row 1



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 29



PHOTO 30

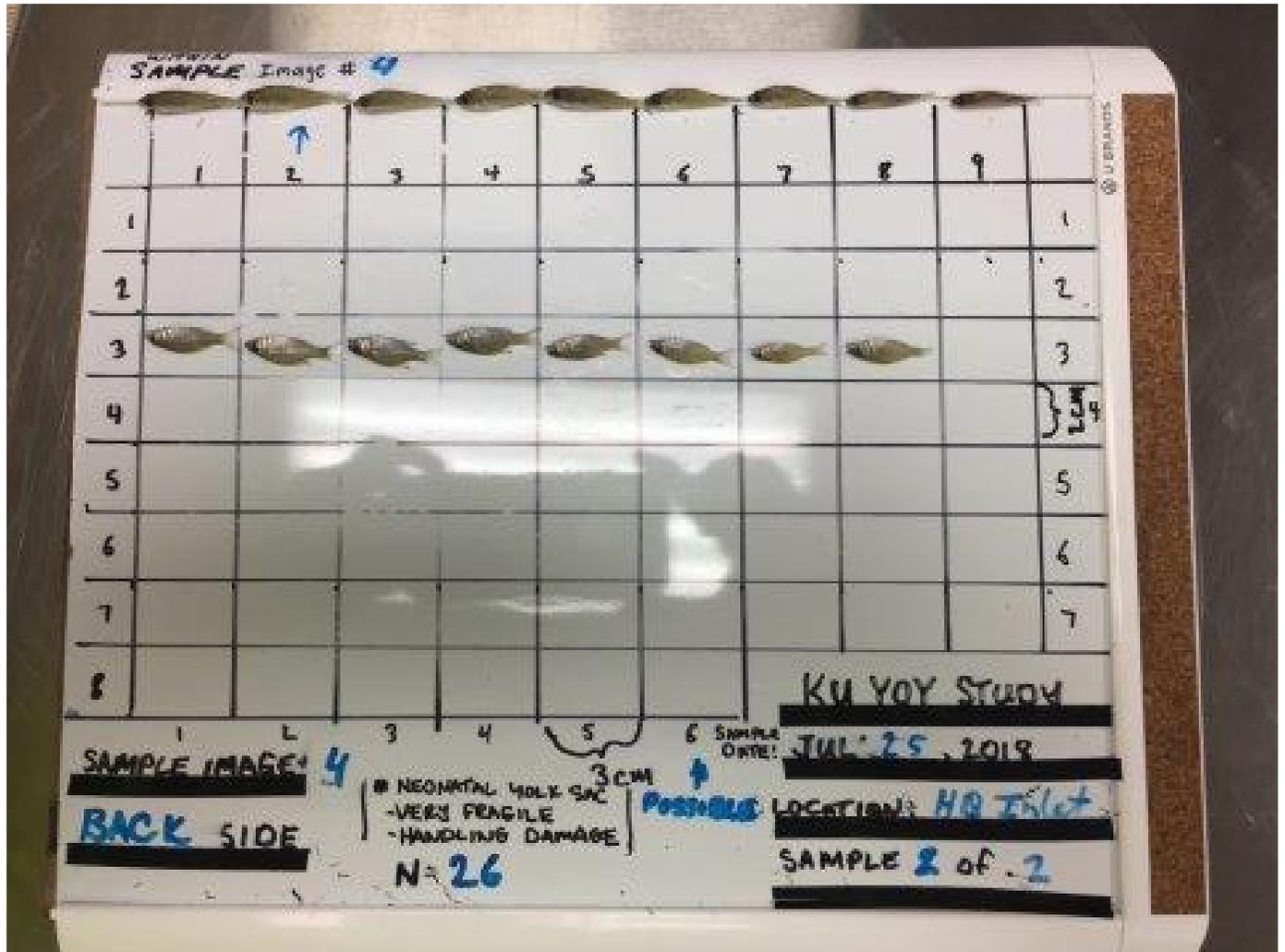


PHOTO 31



Sample 2 Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 32



HQ Inlet Bluegill Analytical Sample (2 of 2)
N=26

Sample ID: YOY-008-HQI

Sample 2 Image #4: Dorsal Side, Row 2



PHOTO 33



PHOTO 34

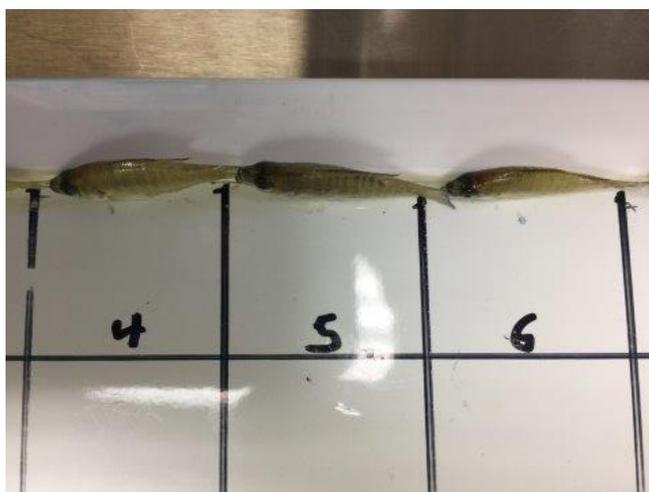
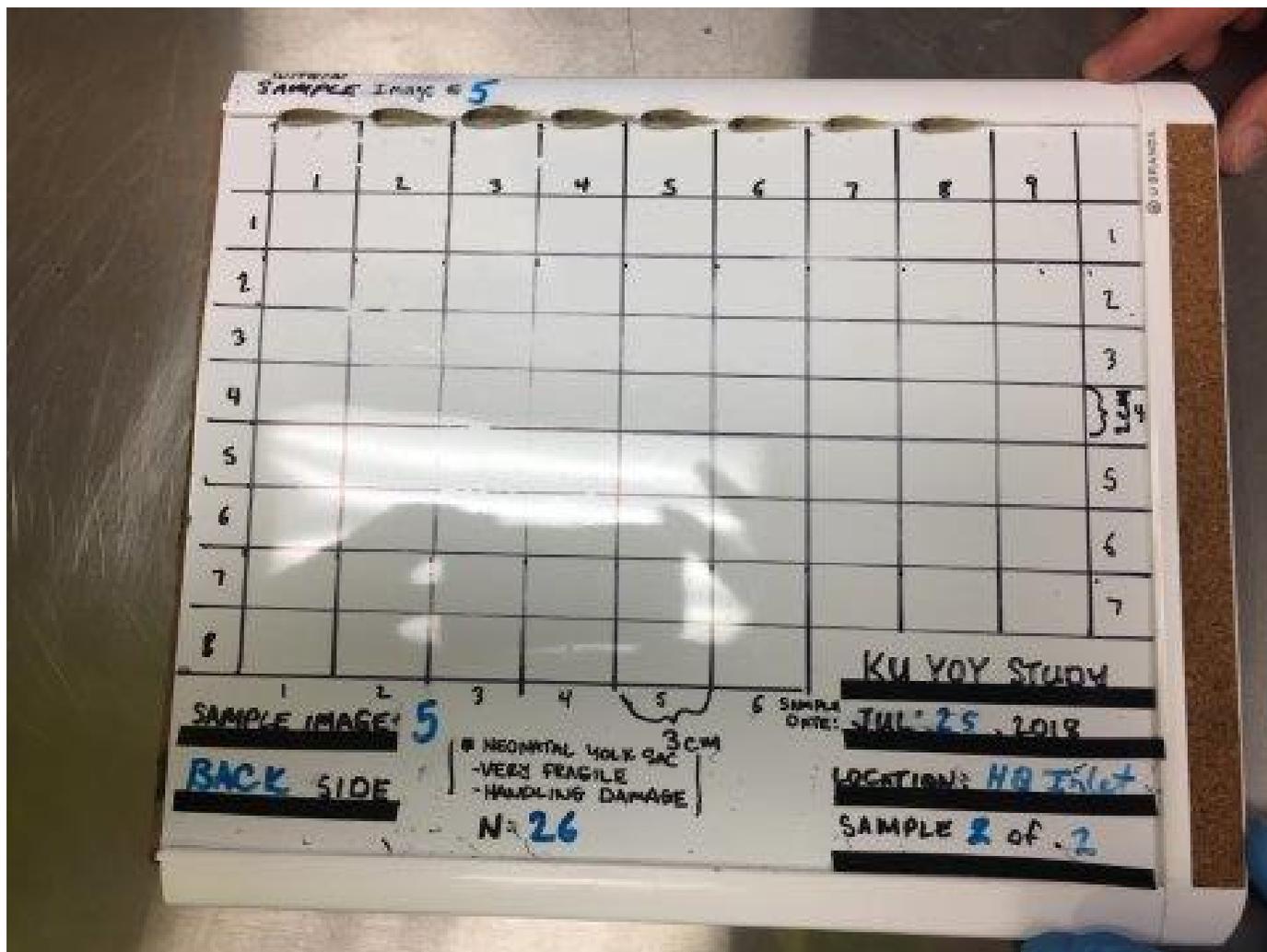


PHOTO 35



Sample 2 Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 36



HQ Inlet Bluegill Analytical Sample (2 of 2)
N=26

Sample ID: YOY-008-HQI

Sample 2 Image #5: Dorsal Side, Row 3



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 37

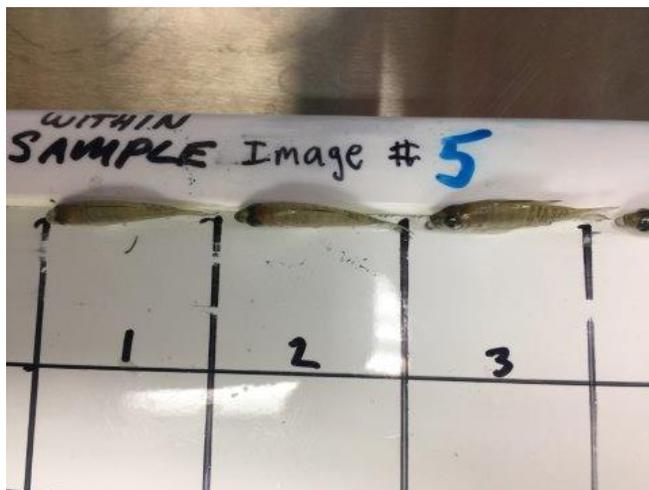


PHOTO 38



PHOTO 39



Sample 2 Image #5: Dorsal Side, Row 3, closeup photos

LHL - 1



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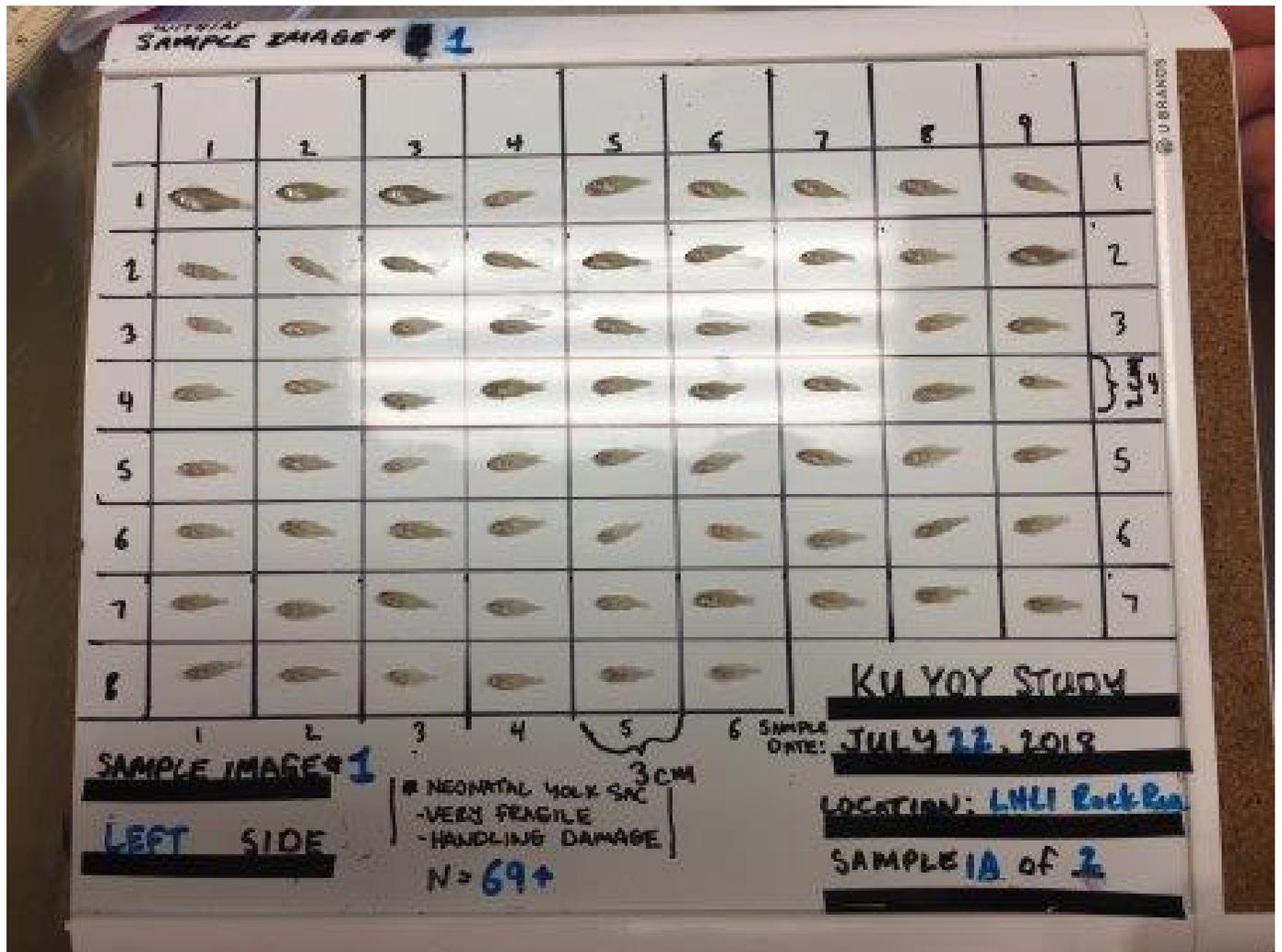
DATE: 8/27/2018

ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 1



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N= 83 (1A+1B)

Sample ID: YOY-009-LHL1

Sample 1A Image #1: Left Side



PHOTO 2

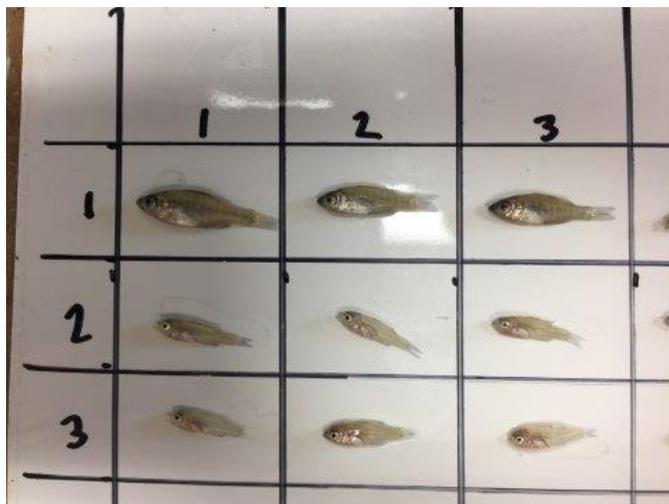


PHOTO 3

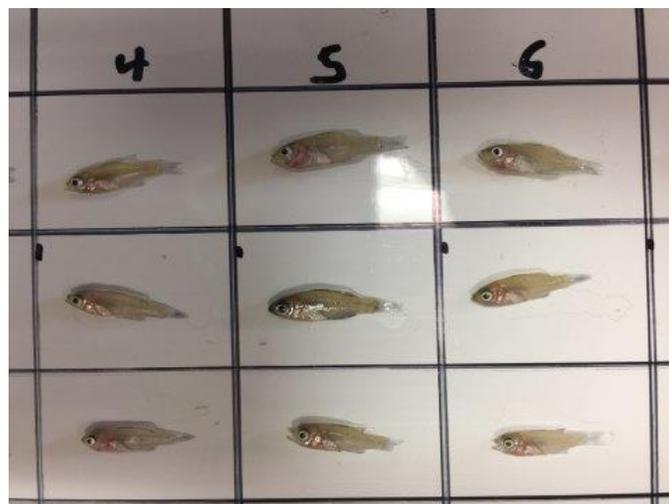
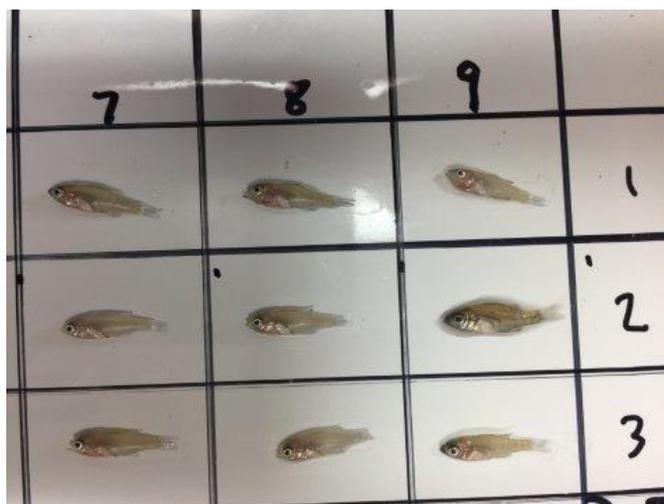
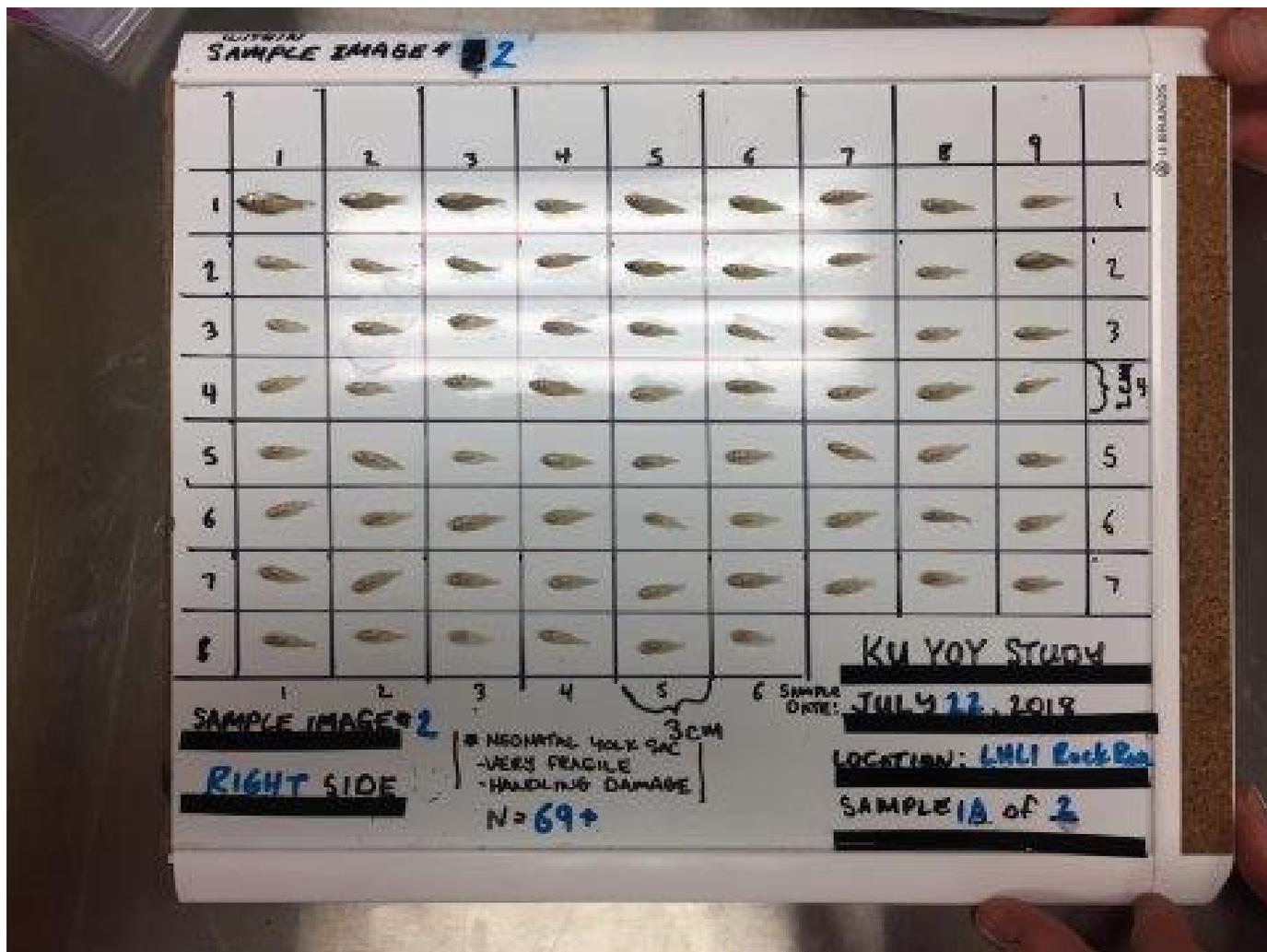


PHOTO 4



Sample 1A Image #1: Left Side, closeup photos

PHOTO 5



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #2: Right Side



**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 6

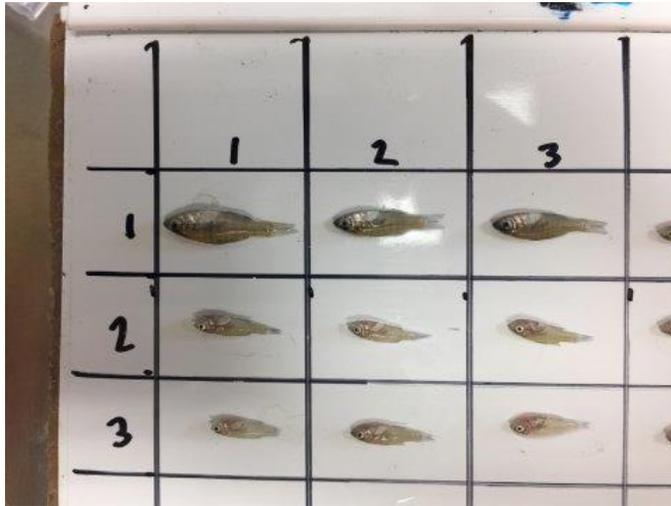


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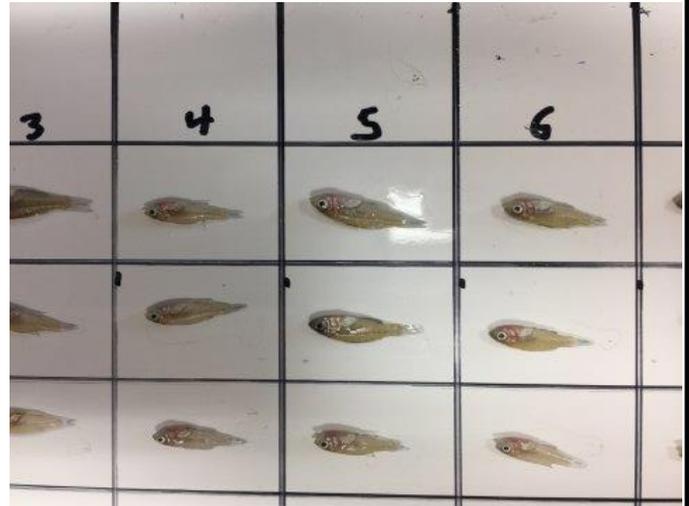
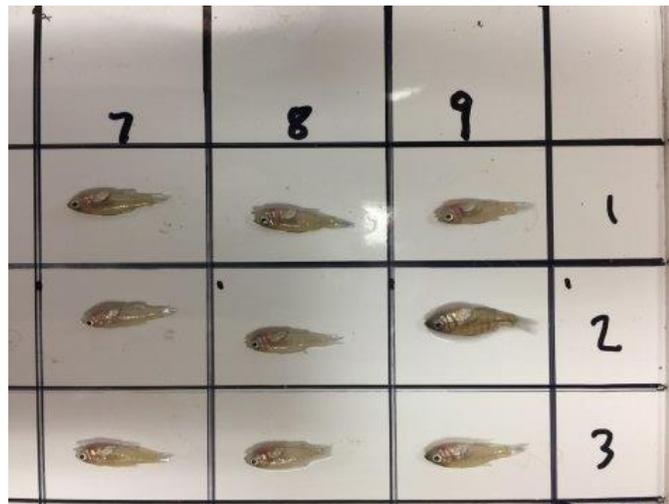
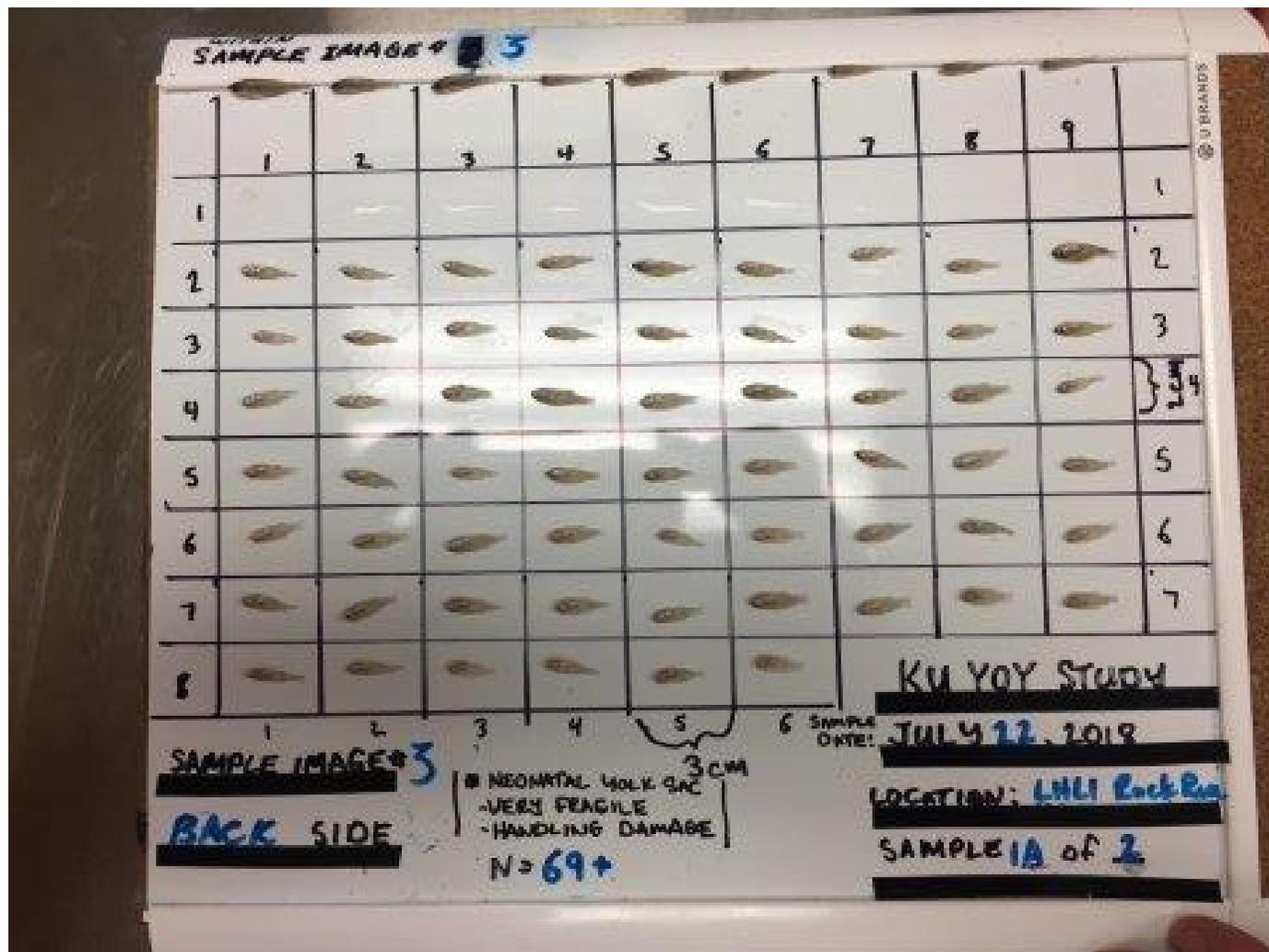


PHOTO 8



Sample 1A Image #2: Right Side, closeup photos

PHOTO 9



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #3: Dorsal Side, Row 1



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 10



PHOTO 11

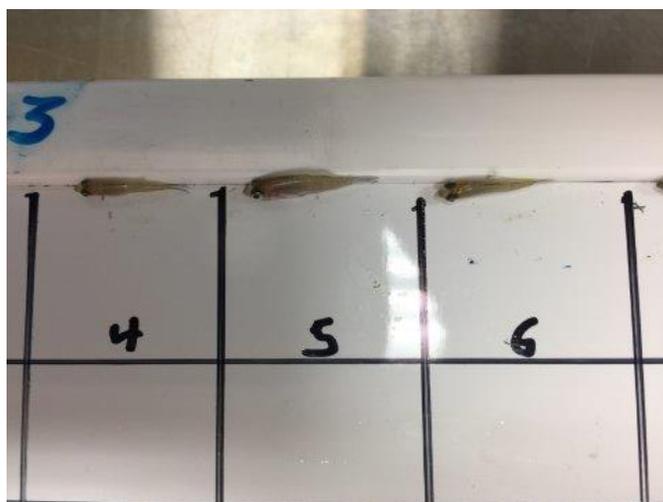
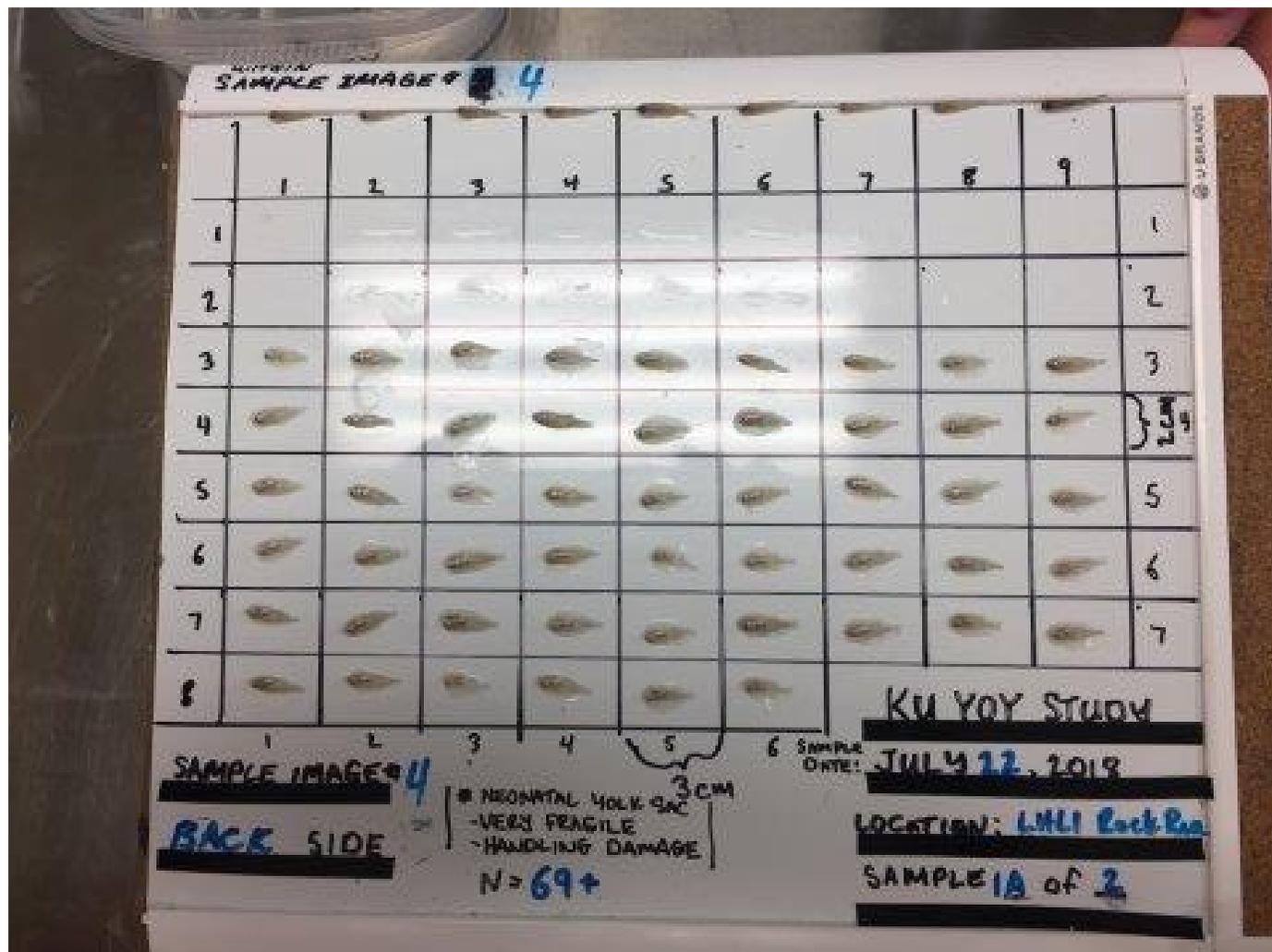


PHOTO 12



Sample 1A Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 13



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #4: Dorsal Side, Row 2



**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 14

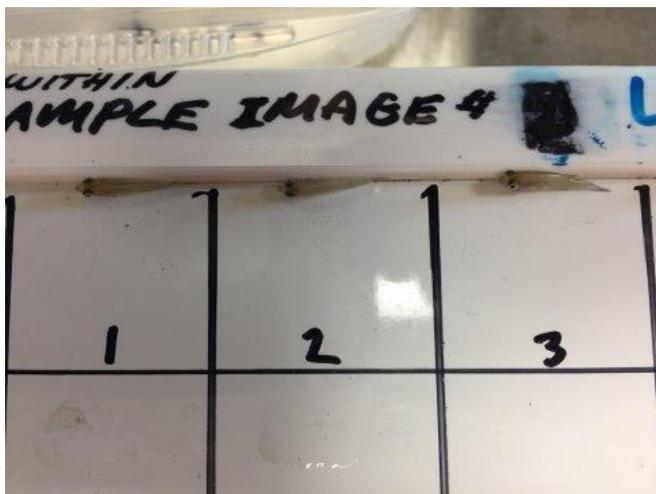


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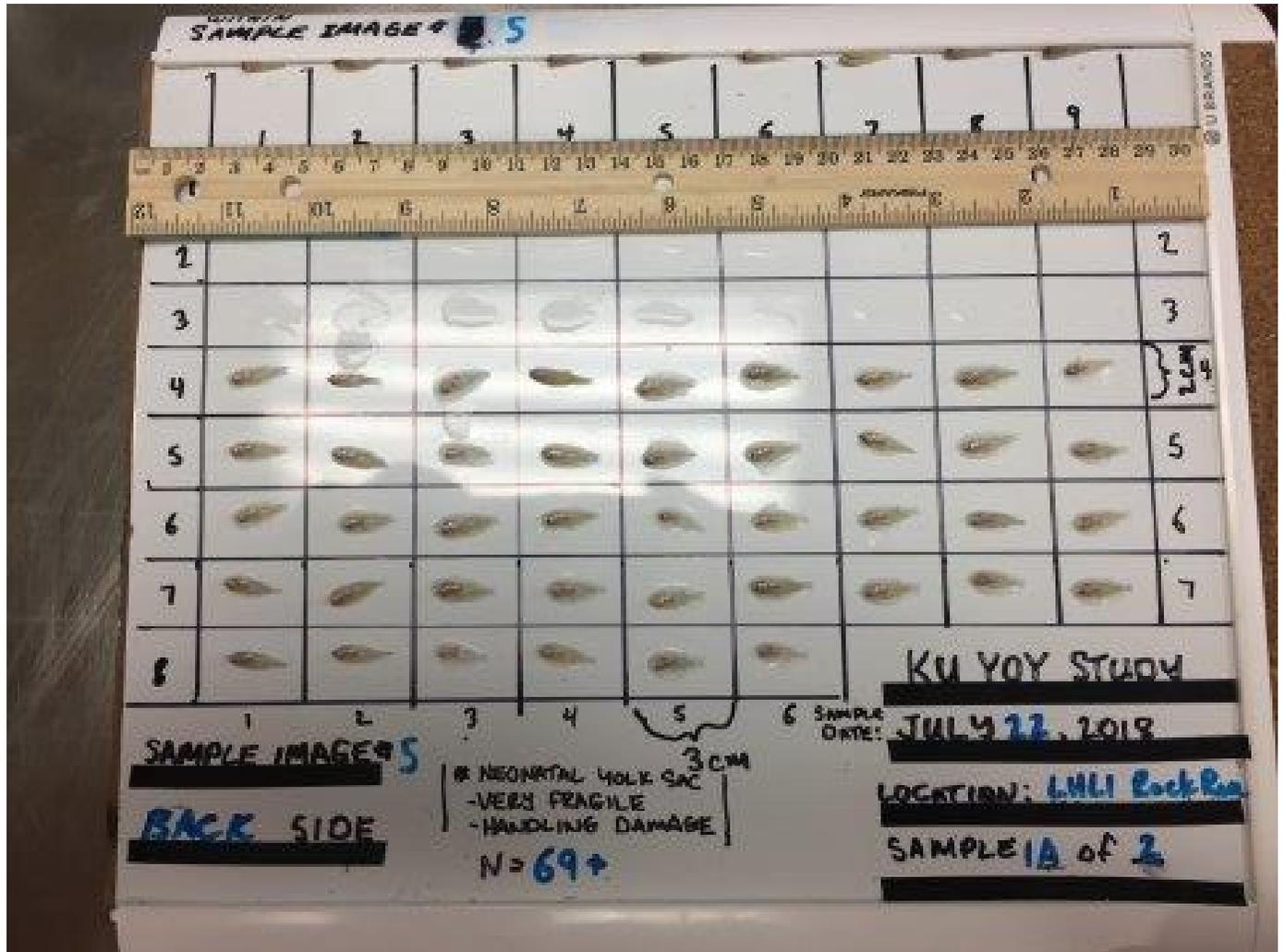


PHOTO 16



Sample 1A Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 17



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #5: Dorsal Side, Row 3



**ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 18

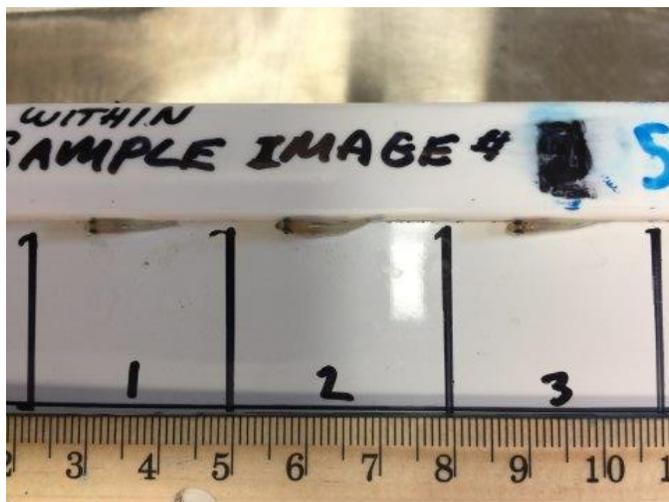


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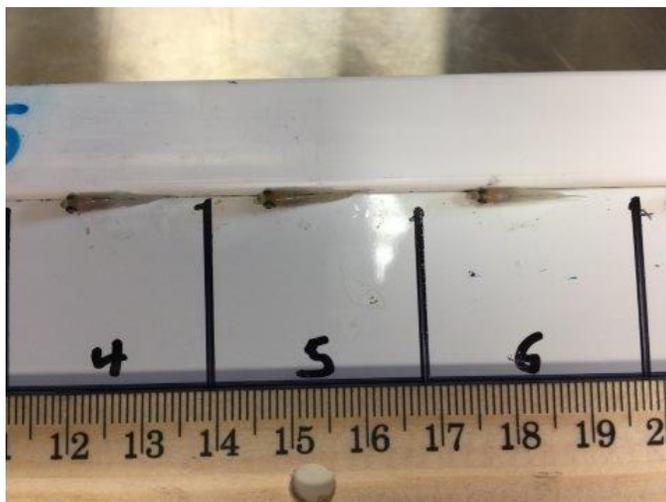
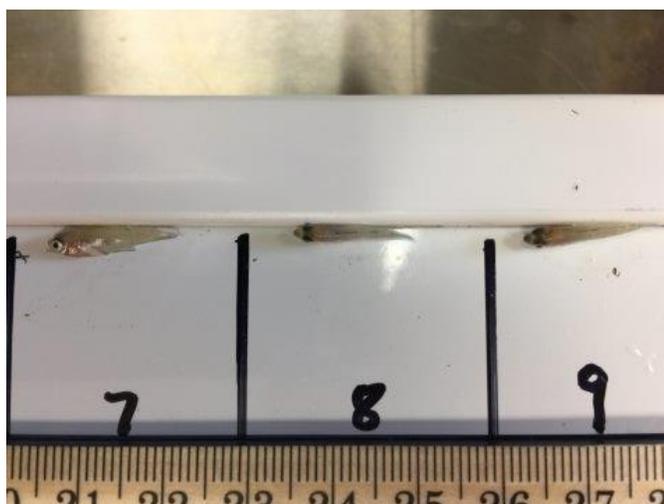
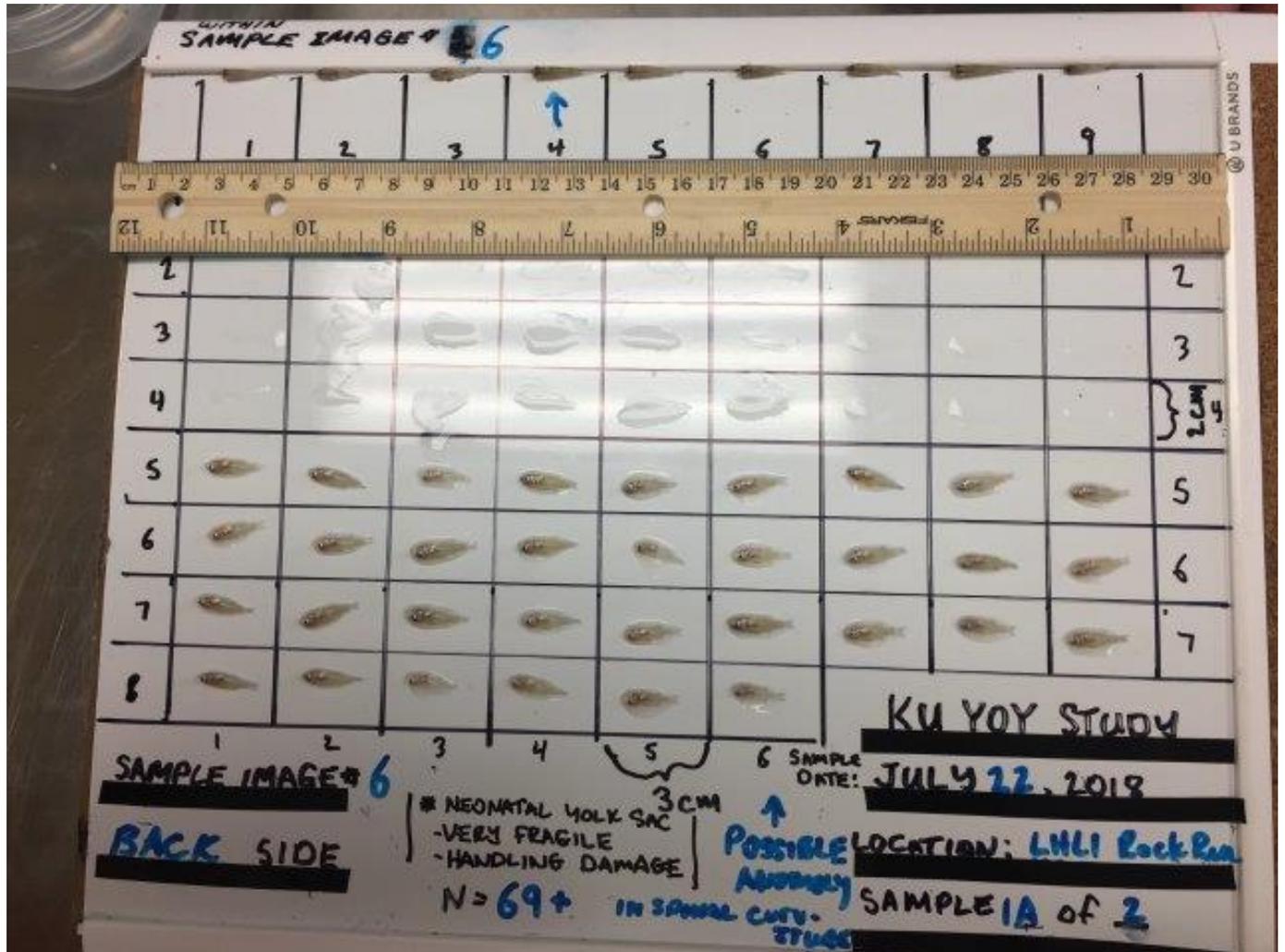


PHOTO 20



Sample 1A Image #5: Dorsal Side, Row 3, closeup photos

PHOTO 21



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #6: Dorsal Side, Row 4



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 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 22



PHOTO 23

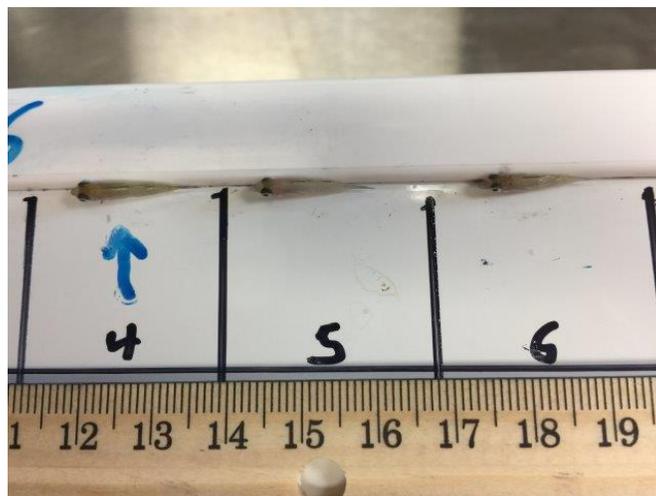
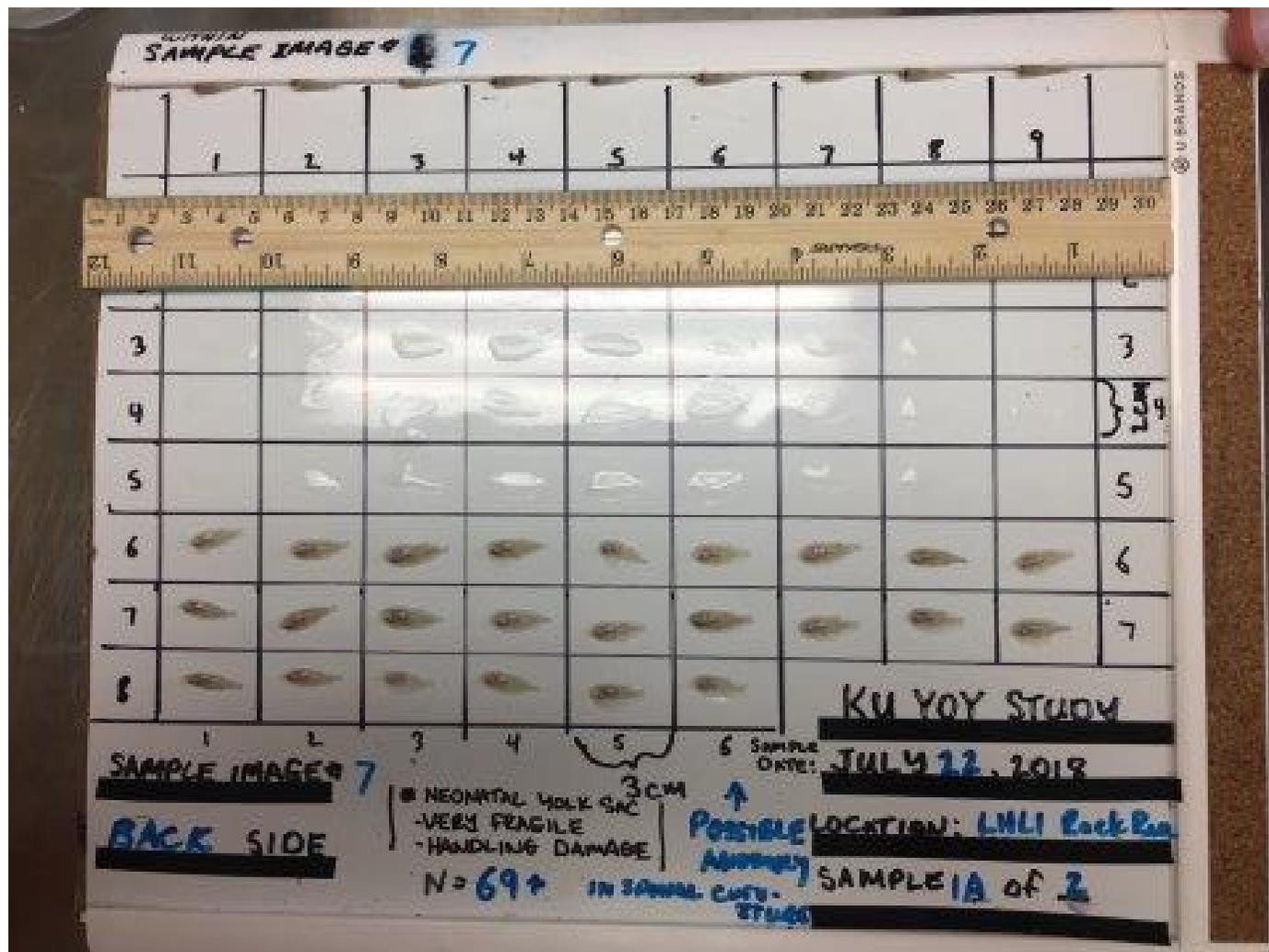


PHOTO 24



Sample 1A Image #6: Dorsal Side, Row 4, closeup photos

PHOTO 25



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #7: Dorsal Side, Row 5



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

PHOTO 26



PHOTO 27

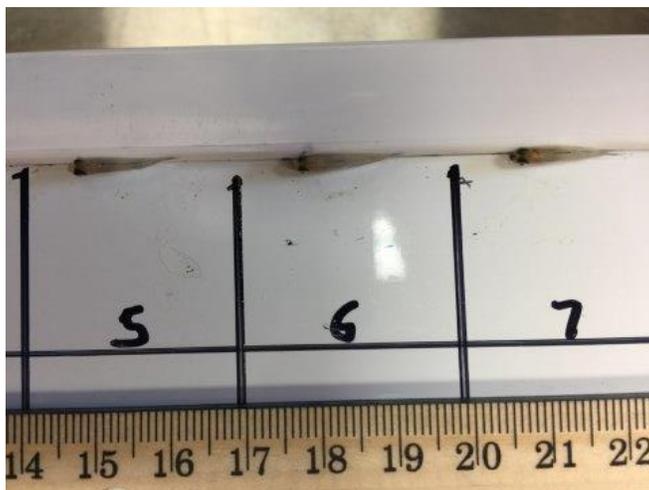
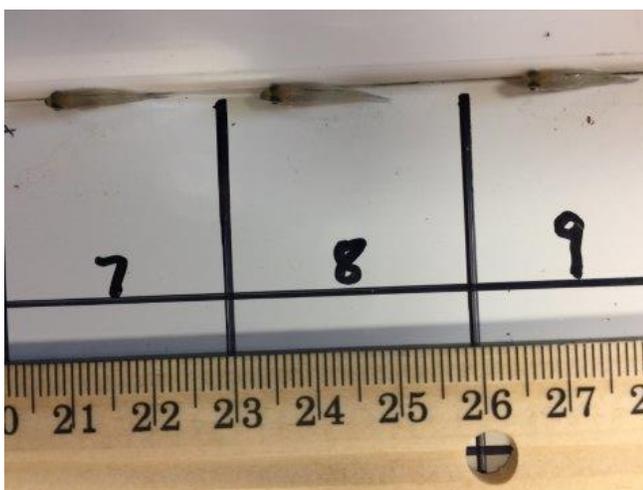


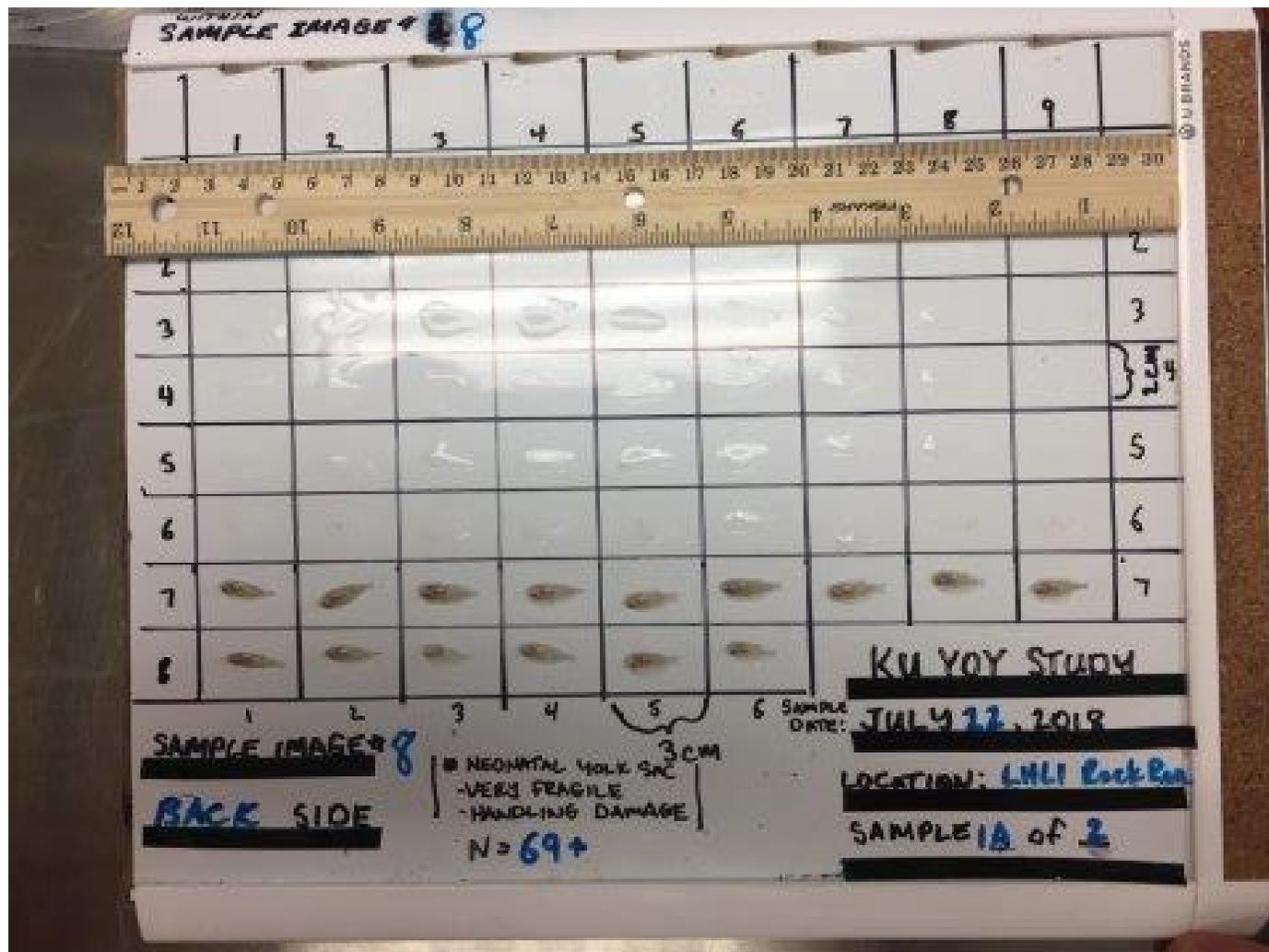
PHOTO 28



Sample 1A Image #7: Dorsal Side, Row 5, closeup photos



PHOTO 29



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #8: Dorsal Side, Row 6



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PHOTO 30



PHOTO 31

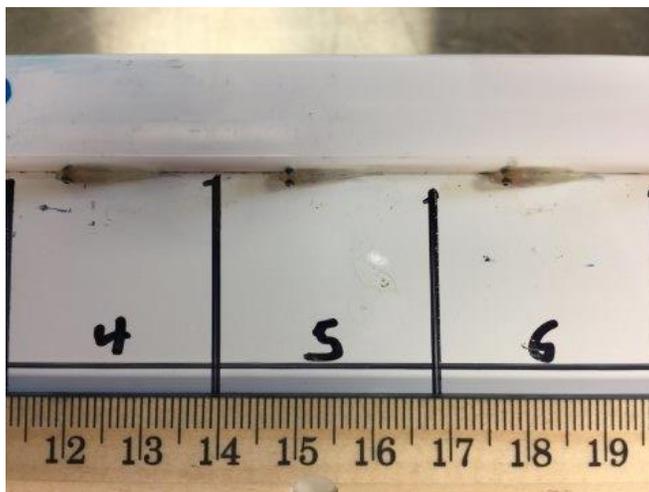
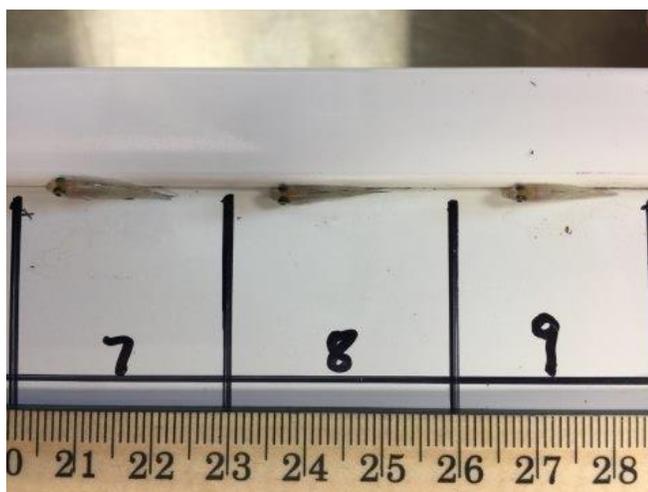


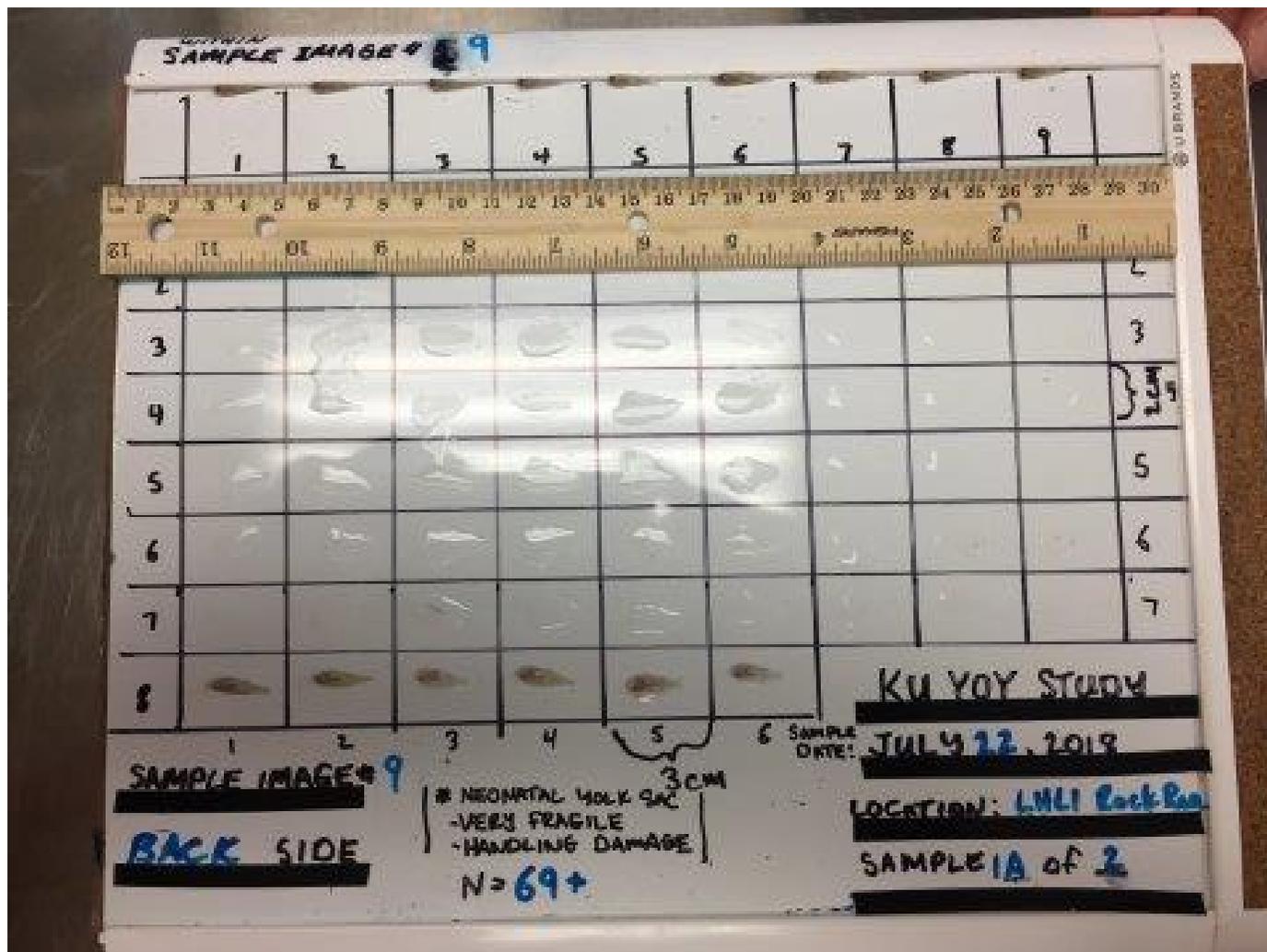
PHOTO 32



Sample 1A Image #8: Dorsal Side, Row 6, closeup photos



PHOTO 33



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #9: Dorsal Side, Row 7



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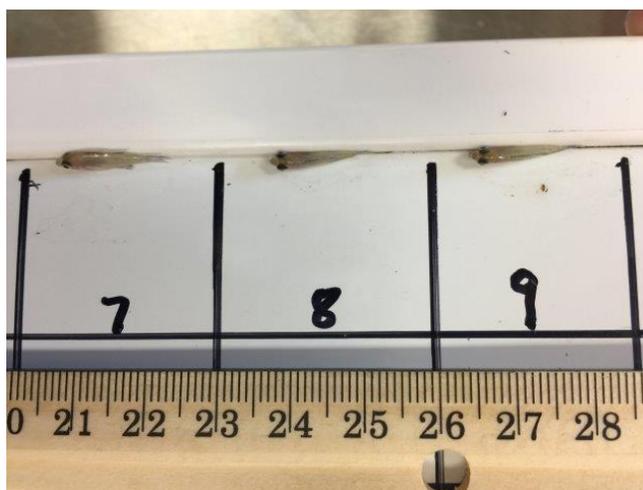
PHOTO 34



PHOTO 35

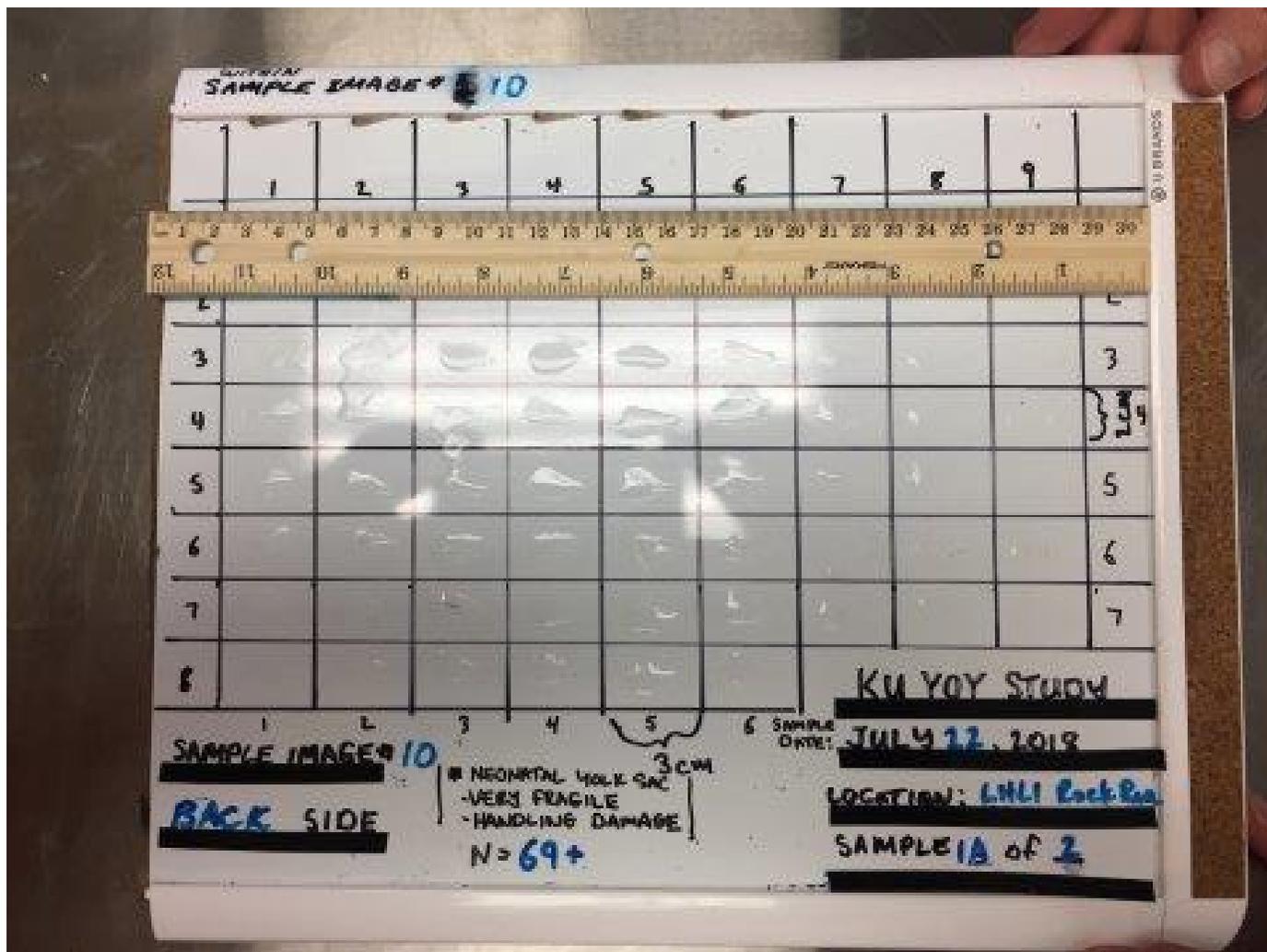


PHOTO 36



Sample 1A Image #9: Dorsal Side, Row 7, Closeup photos

PHOTO 37



LHL-1 Cove Bluegill Analytical Sample (1A of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1A Image #10: Dorsal Side, Row 8



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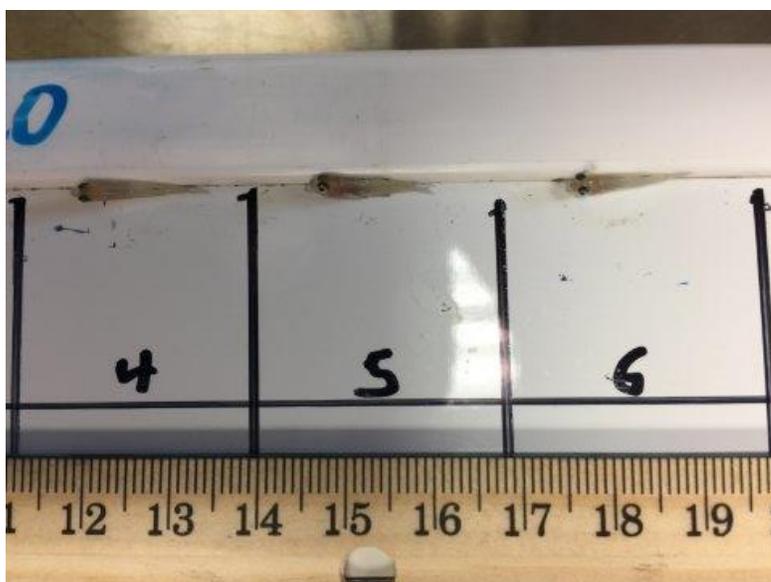
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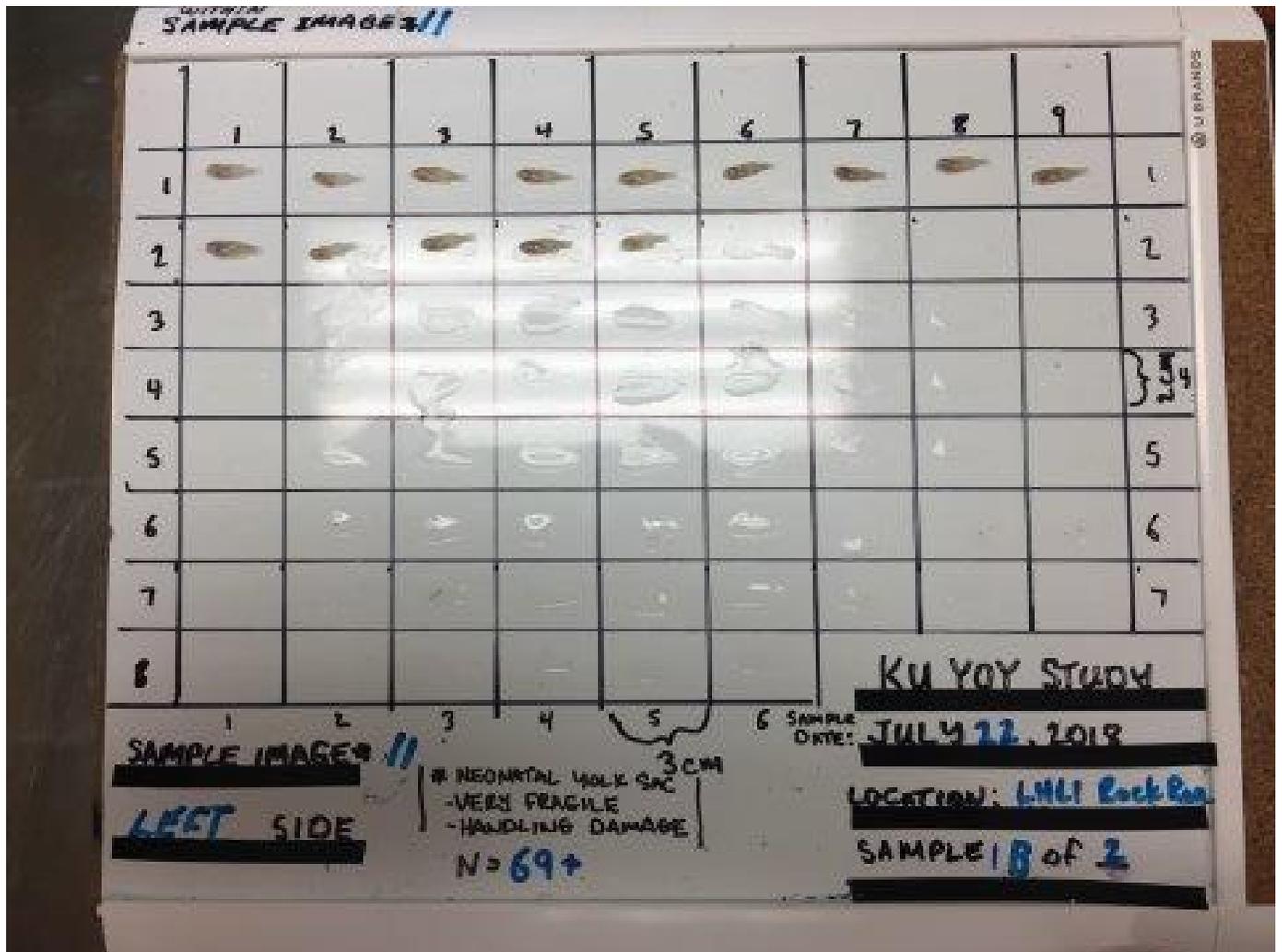


PHOTO 39



Sample 1A Image #10: Dorsal Side, Row 8, closeup photos

PHOTO 40



LHL-1 Cove Bluegill Analytical Sample (1B of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1B Image #11: Left Side



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PHOTO 41

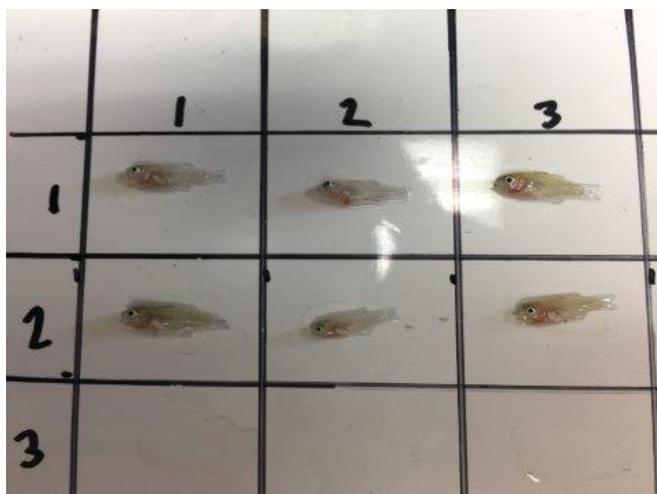


PHOTO 42

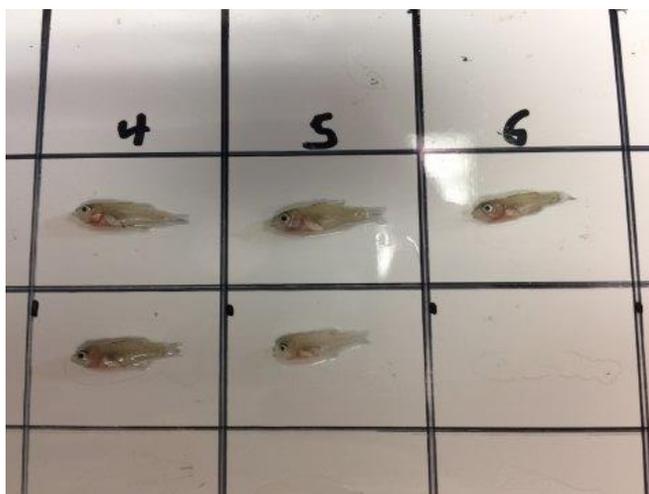
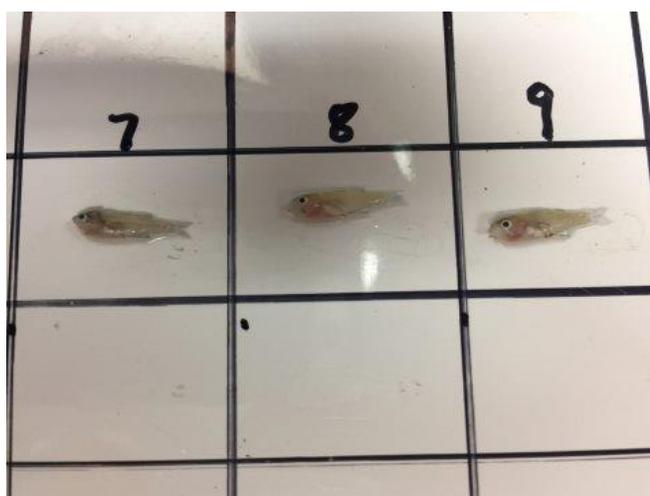
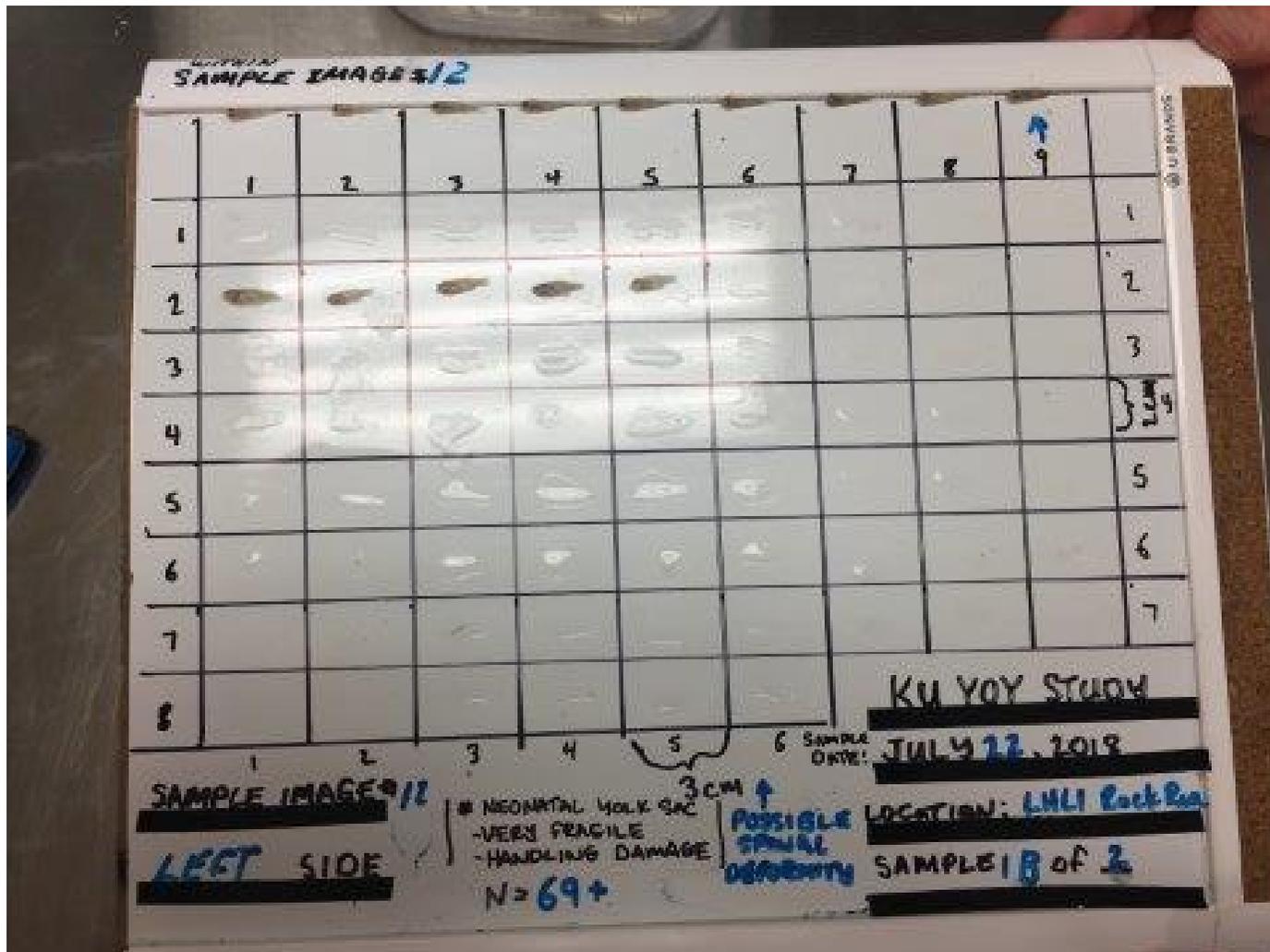


PHOTO 43



Sample 1B Image #11: Left Side, closeup photos

PHOTO 44



LHL-1 Cove Bluegill Analytical Sample (1B of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1B Image #12: Dorsal Side, Row 1



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PHOTO 45



PHOTO 46

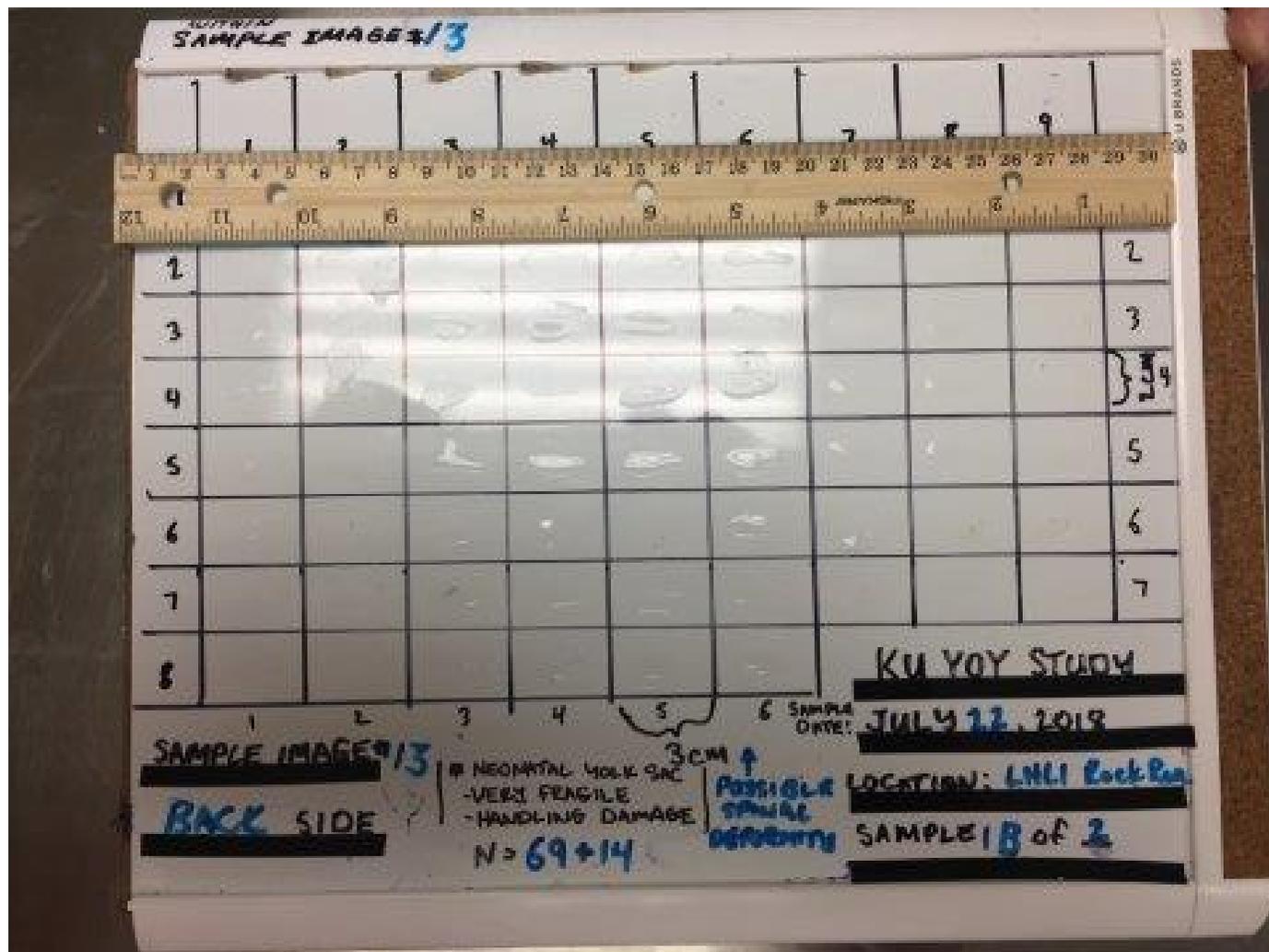


PHOTO 47



Sample 1B Image #12: Dorsal Side, Row 1, closeup photos

PHOTO 48



LHL-1 Cove Bluegill Analytical Sample (1B of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

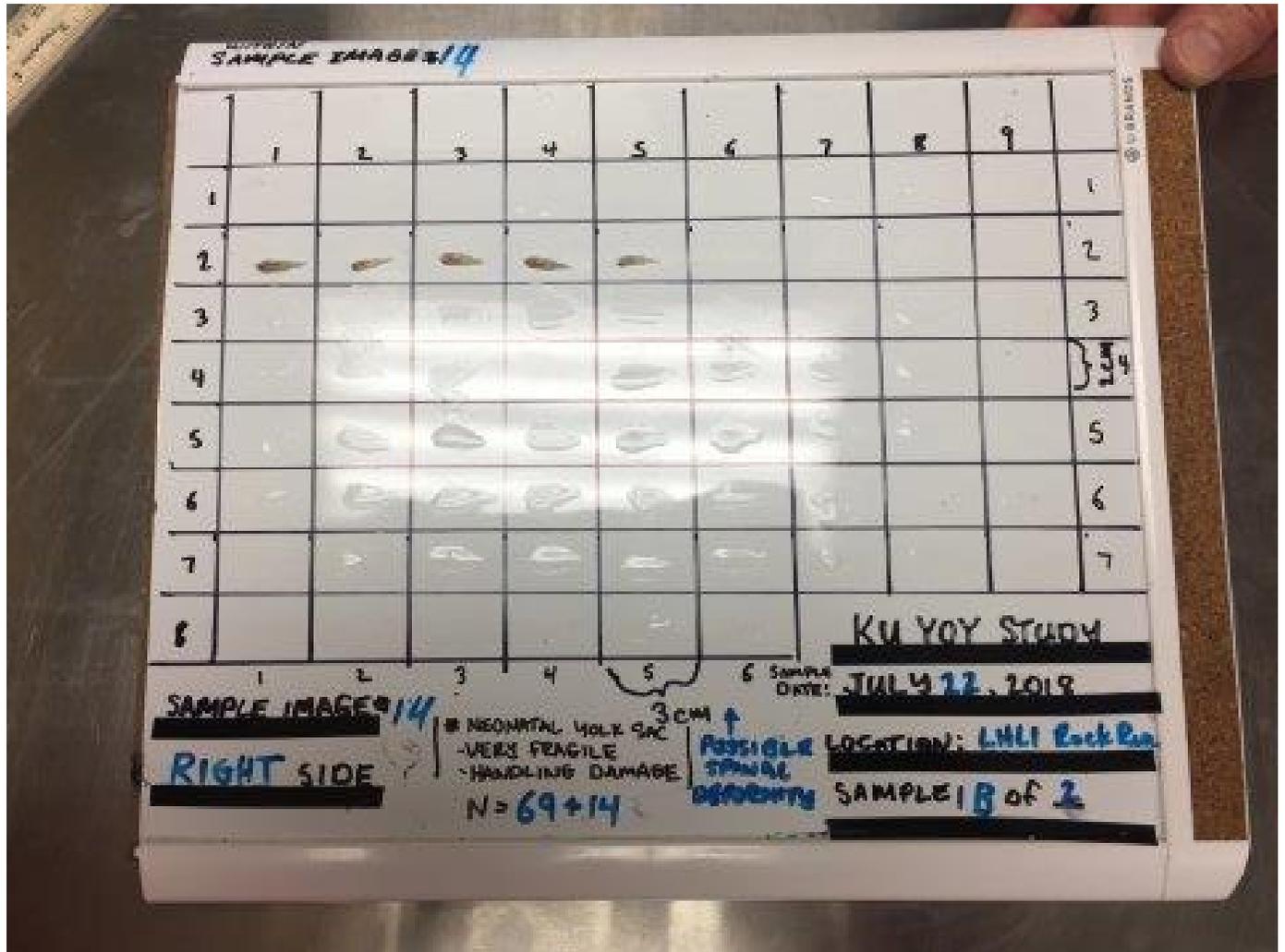
Sample 1B Image #13: Dorsal Side, Row 2



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 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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LHL-1 Cove Bluegill Analytical Sample (1B of 2)
 N=83 (1A+1B)

Sample ID:YOY-009-LHL1

Sample 1B Image #14: Right Side



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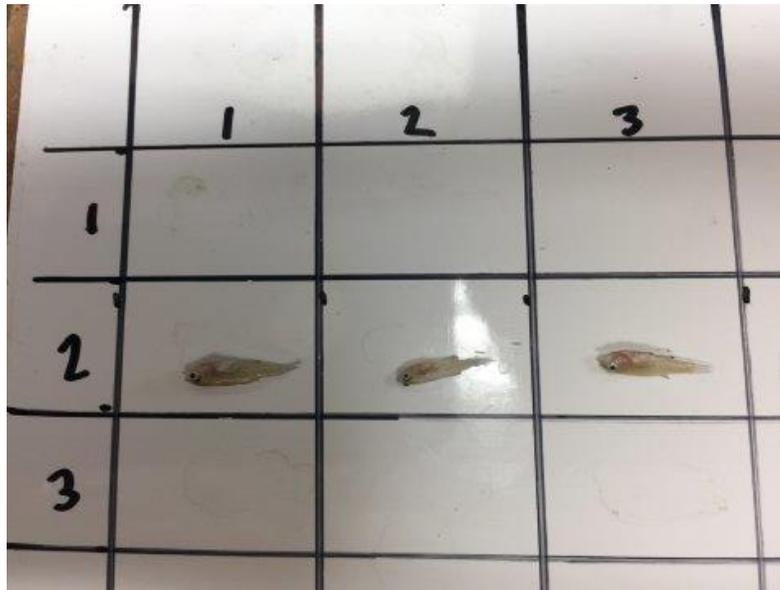
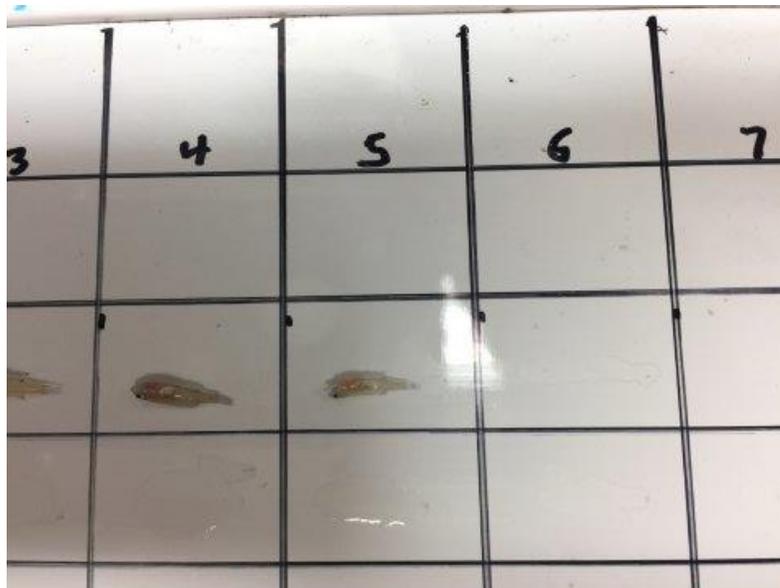
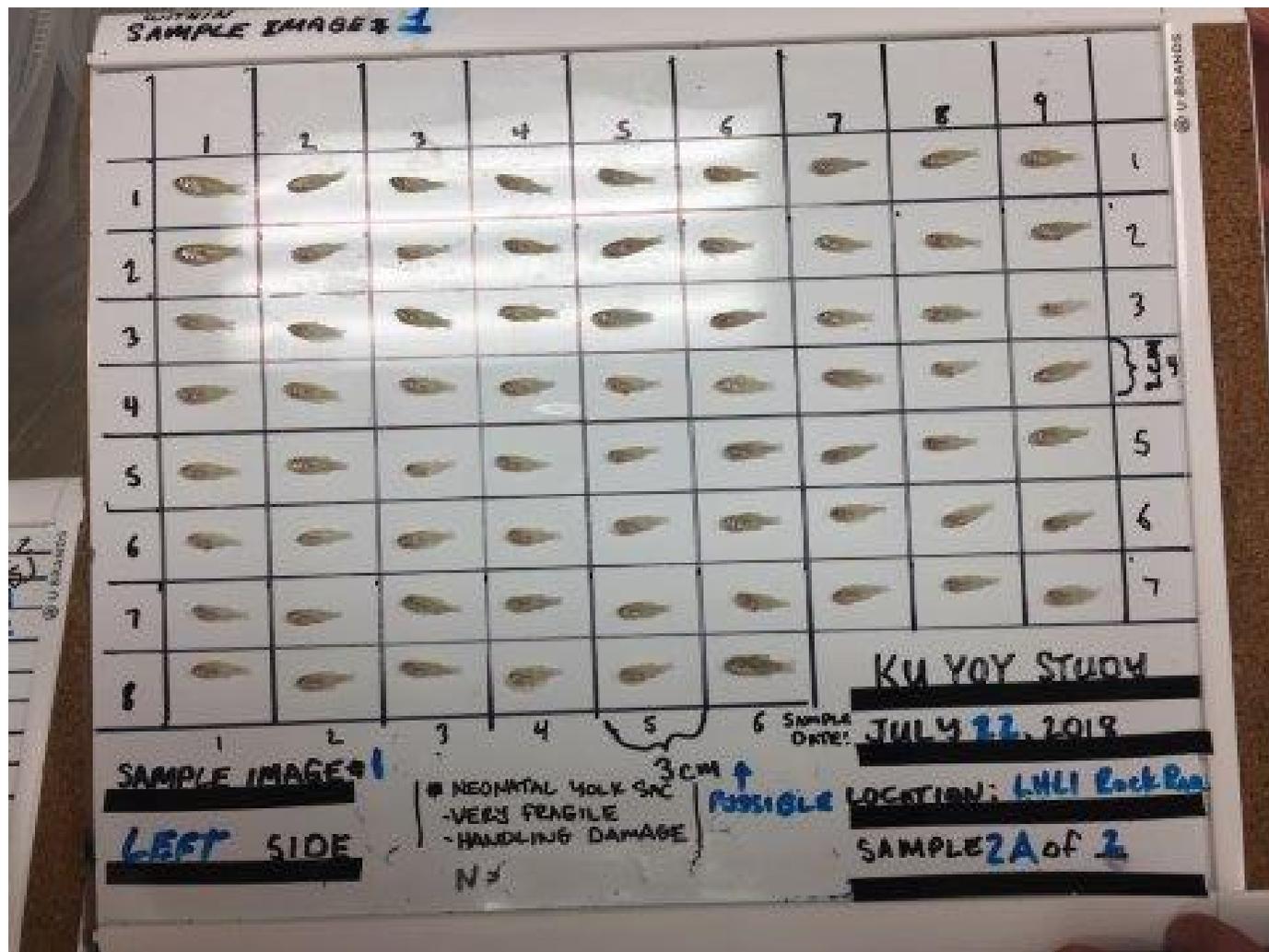


PHOTO 51



Sample 1B Image #14: Right Side, closeup photos

PHOTO 52



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #1: Left Side



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PHOTO 53

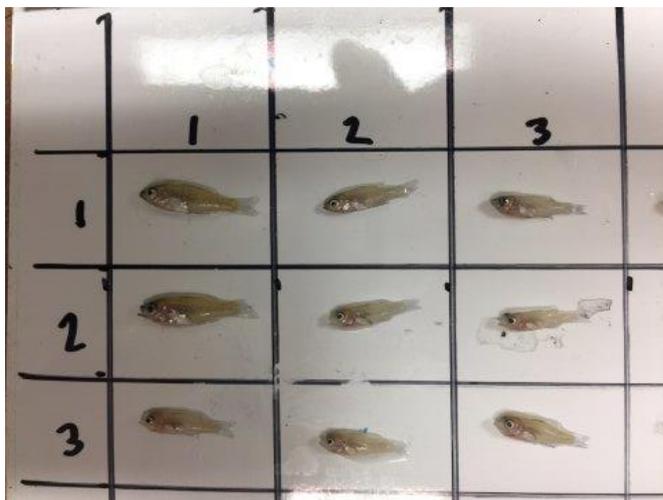


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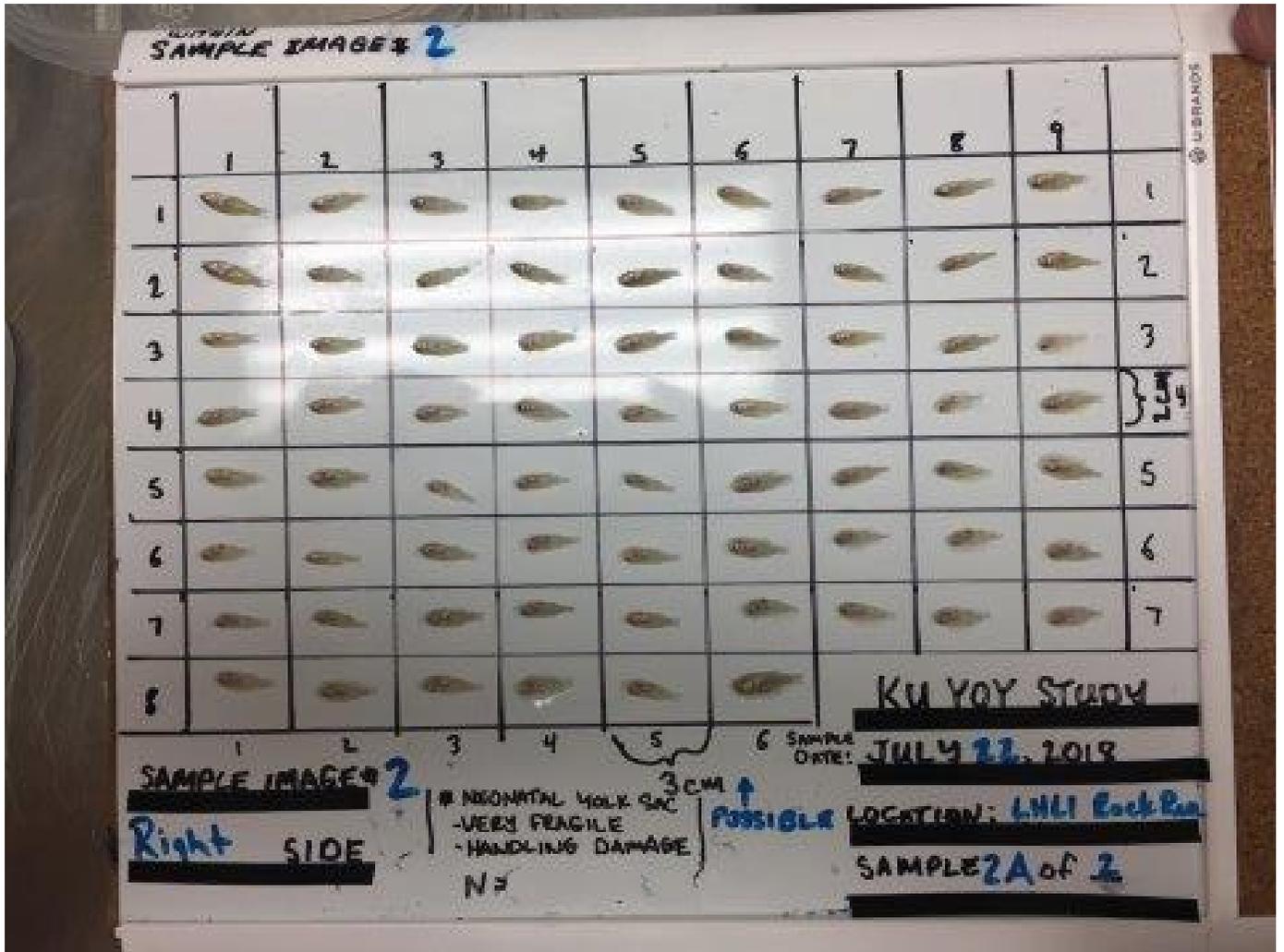


PHOTO 55



Sample 2A Image #1: Left Side, closeup photos

PHOTO 56



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #2: Right Side



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PHOTO 57



PHOTO 58

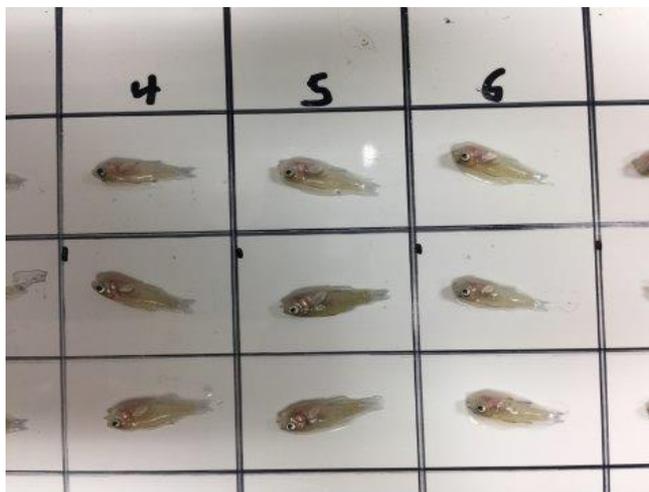
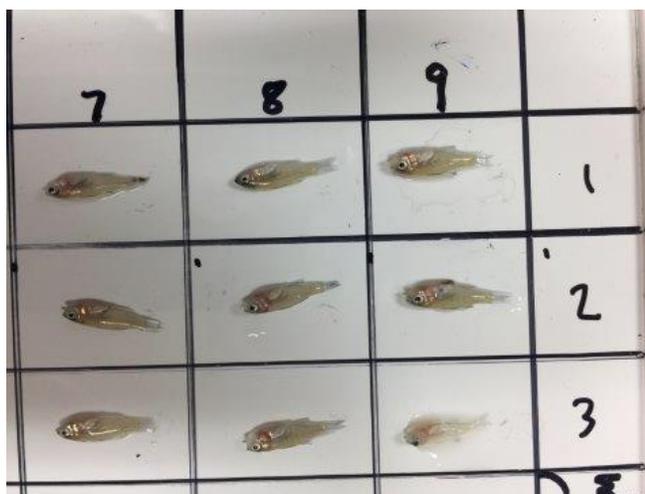


PHOTO 59



Sample 2A Image #2: Right Side, closeup photos



PHOTO 60



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #3: Dorsal Side, Row 1



PHOTO 61



PHOTO 62

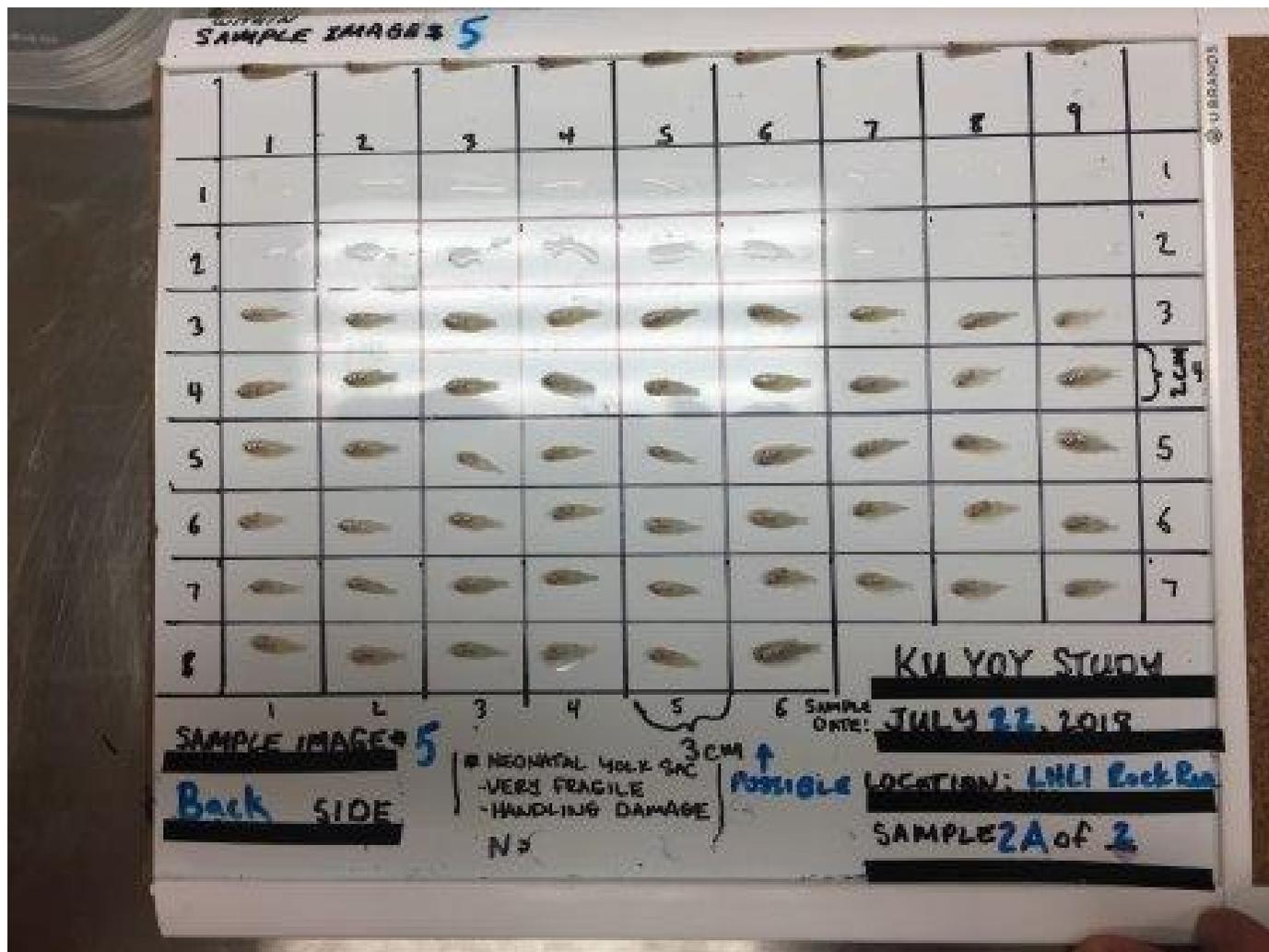


PHOTO 63



Sample 2A Image #3: Dorsal Side, Row 1

PHOTO 64



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #5: Dorsal Side, Row 2



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PHOTO 65

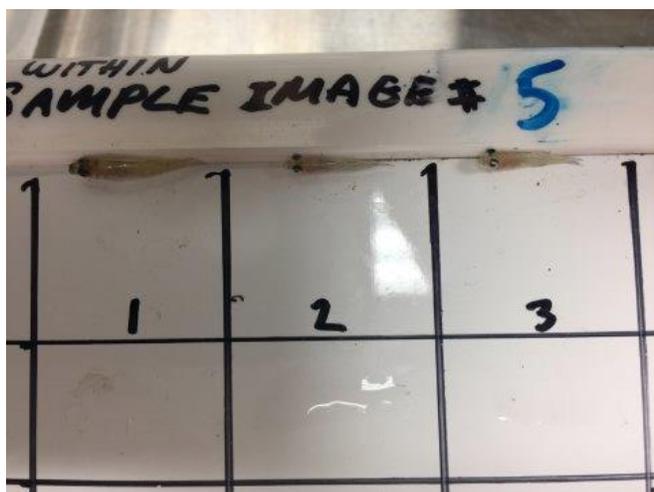


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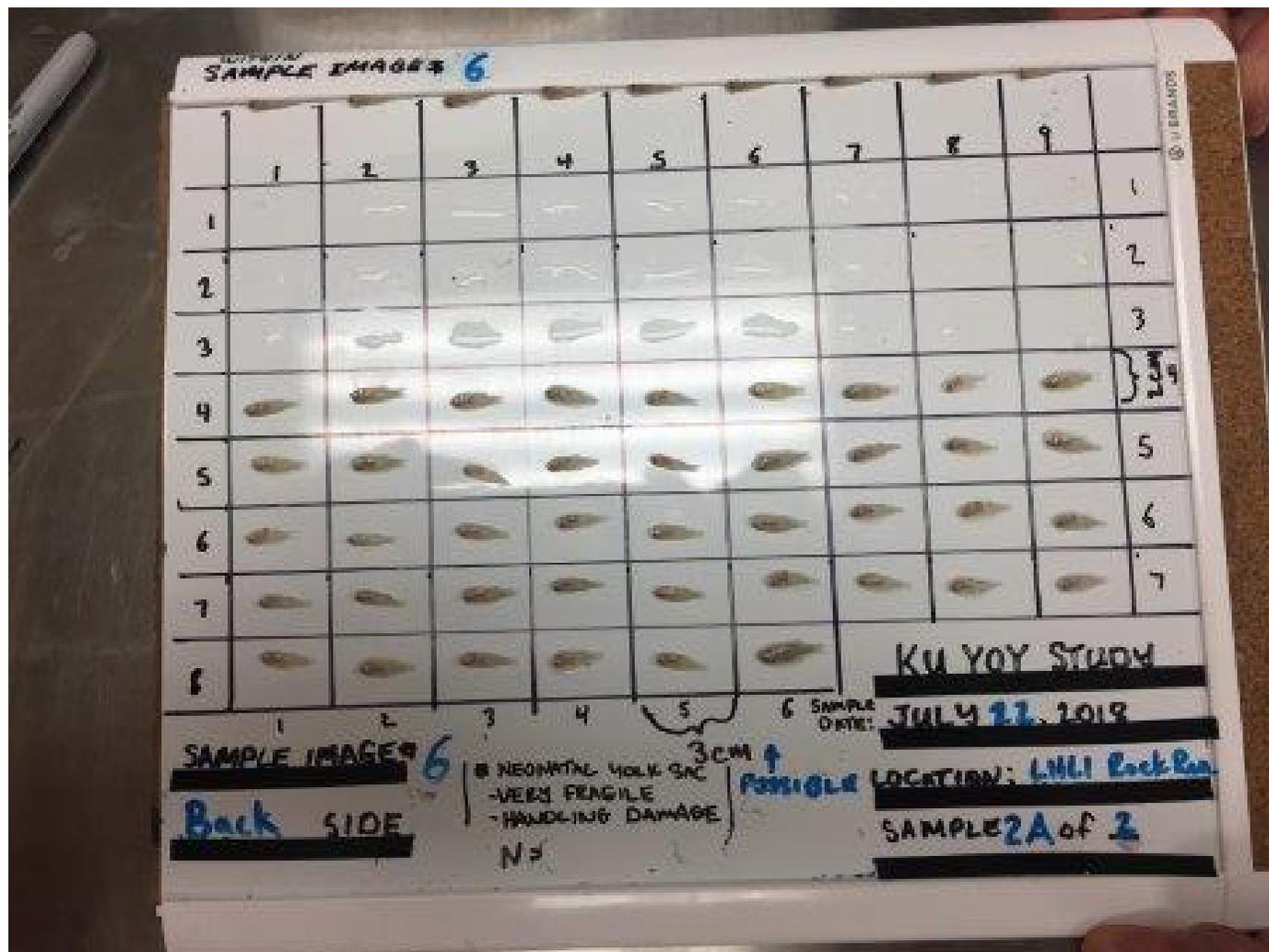


PHOTO 67



Sample 2A Image #5: Dorsal Side, Row 2

PHOTO 68



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #6: Dorsal Side, Row 3



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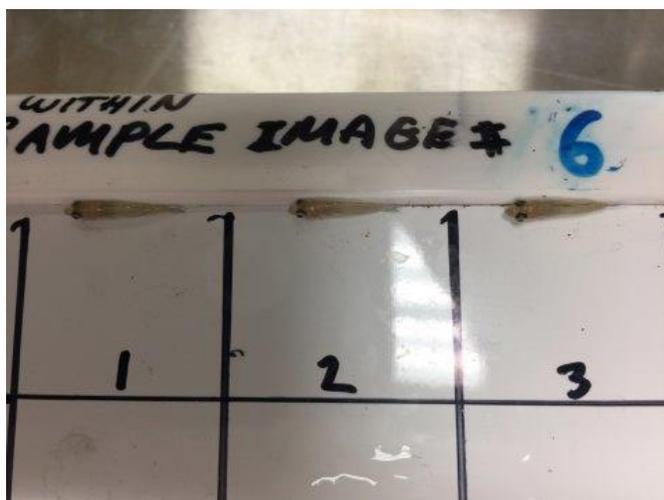


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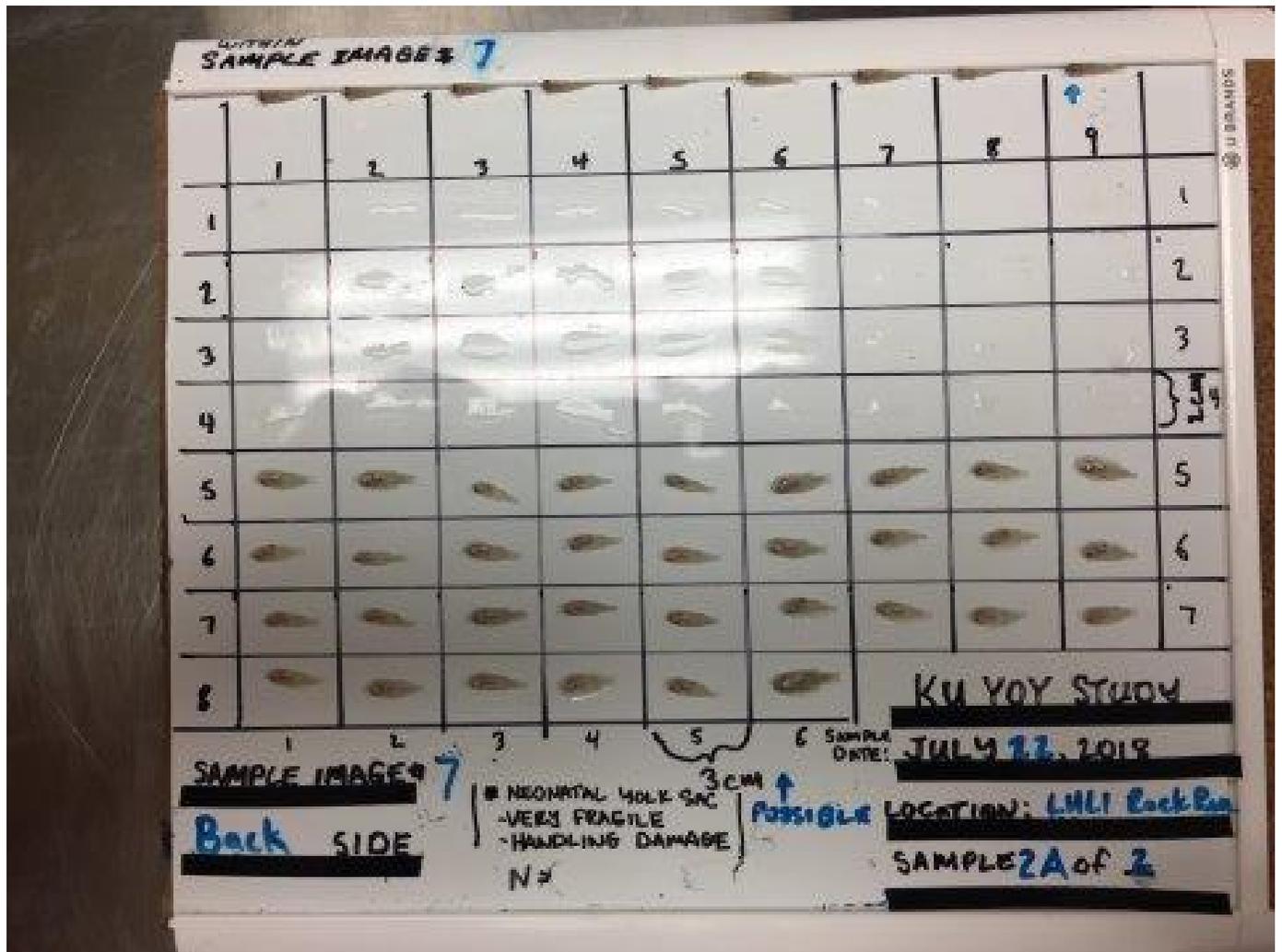


PHOTO 71



Sample 2A Image #6: Dorsal Side, Row 3, closeup photos

PHOTO 72



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #7: Dorsal Side, Row 4



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PHOTO 73



PHOTO 74

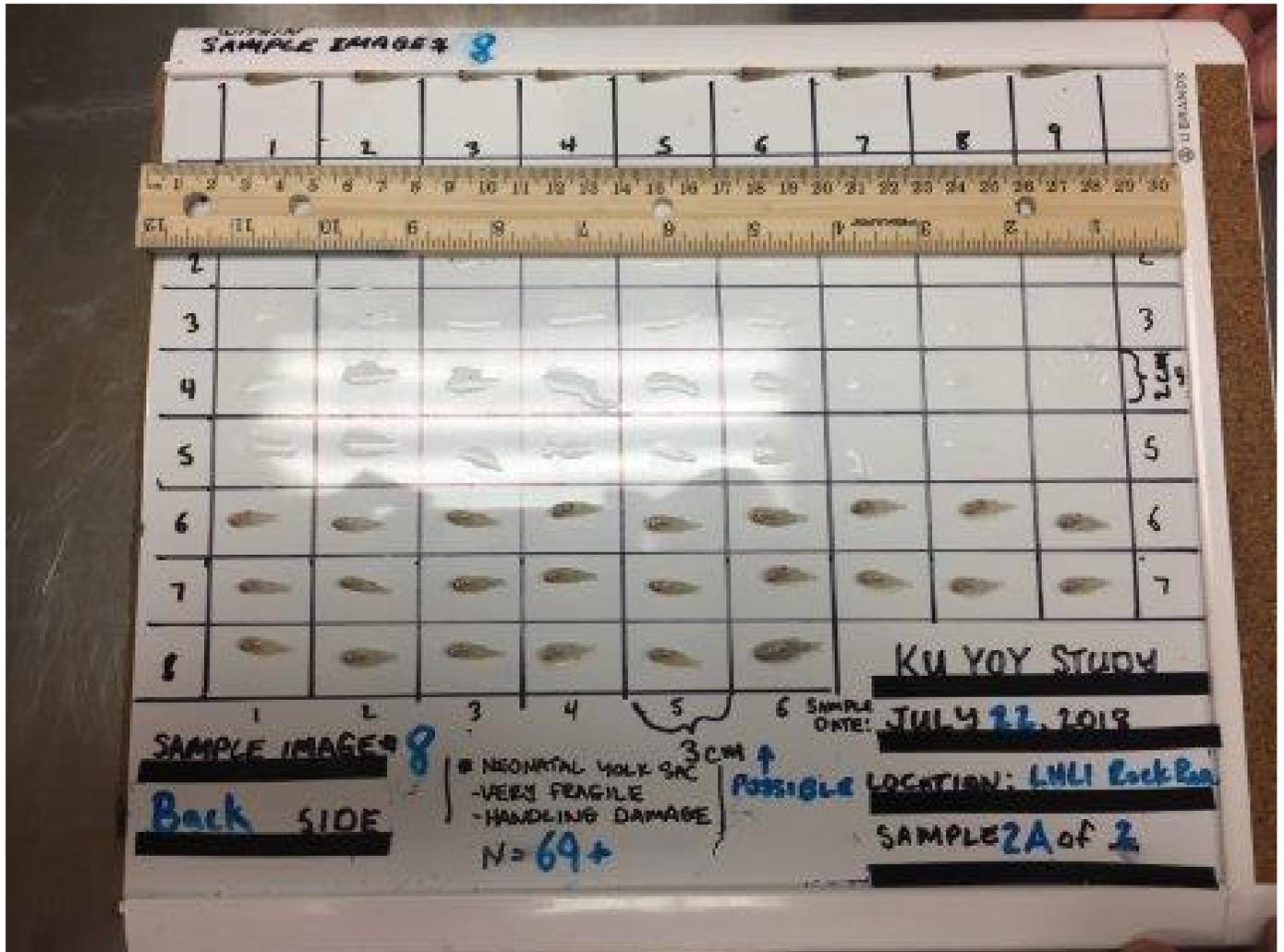


PHOTO 75



Sample 2A Image #7: Dorsal Side, Row 4, closeup photos

PHOTO 76



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #8: Dorsal Side, Row 5



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PHOTO 77



PHOTO 78

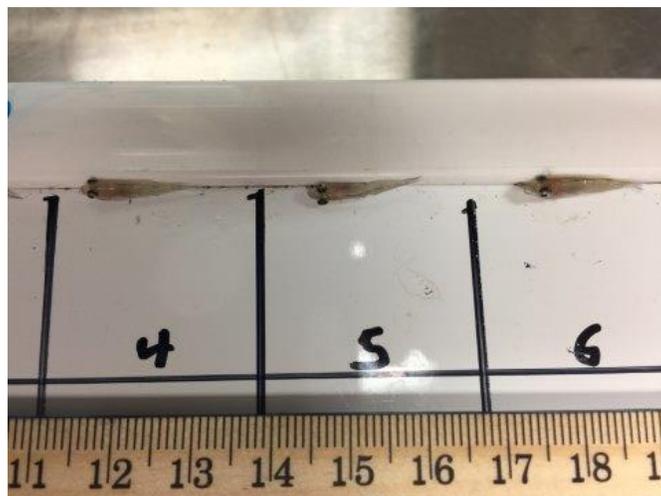
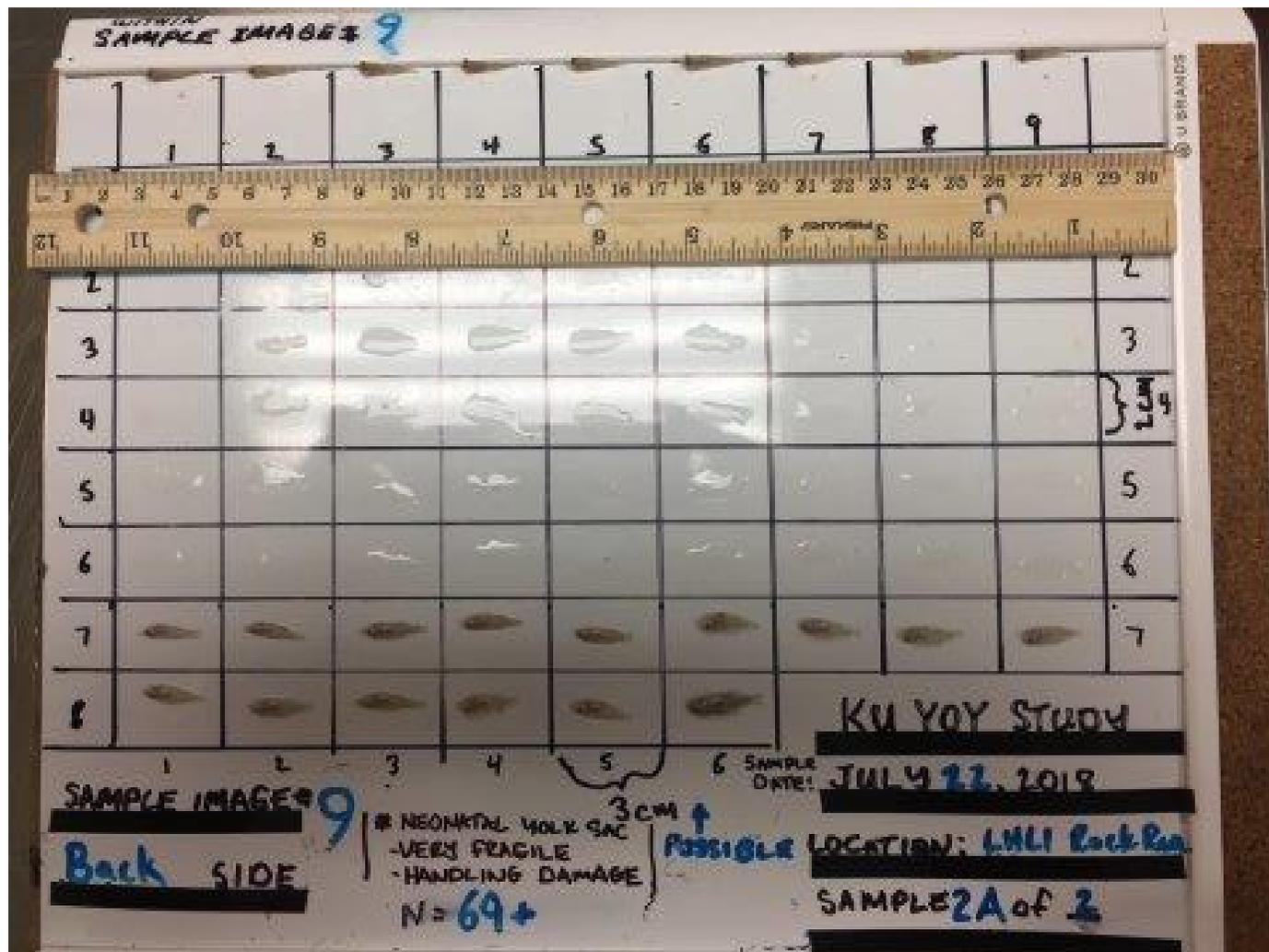


PHOTO 79



Sample 2A Image #8: Dorsal Side, Row 5, closeup photos

PHOTO 80



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #9: Dorsal Side, Row 6



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PHOTO 81



PHOTO 82

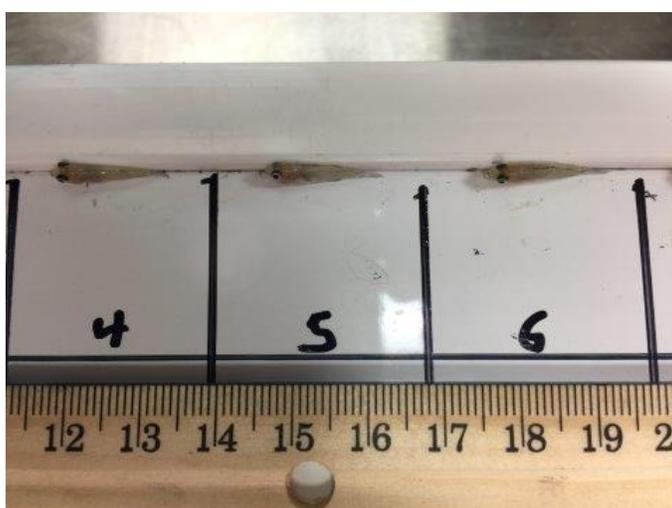


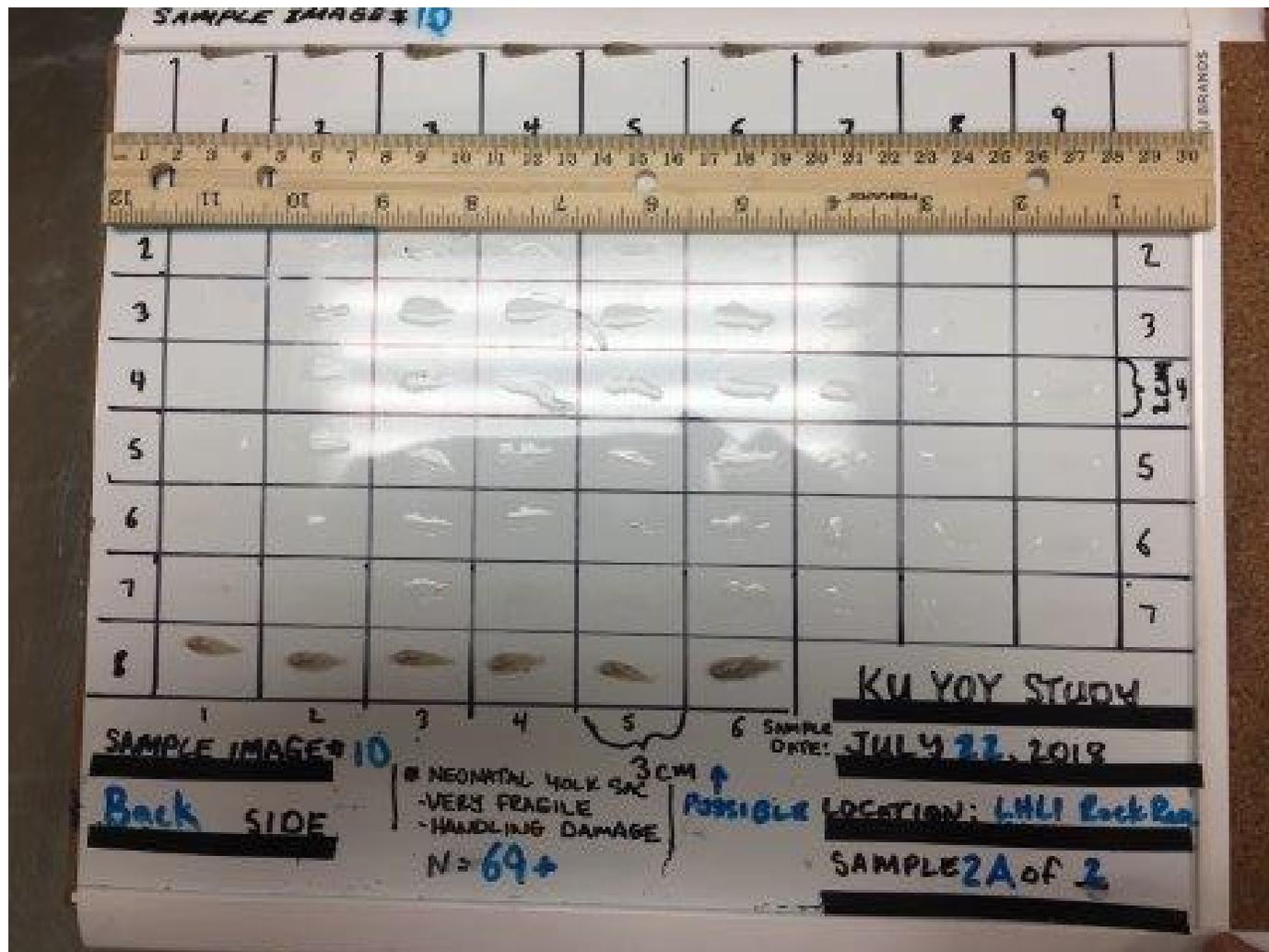
PHOTO 83



Sample 2A Image #9: Dorsal Side, Row 6, closeup photos



PHOTO 84



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #10: Dorsal Side, Row 7



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PHOTO 85



PHOTO 86

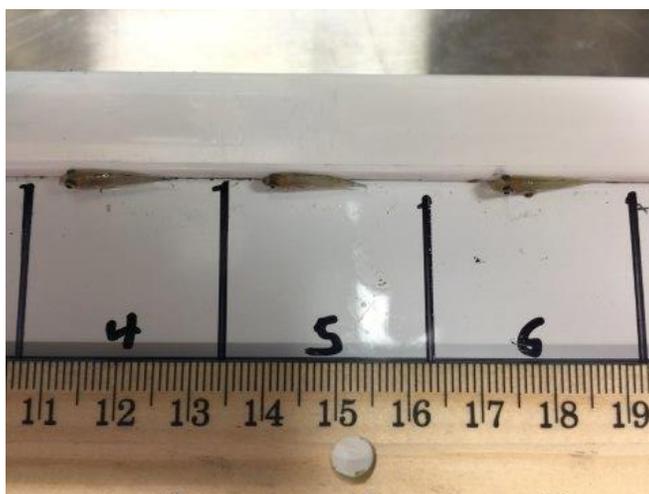
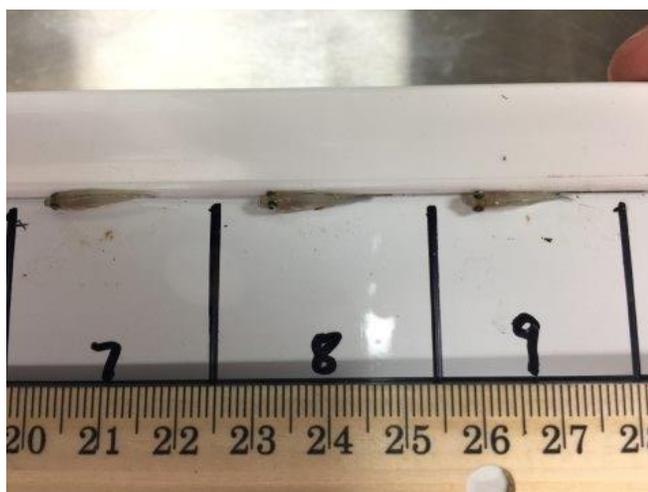
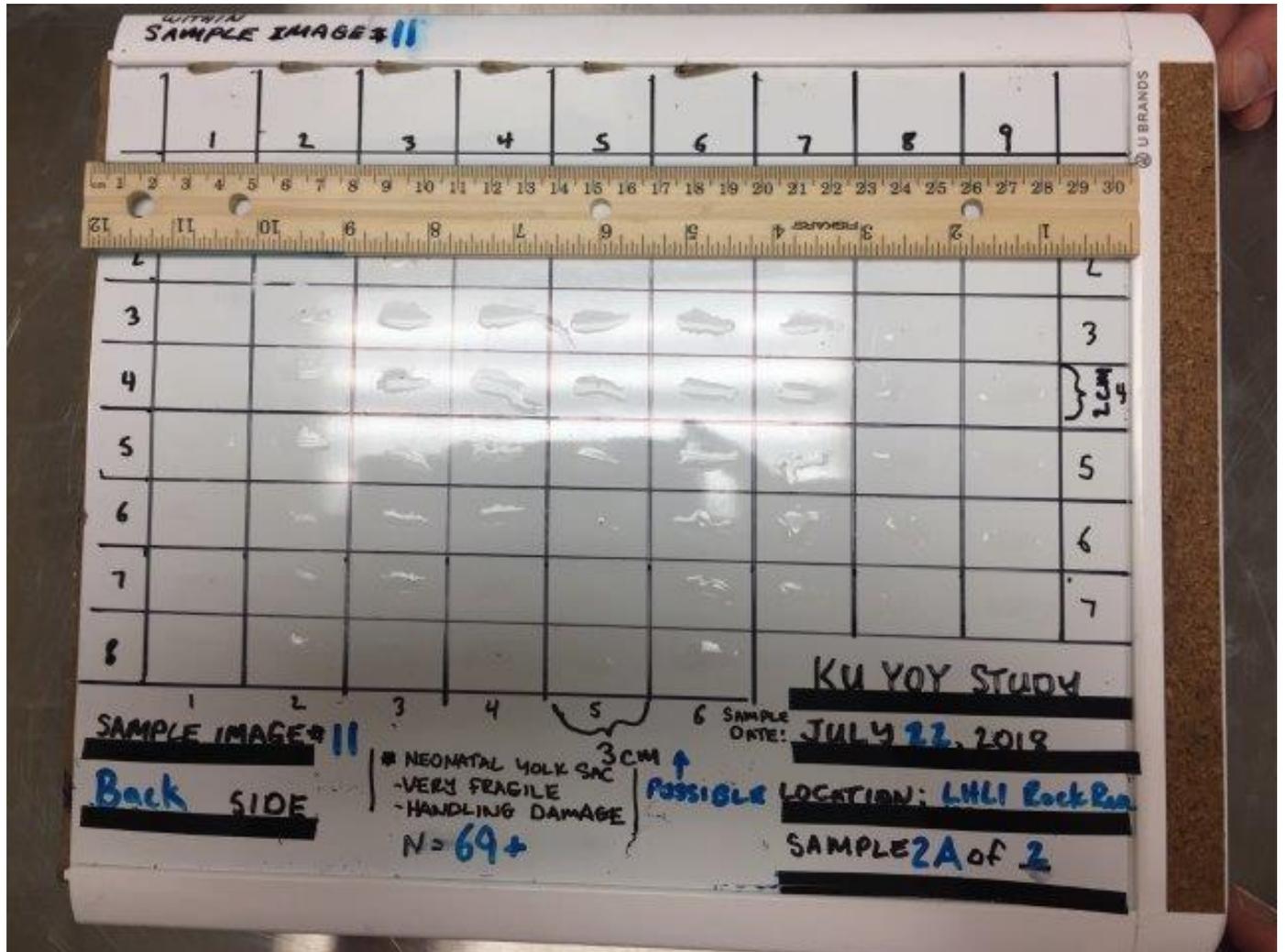


PHOTO 87



Sample 2A Image #10: Dorsal Side, Row 7, closeup photos

PHOTO 88



LHL-1 Cove Bluegill Analytical Sample (2A of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2A Image #11: Dorsal Side, Row 8



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PHOTO 89

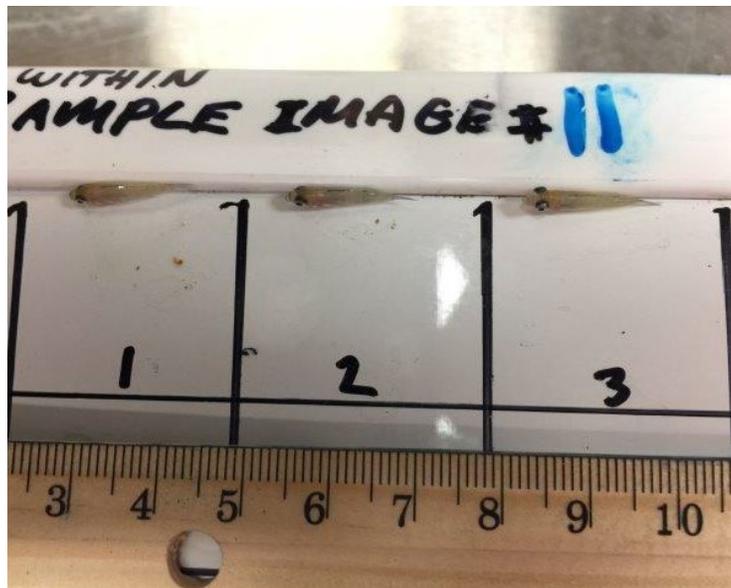
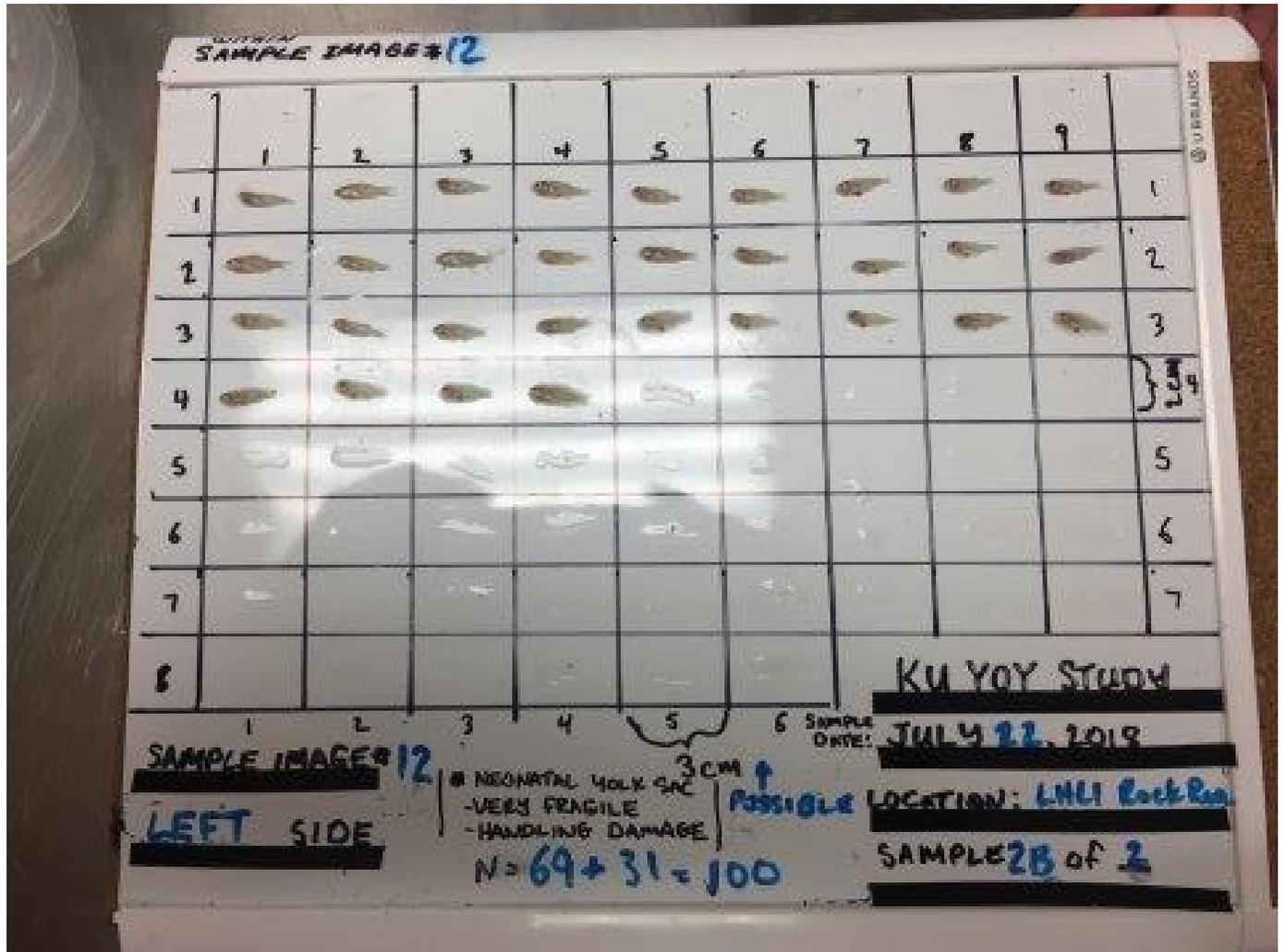


PHOTO 90



Sample 2A Image #11: Dorsal Side, Row 8, closeup photos

PHOTO 91



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #12: Left Side



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PHOTO 92

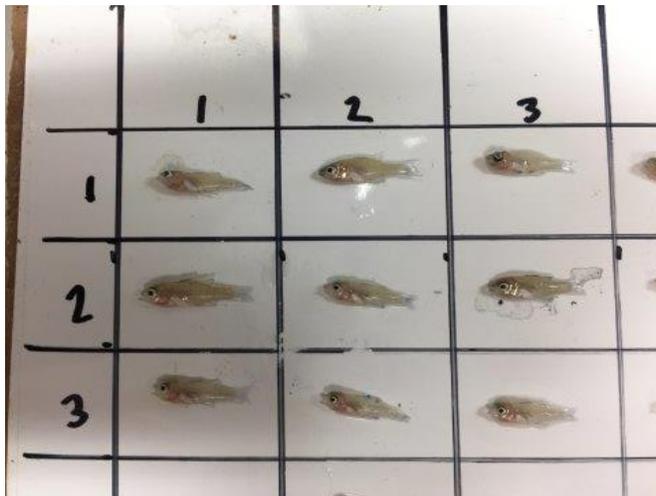


PHOTO 93

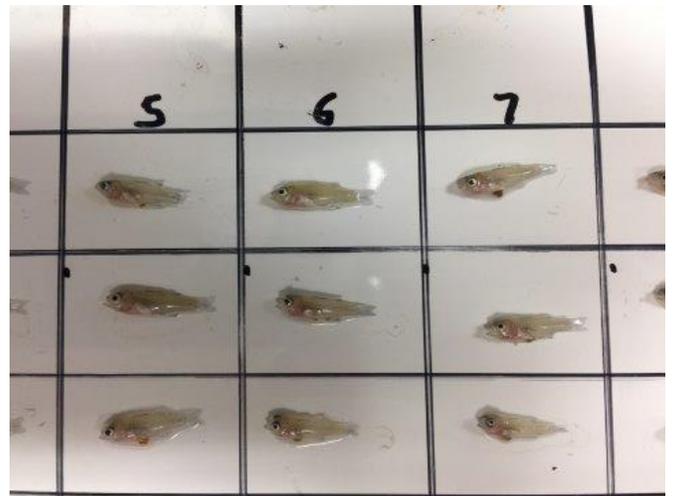
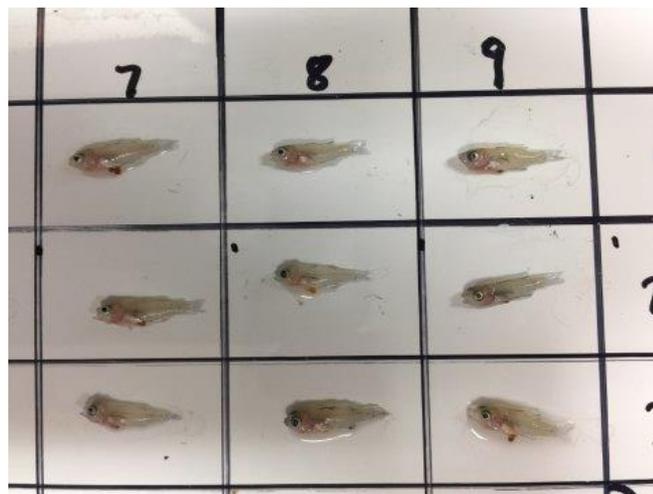
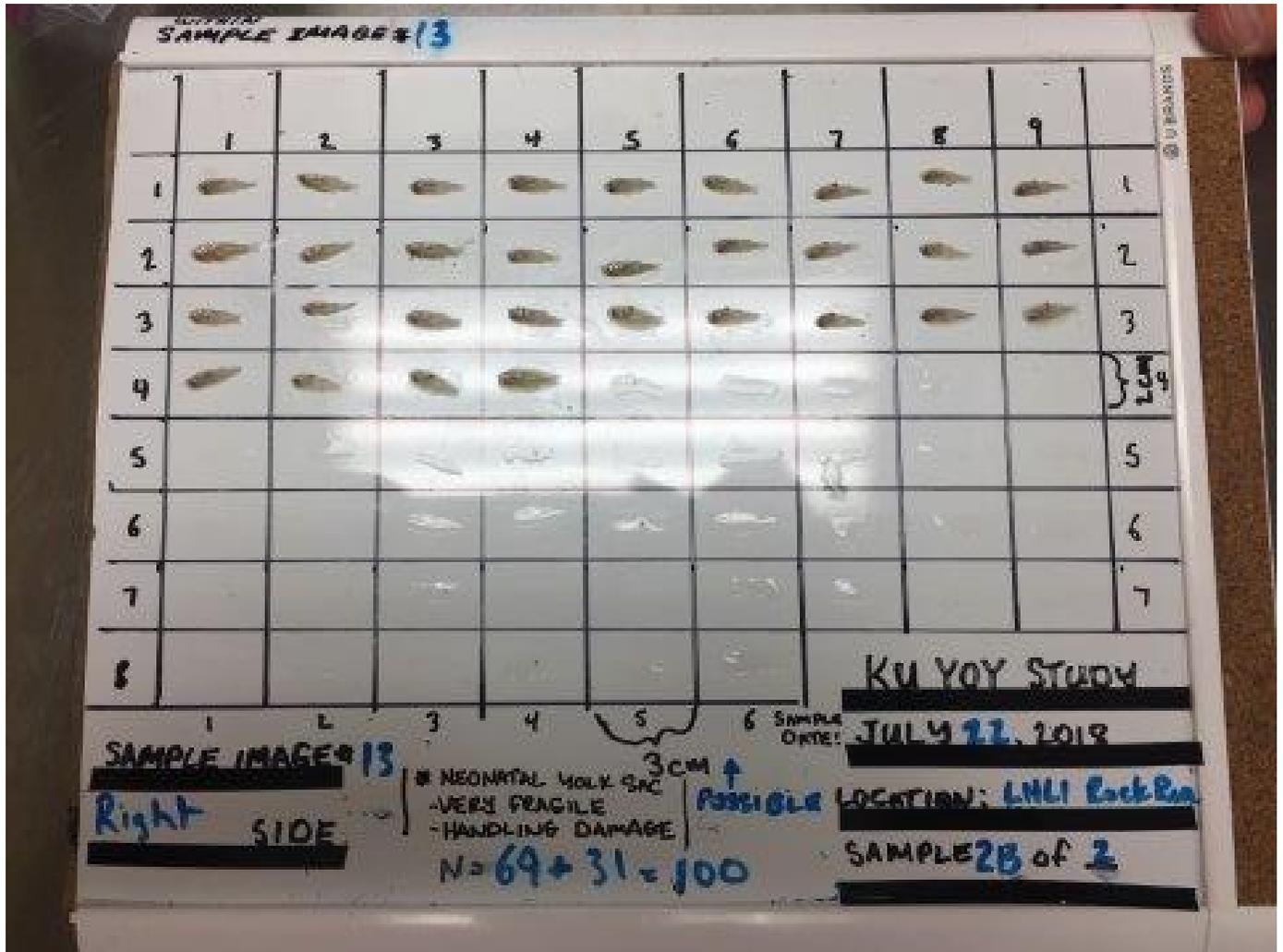


PHOTO 94



Sample 2B Image #12: Left Side, closeup photos

PHOTO 95



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #13: Right Side



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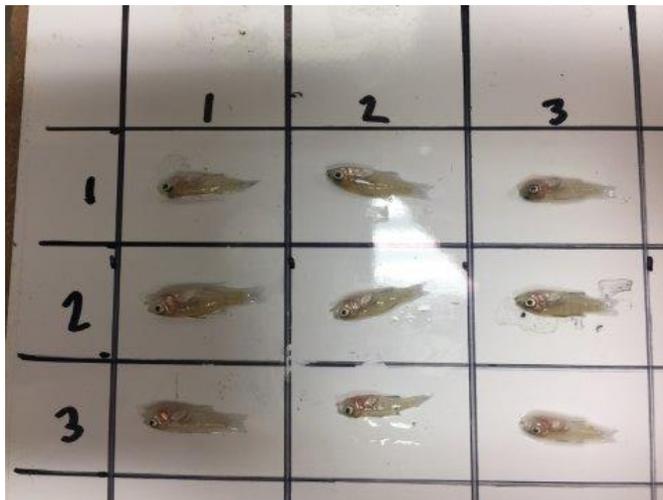


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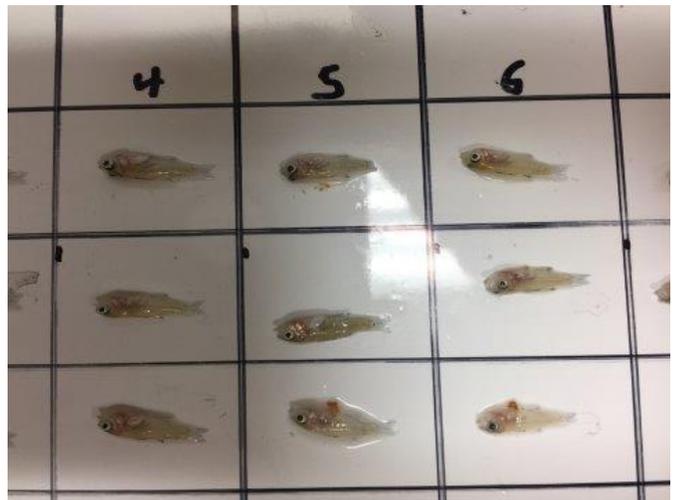
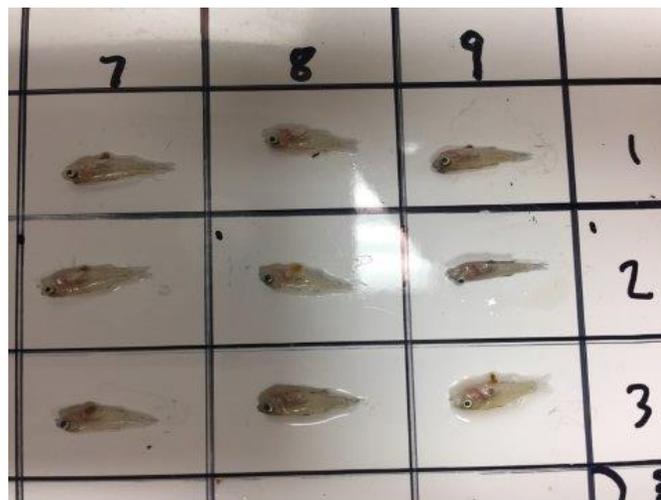
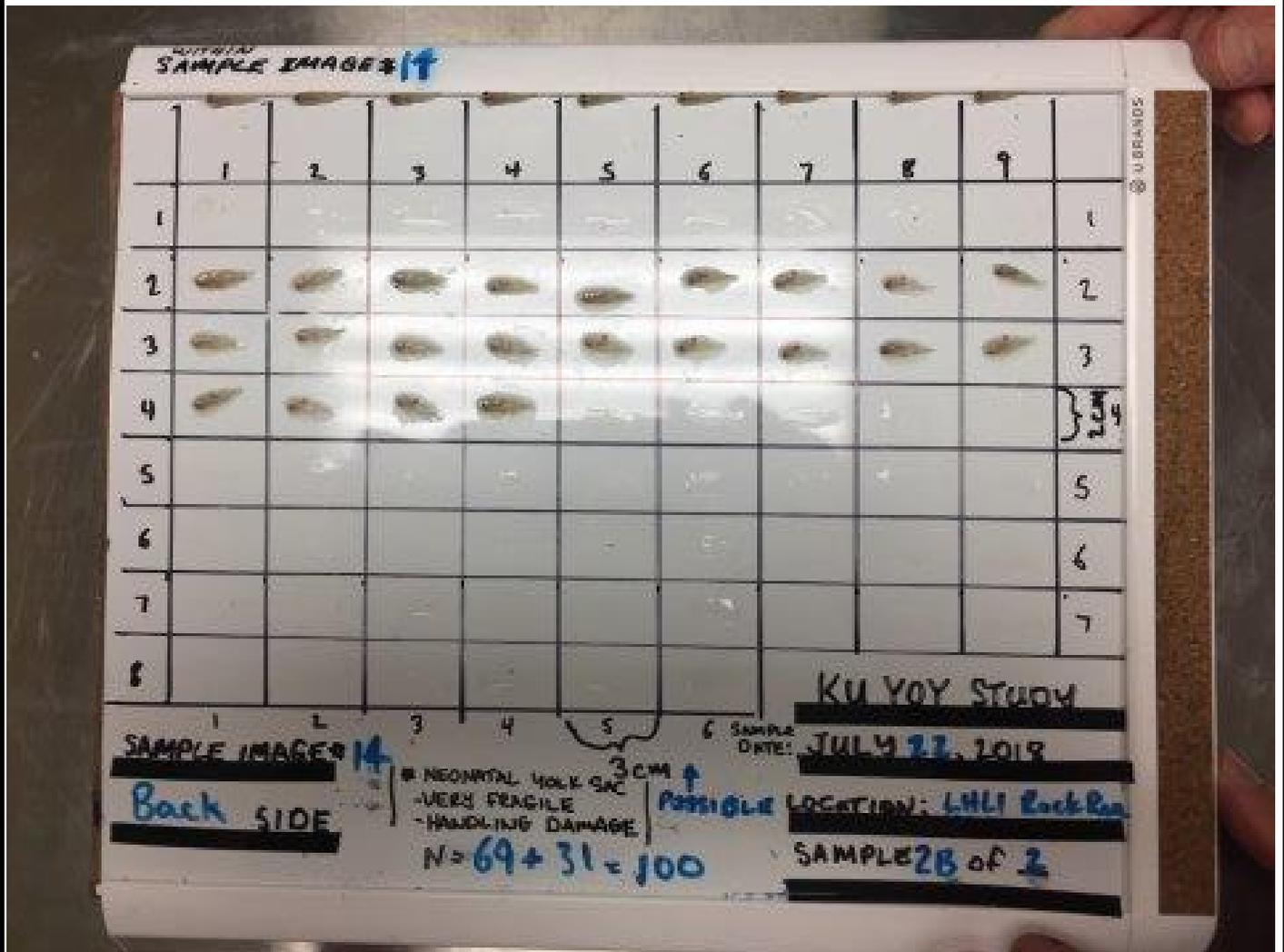


PHOTO 98



Sample 2B Image #13: Right Side, closeup photos

PHOTO 99



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #14: Dorsal Side, Row 1



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PHOTO 100



PHOTO 101

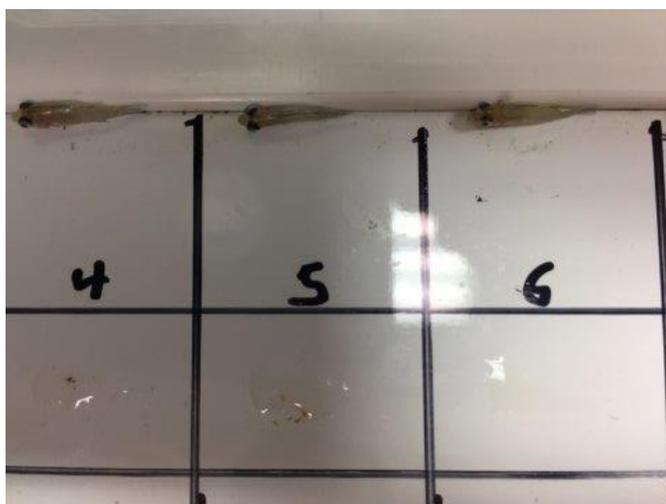
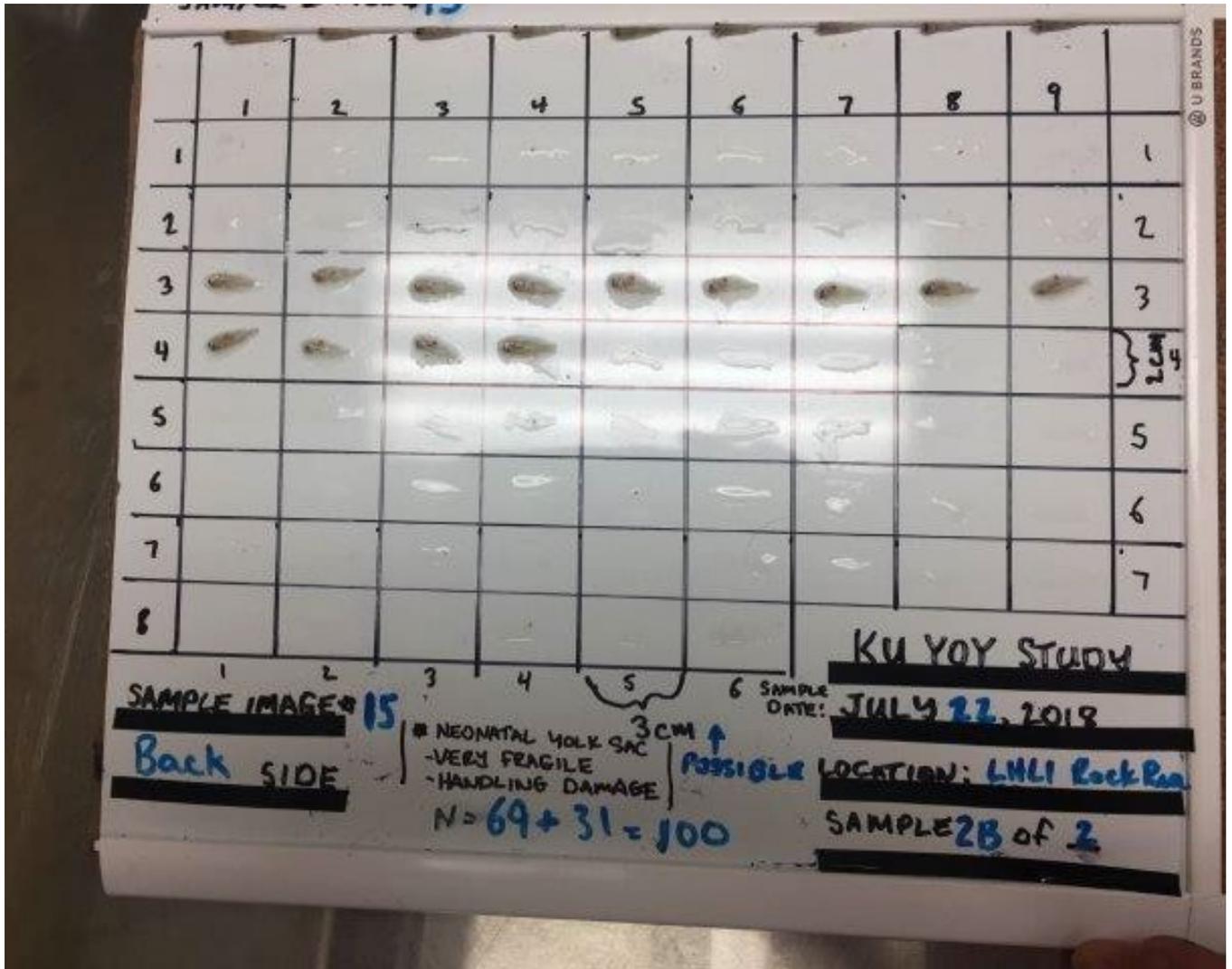


PHOTO 102



Sample 2B Image #14: Dorsal Side, Row 1, closeup photos

PHOTO 103



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #15: Dorsal Side, Row 2



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PHOTO 104



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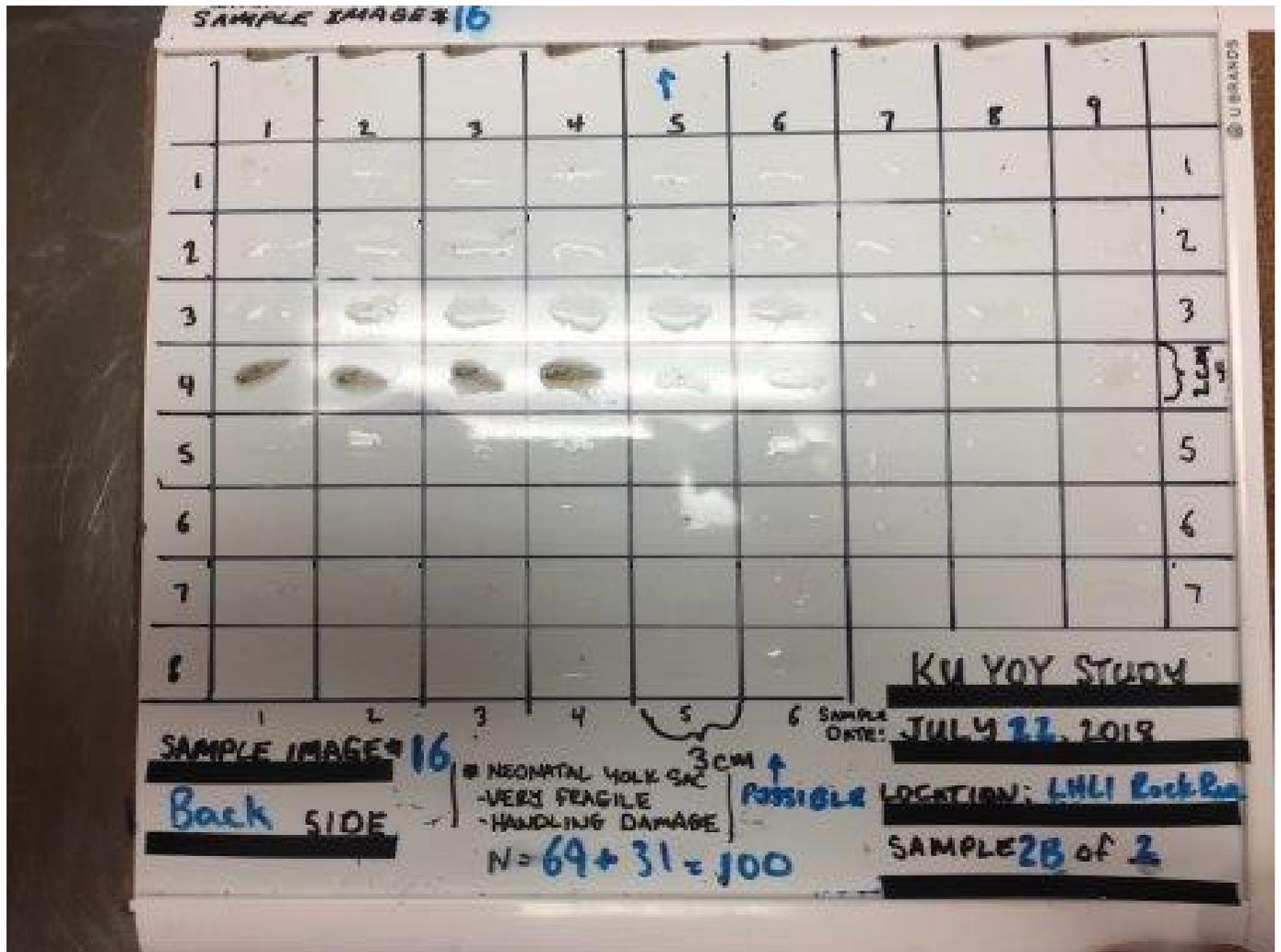


PHOTO 106



Sample 2B Image #15: Dorsal Side, Row 2, closeup photos

PHOTO 107



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #16: Dorsal Side, Row 3



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 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 108

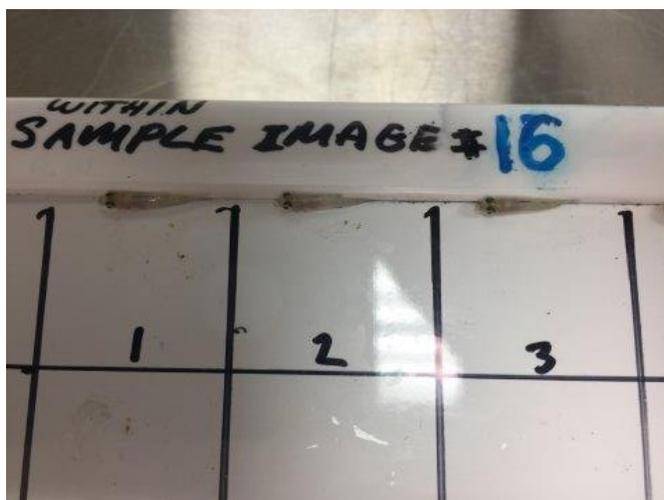


PHOTO 109

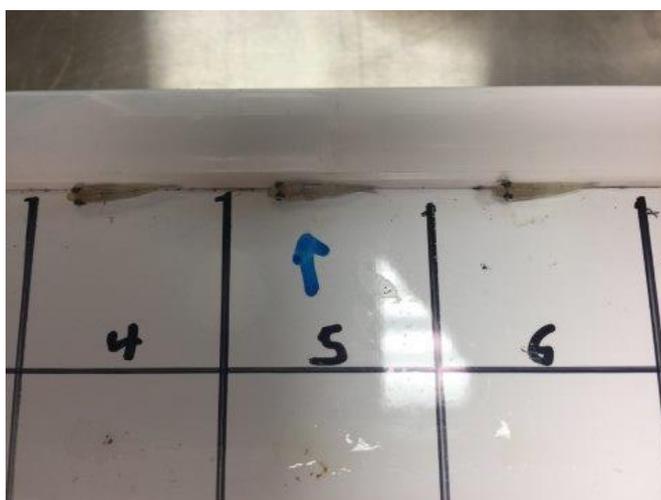
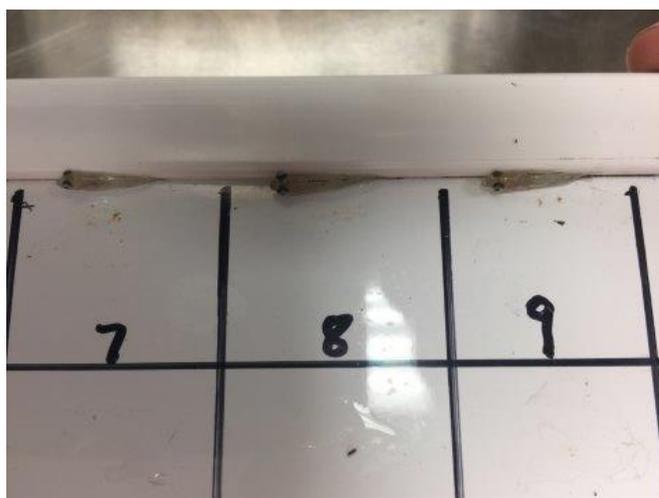
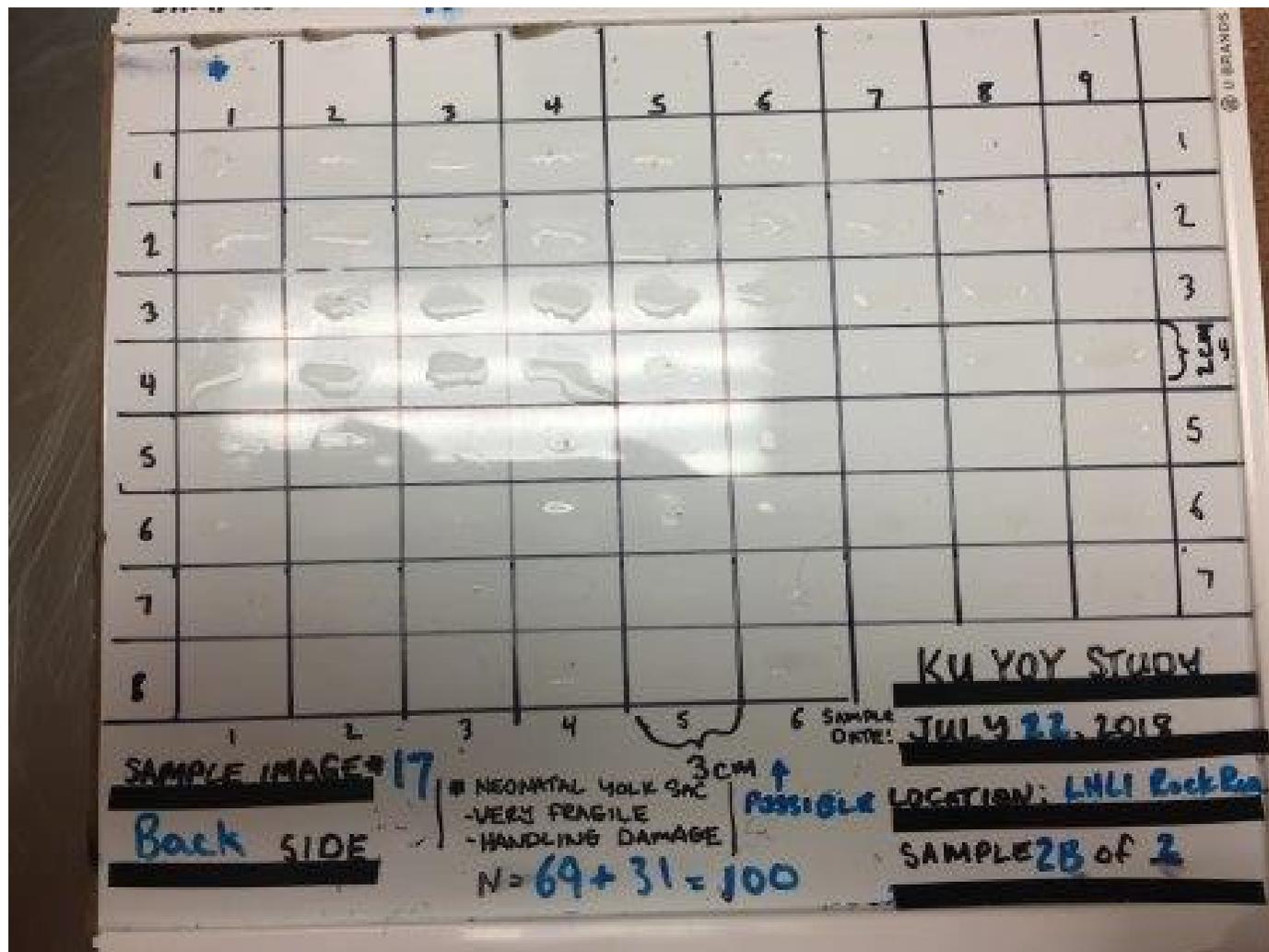


PHOTO 110



Sample 2B Image #16: Dorsal Side, Row 3, Closeup photos

PHOTO 111



LHL-1 Cove Bluegill Analytical Sample (2B of 2)
 N=100 (2A+2B)

Sample ID:YOY-010-LHL1

Sample 2B Image #17: Dorsal Side, Row 4



ATTACHMENT I1-5
 YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
 SAMPLES: DIGITAL IMAGE LOG

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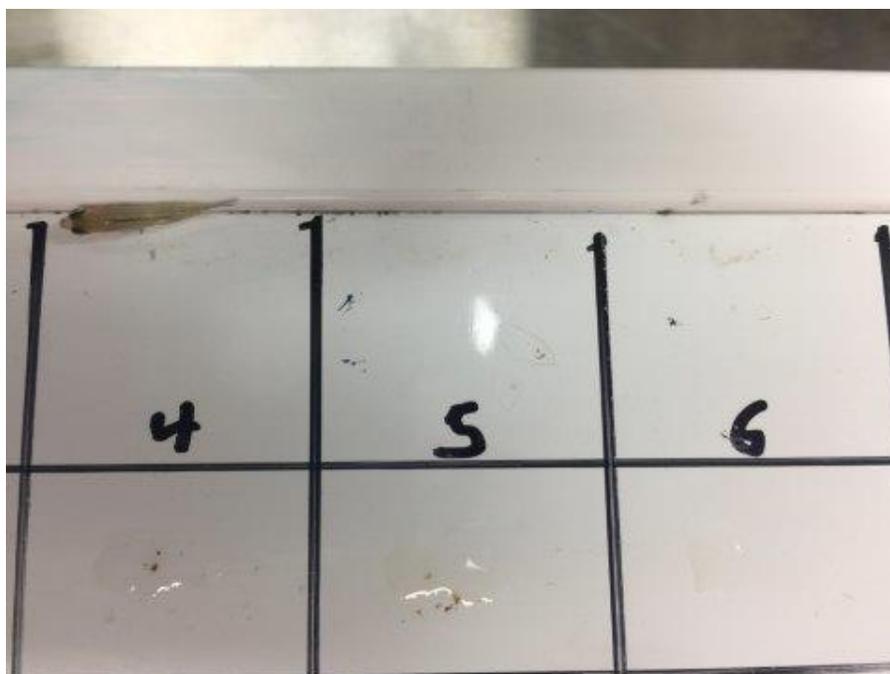
DRAFTED BY: AEM DATE: 8/27/2018

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PHOTO 112



PHOTO 113



Sample 2B Image #17: Dorsal Side, Row 4, closeup photos

PHOTO 114

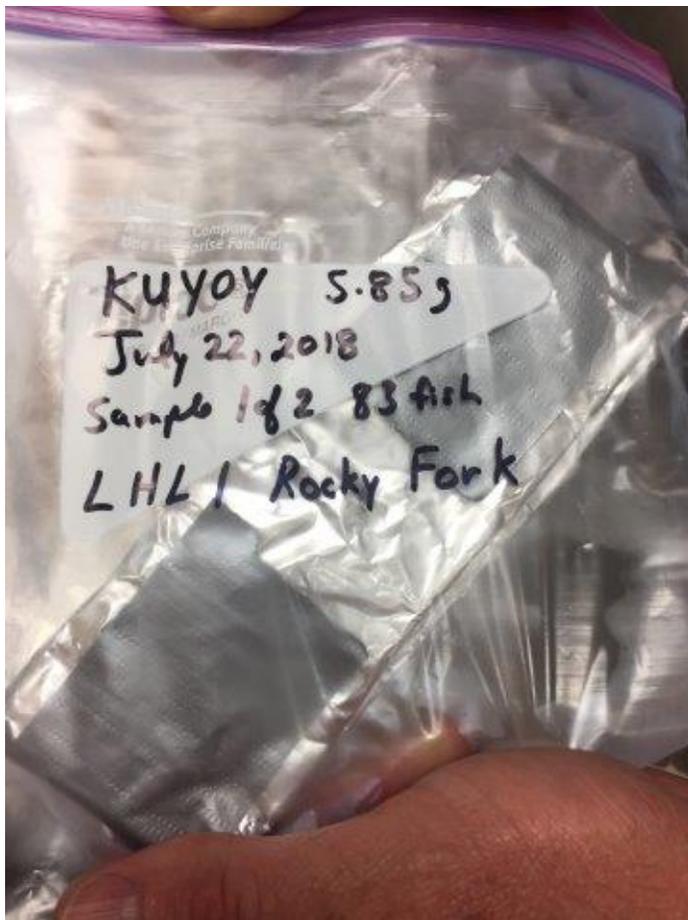
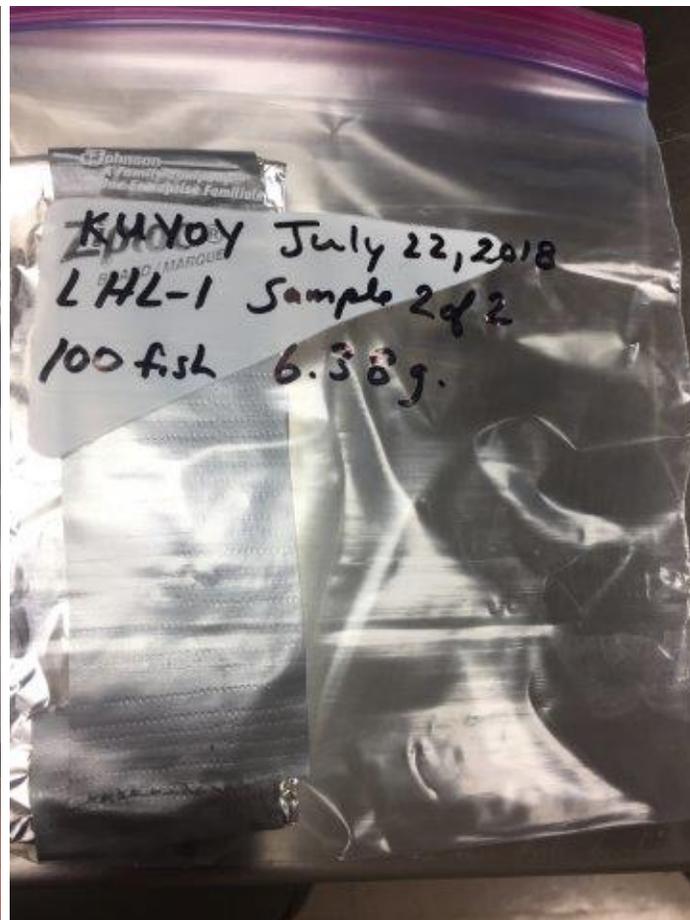


PHOTO 115



LHL-1 Cove Bluegill Analytical Sample Bags

Samples 1A, 1B, 2A, 2B

N=183



HARDIN INLET



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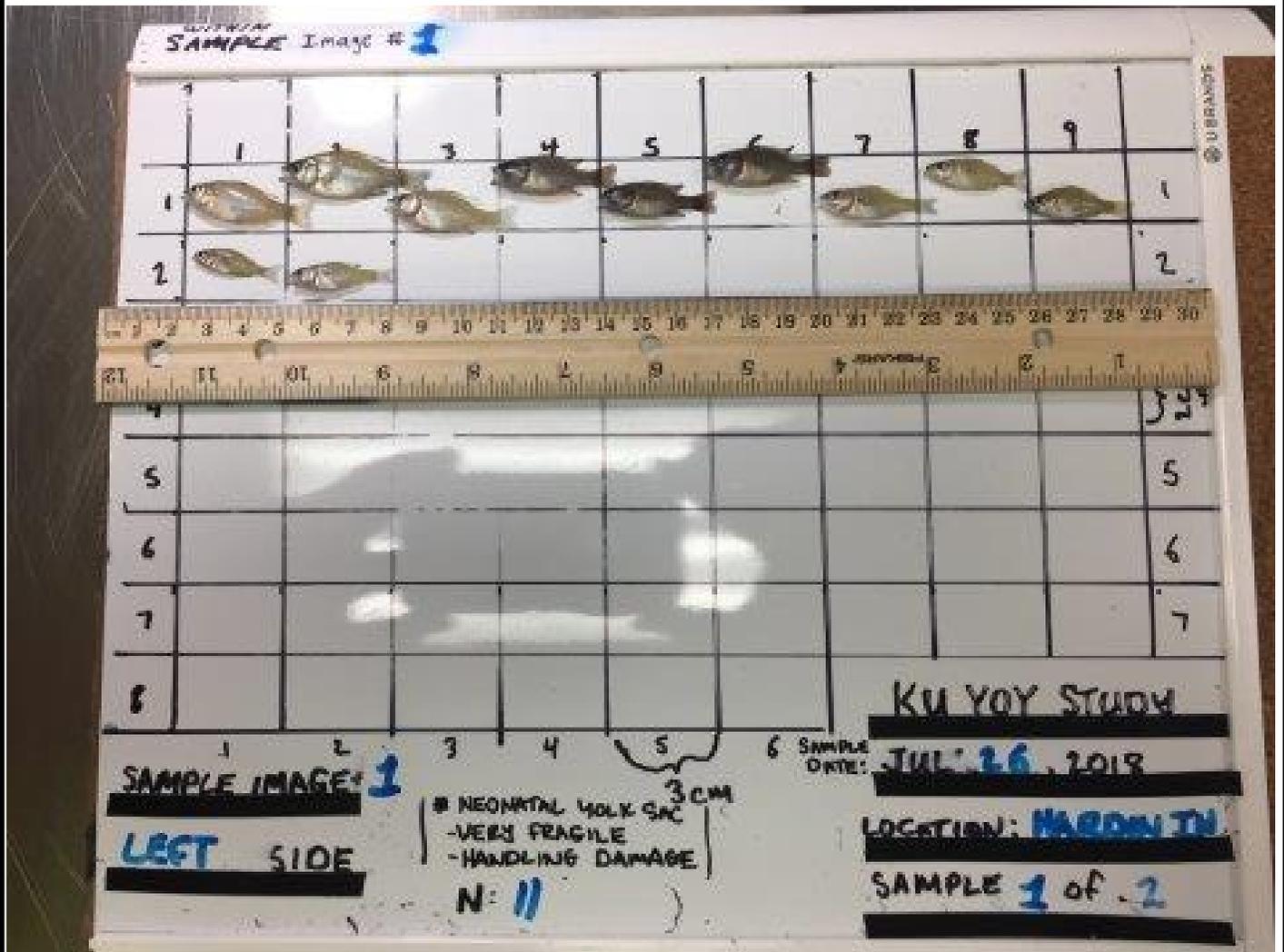
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PHOTO 1



Hardin Inlet Bluegill Analytical Sample (1 of 2)
N=11

Sample ID: YOY-013-HI

Sample 1 Image #1: Left Side



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 2

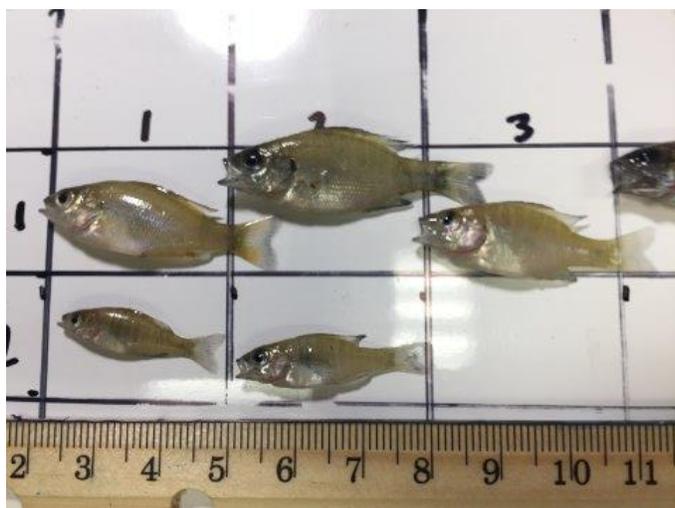
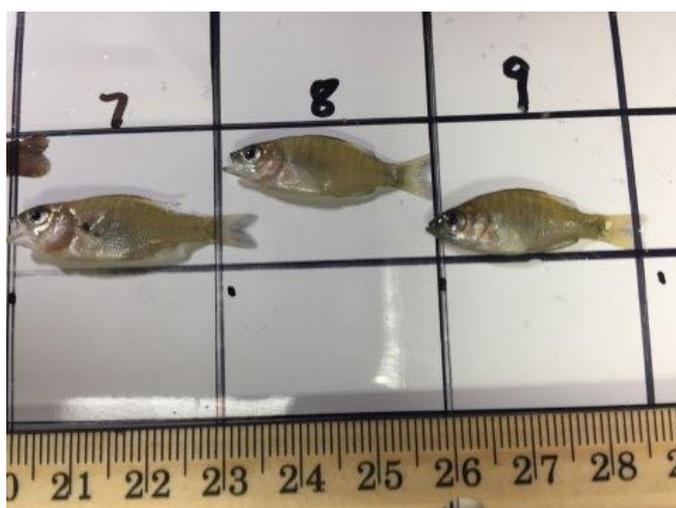


PHOTO 3

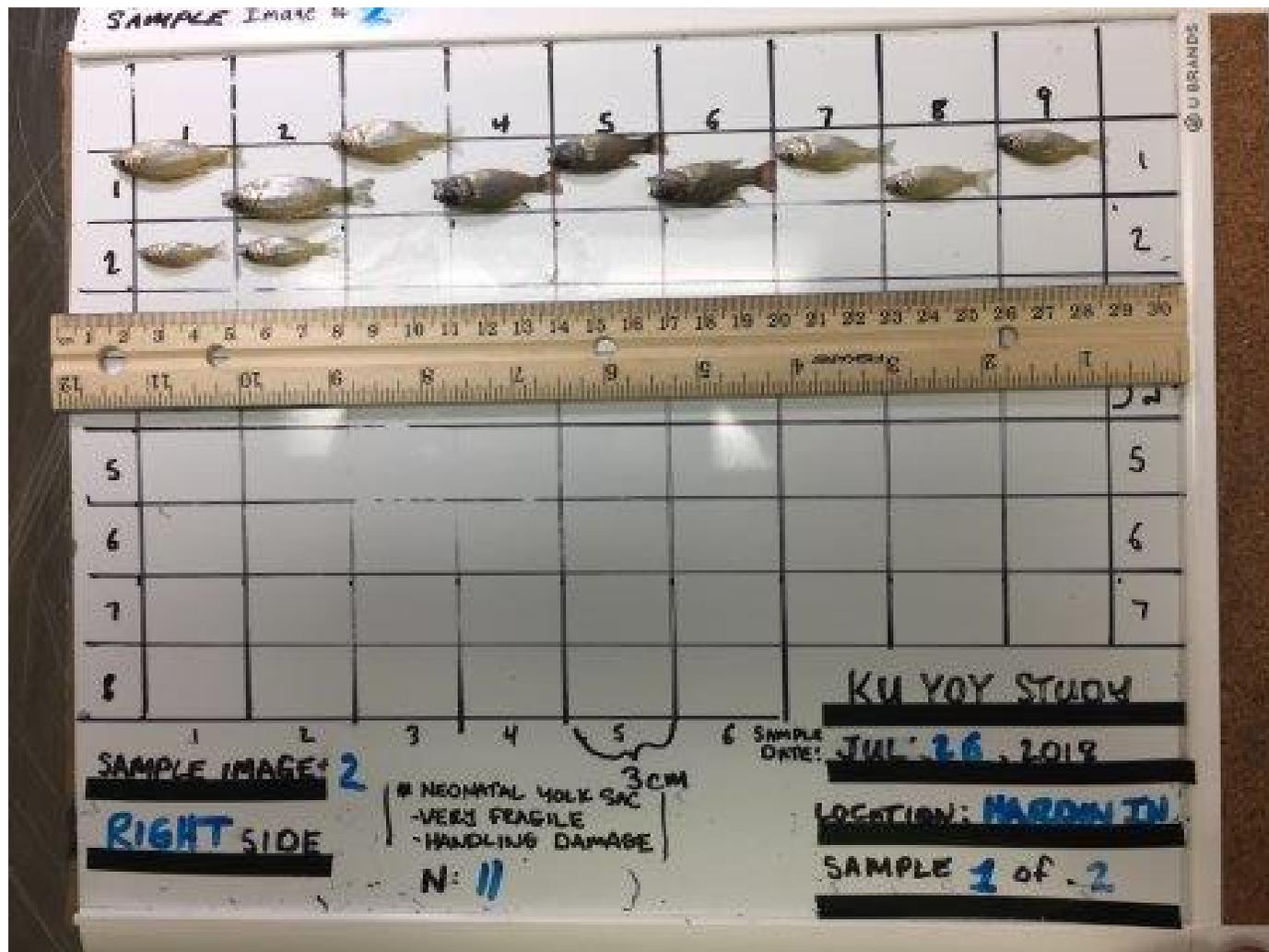


PHOTO 4



Sample 1 Image #1: Left Side, closeup photos

PHOTO 5



Hardin Inlet Bluegill Analytical Sample (1 of 2)
N=11

Sample ID: YOY-013-HI

Sample 1 Image #2: Right Side



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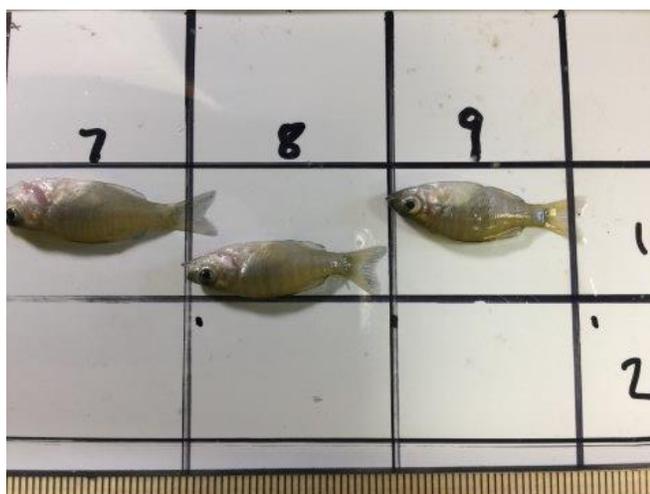
PHOTO 6



PHOTO 7



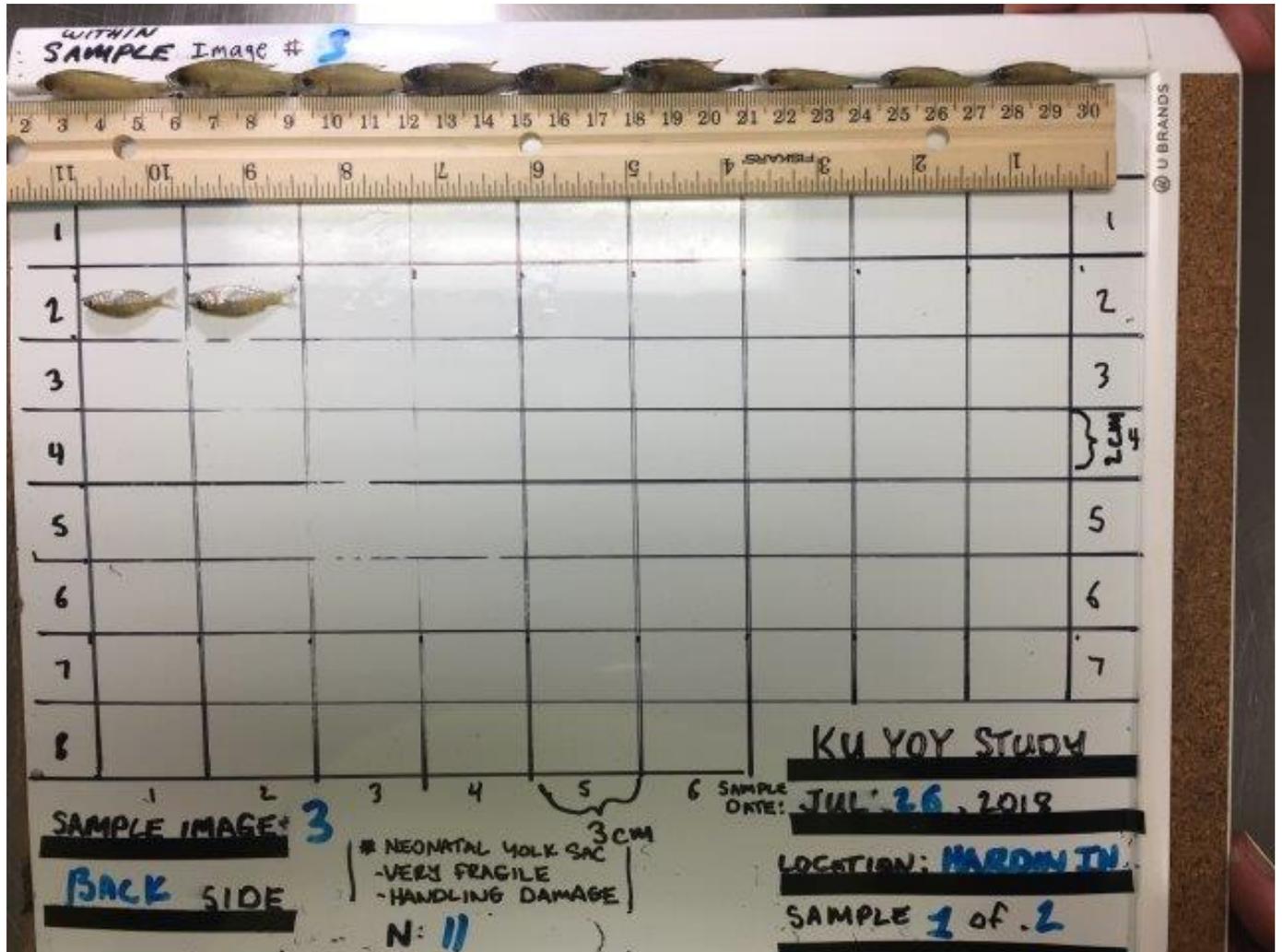
PHOTO 8



Sample 1 Image #2: Right Side, closeup photos



PHOTO 9



Hardin Inlet Bluegill Analytical Sample (1 of 2)
N=11

Sample ID: YOY-013-HI

Sample 1 Image #3: Dorsal Side, Row 1

PHOTO 10



PHOTO 11

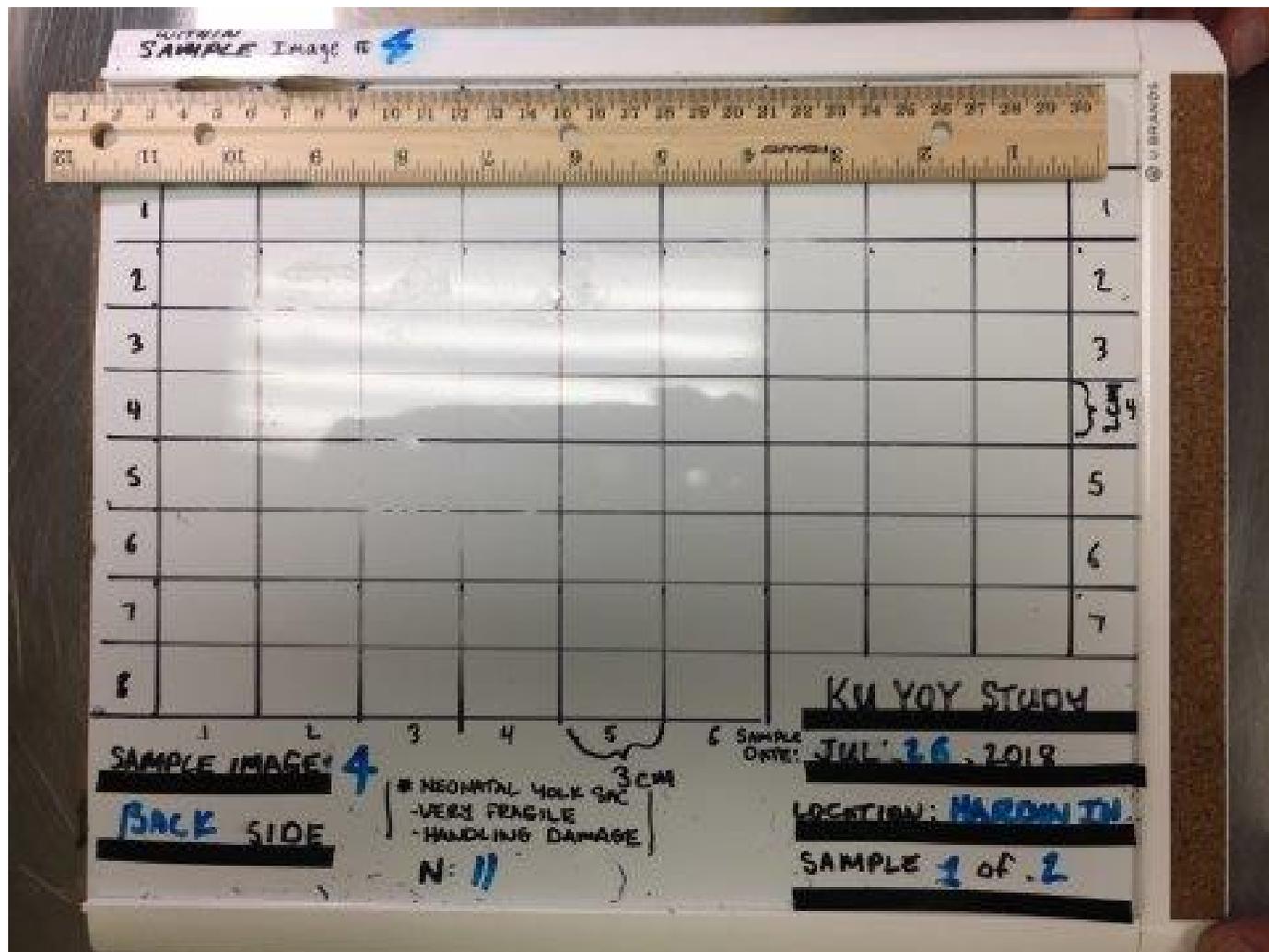


PHOTO 12



Sample 1 Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 13



Hardin Inlet Bluegill Analytical Sample (1 of 2)
N=11

Sample ID: YOY-013-HI

Sample 1 Image #4: Dorsal Side, Row 2



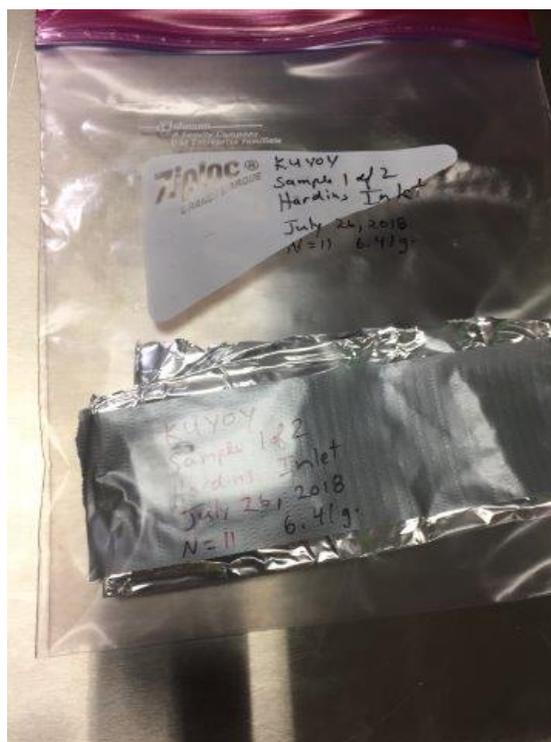
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SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 14



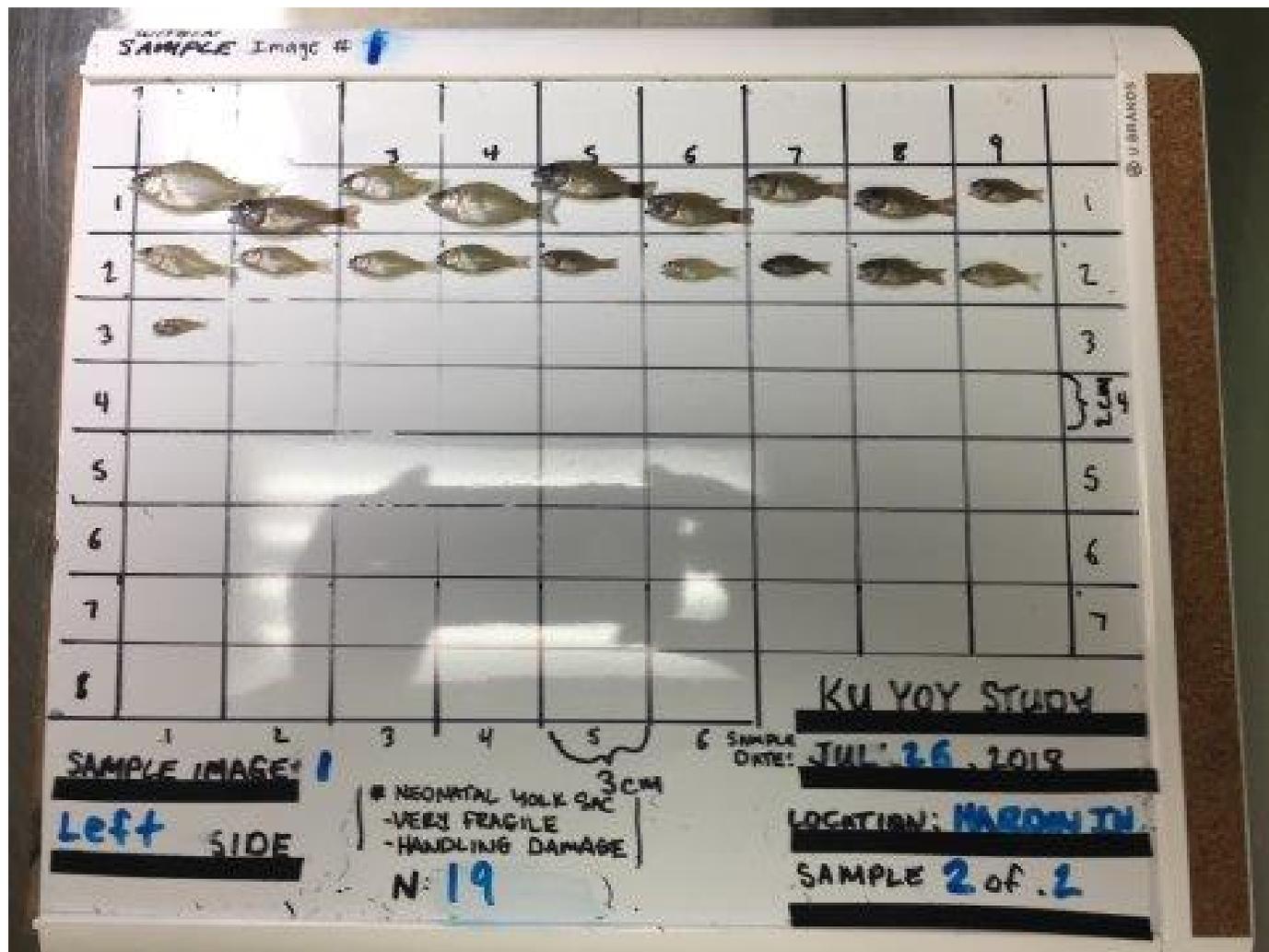
PHOTO 15



Sample 1 Image #4: Dorsal Side, Row 2, closeup photo and Sample 1 bag



PHOTO 16



Hardin Inlet Bluegill Analytical Sample (2 of 2)
N=19

Sample ID: YOY-014-HI

Sample 2 Image #1: Left Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 17

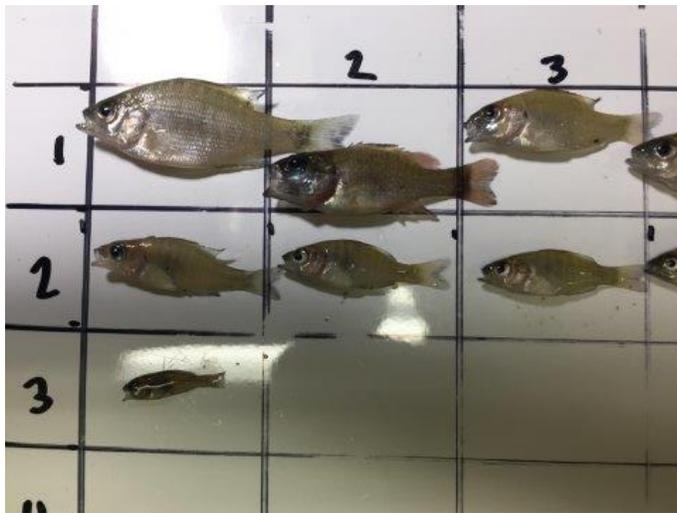
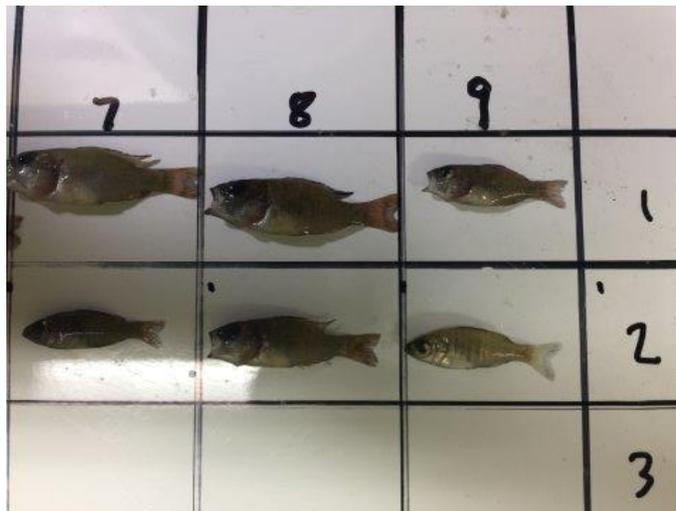


PHOTO 18



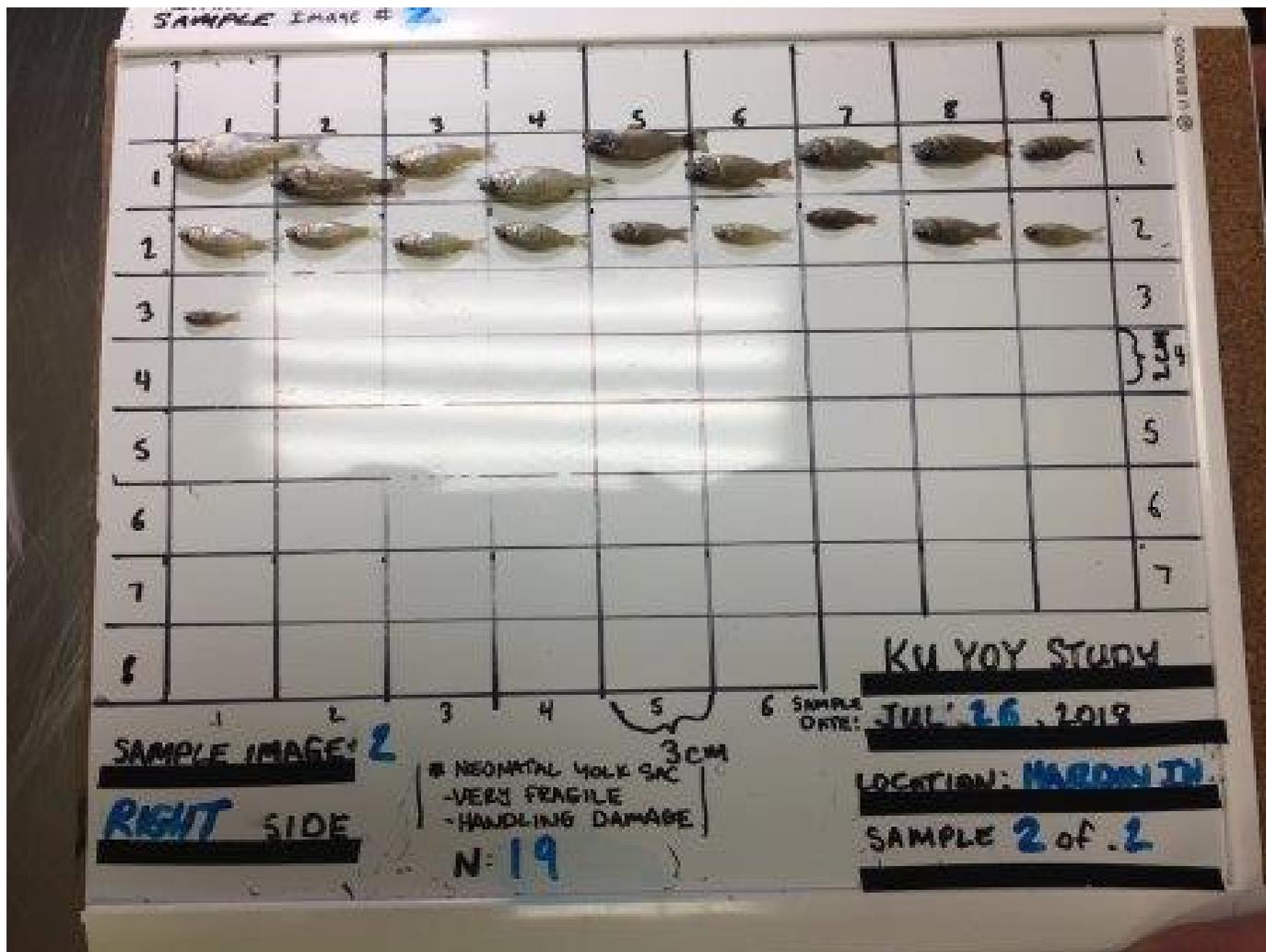
PHOTO 19



Sample 2 Image #1: Left Side, closeup photos



PHOTO 20



Hardin Inlet Bluegill Analytical Sample (2 of 2)
N=19

Sample ID: YOY-014-HI

Sample 2 Image #2: Right Side



**ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 21

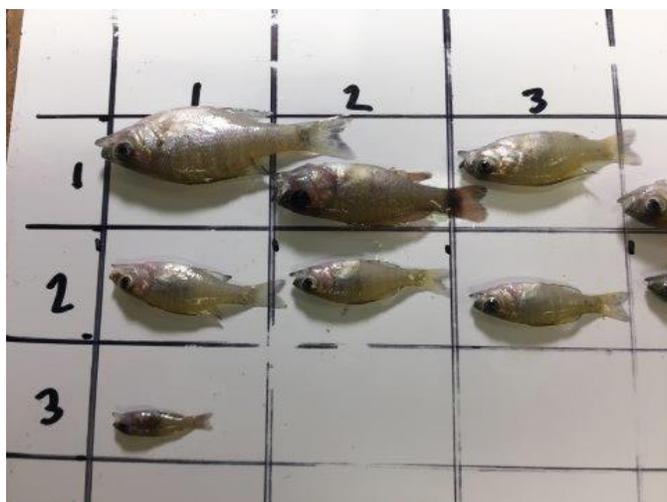


PHOTO 22

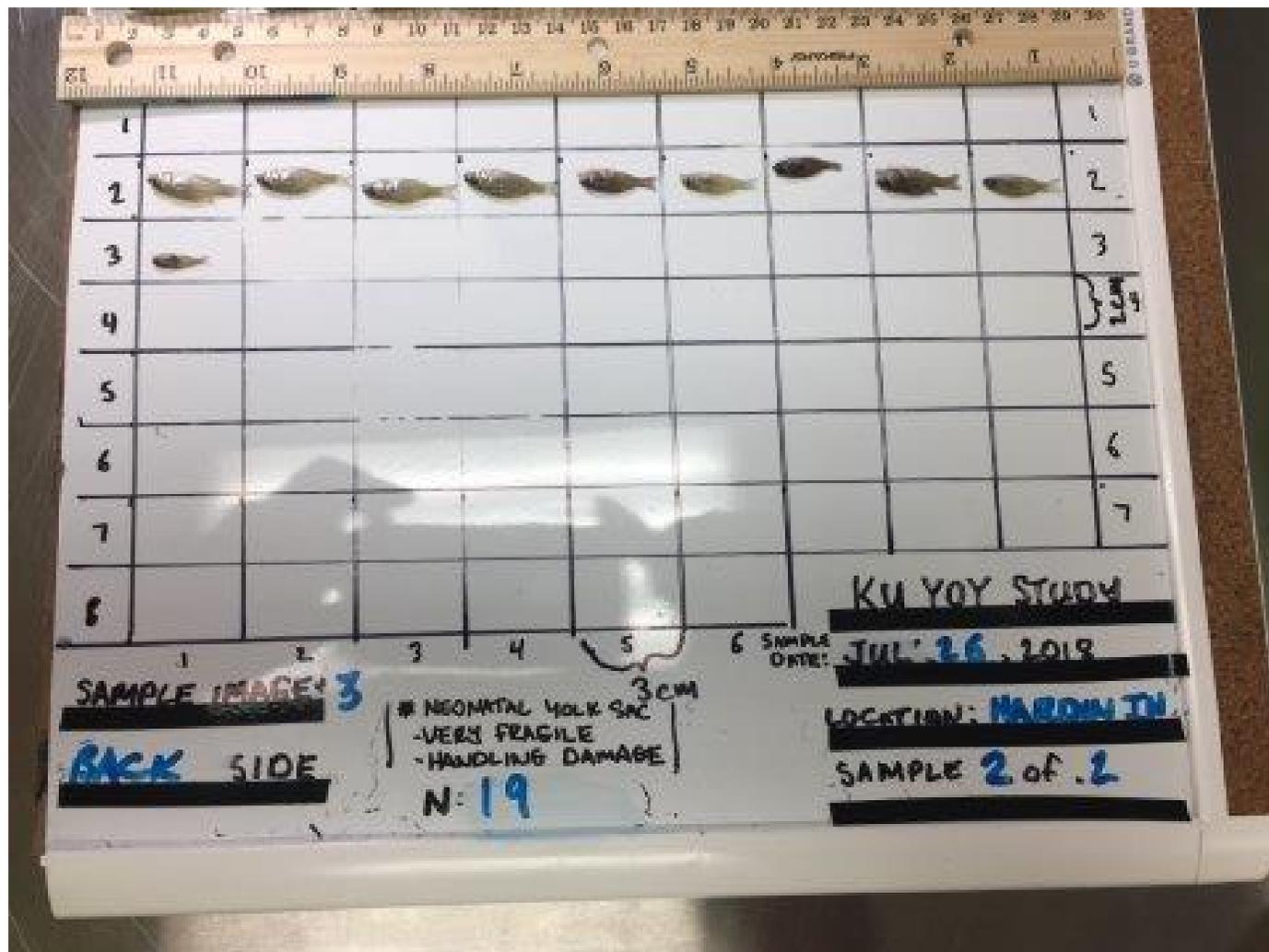


PHOTO 23



Sample 2 Image #2: Right Side, closeup photos

PHOTO 24



Hardin Inlet Bluegill Analytical Sample (2 of 2)
N=19

Sample ID: YOY-014-HI

Sample 2 Image #3: Dorsal Side, Row 1



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 25



PHOTO 26

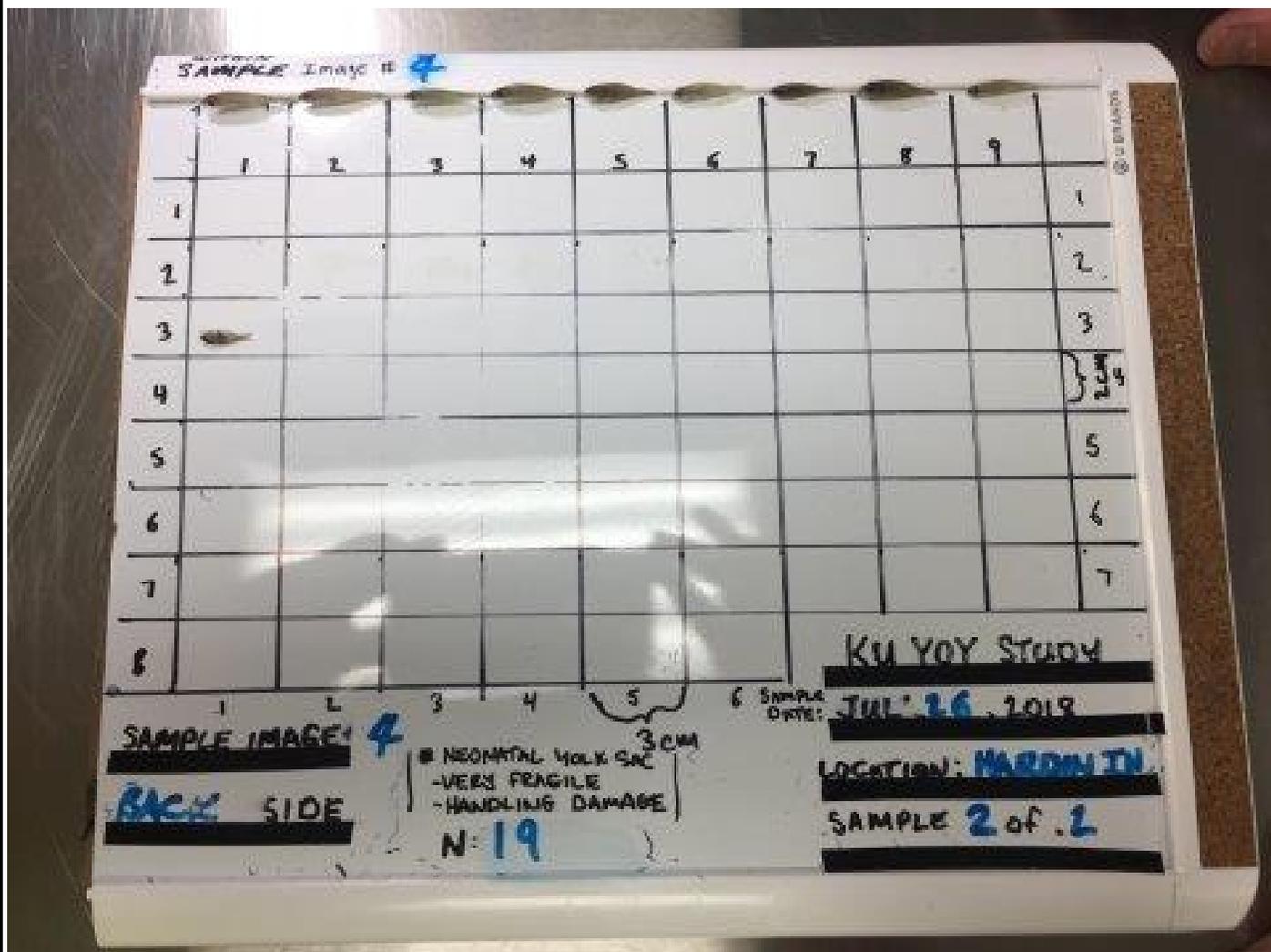


PHOTO 27



Sample 2 Image #3: Dorsal Side, Row 1, closeup photos

PHOTO 28



Hardin Inlet Bluegill Analytical Sample (2 of 2)
N=19

Sample ID: YOY-014-HI

Sample 2 Image #4: Dorsal Side, Row 2



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG**

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PHOTO 29



PHOTO 30

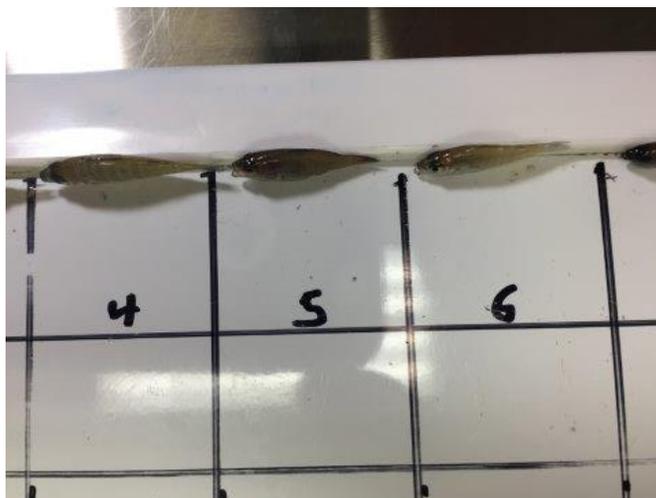


PHOTO 31

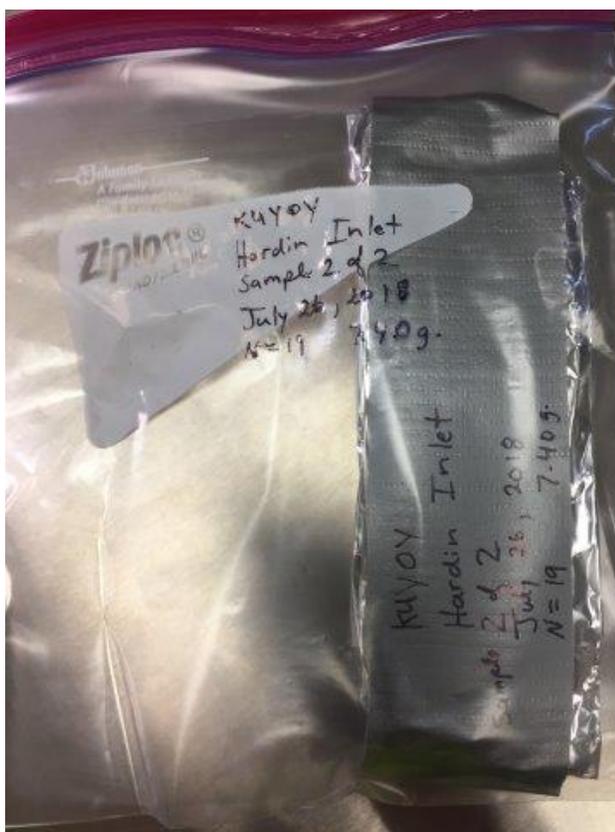


Sample 2 Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 32



PHOTO 33



Sample 2 Image #5: Dorsal Side, Row 3, closeup photo and Sample 2 sample bag

LHL- 6



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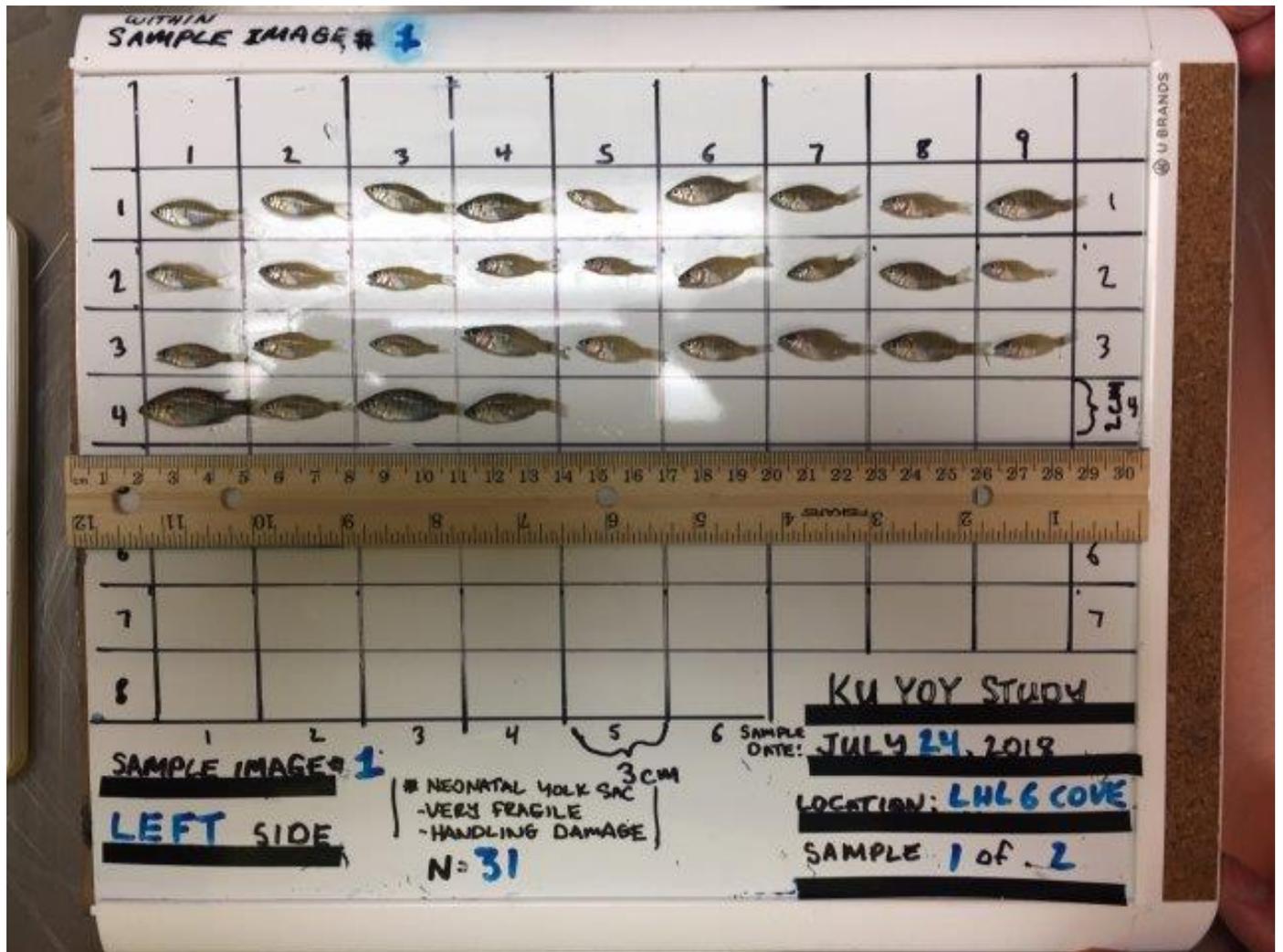
DATE: 8/27/2018

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SAMPLES: DIGITAL IMAGE LOG

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PHOTO 1



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #1: Left Side



PHOTO 2

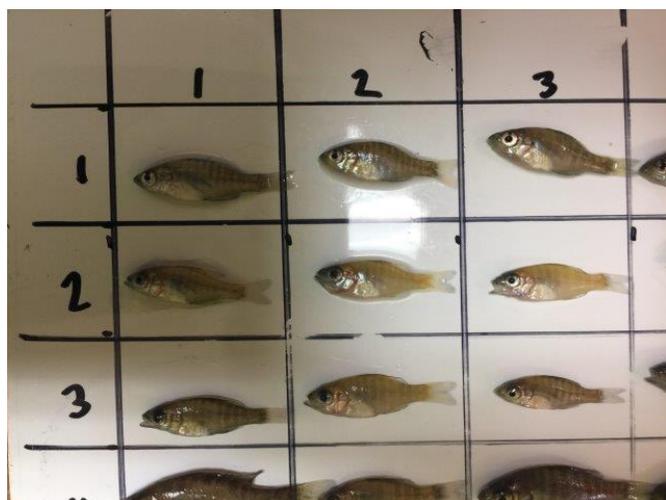


PHOTO 3

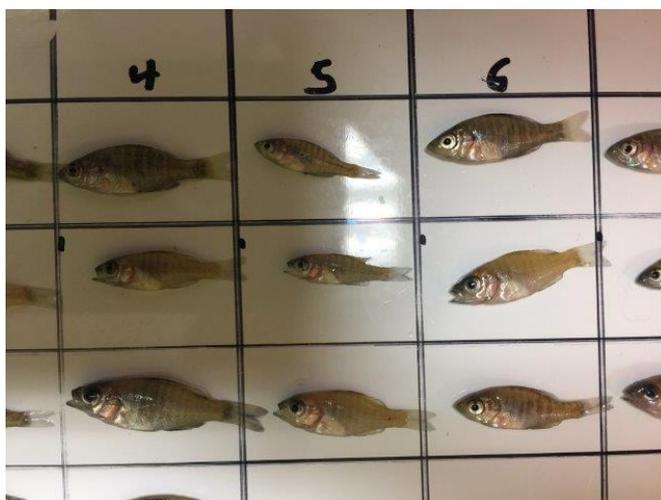
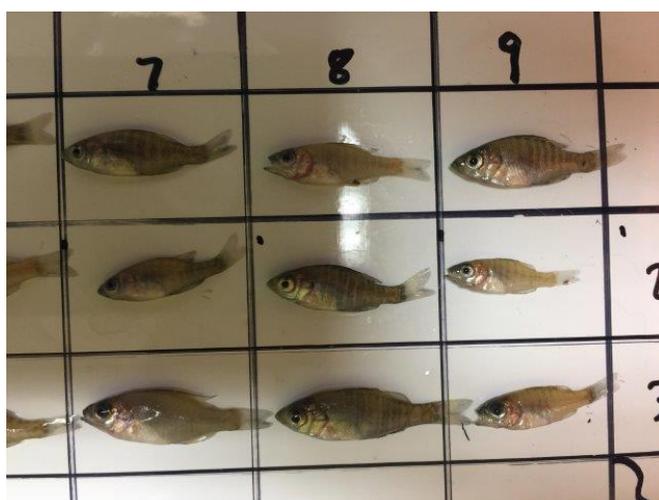
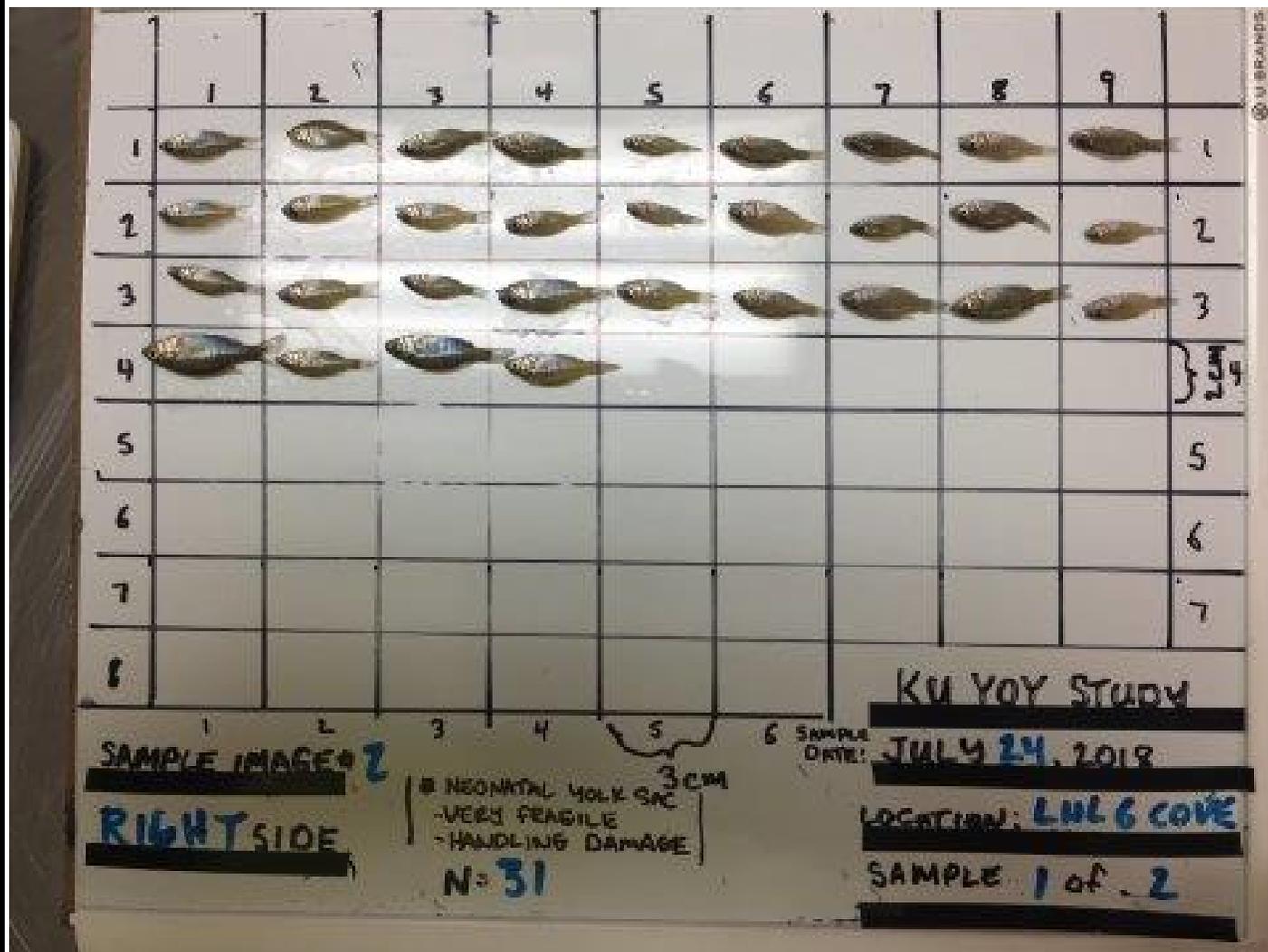


PHOTO 4



Sample 1 Image #1: Left Side, closeup photos

PHOTO 5



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #2: Right Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 6

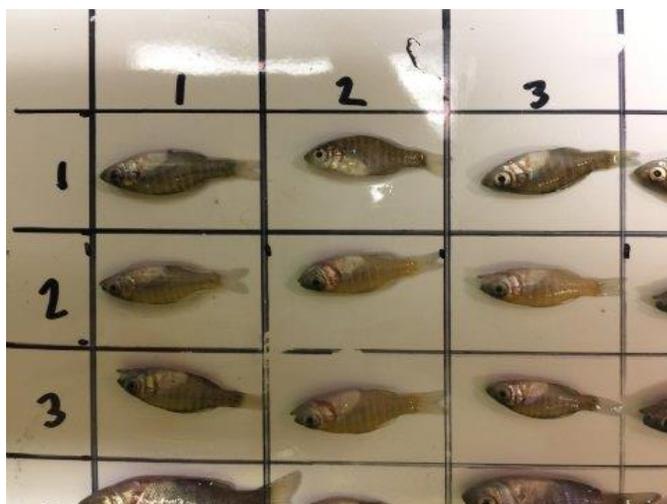


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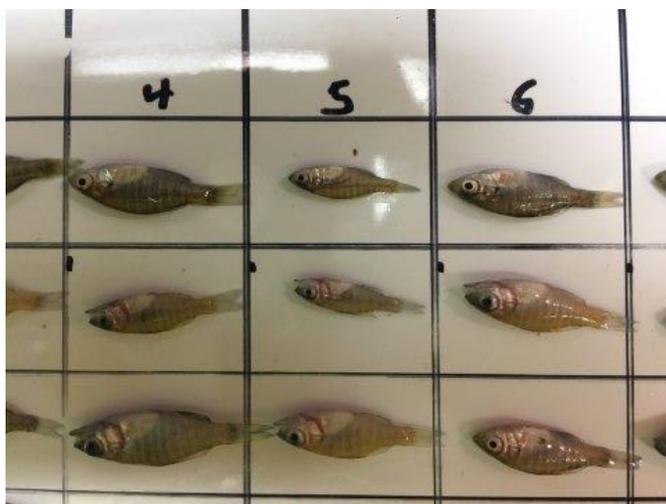
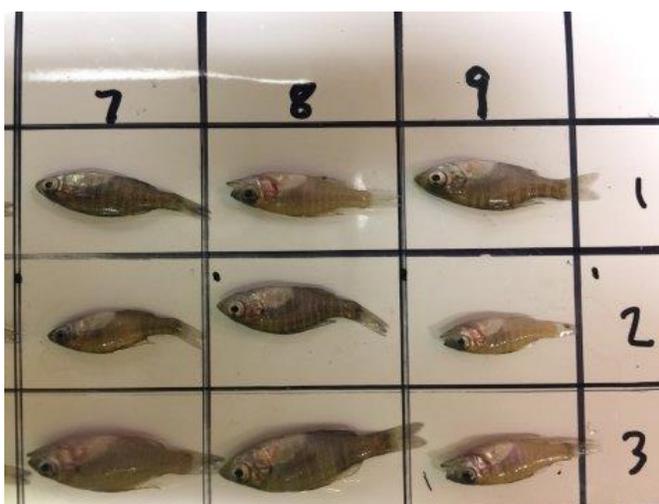
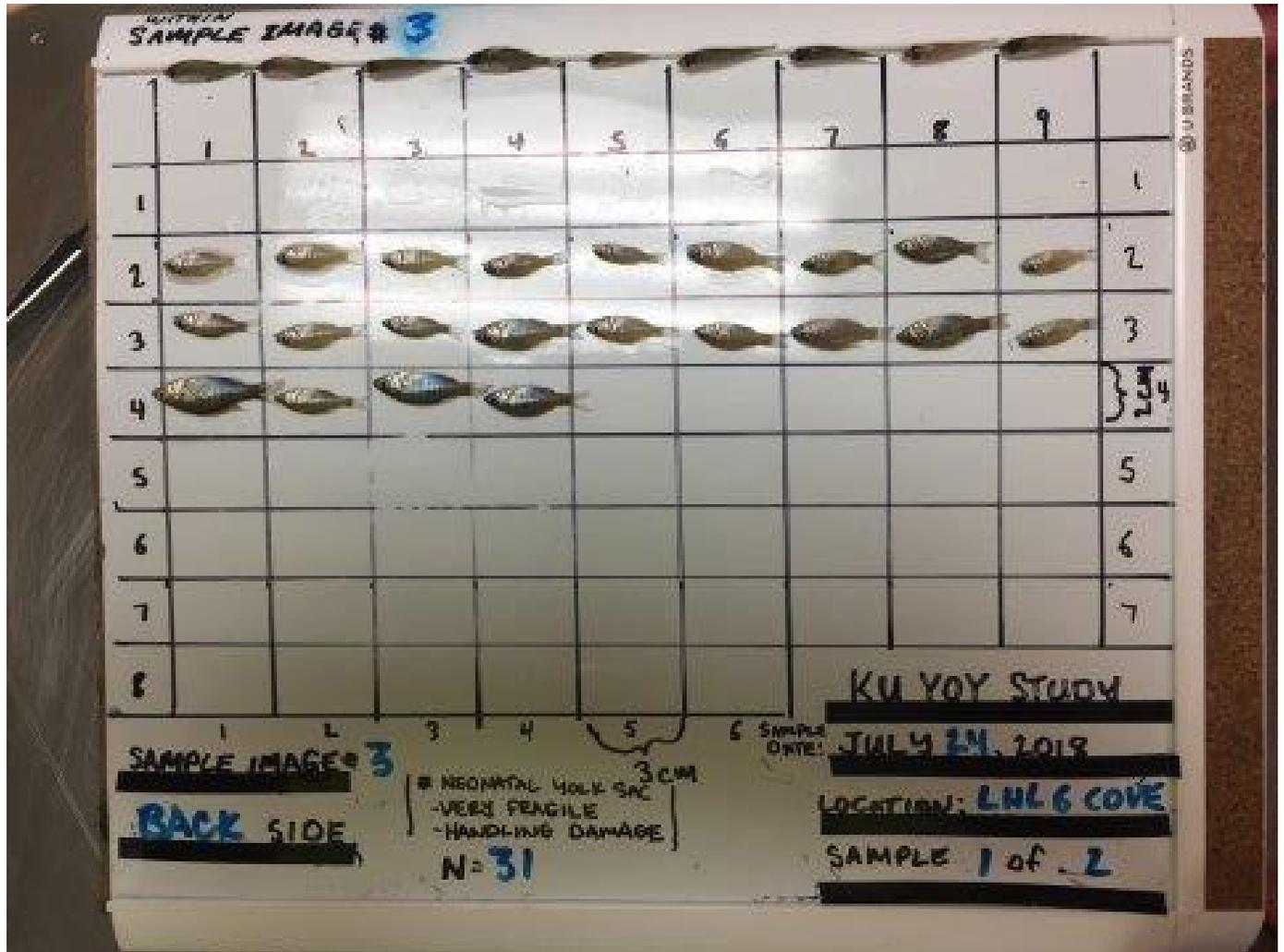


PHOTO 8



Sample 1 Image #2: Right Side, closeup photos

PHOTO 9



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #3: Dorsal side, Row 1

PHOTO 10



PHOTO 11

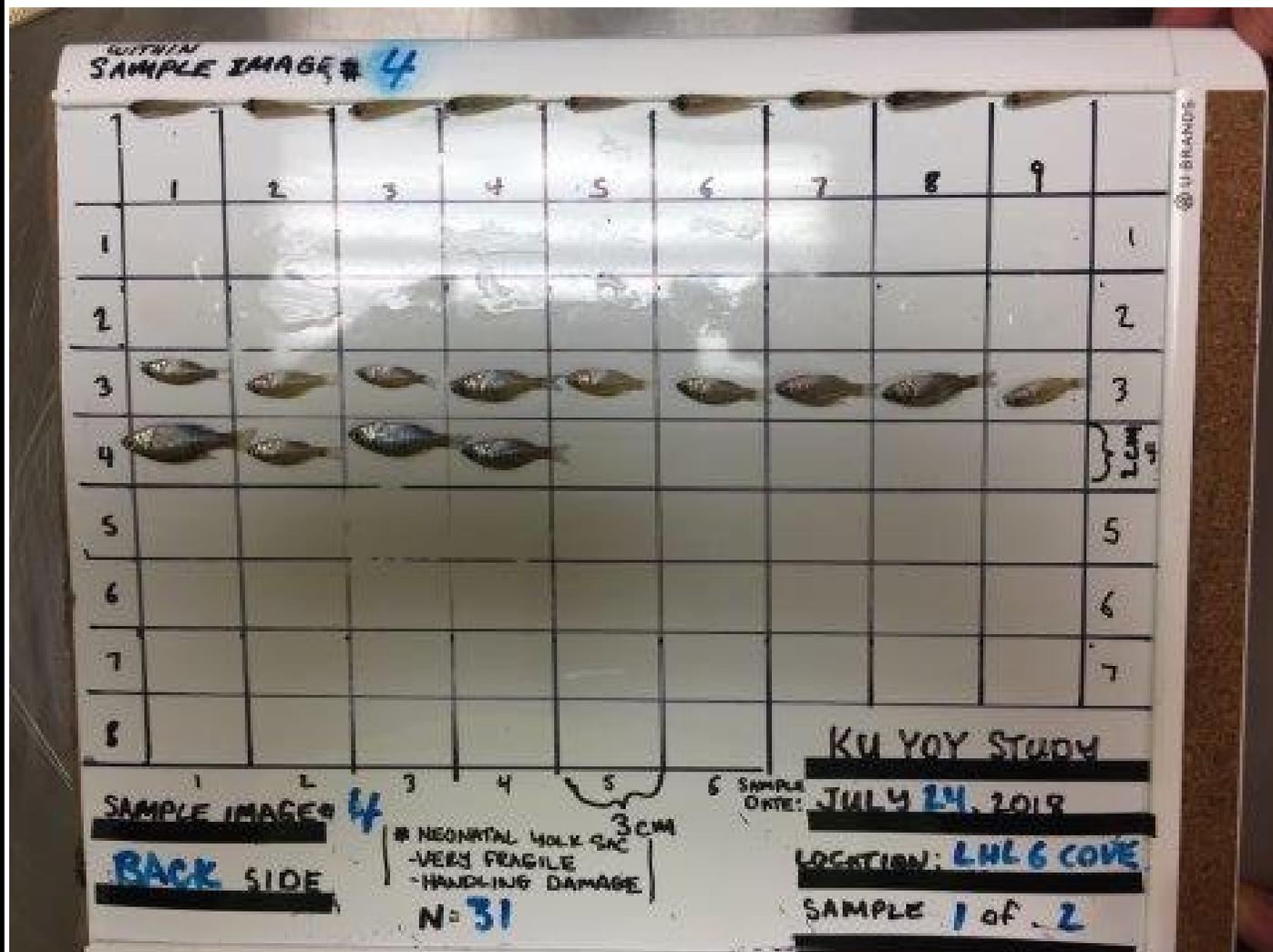


PHOTO 12



Sample 1 Image #3: Dorsal side, Row 1, closeup photos

PHOTO 13



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #4: Dorsal side, Row 2

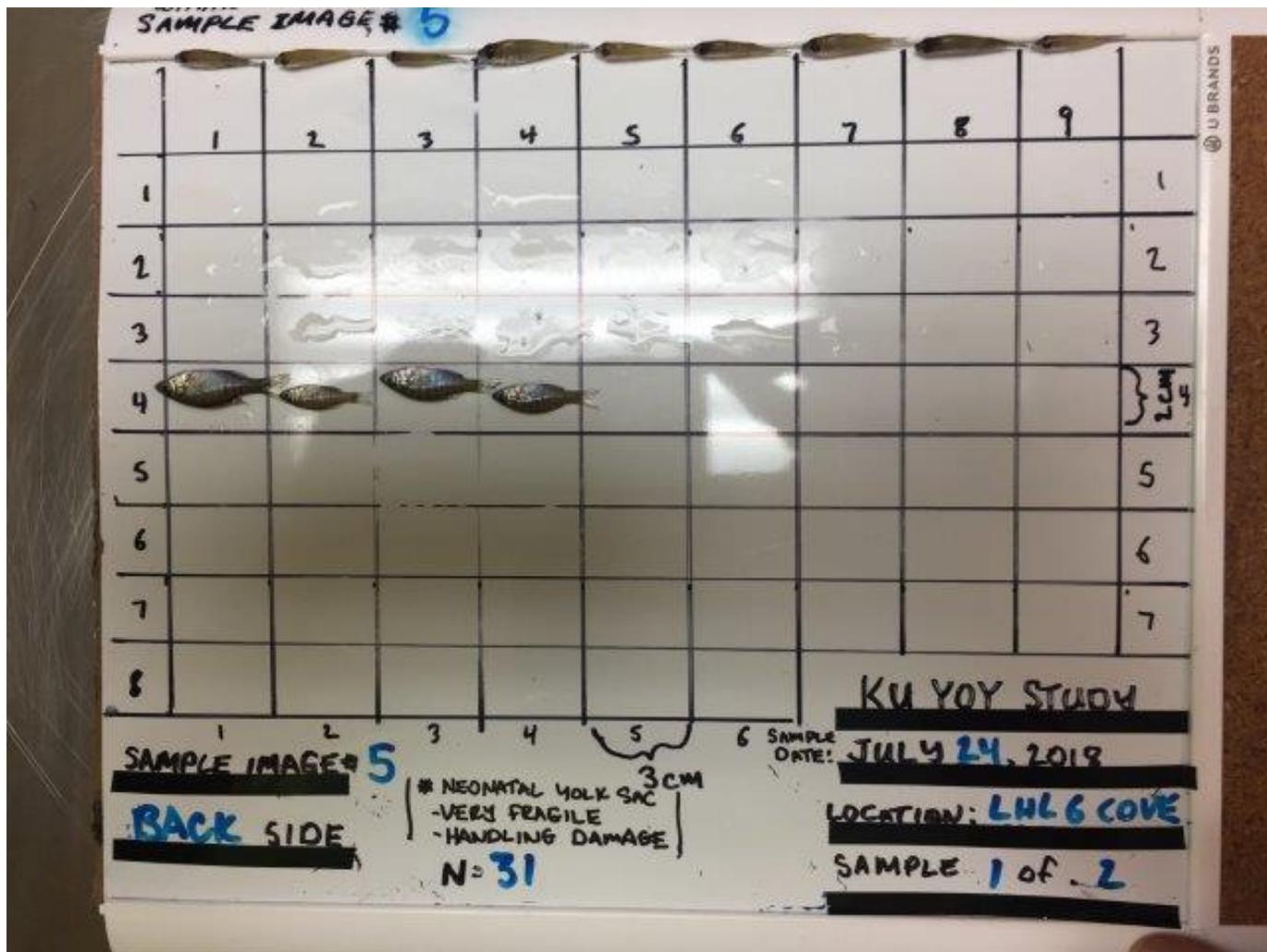


ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 15



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #5: Dorsal side, Row 3



PHOTO 16



PHOTO 17

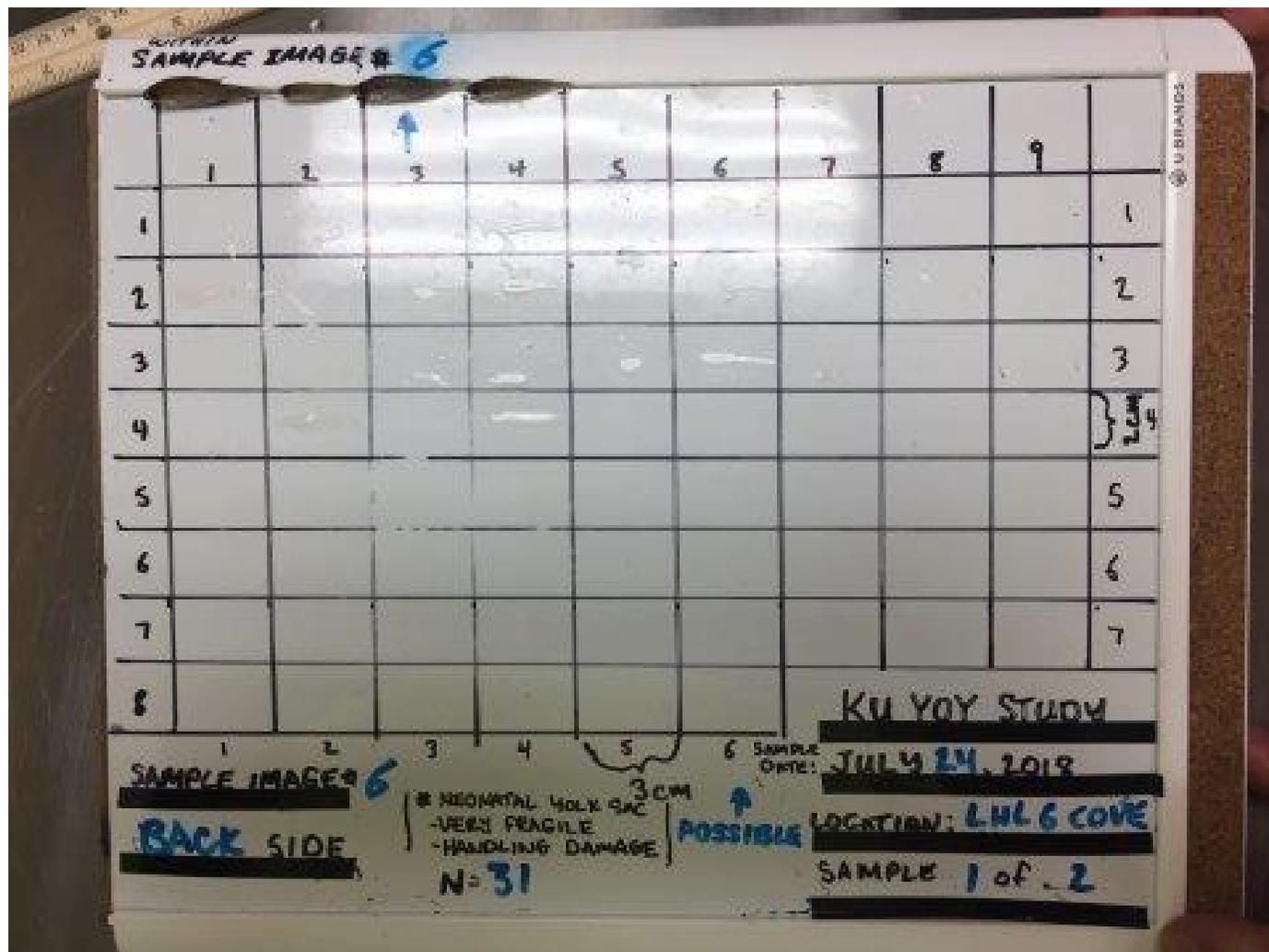


PHOTO 18



Sample 1 Image #5: Dorsal side, Row 3, closeup photos

PHOTO 19



LHL-6 Cove Bluegill Analytical Sample (1 of 2)
N=31

Sample ID: YOY-011-LHL6

Sample 1 Image #6: Dorsal side, Row 4



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 20

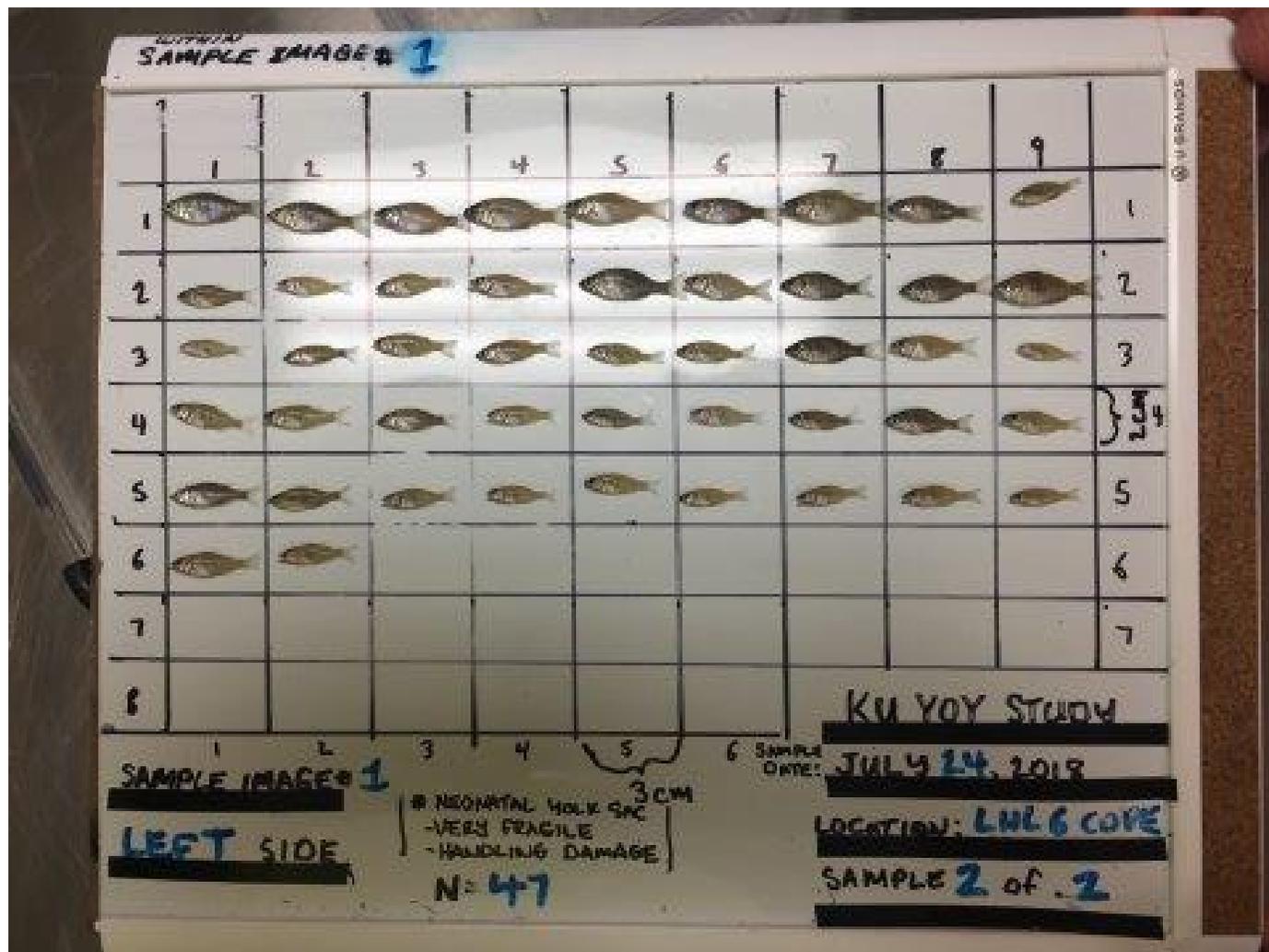


PHOTO 21



Sample 1 Image #6: Dorsal side, Row 4, closeup photos

PHOTO 22



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #1: Left Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 23

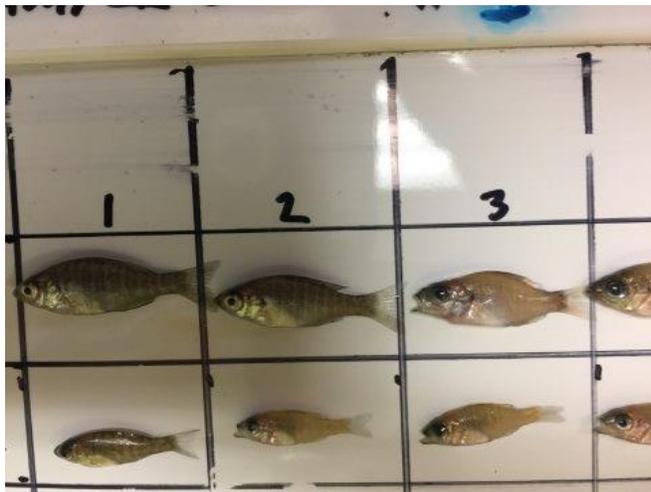
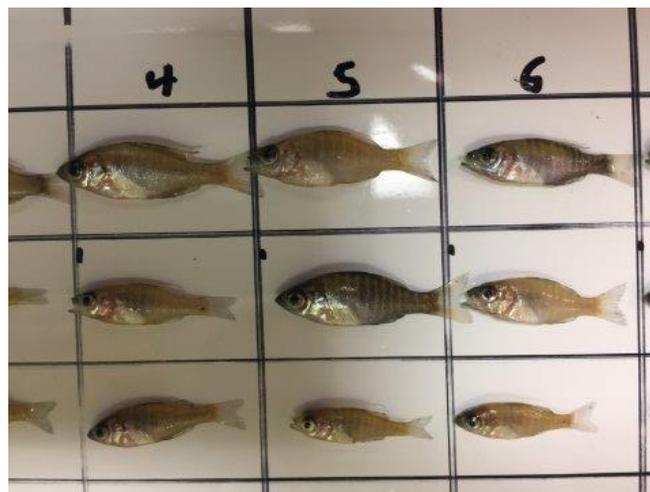


PHOTO 24



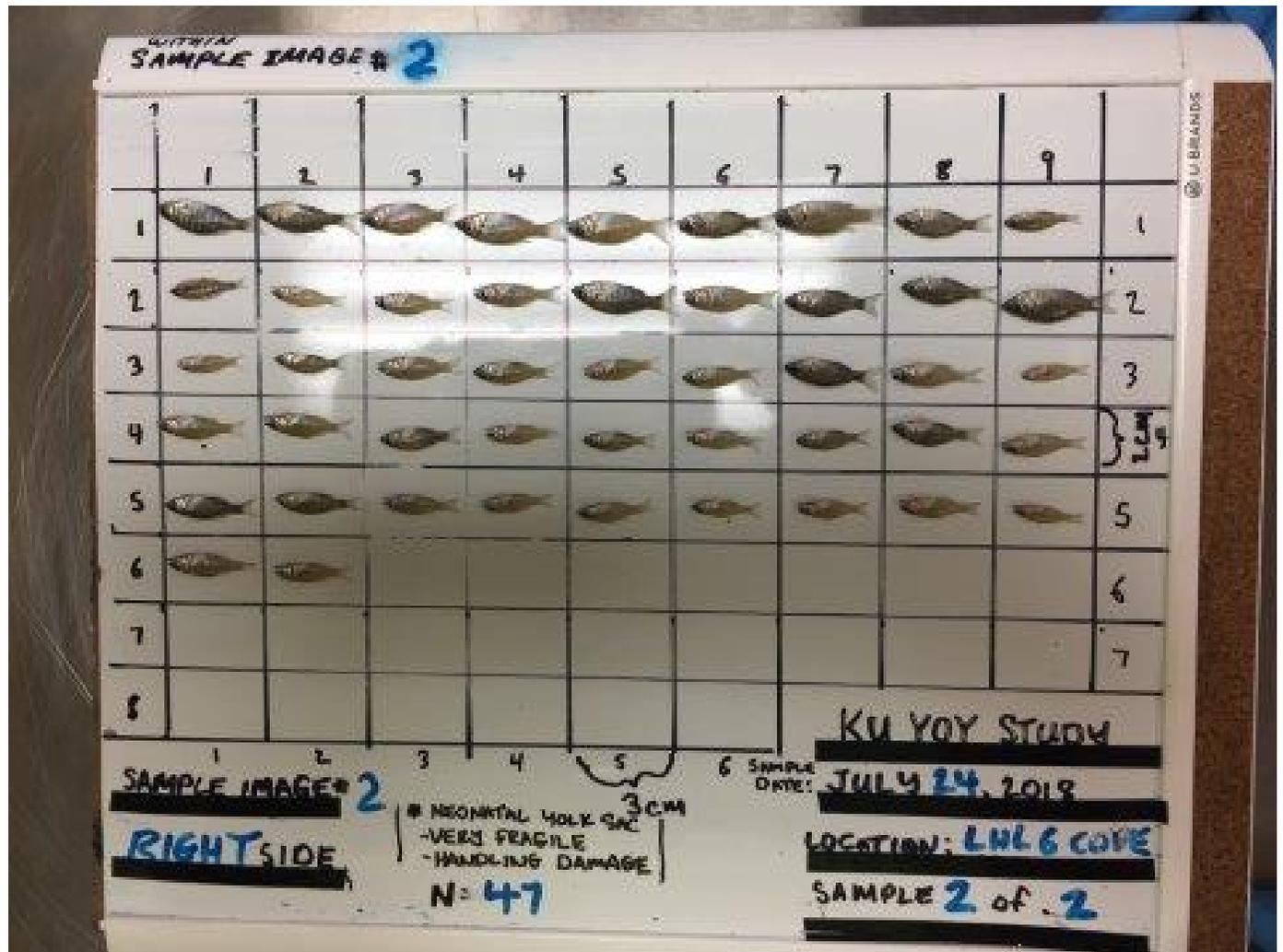
PHOTO 25



Sample 2 Image #1: Left Side, closeup photos



PHOTO 26



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #2: Right Side



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

PHOTO 27

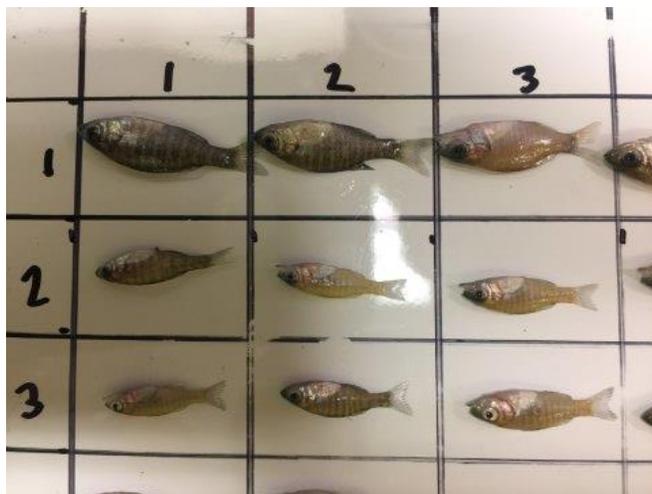


PHOTO 28

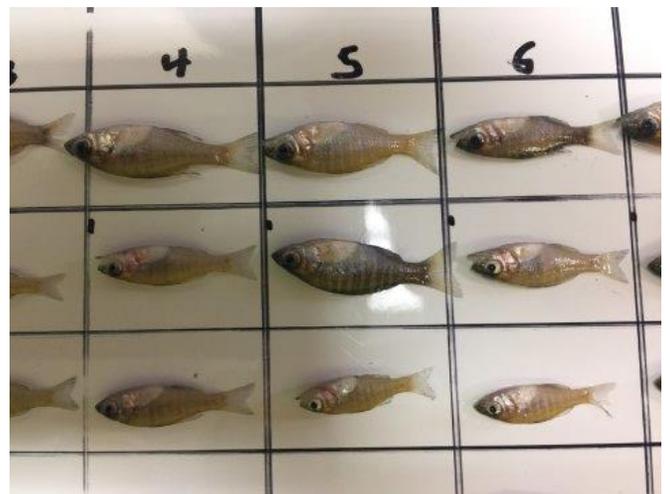
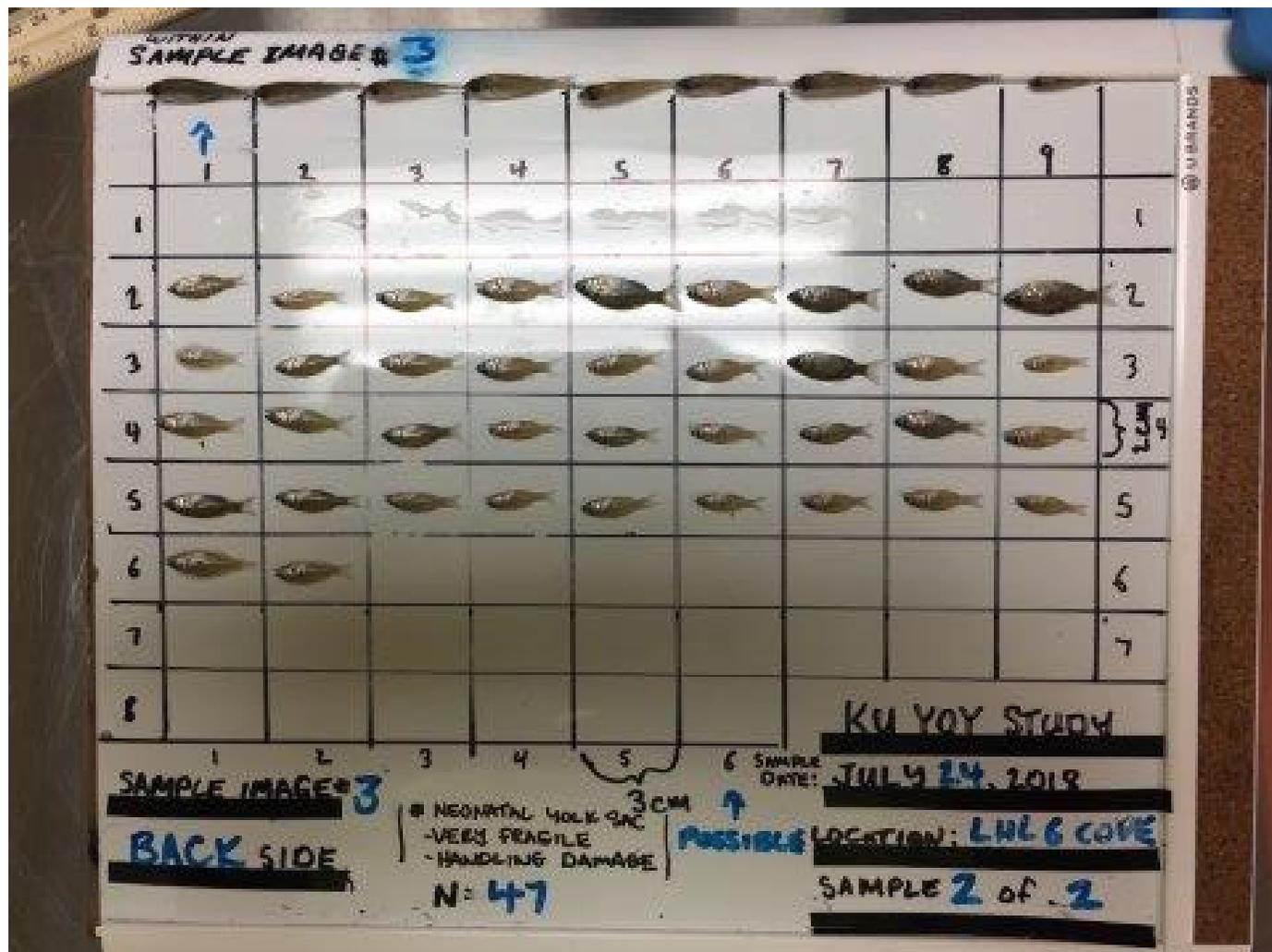


PHOTO 29



Sample 2 Image #2: Right Side, closeup photos

PHOTO 30



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
 N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #3: Dorsal Side, Row 1



ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 31



PHOTO 32



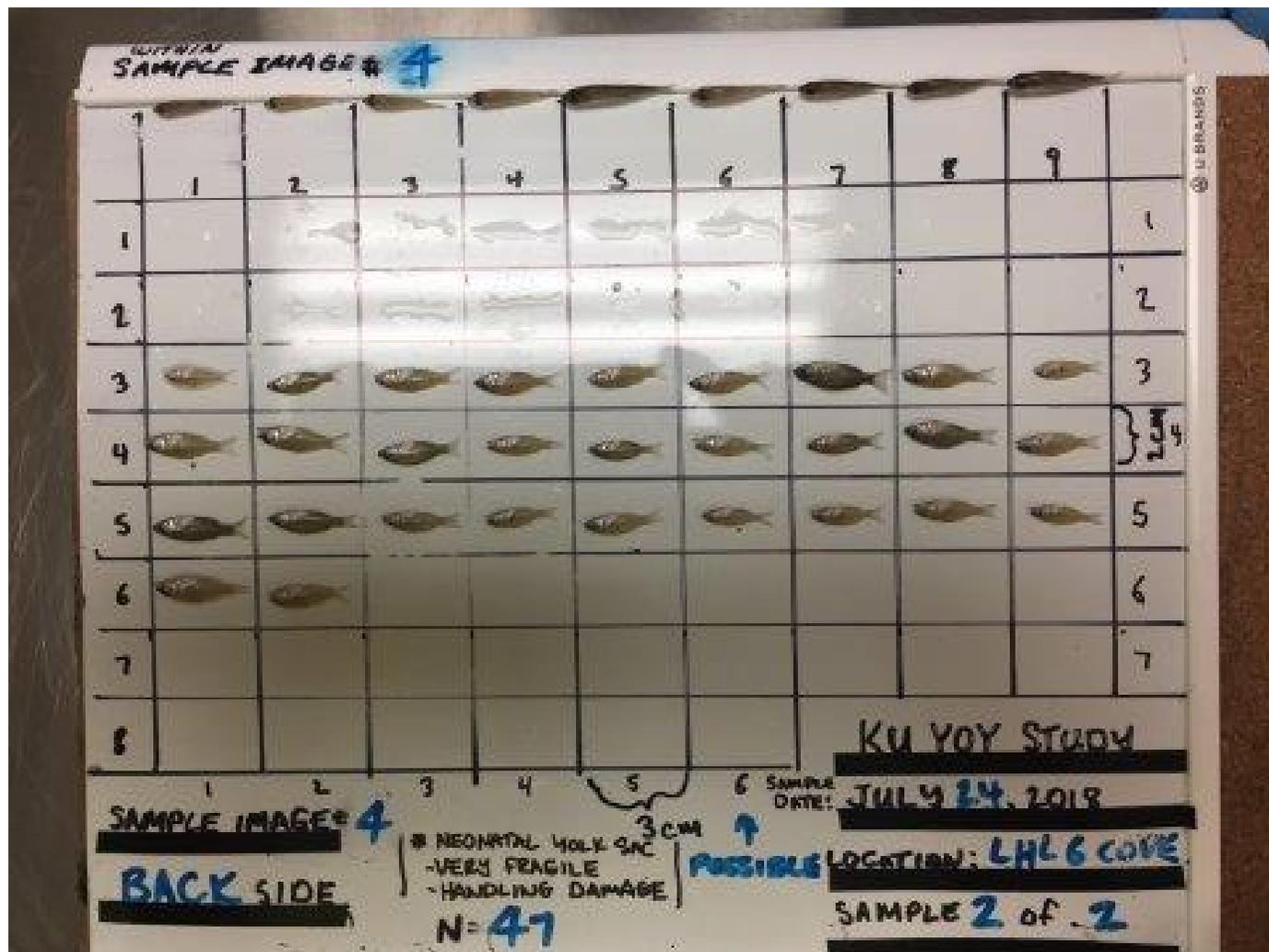
PHOTO 33



Sample 2 Image #3: Dorsal Side, Row 1, closeup photos



PHOTO 34



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #4: Dorsal Side, Row 2



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PHOTO 35



PHOTO 36

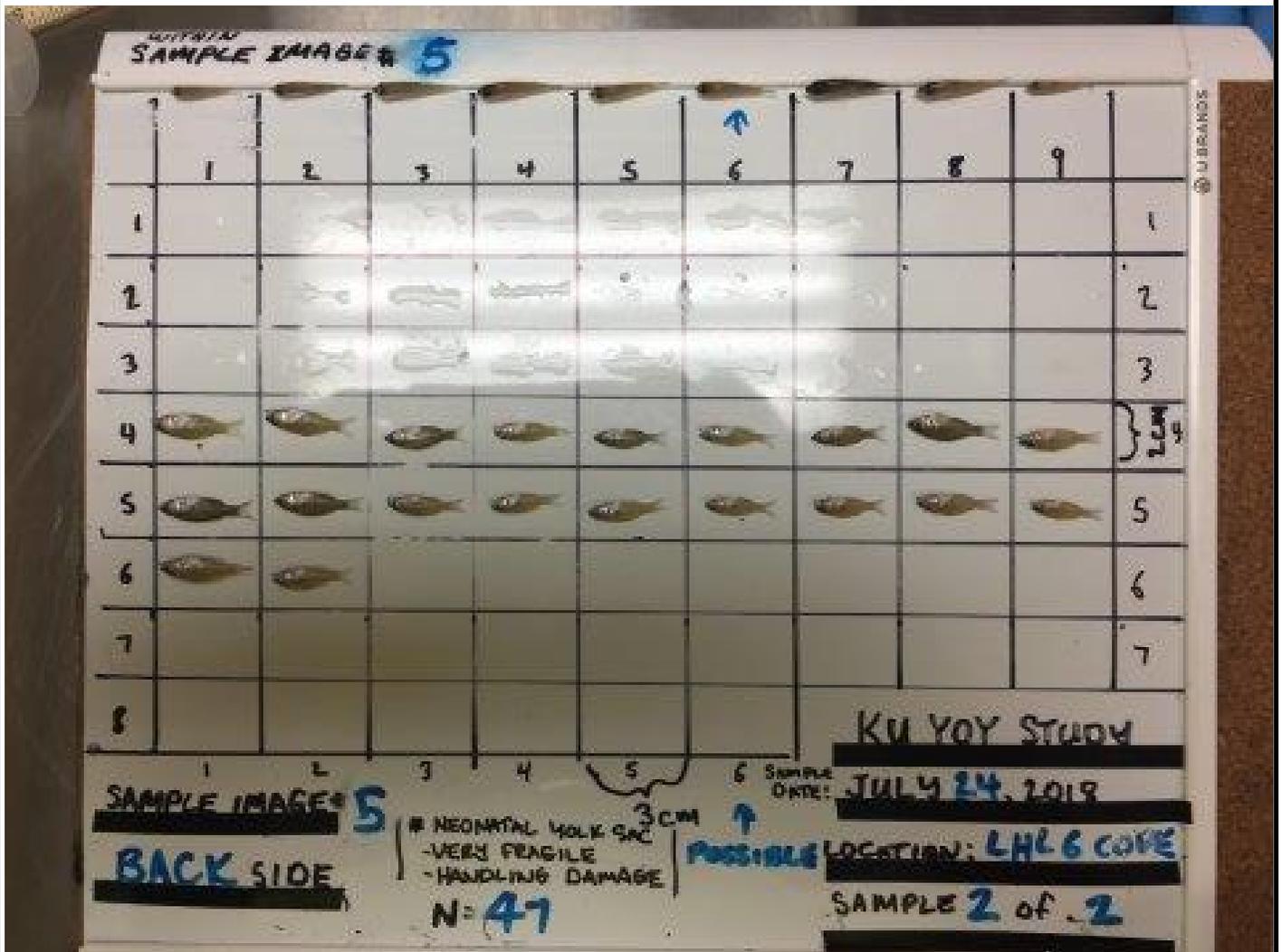


PHOTO 37



Sample 2 Image #4: Dorsal Side, Row 2, closeup photos

PHOTO 38



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #5: Dorsal Side, Row 3



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
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PHOTO 39



PHOTO 40

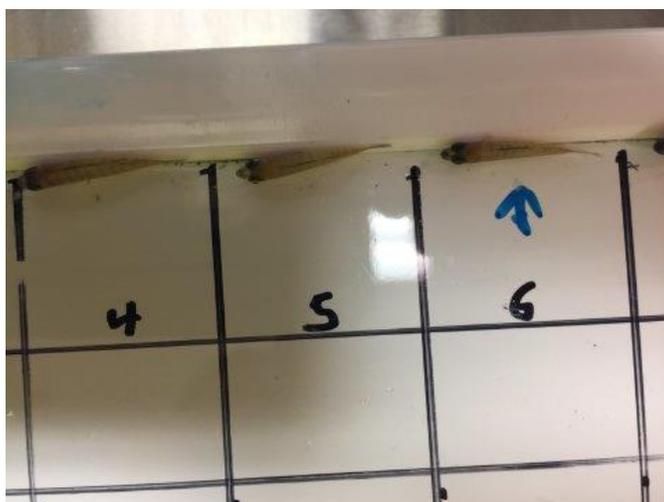
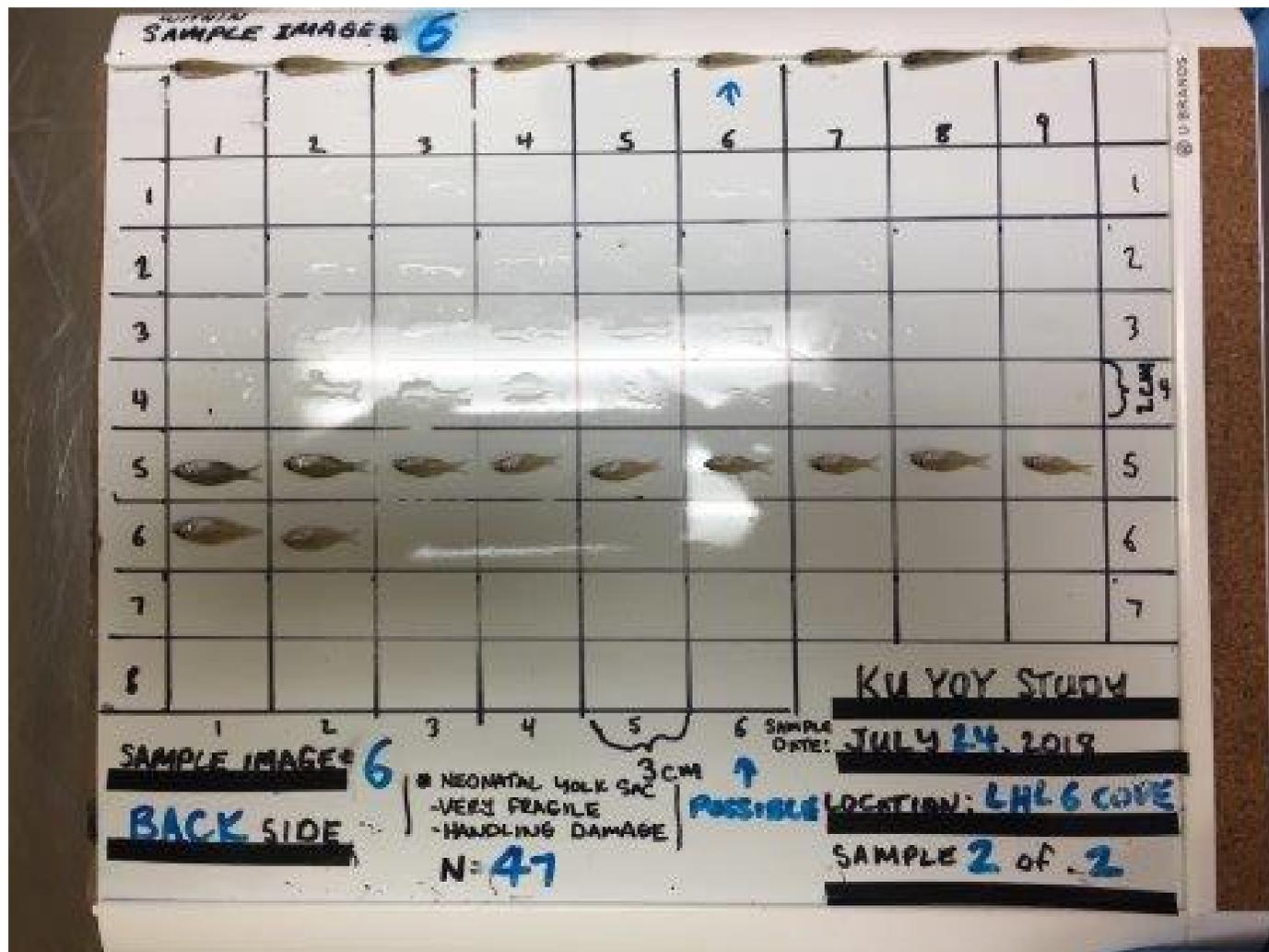


PHOTO 41



Sample 2 Image #5: Dorsal Side, Row 3, closeup photos

PHOTO 42



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #6: Dorsal Side, Row 4



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 43



PHOTO 44

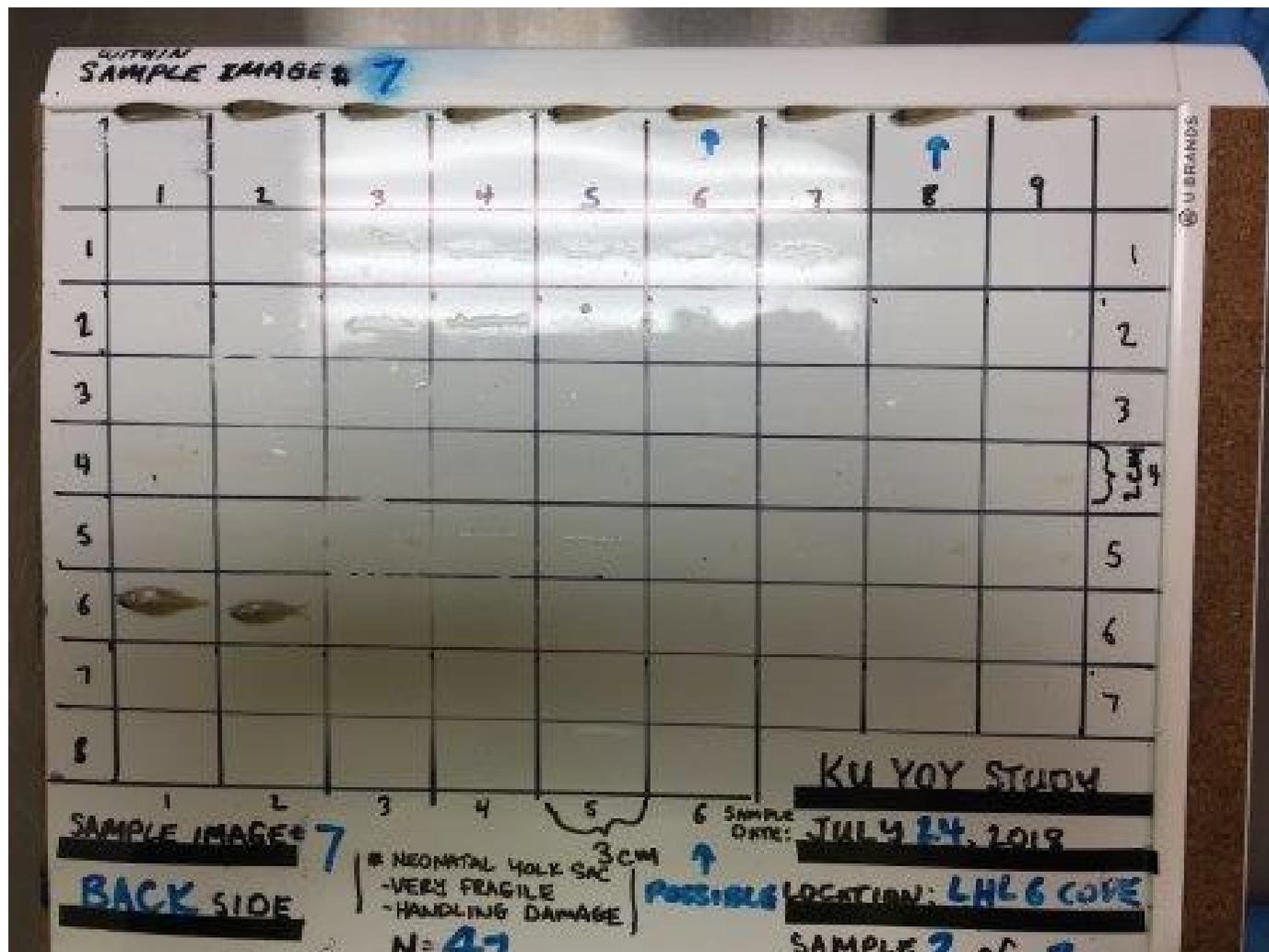


PHOTO 45



Sample 2 Image #6: Dorsal Side, Row 4, closeup photos

PHOTO 46



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #7: Dorsal Side, Row 5



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YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 47



PHOTO 48

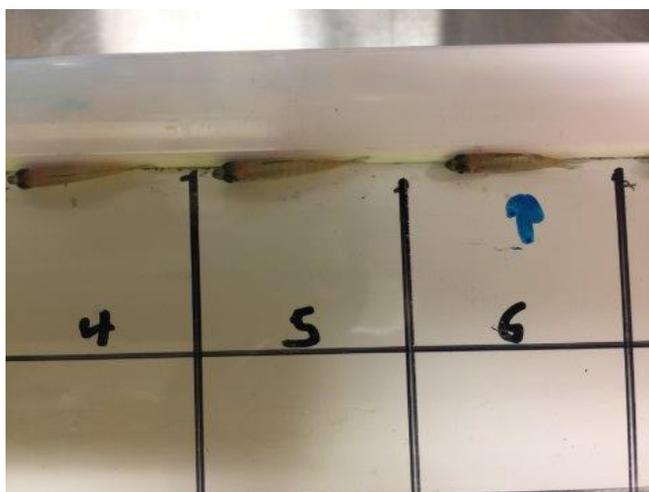
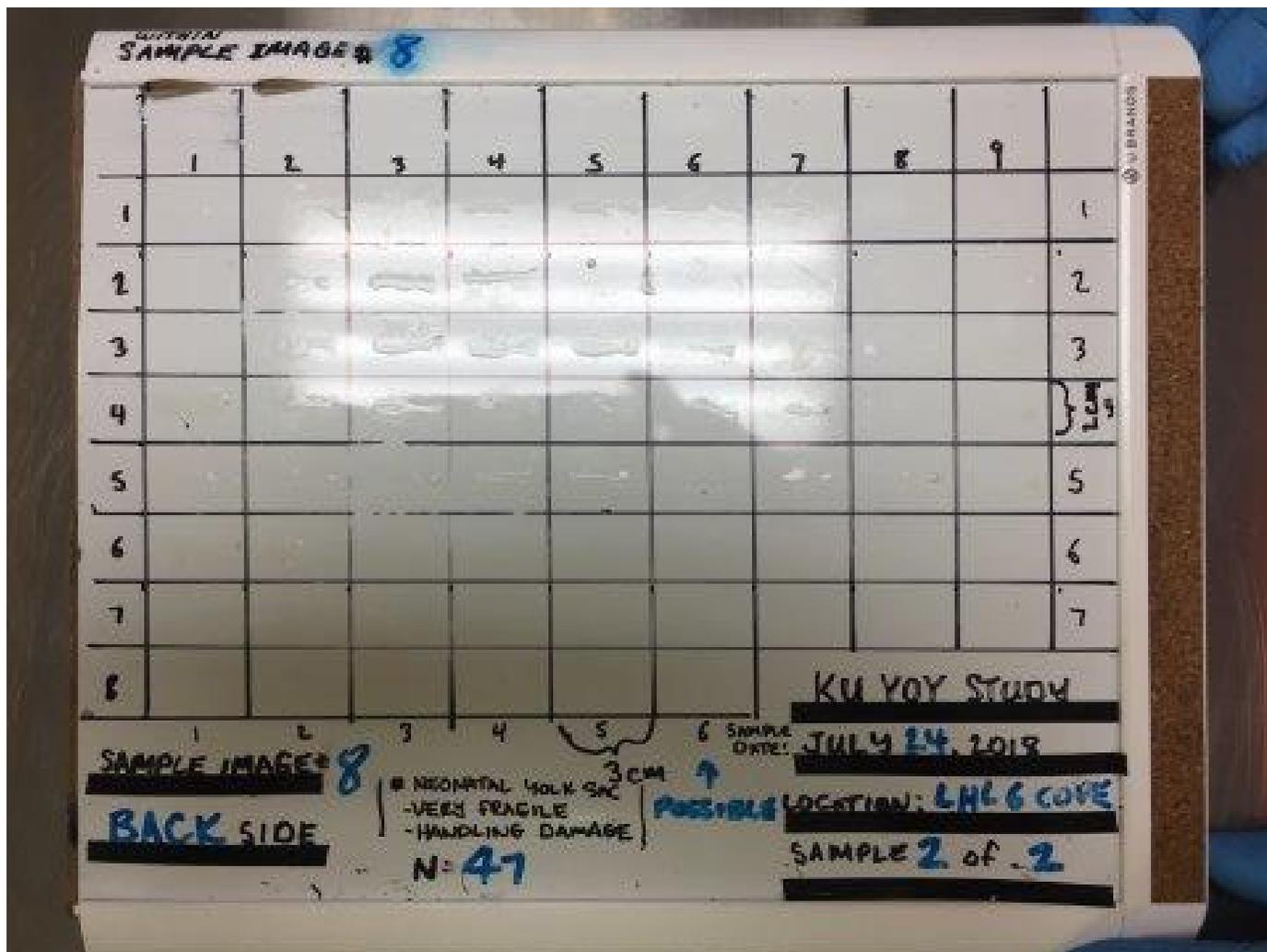


PHOTO 49



Sample 2 Image #7: Dorsal Side, Row 5, closeup photos

PHOTO 50



LHL-6 Cove Bluegill Analytical Sample (2 of 2)
N=47

Sample ID: YOY-012-LHL6

Sample 2 Image #8: Dorsal Side, Row 6

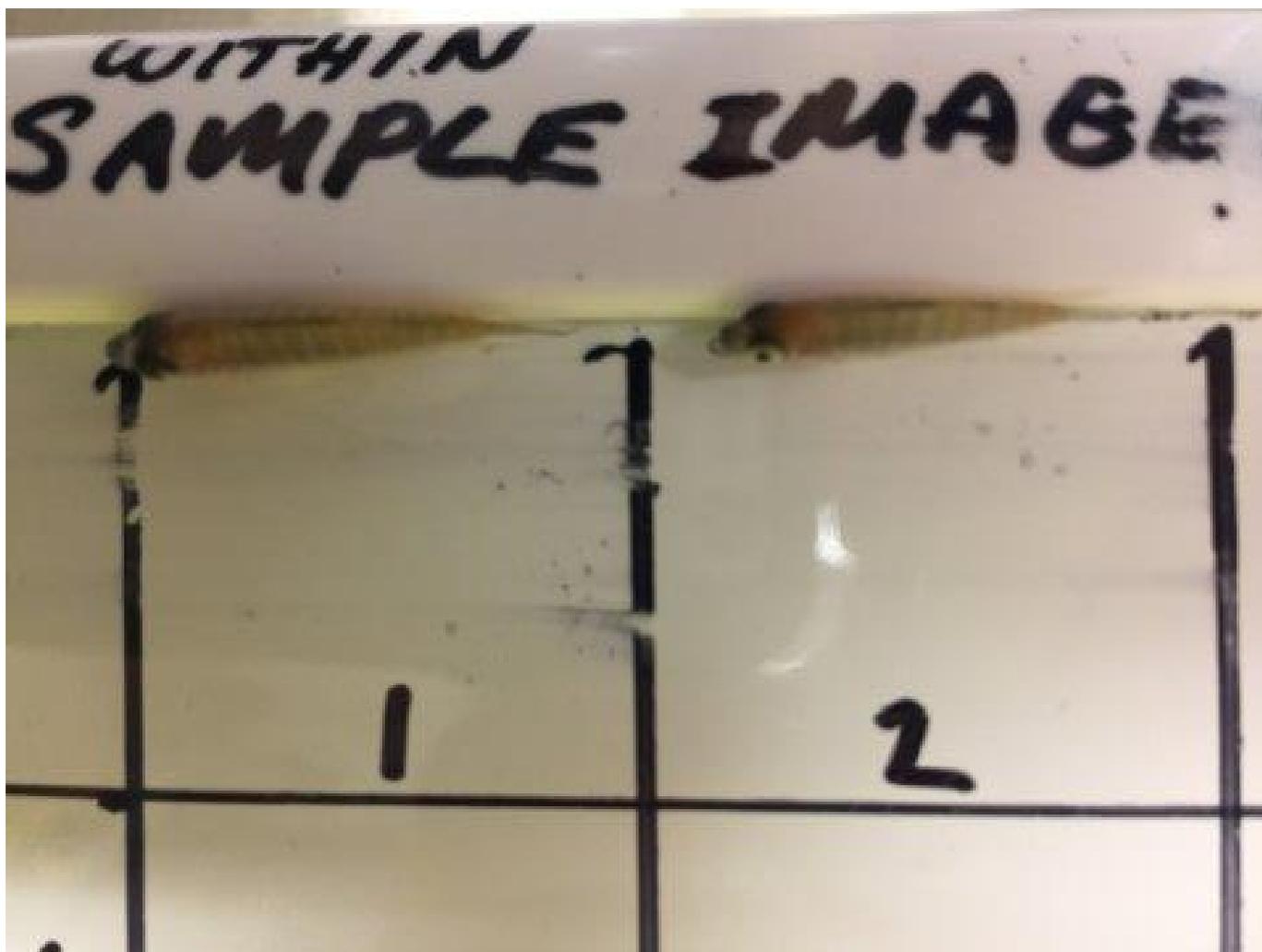


ATTACHMENT I1-5
YOUNG-OF-THE-YEAR (YOY) BLUEGILL ANALYTICAL
SAMPLES: DIGITAL IMAGE LOG

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PHOTO 51



Sample 2 Image #8: Dorsal Side, Row 6, closeup photos



APPENDIX I: ECOLOGICAL RISK ASSESSMENT (ERA) SUPPORTING INFORMATION

Appendix I2: Alternative Selenium and Arsenic Screening Criteria Considerations

TABLES

Table I2-1: Selenium ECOTOX Data for the Species Sensitivity Distribution
 Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Reference Number	Author	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Organism Lifestage	Exposure Type	Test Location	Duration (days)	Endpoint	Endpoint Type	Effect	Effect Measurement
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Isopoda	Sowbug Order	Crustaceans	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Tubifex sp.	Tubificid Worm	Worms	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Isopoda	Sowbug Order	Crustaceans	Not reported	Lotic	Field artificial	399	LOEC	Low effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Tubifex sp.	Tubificid Worm	Worms	Not reported	Lotic	Field artificial	399	LOEC	Low effect	Population	Abundance
166026	Ouellette,J.D., M.G. Dube, and S. Niyogi	13410010	Selenic acid, sodium salt (1:2)	Chironomus dilutus	Midge	Insects/Spiders	Not reported	Flow-through	Lab	21	NOEC	No effect	Population	Abundance
60234	Foe,C., and A.W. Knight	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Neonate	Renewal	Lab	10	NR-ZERO	No effect	Mortality	Mortality
166838	Pieterek,T., and M. Pietrock	13410010	Selenic acid, sodium salt (1:2)	Hyalella azteca	Scud	Crustaceans; Standard Test Species	Adult	Renewal	Lab	8.8	NOEC	No effect	Mortality	Survivorship
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Amphipoda	Scud Order	Crustaceans	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Baetidae	Mayfly Family	Insects/Spiders	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Enallagma sp.	Damselfly	Insects/Spiders	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
81809	Swift,M.C.	15498870	Selenious acid, Sodium salt	Chironomidae	Midge Family	Insects/Spiders	Not reported	Lotic	Field artificial	399	NOEC	No effect	Population	Abundance
3783	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	7782492	Selenium	Chironomus dilutus	Midge	Insects/Spiders	Larva	Renewal	Lab	10	NOEC	No effect	Growth	Weight
956	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Multiple	Renewal	Lab	28	NOEC	No effect	Reproduction	Progeny counts/numbers
4960	Ingersoll,C.G., F.J. Dwyer, and T.W. May	7782492	Selenium	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Flow-through	Lab	21	NOEC	No effect	Growth	Growth, general
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Calanoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Biomass
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cladocera	Water Flea Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Abundance
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cladocera	Water Flea Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Biomass
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Calanoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	NOEC	No effect	Population	Abundance
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	NOEC	No effect	Population	Abundance
4960	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	NOEC	No effect	Population	Abundance
3783	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	NOEC	No effect	Population	Biomass

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Reference Number	Author	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Organism Lifestage	Exposure Type	Test Location	Duration (days)	Endpoint	Endpoint Type	Effect	Effect Measurement
166838	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Multiple	Renewal	Lab	28	LOEC	Low effect	Reproduction	Progeny counts/numbers
18379	Pieterek,T., and M. Pietrock	13410010	Selenic acid, sodium salt (1:2)	Hyalella azteca	Scud	Crustaceans; Standard Test Species	Adult	Renewal	Lab	8.8	LOEC	Low effect	Mortality	Survivorship
18379	Owsley,J.A.	10102188	Selenious acid, Sodium salt (1:2)	Ceriodaphnia affinis	Water Flea	Crustaceans	Not reported	Renewal	Lab	14	NOEC	No effect	Population	Abundance
18379	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	7	NOEC	No effect	Mortality	Survival
18379	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	14	NOEC	No effect	Mortality	Survival
18379	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	14	NOEC	No effect	Reproduction	Reproduction, general
3783	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	21	NOEC	No effect	Reproduction	Reproduction, general
956	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	21	NOEC	No effect	Mortality	Survival
3783	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Renewal	Lab	7	NR-ZERO	No effect	Mortality	Mortality
3783	Ingersoll,C.G., F.J. Dwyer, and T.W. May	7782492	Selenium	Chironomus riparius	Midge	Insects/Spiders; Standard Test Species	Not reported	Flow-through	Lab	30	NOEC	No effect	Development	Emergence
13729	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Renewal	Lab	7	NOEC	No effect	Reproduction	Progeny counts/numbers
18379	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Multiple	Renewal	Lab	28	NR-ZERO	No effect	Mortality	Mortality
18379	Naddy,R.B., T.W. LaPoint, and S.J. Klaine	13410010	Selenic acid, sodium salt (1:2)	Ceriodaphnia dubia	Water Flea	Crustaceans; Standard Test Species	Neonate	Renewal	Lab	8	NR-ZERO	No effect	Mortality	Mortality
18379	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	7	LOEC	Low effect	Mortality	Survival
3783	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	14	LOEC	Low effect	Mortality	Survival
10836	Adams,W.J., and B.B. Heidolph	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Not reported	Renewal	Lab	21	LOEC	Low effect	Mortality	Survival
4960	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	7782492	Selenium	Chironomus dilutus	Midge	Insects/Spiders	Larva	Renewal	Lab	10	LOEC	Low effect	Growth	Weight

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Reference Number	Author	CAS Number	Chemical Name	Species Scientific Name	Species Common Name	Species Group	Organism Lifestage	Exposure Type	Test Location	Duration (days)	Endpoint	Endpoint Type	Effect	Effect Measurement
4960	Kimball,G.	7783008	Selenious acid	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Renewal	Lab	7	LOEC	Low effect	Reproduction	Progeny counts/numbers
4960	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	15498870	Selenious acid, Sodium salt	Chironomus dilutus	Midge	Insects/Spiders	Larva	Renewal	Lab	10	NOEC	No effect	Growth	Weight
4960	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
4960	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
115478	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
166945	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
166945	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
166945	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
166945	Hoang,T.C., and S.J. Klaine	10102188	Selenious acid, Sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Adult	Pulse	Lab	21	NOEC	No effect	Growth	Dry weight (AQUIRE only)
101846	Dunbar,A.M., J.M. Lazorchak, and W.T. Waller	13410010	Selenic acid, sodium salt (1:2)	Daphnia magna	Water Flea	Crustaceans; Standard Test Species	Neonate	Renewal	Lab	32	NOEC	No effect	Growth	Growth, general
101846	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Abundance
101846	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Biomass

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101846	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Calanoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Abundance
101846	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	LOEC	Low effect	Population	Abundance
101846	Lawrence,S.G., and M.H. Holoka	15498870	Selenious acid, Sodium salt	Cyclopoida	Copepod Order	Crustaceans	Not reported	Lentic	Field natural	10	NOEC	No effect	Population	Biomass
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	8	LOEL	Low effect	Growth	Relative growth rate
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	10	LOEL	Low effect	Growth	Relative growth rate
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	12	LOEL	Low effect	Growth	Relative growth rate
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	14	LOEL	Low effect	Growth	Relative growth rate
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	14	NOEL	No effect	Mortality	Survival
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	13410010	Selenic acid, sodium salt (1:2)	Culex quinquefasciatus	Southern House Mosquito	Insects/Spiders	Larva	Aquatic - not reported	Lab	14	LOEL	Low effect	Mortality	Survival

Notes:

LOEC lowest observable effect concentration
 LOEL lowest observable effect level
 NOEC no observable effect concentration
 NOEL no observable effect level
 NR-ZERO No response

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Reference Number	Author	Concentration Type	Order	Concentration	% of Data	Title	Source	Publication Year
81809	Swift,M.C.	Total	1	0.0025	0.02	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	2	0.0025	0.03	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	3	0.01	0.05	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	4	0.01	0.06	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
166026	Ouellette,J.D., M.G. Dube, and S. Niyogi	Total	5	0.01	0.08	A Single Metal, Metal Mixture, and Whole-Effluent Approach to Investigate Causes of Metal Mine Effluent Effects on Fathead Minnows (<i>Pimephales promelas</i>)	Water Air Soil Pollut.224(1462): 44 p.	2013
60234	Foe,C., and A.W. Knight	Total	6	0.0149	0.09	Selenium Bioaccumulation, Regulation, and Toxicity in the Green Alga, <i>Selenastrum capricornutum</i> , and Dietary Toxicity of the Contaminated Alga to <i>Daphnia magna</i>	Manuscr., Dep. of Land, Air and Water Resources, Univ. of California, Davis, CA:	1986
166838	Pieterek,T., and M. Pietrock	Total	7	0.018	0.11	Comparative Selenium Toxicity to Laboratory-Reared and Field-Collected <i>Hyalella azteca</i> (Amphipoda, Hyalellidae)	Water Air Soil Pollut.223(7): 4245-4252	2012
81809	Swift,M.C.	Total	8	0.029	0.12	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	9	0.029	0.14	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	10	0.029	0.15	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
81809	Swift,M.C.	Total	11	0.029	0.17	Stream Ecosystem Response to, and Recovery from, Experimental Exposure to Selenium	J. Aquat. Ecosyst. Stress Recovery9(3): 159-184	2002
3783	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	Total	12	0.0602	0.18	Bioavailability, Toxicity and Biotransformation of Selenium in Midge (<i>Chironomus dilutus</i>) Larvae Exposed via Water or Diet to Elemental Selenium Particles, Selenite, or Selenized Algae	Environ. Sci. Technol.47(1): 584-592	2013
956	Kimball,G.	Total	13	0.07	0.20	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (<i>Pimephales promelas</i>) and <i>Daphnia magna</i>	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
4960	Ingersoll,C.G., F.J. Dwyer, and T.W. May	Total	14	0.085	0.22	Toxicity of Inorganic and Organic Selenium to <i>Daphnia magna</i> (Cladocera) and <i>Chironomus riparius</i> (Diptera)	Environ. Toxicol. Chem.9(9): 1171-1181	1990
4960	Lawrence,S.G., and M.H. Holoka	Total	15	0.1	0.23	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
4960	Lawrence,S.G., and M.H. Holoka	Total	16	0.1	0.25	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
4960	Lawrence,S.G., and M.H. Holoka	Total	17	0.1	0.26	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
4960	Lawrence,S.G., and M.H. Holoka	Total	18	0.1	0.28	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
4960	Lawrence,S.G., and M.H. Holoka	Total	19	0.1	0.29	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
4960	Lawrence,S.G., and M.H. Holoka	Total	20	0.1	0.31	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
3783	Lawrence,S.G., and M.H. Holoka	Total	21	0.1	0.32	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981

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166838	Kimball,G.	Total	22	0.12	0.34	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (Pimephales promelas) and Daphnia magna	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
18379	Pieterek,T., and M. Pietrock	Total	24	0.164	0.37	Comparative Selenium Toxicity to Laboratory-Reared and Field-Collected Hyalella azteca (Amphipoda, Hyalellidae)	Water Air Soil Pollut.223(7): 4245-4252	2012
18379	Owsley,J.A.	Total	25	0.2	0.38	Acute and Chronic Effects of Selenite-Selenium on Ceriodaphnia affinis	M.S.Thesis, Vanderbilt University, Nashville, TN:83 p.	1984
18379	Adams,W.J., and B.B. Heidolph	Total	26	0.24	0.40	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
18379	Adams,W.J., and B.B. Heidolph	Total	27	0.24	0.42	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
18379	Adams,W.J., and B.B. Heidolph	Total	28	0.24	0.43	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
3783	Adams,W.J., and B.B. Heidolph	Total	29	0.24	0.45	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
956	Adams,W.J., and B.B. Heidolph	Total	30	0.24	0.46	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
3783	Kimball,G.	Total	31	0.25	0.48	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (Pimephales promelas) and Daphnia magna	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
3783	Ingersoll,C.G., F.J. Dwyer, and T.W. May	Total	32	0.303	0.49	Toxicity of Inorganic and Organic Selenium to Daphnia magna (Cladocera) and Chironomus riparius (Diptera)	Environ. Toxicol. Chem.9(9): 1171-1181	1990
13729	Kimball,G.	Total	33	0.45	0.51	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (Pimephales promelas) and Daphnia magna	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
18379	Kimball,G.	Total	34	0.48	0.52	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (Pimephales promelas) and Daphnia magna	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
18379	Naddy,R.B., T.W. LaPoint, and S.J. Klaine	Total	35	0.51	0.54	Toxicity of Arsenic, Molybdenum and Selenium Combinations to Ceroidaphnia dubia	Environ. Toxicol. Chem.14(2): 329-336	1995
18379	Adams,W.J., and B.B. Heidolph	Total	36	0.52	0.55	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
3783	Adams,W.J., and B.B. Heidolph	Total	37	0.52	0.57	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
10836	Adams,W.J., and B.B. Heidolph	Total	38	0.52	0.58	Short-Cut Chronic Toxicity Estimates Using Daphnia magna	ASTM Spec. Tech. Publ.:87-103	1985
4960	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	Total	39	0.591	0.60	Bioavailability, Toxicity and Biotransformation of Selenium in Midge (Chironomus dilutus) Larvae Exposed via Water or Diet to Elemental Selenium Particles, Selenite, or Selenized Algae	Environ. Sci. Technol.47(1): 584-592	2013

Table I2-1: Selenium ECOTOX Data for the Species Sensitivity Distribution
 Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Reference Number	Author	Concentration Type	Order	Concentration	% of Data	Title	Source	Publication Year
4960	Kimball,G.	Total	40	0.68	0.62	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (Pimephales promelas) and Daphnia magna	Manuscript, Department of Entomology, Fisheries and Wildlife, University of Minnesota, Minneapolis, MN:88 p.	1978
4960	Gallego-Gallegos,M., L.E. Doig, J.J. Tse, I.J. Pickering, and K. Liber	Total	41	0.762	0.63	Bioavailability, Toxicity and Biotransformation of Selenium in Midge (Chironomus dilutus) Larvae Exposed via Water or Diet to Elemental Selenium Particles, Selenite, or Selenized Algae	Environ. Sci. Technol.47(1): 584-592	2013
4960	Hoang,T.C., and S.J. Klaine	Dissolved	42	0.98	0.65	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
4960	Hoang,T.C., and S.J. Klaine	Dissolved	43	0.98	0.66	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	44	0.98	0.68	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	45	0.98	0.69	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	46	0.98	0.71	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	47	0.98	0.72	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	48	0.98	0.74	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
115478	Hoang,T.C., and S.J. Klaine	Dissolved	49	0.98	0.75	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
166945	Hoang,T.C., and S.J. Klaine	Dissolved	50	0.98	0.77	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
166945	Hoang,T.C., and S.J. Klaine	Dissolved	51	0.98	0.78	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
166945	Hoang,T.C., and S.J. Klaine	Dissolved	52	0.98	0.80	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
166945	Hoang,T.C., and S.J. Klaine	Dissolved	53	0.98	0.82	Influence of Organism Age on Metal Toxicity to Daphnia magna	Environ. Toxicol. Chem.26(6): 1198-1204	2007
101846	Dunbar,A.M., J.M. Lazorchak, and W.T. Waller	Total	54	1	0.83	Acute and Chronic Toxicity of Sodium Selenate to Daphnia magna Straus	Environ. Toxicol. Chem.2(2): 239-244	1983
101846	Lawrence,S.G., and M.H. Holoka	Total	55	1.01	0.85	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
101846	Lawrence,S.G., and M.H. Holoka	Total	56	1.01	0.86	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981

Table I2-1: Selenium ECOTOX Data for the Species Sensitivity Distribution
 Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Reference Number	Author	Concentration Type	Order	Concentration	% of Data	Title	Source	Publication Year
101846	Lawrence,S.G., and M.H. Holoka	Total	57	1.01	0.88	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
101846	Lawrence,S.G., and M.H. Holoka	Total	58	1.01	0.89	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
101846	Lawrence,S.G., and M.H. Holoka	Total	59	1.01	0.91	Effect of Selenium on Impounded Zooplankton in a Mercury Contaminated Lake	Can. Tech. Rep. Fish. Aquat. Sci.1151:83-92	1981
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	60	2	0.92	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	61	2	0.94	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	62	2	0.95	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	63	2	0.97	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	64	4	0.98	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007
101846	Jensen,P.D., M.A. Sorensen, W.E. Walton, and J.T. Trumble	Total	65	8	1.00	Lethal and Sublethal Responses of an Aquatic Insect Culex quinquefasciatus (Diptera: Culicidae) Challenged with Individual and Joint Exposure to Dissolved Sodium Selenate and Methylmercury Chloride	Environ. Toxicol.22(3): 287-294	2007

Notes:

LOEC lowest observable effect conce
 LOEL lowest observable effect level
 NOEC no observable effect concentra
 NOEL no observable effect level
 NR-ZERO No response

Table I2-2: 96-h LC50 Concentrations for As3+ among Aquatic Invertebrates from the USEPA ECOTOX Database
 Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Species Group	Common Name	Scientific Name	LC50 Concentration mg/L	Author	Publication Year
Crustaceans	Scud	<i>Gammarus pseudolimnaeus</i>	0.875	Call,D.J., L.T. Brooke, N. Ahmad, and J.E. Richter	1983
	Scud	<i>Hyalella azteca</i>	1.6	Liber,K., L.E. Doig, and S.L. White-Sobey	2011
	Harpacticoid Copepod	<i>Nitocra spinipes</i>	3.5	Bengtsson,B.E., and B. Bergstrom	1987
	Harpacticoid Copepod	<i>Nitocra spinipes</i>	3.5	Bengtsson,B.E., and B. Bergstrom	1982
Aquatic Insects	Midge	<i>Chironomus sp.</i>	6.9	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus dilutus</i>	7.1	Liber,K., L.E. Doig, and S.L. White-Sobey	2011
	Midge	<i>Chironomus sp.</i>	9.8	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Polypedilum sp.</i>	13.6	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus sp.</i>	15	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus sp.</i>	16	Jeyasingham,K., and N. Ling	2000
	Chironomid	<i>Chironomus zealandicus</i>	16.2	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus sp.</i>	17.3	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Polypedilum sp.</i>	19.7	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus sp.</i>	20.4	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Polypedilum sp.</i>	21	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Polypedilum sp.</i>	24.8	Jeyasingham,K., and N. Ling	2000
	Chironomid	<i>Chironomus zealandicus</i>	26.2	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Polypedilum sp.</i>	26.6	Jeyasingham,K., and N. Ling	2000
	Chironomid	<i>Chironomus zealandicus</i>	27.9	Jeyasingham,K., and N. Ling	2000
	Chironomid	<i>Chironomus zealandicus</i>	29.2	Jeyasingham,K., and N. Ling	2000
	Midge	<i>Chironomus sp.</i>	33.7	Jeyasingham,K., and N. Ling	2000
	Stonefly	<i>Pteronarcys californica</i>	38	Mayer,F.L.,Jr., and M.R. Ellersieck	1986
	Midge	<i>Polypedilum sp.</i>	41.9	Jeyasingham,K., and N. Ling	2000
	Stonefly	<i>Pteronarcys californica</i>	45	Cope,O.B.	1965
Chironomid	<i>Chironomus zealandicus</i>	60	Jeyasingham,K., and N. Ling	2000	
Chironomid	<i>Chironomus zealandicus</i>	63.4	Jeyasingham,K., and N. Ling	2000	
Chironomid	<i>Chironomus zealandicus</i>	70.4	Jeyasingham,K., and N. Ling	2000	
Midge	<i>Polypedilum sp.</i>	76.1	Jeyasingham,K., and N. Ling	2000	
Aquatic Worm	Nematode	<i>Caenorhabditis elegans</i>	173	Williams,P.L., and D.B. Dusenbery	1990

Notes:
 EC50 50 percent effect concentration
 LC50 50 percent lethal concentration
 mg/L milligrams per liter
 LOEC lowest observable effect concentration
 NOEC no observable effect concentration

Table I2-3: Acute and Chronic Toxicity Data for As3+ Used to Derive Updated Acute-Chronic Ratios (ECOTOX Database)
 Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
 E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

Species	Acute EC50 or LC50	Chronic NOEC - LOEC (Mean ^a)	Acute-Chronic Ratio	Species Mean Acute-Chronic Ratio	Reference
Cladoceran (Ceriodaphnia dubia)	1.448	0.793-1.636 (1.140)	1.27	1.3	Spehar and Fiandt, 1986
Cladoceran (Daphnia magna)	1.5	0.633 - 1.320 (0.914)	1.641	1.8	Lima et al. 1984
Cladoceran (Daphnia magna)	2.5	0.920-1.850 (1.305)	1.916		Tišler and Zagorc-Končan, 2002
Mysid (Mysidopsis bahia)	1.74	0.631 - 1.270 (0.895)	1.944	1.9	Lussier et al. 1985, from USEPA (1984)

Geometric mean of most acutely sensitive species ^b: 1.6

Notes:

a Geometric mean of NOEC and LOEC used in calculation of acute-chronic ratio.

b Based on procedures described in Stephen et al. (1985).

EC50 50 percent effect concentration

LC50 50 percent lethal concentration

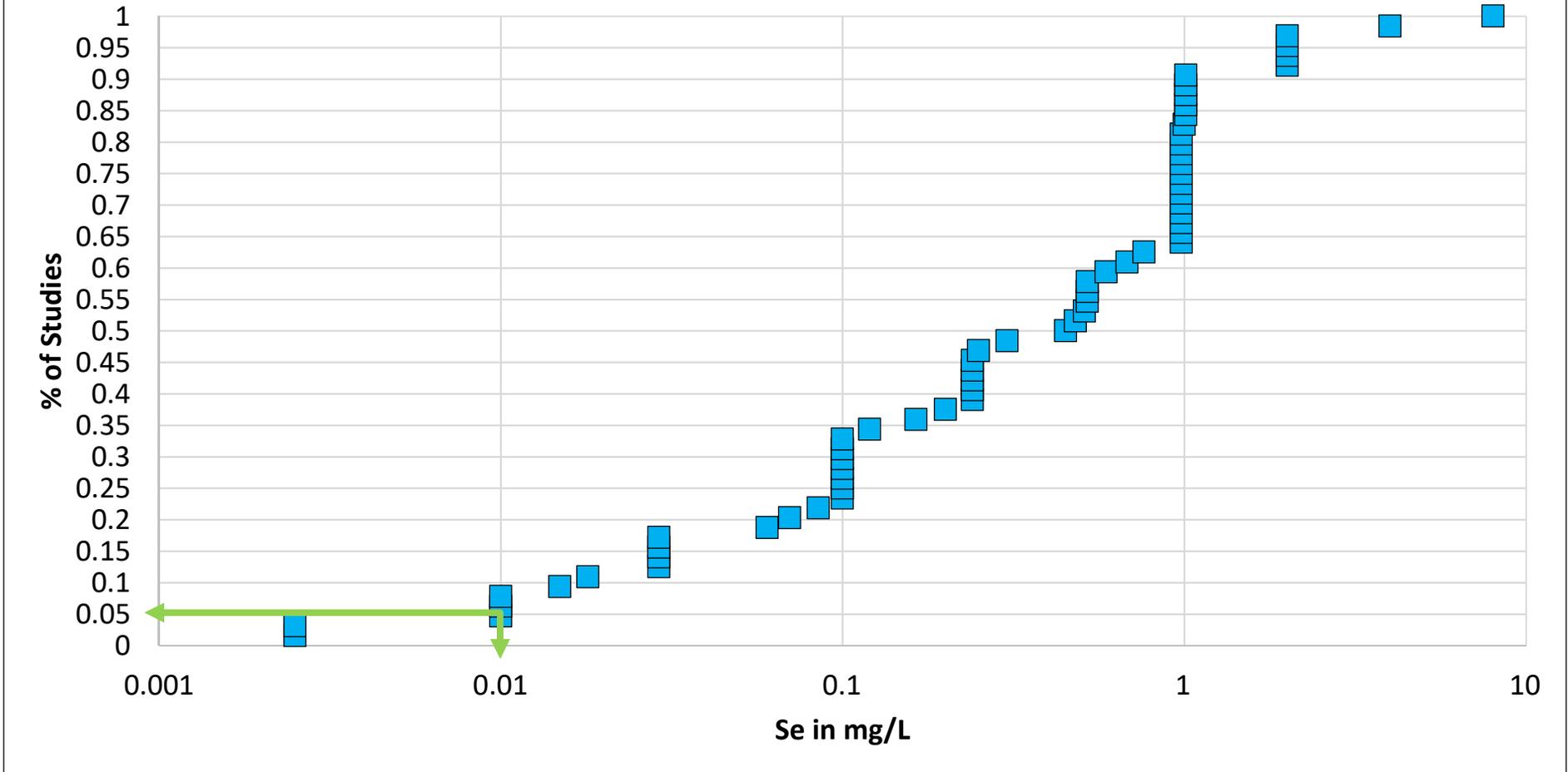
mg/L milligrams per liter

LOEC lowest observable effect concentration

NOEC no observable effect concentration

FIGURES

Species Sensitivity Distribution for Selenium in 7+ day studies of crustaceans, insects, and worms using NO/LOW EFFECT endpoints (64 studies)



The green line indicates that 95% of the species tested showed no effects at selenium concentrations below 0.01 mg/L

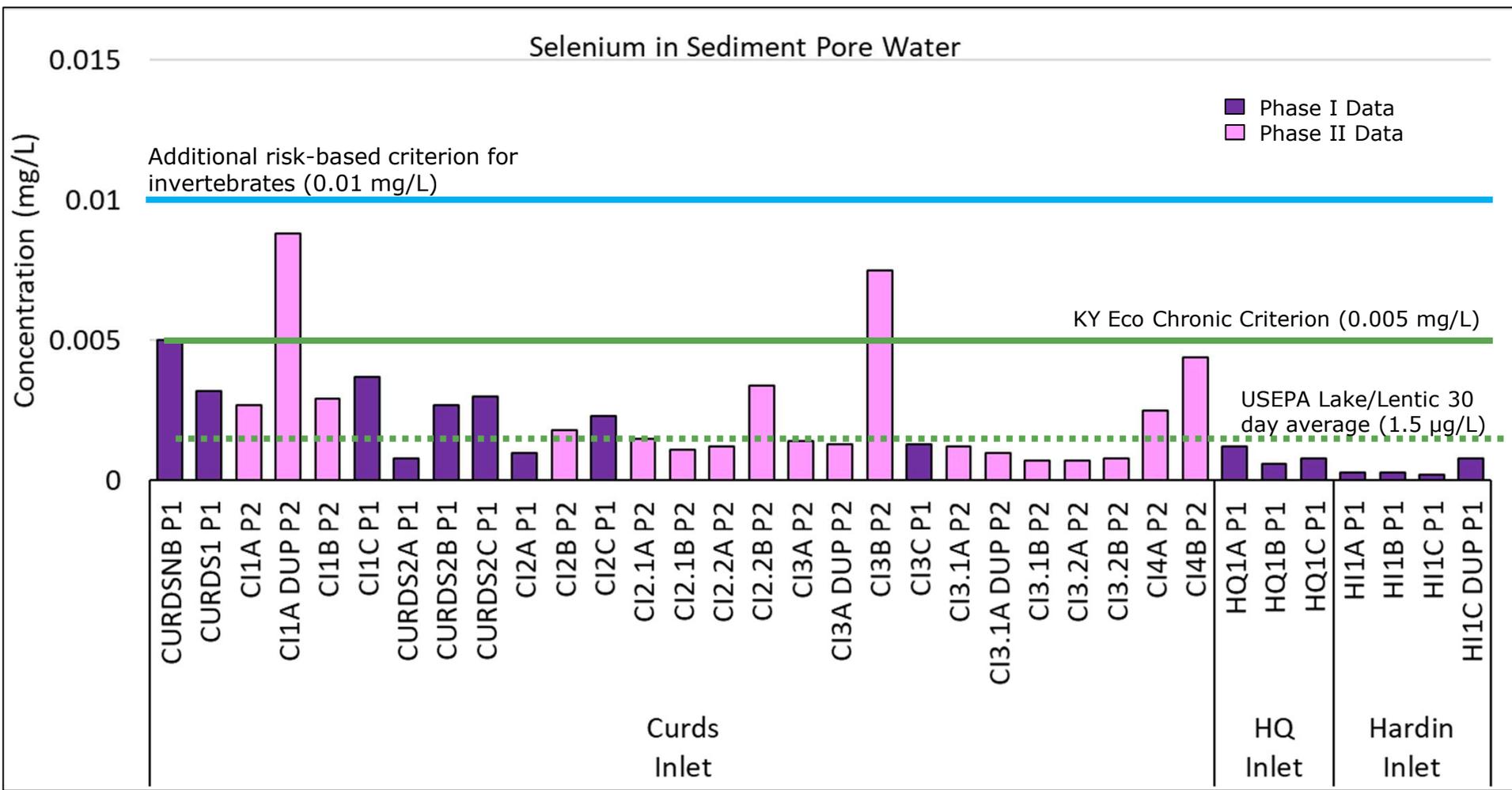


SPECIES SENSITIVITY DISTRIBUTION FOR SELENIUM

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

FIGURE

I2-1



Curds Inlet (CI), Dissolved (D), Hardin Inlet (HI), HQ Inlet (HQ), Kentucky Ecological Chronic Criterion (KY Eco Chronic Criterion), micrograms per liter (µg/L), milligrams per liter (mg/L), Phase I (P1), Phase II (P2), Total Unfiltered (T), United States Environmental Protection Agency (USEPA)



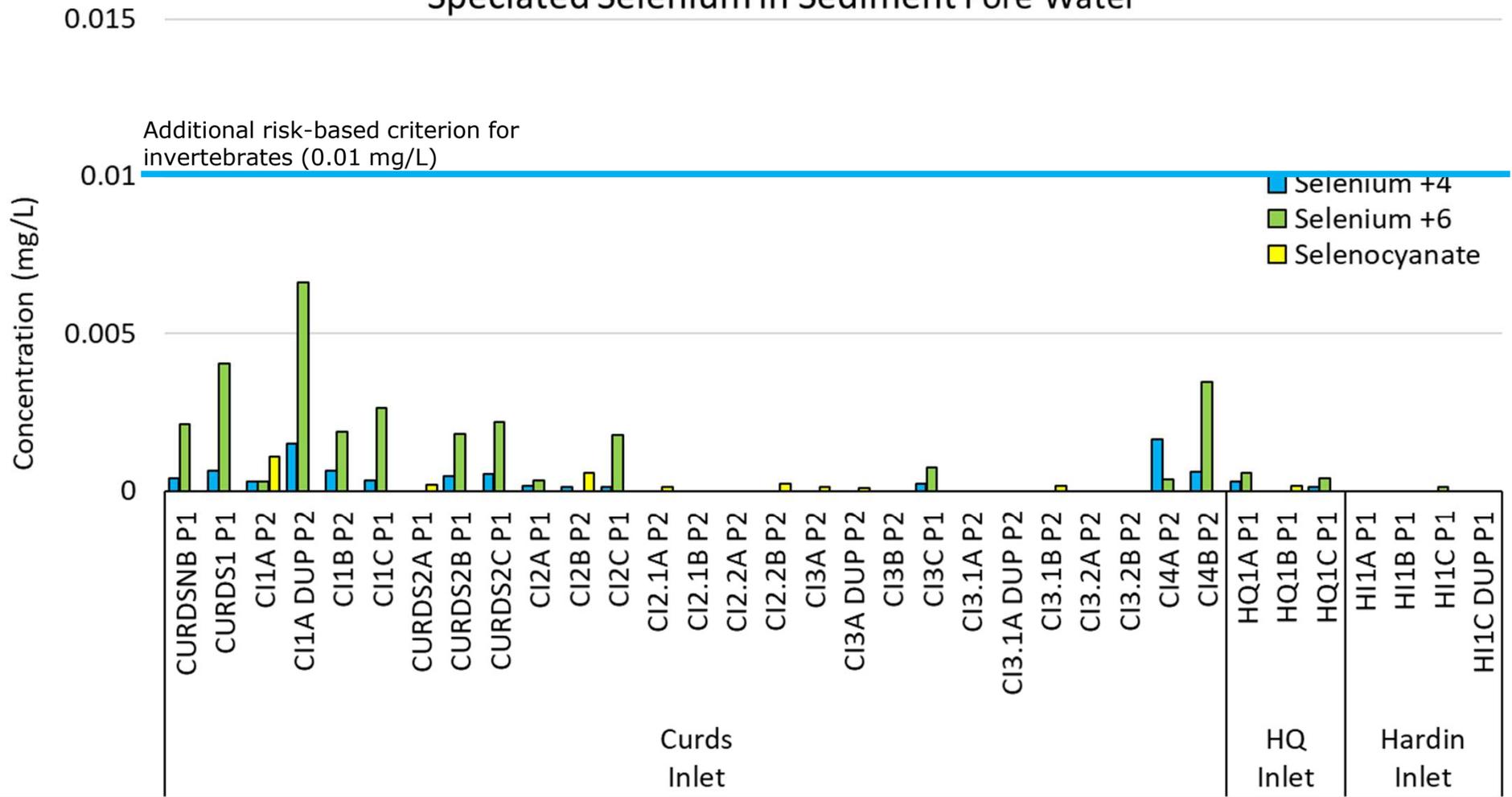
SELENIUM IN SEDIMENT PORE WATER WITH ADDITIONAL RISK-BASED CRITERIA FOR CONSIDERATION

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

FIGURE

I2-2A

Speciated Selenium in Sediment Pore Water



Curds Inlet (CI), Duplicate (DUP), Hardin Inlet (HI), HQ Inlet (HQ), Kentucky Ecological Chronic Criterion (KY Eco Chronic Criterion), micrograms per liter ($\mu\text{g/L}$), milligrams per liter (mg/L), Phase I (P1), Phase II (P2), United States Environmental Protection Agency (USEPA)



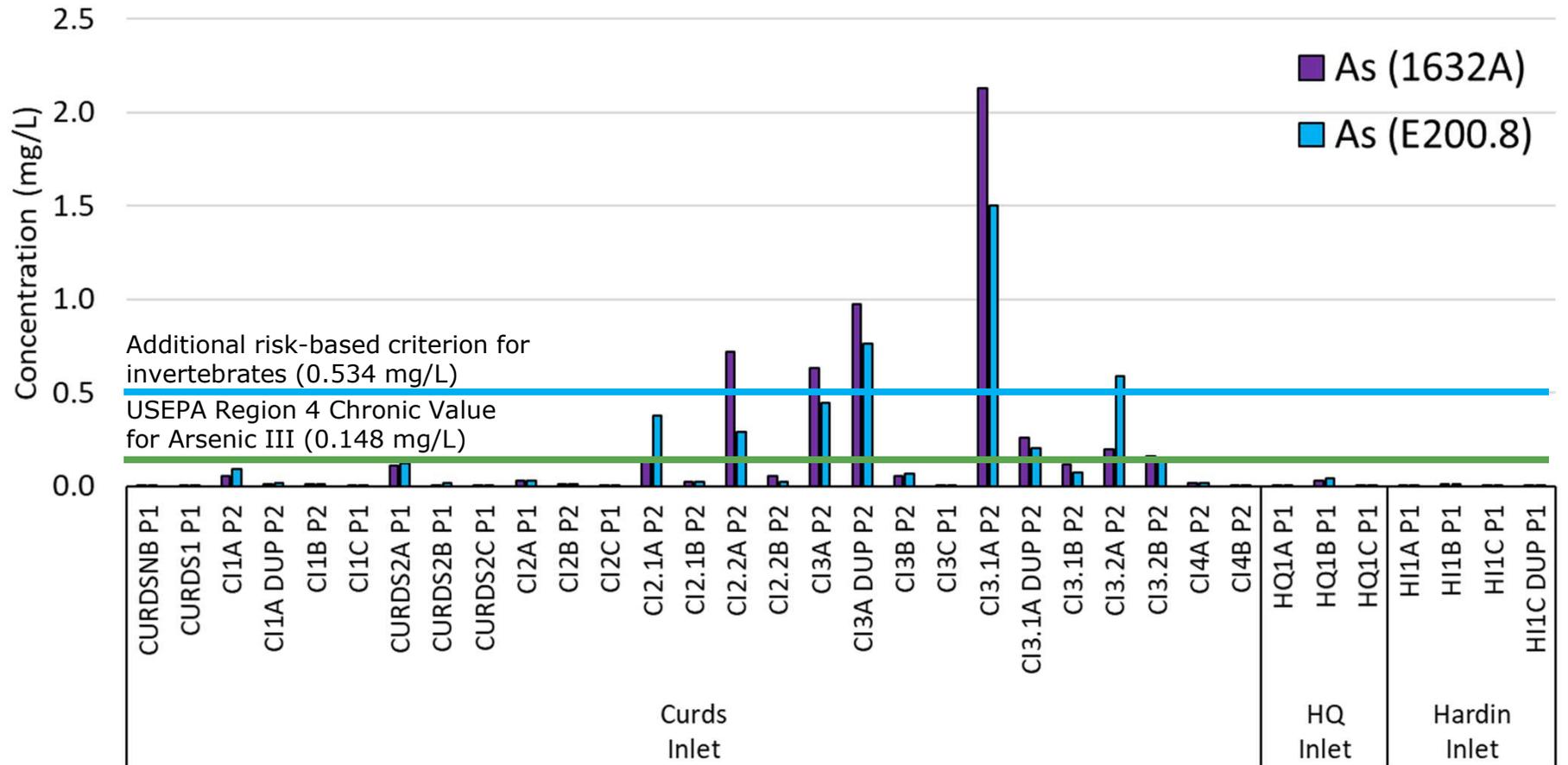
SPECIATED SELENIUM IN SEDIMENT PORE WATER WITH ADDITIONAL RISK-BASED CRITERIA FOR CONSIDERATION

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

FIGURE

I2-2B

Arsenic in Sediment Pore Water



Arsenic (As), Curds Inlet (CI), Dissolved (D), Duplicate (Dup), Environmental Protection Agency (EPA), EPA Method 1632A (1632A), EPA Method 200.8 (E200.8), Hardin Inlet (HI), HQ Inlet (HQ), milligrams per liter (mg/L), Phase I (P1), Phase II (P2), United States Environmental Protection Agency (USEPA)



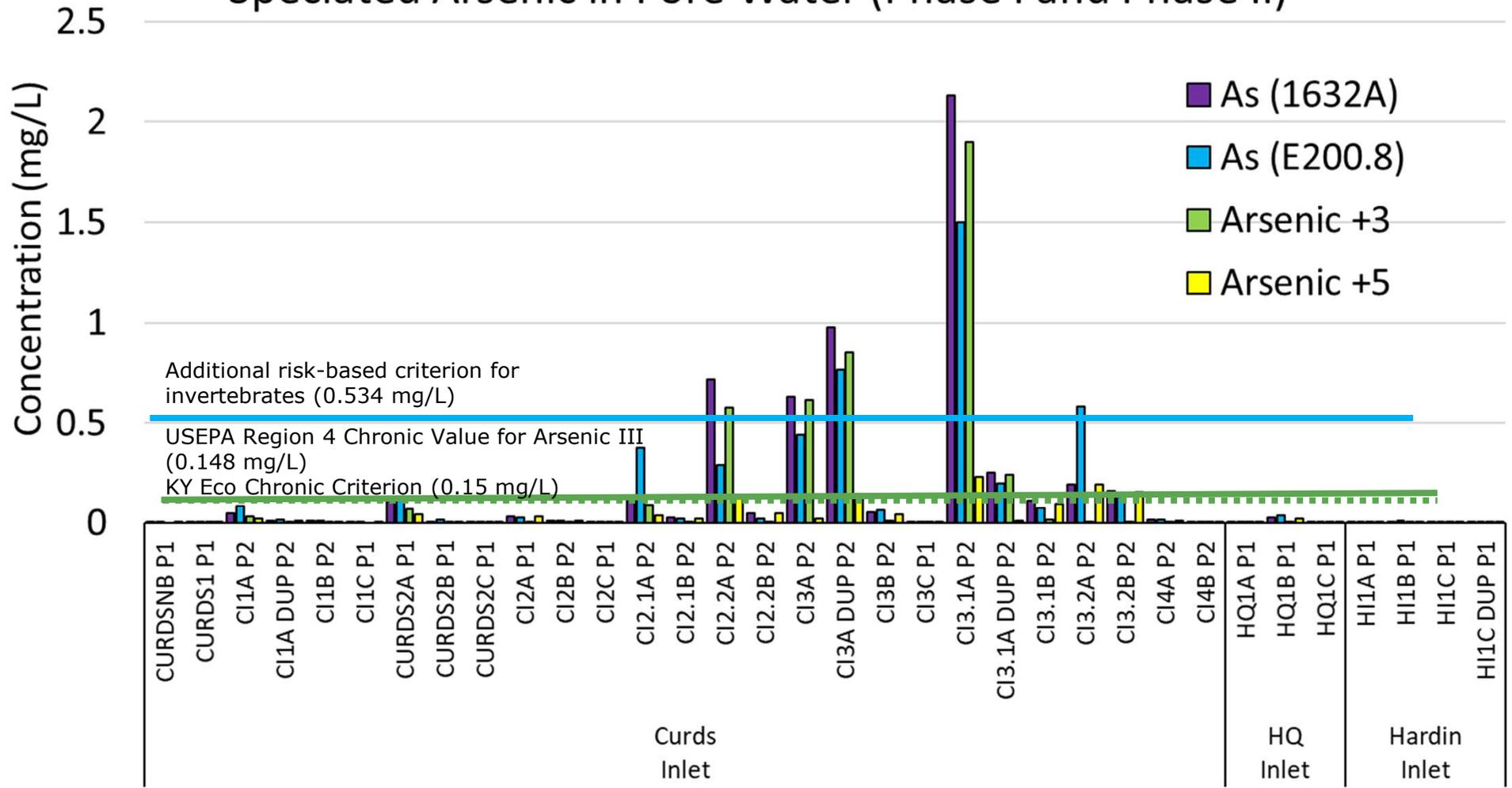
ARSENIC IN SEDIMENT PORE WATER WITH ADDITIONAL RISK-BASED CRITERIA FOR CONSIDERATION

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

FIGURE

I2-3A

Speciated Arsenic in Pore Water (Phase I and Phase II)



Arsenic (As), Curds Inlet (CI), Dissolved (D), Duplicate (Du), Environmental Protection Agency (EPA), EPA Method 1632A (1632A), EPA Method 200.8 (E200.8), Hardin Inlet (HI), HQ Inlet (HQ), Kentucky Ecological Chronic Water Quality Criterion (Kentucky Eco Chronic Criterion), milligrams per liter (mg/L), Phase I (P1), Phase II (P2), United States Environmental Protection Agency (USEPA)



SPECIATED ARSENIC IN SEDIMENT PORE WATER WITH ADDITIONAL RISK-BASED CRITERIA FOR CONSIDERATION

Corrective Action Site Investigation, Source Assessment, and Risk Assessment Report
E.W. Brown Station, Herrington Lake, Mercer County, Kentucky

FIGURE

12-3B