



Acquisition Directorate

Research & Development Center

Report No. CG-D-02-13

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

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January 2013



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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Technical Report Documentation Page

1. Report No. CG-D-02-13		2. Government Accession Number		3. Recipient's Catalog No.	
4. Title and Subtitle Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II				5. Report Date January 2013	
				6. Performing Organization Code Project No. 410143	
7. Author(s) D. Heilprin, C. Ehrler, Todd Main, Penny Herring				8. Performing Organization Report No. RDC UDI No. 1381	
9. Performing Organization Name and Address U.S. Coast Guard Research and Development Center 1 Chelsea Street New London, CT 06320		SAIC 23 Clara Drive, Suite 206 Mystic, CT 06355-1959 ECORP 3914 Murphy Canyon Rd, Ste A232 San Diego, CA 92123		10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. Contract HSCG32-10-D-R00021/ Task Order: HSCG32-10-J-R300004 Task Order: HSCG32-11-J-R300016 Task Order: HSCG32-12-J-R300030 Contract HSCG32-11-P-E55003	
12. Sponsoring Organization Name and Address United States Environmental Protection Agency Great Lakes National Program Office 77 West Jackson Blvd (G-17J) Chicago, IL 60604-3511				13. Type of Report & Period Covered Final	
				14. Sponsoring Agency Code United States Environmental Protection Agency Great Lakes National Program Office	
15. Supplementary Notes The R&D Center's technical point of contact is Gail E. Roderick, 860-271-2868, email: Gail.E.Roderick@uscg.mil .					
16. Abstract (MAXIMUM 200 WORDS) This report combines two earlier reports regarding investigations into the potential for barges and towboats to transport Asian carp upstream across the United States Army Corps of Engineers' electronic dispersal barrier and release them on the Lake Michigan side of the barrier. It summarizes a series of experiments conducted during June 2011 to evaluate the potential for Asian carp larvae to be entrained into and survive in barge ballast tanks on the Illinois River. It also describes investigations in 2010 and 2012 to determine the amount of water normally carried in barge ballast tanks. Experiments were conducted in the LaGrange Reach of the Illinois River. Results indicated few Asian carp larvae were entrained and the majority of entrained fish were non-Asian carp, primarily gizzard shad. Survival of Asian carp larvae in test cages in tanks was high, even when water quality conditions were not favorable (low dissolved oxygen concentrations). A very small percentage (0.56%) of Asian carp survived for 30 minutes after being pumped through either a 2-inch or 3-inch pump. Although long-term survival following pumping was not determined, this extremely low survival rate translates to a minimal risk. Visual inspections of ballast tanks and voids on 132 barges (empty and loaded) and 14 towboats were completed in the Chicago Sanitary and Ship Canal (CSSC) in August 2010. An additional tank survey was conducted in July 2012 on barges operating locally near the electronic dispersal barriers. Overall, only 5 percent of the more than 1000 tanks surveyed contained a measurable amount of water. Dissolved oxygen (DO) in tanks ranged between 0.44 - 7.80 mg/L. Although the water quality conditions were not optimal and water depth was very shallow, tanks could support early developmental stages of Asian carp. Volume I of this report contains the descriptions, results, and conclusions from the experiments and surveys as well as a description of barge design and normal operating procedures. Volume II is comprised of the appendices containing a test plan for experiments and field and laboratory data sheets from the original reports.					
17. Key Words Asian carp, barge ballast tank, water quality, entrainment, larval survival, LaGrange Reach, Illinois River, water transport			18. Distribution Statement Distribution Statement A: Approved for public release; distribution is unlimited.		
19. Security Class (This Report) UNCLAS//Public		20. Security Class (This Page) UNCLAS//Public		21. No of Pages 131	22. Price

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EXECUTIVE SUMMARY

This volume of four appendices supports “Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume I”. That volume report combines two earlier reports regarding investigations into the potential for barges and towboats to transport Asian carp across the U. S. Army Corps of Engineers electronic dispersal barriers in the Chicago Shipping and Sanitary Canal. The work was reported earlier in the reports “Survivability of Asian Carp in Barge Tanks in the Illinois River” and “Water Transport during Normal Operations of Towboats and Barges in the Illinois River”. Due to the size of the individual reports, their large appendices containing a test plan for experiments and field and laboratory data sheets have been combined as “Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II”.

Appendix A is the experimental study plan referred to in “Survivability of Asian Carp in Barge Tanks in the Illinois River”. The plan was not previously published but was used as the basis for the 2011 survivability experiments.

Appendix B consists of field and laboratory data sheets that were generated during the survivability experiments. These are broken into sub-sets to deal with the different aspects of the experiments and analyses.

Appendix C contains the data sheets from the 2010 survey of ballast tanks of towboats and barges to determine the volume of water carried during normal barge operations. The information was reported in “Water Transport during Normal Operations of Towboats and Barges in the Illinois River”.

Appendix D contains data sheets from a similar survey conducted in 2012 of ballast tanks of barges operating locally near the dispersal barriers. The findings from that effort were used to update the original “Water Transport during Normal Operations of Towboats and Barges in the Illinois River” report.

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LIST OF ACRONYMS

ARTCO/ADM	American River Transportation Company/Archer Daniels Midland Co.
COTR	Contracting Officer's Technical Representative
CSSC	Chicago Sanitary and Ship Canal
RDC	Research & Development Center
SAIC	Science Applications International Corporation
UMRS	Upper Mississippi River System
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
YSI	Yellow Springs Instrument



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APPENDIX A. TEST PLAN: ENTRAINMENT AND SURVIVAL OF ASIAN CARP IN BARGE BALLAST TANKS ASIAN CARP TRANSPORT BY TOW BOATS AND BARGES

1 INTRODUCTION

The objective of this project is to determine the potential for early life stages of Asian carp to become entrained into and survive in ballast tanks of barges. This project will also test whether barges and towboats can potentially provide a transport mechanism for Asian carp to bypass the U.S. Army Corps of Engineers (USACE) electric dispersal barrier in the Chicago Sanitary and Ship Canal (CSSC). This study will conduct a series of tests to determine if carp eggs, larvae, or small fry can become entrained, transported, and survive in vessel ballast water and bypass the fish barrier.

Science Applications International Corporation (SAIC) has assembled a team of experts to perform this study. The Team includes the following subcontractors: ECORP Consulting, Tenera Environmental, and the University of Illinois (Illinois River Biological Station). Each of these subcontractors has specific expertise for aquatic resources, ichthyoplankton, and/or Asian Carp ecology. See 0 for a list of the study participants.

2 BACKGROUND

Bighead and silver carp (collectively, Asian carp) were intentionally introduced to Arkansas in the early 1970's. Shortly thereafter, they escaped aquacultural confinement and are now distributed throughout waters of the Upper Mississippi River System (UMRS). Asian carp were introduced to improve water quality of aquaculture ponds. These species invaded rivers through pond escapement or by deliberate introductions and were first documented in the UMRS in 1982. Asian carp are voracious planktivores and reproduce rapidly. They may grow up to 4 feet in length and weigh up to 100 pounds. Asian carp are now some of the most abundant fish species in some areas of the Mississippi River. Some scientists suggest that Asian carp could become a dominant species in the Great Lakes.

USACE constructed a permanent electrical barrier to protect Lake Michigan and the Great Lakes from Asian carp that are moving up the Illinois River. The CSSC Dispersal Barrier stretches two arrays of electrodes across the canal (approximately 220 feet apart). The electrodes pulse direct current into the water; this causes fish to turn back rather than pass through the electric current. In June 2010, the Illinois Department of Natural Resources captured one 20-pound live Asian carp in Lake Calumet, which sits near the Illinois-Indiana border and is connected to Lake Michigan's canal system. This fish represented the first physical specimen that has been found above the electric barrier system. No information exists on potential transport mechanisms for other stages of Asian carp, including eggs and larvae.

Reproductive needs of adult bighead and silver carp are similar and have been well documented (DeGrandchamp, et al., 2007 (Reference 1)). Generally, these species require water temperatures of at least 17.8 °C, with an optimum range of 21-26.8 °C. River flow is also important for successful spawning; with water velocities of 0.7 m/s (2.3 fps) or higher needed for productive spawning. The length of unimpeded river required for successful spawning by silver carp may be 100 km or more (Gorbach and Krykhtin 1980 (Reference 2)).

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Yi, et. al. (1988, as translated by Duane Chapman 2006 (Reference 3)) have documented the egg and larval stages of grass, black, silver and bighead carps in the Yangtze River. This early paper also reported the development times, but water temperature were not tightly controlled, so it is not certain if the development times they reported are similar to what would be observed in the Illinois River. Chapman (personal communications) stated that they are currently working on growth and development rates at controlled temperatures to better understand the early egg and larval stages of silver and bighead carp. In the Yangtze River, after the eggs are released and fertilized, they undergo development to the larval stage in between about 33-35 hours and then continue larval development. Chapman (personal communications) stated that after about 100-200 hours, the larvae move out of the current and move into generally shallower areas and are then generally found oriented to natural or man-made substrates.

3 TECHNICAL APPROACH

We propose to conduct all experiments in the La Grange Reach of the Illinois River, between La Grange Lock & Dam located south of Beardstown, Illinois, upstream to Peoria Lock & Dam located near Peoria, Illinois (Figure 1). Asian carp spawning has been often observed in this reach over the past 10 years. This stretch of the river likely contains the greatest ambient densities of wild Asian carp in the world (Sass, et al., 2010, Biological Invasions (Reference 4)). Details concerning each experiment are presented below. **Error! Reference source not found.** provides data sheets that will be used during these experiments. We will conduct the following testing first in the river current in an area that has been verified to have Asian carp eggs and larvae based on plankton tows. Soon after the first test has been completed, we will conduct a second test period downriver from the start of the first test in an area hopefully containing eggs and larval individuals. If only one spawning event takes place, it is possible that only larger larval stages will be available for this second test based on information from Chapman. It is also possible that these larger larvae might be difficult to catch with the plankton net due to their behavioral change at about 100-200 hours of life. If they cannot be successfully captured using the plankton nets, but can be caught in and around natural and man-made structures using dip nets, then we will use this technique to collect larvae for the second survival experiments that is scheduled to take place in quieter waters. If spawning continues after the first and second tests, an optional third test could be implemented.

3.1 Technical Approach to Evaluate Leakage Effects via Entrainment Experiments (Task 3.4)

For all tests during this study, American River Transportation Company/Archer Daniels Midland Co. (ARTCO/ADM) under contract to the U.S. Coast Guard (USCG) will furnish a barge modified to simulate leakage into ballast tanks. The SAIC Team will coordinate with the barge operator (ARTCO/ADM) and the Contracting Officer's Technical Representative (COTR)/Workgroup to schedule experiments aboard the barge according to the finalized experimental sampling design. Prior to commencing the entrainment experiments, the Team will verify that the barge is located within an area with early life stages of Asian carp by conducting plankton tows in the potential study area. ARTCO/ADM will then position the barge in this area where Asian carp larvae have been located and we will preserve a representative sample of the collected eggs and larvae from that area.

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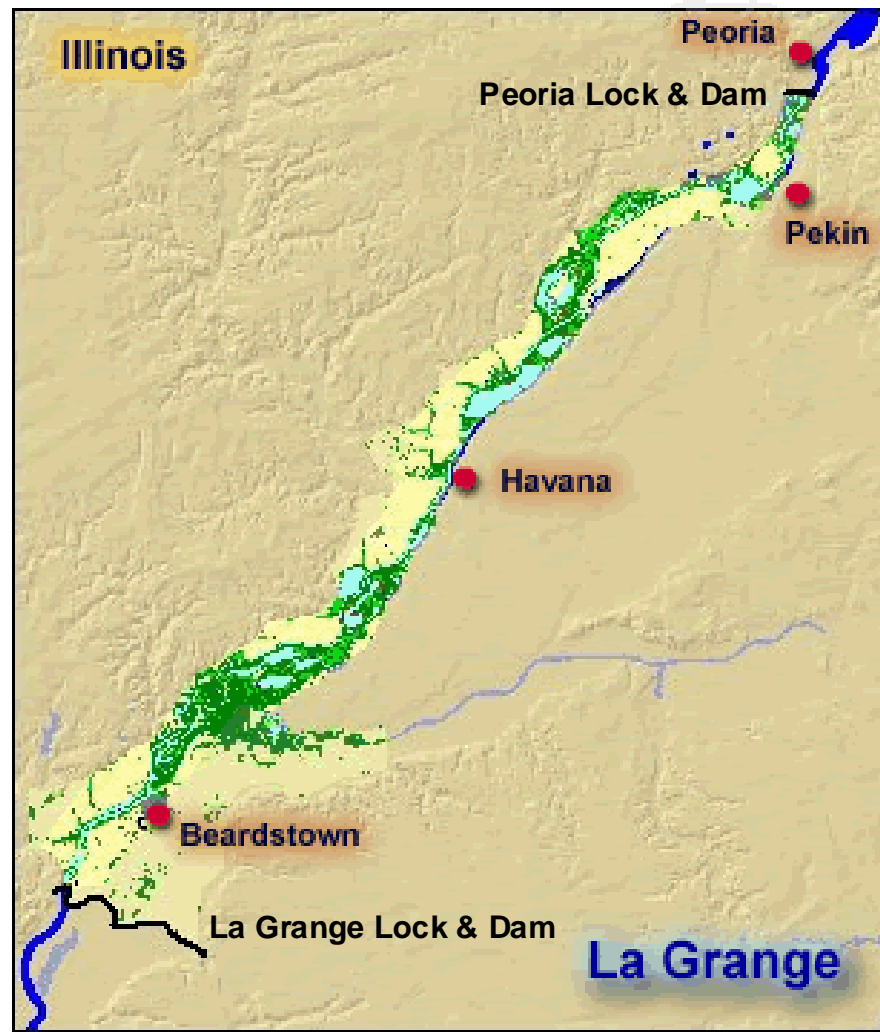


Figure 1. Location of the experiments.

We will conduct plankton tows from a University of Illinois, Illinois River Biological Station research vessel using a 500-micron mesh net deployed at surface water depths. At the conclusion of each tow, we will lift the net from the water and carefully rinse the contents into the cod end (collecting bucket) at the bottom of the net. We will check the collected material for the presence of Asian carp eggs and larvae using a dissecting microscope. When Asian carp eggs and larvae are found, we will mark the location for positioning the test barge. We will preserve a representative sample of the eggs and larvae collected at this location.

The Team will work with ARTCO/ADM to flood four experimental tanks to the depth of approximately 3 feet in the area where Asian carp eggs and larvae were located. At approximately the times defined in the finalized test plan (Table 1), the Team will sequentially pump out the appropriate tank using a 3" water pump. We will adjust this schedule in the field based on the timing of the initial flooding of the tanks. We will filter this pump-out water through a plankton net suspended in the river to help minimize the impact of the eggs and larvae striking the net mesh. We will position the top of the net above the water surface so that water and its contents will be filtered through the net. The Team will immediately analyze each resulting sample following the pump-out to determine the number, life stage, and initial viability of Asian carp eggs

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and larvae. We will preserve all viable eggs and larvae in a labeled vial; we will preserve all dead eggs and larvae in a separate labeled vial. We will send all preserved samples to the laboratory at the conclusion of the field testing. The laboratory will record the number of individuals in each life stage number based on the stage numbering system presented by Yi, et al. (1988) (Reference 3).

Table 1. Expected fill and empty times in hours.

Tank #	Fill	Empty	Refill	Empty
1	0	8	12	120
2	0	24	28	132
3	0	48	52	144
4	0	72	76	156

We will record all field-collected data on data sheets (see **Error! Reference source not found.**) and enter the data into an electronic database (Microsoft® Office Access®) for data analyses.

The barge will drift down the river and try to maintain its proximity to the group of larval carp from which the original plankton tows were collected. Prior to re-flooding each tank after pump-out, we will use additional plankton tows during daylight hours to verify that the barge is in the water mass containing Asian carp eggs and larvae. The Team will then empty and re-flood the appropriate tank. We will analyze the eggs and larvae contained in the pumped-out water soon after collection based on the proposed preliminary schedule in Table 2. We will adjust the times in this table in the field based on the actual time of the first flooding of the barge tanks. In addition to larval fish data, the Team will collect water quality data throughout the study in both the experimental tanks and ambient (river) locations. Water quality parameters to be recorded include water depth, water temperature, dissolved oxygen, pH, and ammonia (total and unionized). We will use a Yellow Springs Instrument (YSI) water quality probe to collect all parameters except ammonia, which will be collected using a Turner Fluorometer. We will collect data at a minimum in early morning and late afternoon for the duration of the experiment. We will record all water quality data on separate sequenced data sheets (see **Error! Reference source not found.**).

3.2 Technical Approach to Evaluate Asian Carp Survival in Tanks (Task 3.5)

We will run Asian carp survival experiments concurrently with entrainment experiments (Section 3.1). The barge will already be located in an area confirmed by plankton tows to have Asian carp for the entrainment experiments. After the barge tanks are flooded, the Team will deploy three cages containing a known number of eggs and larvae into each flooded tanks. We will construct the cages from 5-gallon buckets with lids. We will cut openings in the sides and lids and will cover the openings with 500-micron mesh netting held in place by aquarium-grade silicone. We will collect Asian carp eggs and larvae using the same plankton net setup used for Task 3.4, but we will limit the tow length to approximately 2-5 minutes to decrease the time the eggs and larvae are in the net. We are targeting 20 eggs and 30 larvae in each cage but, if fewer individuals are available in the river tows, we will adjust this number.

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Table 2. Preliminary proposed sampling schedule for Tasks 3.4 - 3.5.

Note: Times are based on flooding and pump-out each taking 2 hours. Task 3.6 will be conducted after Day 1.

running time (hrs)	day	time	Tank 1	Tank 2	Tank 3	Tank 4	Control A cages	Control B cages	
	0	0800	preliminary collection of eggs and larvae and placement into test cages to help determine handling times. Also determine initial location for barge placement						
-3	1	0500	begin egg/larval collections [A]	begin egg/larval collections [A]	begin egg/larval collections [A]	begin egg/larval collections [A]	begin egg/larval collections [A]	begin egg/larval collections [A]	
0	1	0800	tank empty, filling begins	tank empty, filling begins	tank empty, filling begins	tank empty, filling begins			
2	1	1000	filling completed	filling completed	filling completed	filling completed			
8	1	1600	begin egg/larval collections [B]				cages w/ larvae suspended in river	cages w/ larvae suspended in river	
10	1	1800	pump out begins (8 hr)				begin egg/larval collections [B]		
12	1	2000	pump out end, filling begins				larvae removed (8 hr) and replaced		
14	1	2200	filling completed						
24	2	0800		begin egg/larval collections [C]				begin egg/larval collections [C]	
26	2	1000		pump out begins (24 hr)				larvae removed (24 hr) and replaced	
28	2	1200		pump out end, filling begins					
30	2	1400		filling completed					
48	3	0800			begin egg/larval collections [D]				
50	3	1000			pump out begins (48 hr)				
52	3	1200			pump out end, filling begins				
54	3	1400			filling completed				
72	4	0800				begin egg/larval collections [E]	begin egg/larval collections [E]		
74	4	1000				pump out begins (72 hr)	larvae removed (72 hr) and replaced		
76	4	1200				pump out end, filling begins			
78	4	1400				filling completed			
98	5	1000	pump out (108 hr)						
120	6	0800							
122	6	1000					larvae removed (48 hr)	larvae removed (96 hr)	
134	6	2200		pump out (104 hr)					
146	7	1000			pump out (92 hr)				
158	7	midnight				pump out (80 hr)			



At the conclusion of each tow, we will lift the net from the water and carefully rinse the contents into the cod end. We will transfer the collected material to a holding chamber from which we will remove the Asian carp eggs and larvae and place them in a container of river water that was filtered through 500-micron mesh net. We will place these eggs and larvae in the test cages with three test cages being suspended in each barge tank water soon after they have been flooded. We will record the number of eggs and larvae placed in each numbered cage on a data sheet (**Error! Reference source not found.**). Just prior to the tanks being pumped out, we will remove the three test cages and record the number of live and dead eggs and larvae in each cage. To determine the effects of ballasting operations and residence time on the viability and survival of Asian carp early life stages, we will analyze the eggs and larvae in each cage for number, life stage, and viability. We will remove eggs considered nonviable and any dead larvae, preserve them in labeled vials, and archive for later analysis in the laboratory. We will preserve all live eggs and larvae in a separate labeled vial. Each vial label will contain at a minimum the date, survey, tank number, fill number, and cage number to allow tracking of the results of each test. We also plan to set up two sets (three each) of control cages each containing live eggs and larvae. We will suspend the control cages in the river off the side of the barge. These controls as set up will allow a determination of viability after 8, 24, 48, 72, and 96 hours of being submerged in the river. We will check the larvae in these cages for viability on the schedule presented in Table 2.

The Team will measure the same water quality parameters as collected in the entrainment study above (Section 3.1), including water depth, water temperature, dissolved oxygen, pH, and ammonia. We will record measurements in the ballast tanks and alongside the barge at least twice daily.

3.3 Technical Approach to Evaluate Pump Effects on Asian Carp (Task 3.6)

We will carry out this task in conjunction with both the entrainment (Section 3.1) and survival (Section 3.2) experiments. With the barge in an area known to have Asian carp eggs and larvae (as verified with plankton tows) and with the assistance of ARTCO/ADM, the Team will pump a known volume of river water (at least 100 gallons) with a 3" water pump into a plankton net submerged in the river in the same manner as is conducted for Task 3.4 (Section 3.1). The Team may also use a 2" water pump to for this testing to compare pump effects with the two pump sizes available on the barge. We will analyze samples collected during this task in the field soon after collection to determine viability of the carp life stages and to assess potential effects of pumping on their viability after a single pass through the pump assembly. We will handle these samples using the same methods described above for the entrainment (Section 3.1) and survival (Section 3.2) experiments to verify number of individuals in each life stage number.

Results of all three experiments and the finalized Test Plan will be presented in the Final Report.

4 REFERENCES

1. DeGrandchamp, et al., 2007, Linking Adult Reproduction and Larval Density of Invasive Carp in a Large River.
2. Gorbach and Krykhtin, 1980, Maturation rate of the white amur *Ctenopharyngodon idella* and silver carp *Hypophthalmichthys molitrix* in the Amur River, *Journal of Ichthyology*, 21(4):835–843.
3. Yi, B., Z. Liang, Z. Yu, R. Lin, and M. Hee, 1988, as translated by Duane Chapman 2006, Gezhouba Water Control Project and four famous fishes in Yangtze River, Hubei Science and Technology Press, Wuhan, China.
4. Sass, et al., 2010, *Biological Invasions*.

Appendix A: Study Participants

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Appendix B: Data Sheets

Figure A-1 through Figure A-3 show the data sheets for the experiments.

Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - FILL/EMPTY Datasheet			
Survey #: _____		Survey Start Date: _____	
Sheet #: _____			
Location: _____			
<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>	<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>		
<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>	<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>		
<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>	<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>		
<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>	<p style="text-align: center;">(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p style="text-align: center;">FILLED EMPTIED</p> <p>Date: _____</p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>		
<p>NOTES</p>	<p>Review By / Date: _____</p> <p>Entered By / Date: _____</p>		

Figure A-1. Entrainment Fill/Empty Data Sheet.

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Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: _____ Survey Start Date: _____ Sheet #: _____

Location: _____

FIELD DATA															
Tank # (1-4): _____				Fill # for Tank (1-2): _____											
Task: _____ (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])															
If Ballast or Pump then Volume: _____															
If Cage then (# Eggs Inserted): _____							(# Larvae Inserted): _____								
DEAD				ALIVE				DEAD				ALIVE			
Number of EGGS: _____							Number of LARVAE: _____								

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count

NOTES	Review By / Date: _____ Entered By / Date: _____
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Figure A-2. Field/Lab Data Sheet.



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Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - WATER QUALITY Datasheet Sheet #: _____

Survey #: _____ Survey Start Date: _____ Location: _____

Site	Date (mm/dd/yy)	AM							PM						
		Time	Water		DO	pH	Ammonia		Time	Water		DO	pH	Ammonia	
			Depth (ft)	Temp (°C)			Total	Unionized		Depth (ft)	Temp (°C)			Total	Unionized
T1															
T2															
T3															
T4															
R															
T1															
T2															
T3															
T4															
R															
T1															
T2															
T3															
T4															
R															
T1															
T2															
T3															
T4															
R															

NOTES

Site: T# - Tank #; R - River

Review By / Date: _____

Entered By / Date: _____

Figure A-3. Water Quality Data Sheet.

APPENDIX B. FIELD AND LABORATORY DATA SHEETS FROM 2011 SURVIVABILITY EXPERIMENTS

Appendix B is comprised of field and laboratory data sheets filled out during the experiments and later analyses. Two sets of experiments or trials were conducted on the Illinois River near Pekin, IL during June 2011. The data sheets are grouped according to experiment type.

Appendix B1: Times for Fill and Empty of each Tank during Entrainment and Survival Testing

Appendix B2: Water Quality Measurement Datasheets

Appendix B3: Trial 1. Asian carp entrainment/leakage (Task 3.4) laboratory datasheet

Appendix B4: Trial 1. Asian carp survival (Task 3.5) laboratory datasheets – in tank cages

Appendix B5: Trial 1. Asian carp survival (Task 3.5) laboratory datasheets – control cages

Appendix B6: Trial 2. Asian carp entrainment/leakage (Task 3.4) laboratory datasheets

Appendix B7: Trial 2. Asian carp survival (Task 3.5) laboratory datasheets – in tank cages

Appendix B8: Trial 2. Asian carp survival (Task 3.5) laboratory datasheets – control cages

Appendix B9: Trial 2. Plankton Tow Datasheets during Tank Filling

NOTE: The word “Survey” in the following datasheets is referred to as “Trial” in the report text. Two (2) trials were conducted for the entrainment, survival, and pump effects experiments.

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Appendix B1: Times for Fill and Empty of each Tank during Entrainment and Survival Testing

Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - FILL/EMPTY Datasheet

Survey #: 1 - Run #1 Survey Start Date: 11 June 2011 Sheet #: 1
 Location: POUND DOCK

(T1 - T4)	(F1 - F2)	(T1 - T4)	(F1 - F2)
Tank #: <u>T1</u> Fill # for Tank: <u>F1</u> Date: <u>11 June 11</u> Time: <u>0925</u> Water Depth (ft): <u>3 ft.</u> → <u>51" actual</u> # Hours Filled (Target): <u>8 hrs</u> (Actual): <u>8 hr</u>	Tank #: <u>F1</u> Fill # for Tank: <u>F1</u> Date: <u>11 June 11</u> Time: <u>17:30</u> Water Depth (ft): <u>51" actual</u> # Hours Filled (Target): <u>8 hrs</u> (Actual): <u>8 hr</u>	Tank #: <u>T1</u> Fill # for Tank: <u>F2</u> Date: <u>11 June 11</u> Time: <u>9:23 pm</u> Water Depth (ft): <u>48"</u> # Hours Filled (Target): <u>108</u> (Actual): <u>132</u>	Tank #: <u>F2</u> Fill # for Tank: <u>F2</u> Date: <u>6/17/11</u> Time: <u>9:30</u> Water Depth (ft): <u>48"</u> # Hours Filled (Target): <u>108</u> (Actual): <u>132</u>
Tank #: <u>T2</u> Fill # for Tank: <u>F1</u> Date: <u>11 June 11</u> Time: <u>0925</u> Water Depth (ft): <u>3 ft</u> → <u>54" actual</u> # Hours Filled (Target): <u>24 hrs</u> (Actual): <u>24</u>	Tank #: <u>F1</u> Fill # for Tank: <u>F1</u> Date: <u>6/12/11</u> Time: <u>0930</u> Water Depth (ft): <u>54" actual</u> # Hours Filled (Target): <u>24 hrs</u> (Actual): <u>24</u>	Tank #: <u>T2</u> Fill # for Tank: <u>F2</u> Date: <u>6/12/11</u> Time: <u>12:00 noon</u> Water Depth (ft): <u>50.5"</u> # Hours Filled (Target): <u>104 hrs</u> (Actual): <u>117</u>	Tank #: <u>F2</u> Fill # for Tank: <u>F2</u> Date: <u>6/17/11</u> Time: <u>09:15</u> Water Depth (ft): <u>50.5"</u> # Hours Filled (Target): <u>104 hrs</u> (Actual): <u>117</u>
Tank #: <u>T3</u> Fill # for Tank: <u>F1</u> Date: <u>11 June 11</u> Time: <u>0937</u> Water Depth (ft): <u>3 ft</u> → <u>44"</u> # Hours Filled (Target): <u>48 hrs</u> (Actual): <u>48 hrs</u>	Tank #: <u>F1</u> Fill # for Tank: <u>F1</u> Date: <u>13 Jun 11</u> Time: <u>0930</u> Water Depth (ft): <u>44"</u> # Hours Filled (Target): <u>48 hrs</u> (Actual): <u>48 hrs</u>	Tank #: <u>T3</u> Fill # for Tank: <u>F2</u> Date: <u>13 Jun 11</u> Time: <u>12:12</u> Water Depth (ft): <u>47" actual</u> # Hours Filled (Target): <u>92 hrs</u> (Actual): <u>94.5</u>	Tank #: <u>F2</u> Fill # for Tank: <u>F2</u> Date: <u>6/17/11</u> Time: <u>10:45</u> Water Depth (ft): <u>47" actual</u> # Hours Filled (Target): <u>92 hrs</u> (Actual): <u>94.5</u>
Tank #: <u>T4</u> Fill # for Tank: <u>F1</u> Date: <u>11 June 11</u> Time: <u>0930</u> Water Depth (ft): <u>3 ft</u> → <u>41" actual</u> # Hours Filled (Target): <u>72 hrs</u> (Actual): <u>72 hrs</u>	Tank #: <u>F1</u> Fill # for Tank: <u>F1</u> Date: <u>14 June 11</u> Time: <u>0935</u> Water Depth (ft): <u>41" actual</u> # Hours Filled (Target): <u>72 hrs</u> (Actual): <u>72 hrs</u>	Tank #: <u>T4</u> Fill # for Tank: <u>F2</u> Date: <u>14 June 11</u> Time: <u>11:50 am</u> Water Depth (ft): <u>48" actual</u> # Hours Filled (Target): <u>80</u> (Actual): <u>72</u>	Tank #: <u>F2</u> Fill # for Tank: <u>F2</u> Date: <u>6/17/11</u> Time: <u>11:45</u> Water Depth (ft): <u>48" actual</u> # Hours Filled (Target): <u>80</u> (Actual): <u>72</u>
NOTES		Review By / Date: <u>CP 6/28/11</u> Entered By / Date: <u>SHob-28-11</u>	

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - FILL/EMPTY Datasheet

Survey #: 2 run #2 Survey Start Date: 6/18/11 Sheet #: 2
 Location: PeKin

<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T1</u> Fill # for Tank: <u>F1</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/18/11</u> <u>6/24/11</u></p> <p>1st cage → Time: <u>11:20</u> <u>11:45</u></p> <p>Water Depth (ft): <u>56</u></p> <p># Hours Filled (Target): <u>156</u> (Actual): <u>144</u></p>	<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: _____ Fill # for Tank: _____</p> <p>FILLED EMPTIED</p> <p>Date: _____ <u>6/24/11</u></p> <p>Time: _____</p> <p>Water Depth (ft): _____</p> <p># Hours Filled (Target): _____ (Actual): _____</p>
<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T2</u> Fill # for Tank: <u>F1</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/18/11</u> <u>6/19/11</u></p> <p>1st cage → Time: <u>10:35</u> <u>10:30</u></p> <p>Water Depth (ft): <u>59</u></p> <p># Hours Filled (Target): <u>24</u> (Actual): <u>24</u></p>	<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T2</u> Fill # for Tank: <u>F2</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/19/11</u> <u>6/24/11</u></p> <p>Time: <u>13:32</u> <u>09:45</u></p> <p>Water Depth (ft): <u>45</u></p> <p># Hours Filled (Target): _____ (Actual): <u>115</u></p>
<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T3</u> Fill # for Tank: <u>F1</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/18/11</u> <u>6/20/11</u></p> <p>1st cage → Time: <u>11:00</u> <u>10:45</u></p> <p>Water Depth (ft): <u>48</u></p> <p># Hours Filled (Target): <u>48</u> (Actual): <u>48</u></p>	<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T3</u> Fill # for Tank: <u>F2</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/20/11</u> <u>6/24/11</u></p> <p>Time: <u>13:10</u> <u>10:00</u></p> <p>Water Depth (ft): <u>48</u></p> <p># Hours Filled (Target): _____ (Actual): <u>93</u></p>
<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T4</u> Fill # for Tank: <u>F1</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/18/11</u> <u>6/21/11</u></p> <p>1st cage → Time: <u>11:10</u> <u>10:55</u></p> <p>Water Depth (ft): <u>49</u></p> <p># Hours Filled (Target): <u>72</u> (Actual): <u>72</u></p>	<p>(T1 - T4) (F1 - F2)</p> <p>Tank #: <u>T4</u> Fill # for Tank: <u>F2</u></p> <p>FILLED EMPTIED</p> <p>Date: <u>6/21/11</u> <u>6/24/11</u></p> <p>Time: <u>13:00</u> <u>11:30</u></p> <p>Water Depth (ft): <u>48</u></p> <p># Hours Filled (Target): _____ (Actual): <u>70.5</u></p>
<p>NOTES</p>	<p>Review By / Date: <u>CE 6/20/11</u></p> <p>Entered By / Date: <u>SOB 6-28-11</u></p>



Appendix B2: Water Quality Measurement Datasheets

recorder: D. Heilprin (Scorp)

Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - WATER QUALITY Datasheet

Sheet #: 1

Survey #: 1 - run #1 Survey Start Date: 6/11/11

Location: Pekin, IL (Artco Floating)

Site	Date (mm/dd/yy)	AM						Ammonia	
		Time	Water Depth (#) ft	Temp (°C)	DO	conduct us pH	Total	Un-ionized	
T1	06/11/11	0955	51"	25.2	6.55	628	0.25	0.25	
T2	06/11/11	0958	54"	24.9	4.53	550	0.25	0.25	
T3	06/11/11	1001	44"	25.1	4.01	644	0.25	0.25	
T4	06/11/11	1003	41"	25.0	4.62	614	0.25	0.25	
R	06/11/11	1010	Surface	25.0	4.99	650	0.25	0.25	
T1									
T2	6/12/11	0930	54"	24.2	3.42	576	0.50	0.50	
T3									
T4									
R	6/12/11	0930	Surface	24.4	5.23	666	0.25	0.25	
T1									
T2									
T3	6/13/11	0930	44"	24.1	1.87	612	0.50	0.50	
T4									
R	6/13/11	0930	Surface	23.7	4.90	666	0.25	0.25	
T1									
T2									
T3									
T4	6/14/11	0930	41"	23.1	2.39	589	0.50	0.50	
R	6/14/11	0930	Surface	23.1	5.07	644	0.50	0.50	

NOTES: Ammonia by API Test kit
Tank #3 had oil sheen

Site: T# - Tank #; R - River

Site	Date (mm/dd/yy)	PM						Ammonia	
		Time	Water Depth (#) ft	Temp (°C)	DO	conduct us pH	Total	Un-ionized	
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									
T1									
T2									
T3									
T4									
R									

Review By / Date: CE 6/20/11

Entered By / Date: SA 06-28-11



Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - WATER QUALITY Datasheet

Sheet #: 2

Survey #: 1 - Run #1

Survey Start Date: 6/11/11

Location: Pekin

Site	Date (mm/dd/yy)	AM						Ammonia	
		Time	Water Depth (ft)	Temp (°C)	DO	pH	Total	Unionized	
T1	06/15/11	0850	RIVER	22.0	5.50	606	.25		
T2		0900	TANK 1	22.4	2.74	610	.25		
T3		0903	TANK 2	22.3	2.50	606	.25		
T4		0906	TANK 3	22.3	2.55	628	.25		
R		0908	TANK 4	22.5	2.80	613	.25		
T1	6/17/11	0920	48	23.6	1.62	615	0.25		
T2		0907	50.5	22.5	1.68	604	0.25		
T3		10:48	47	23.4	0.95	637	0.25		
T4		11:40		24.1	1.54	609	0.25		
R		0905	Surface	22.5	5.42	534	0.25		
T1									
T2									
T3									
T4									
R									
END of Run #1									
T1									
T2									
T3									
T4									
R									
NOTES * Ammonia = Total Ammonia									

Site: T# - Tank #; R - River

Time	Water			DO	pH	Ammonia	
	Depth (ft)	Temp (°C)	Total			Unionized	

Review By / Date: _____

Entered By / Date: SA 06-28-11



Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - WATER QUALITY Datasheet

Sheet #: 3

Survey #: 2 (run #2)

Survey Start Date: 6/18/11

Location: Pekin, IL

Site	Date (mm/dd/yy)	AM					
		Time	Water Depth (ft) In	Temp (°C)	DO	cond: pH	ppm Ammonia Total Unionized
T1	06/18/11	10:28	56	22.8	5.51	546	0.50
T2	06/18/11	10:30	59	22.8	4.70	549	0.50
T3	06/18/11	10:32	48	22.7	4.87	552	0.50
T4	06/18/11	10:35	49	22.7	5.31	546	0.25
R	06/18/11	10:25	surf	22.7	5.42	537	0.50
T1						pH	
T2	06/19/11	10:30	59	23.2	2.36	7.0	0.50
T3							
T4							
R	06/19/11	10:15	surf	23.0	5.27	7.2	0.50
T1						cond:	
T2							
T3	6/20/11	10:45	48	23.0	3.09	540	0.25
T4							
R	6/20/11	10:15	surf	23.5	5.51	565	0.25
T1						pH	
T2							
T3							
T4	6/21/11	10:45	49	24.3	4.14	7.6	0.25
R	6/21/11	10:30	surf	24.3	5.39	7.6	0.25

NOTES pH meter faulty on 6/20/11 - measured conductivity
pH measured on 6/21/11 - API pH kit

Site: T# - Tank #; R - River * 7.6 pH value → ≥ 7.6

Time	Water			DO	pH	Ammonia	
	Depth (ft)	Temp (°C)	Total			Unionized	

Review By / Date: CE 6/20/11

Entered By / Date: SH 06-28-11

Coast Guard/SAIC Entrainment and Survival of Asian Carp in Ballast Tanks - WATER QUALITY Datasheet

Sheet #: 4

Survey #: 2

Survey Start Date: 6/18/11

Location: Pekin, IL

Site	Date (mm/dd/yy)	AM						
		Time	Water		DO	pH	Ammonia	
			Depth (ft)	Temp (°C)			Total	Unionized
T1	06/24/11	11:45	56	22.6	1.14	7.6	0.25	
T2	06/24/11	09:45	45	22.2	1.23	7.6	0.25	
T3	06/24/11	09:55	48	22.4	0.86	7.6	0.25	
T4	06/24/11	11:25	48	22.6	1.15	7.6	0.25	
R	06/24/11	09:35	surf	22.4	5.27	7.6	0.50	
T1								
T2								
T3								
T4								
R								
T1								
T2								
T3								
T4								
R								
T1								
T2								
T3								
T4								
R								

NOTES * Note pH at 7.6 → ≥ 7.6

Site: T# - Tank #; R - River

Time	PM						
	Depth (ft)	Temp (°C)	DO	pH	Ammonia		
					Total	Unionized	

Review By / Date: CE 6/20/11

Entered By / Date: SH 06-28-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Appendix B3: Trial 1. Asian carp entrainment/leakage (Task 3.4) laboratory datasheets

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1

Survey Start Date: 6.11.11

Sheet #: 25

Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T1</u>	<u>ORBO fill 6-11-11</u>	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>P1</u>	<u>SHR PUMPOUT</u>	<u>Pump out 6-11-11</u>
If Ballast or Pump then Volume: _____		Task #: <u>SOAK TIME St</u>	
If Cage then (# Eggs Inserted): _____		(# Larvae Inserted): _____	
<u>DEAD</u>	<u>ALIVE</u>	<u>DEAD</u>	<u>ALIVE</u>
Number of EGGS: _____	_____	Number of LARVAE: <u>2</u>	_____

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>1</u>	<u>1</u>	<u>PUMP</u>	<u>(CHECKS) LARVAE</u>	<u>NOT AC</u>	<u>D</u>	<u>2</u>							
		<u>PUMPOUT OF T1</u>											
<u>3900</u>	<u>NON-AC</u>		<u>L</u>		<u>D</u>	<u>2</u>							

NOTES
 - LARVAE found in first half of PUMPOUT. 2 LARVAE
 - second 1/2 of PUMPOUT had lots of RUST
 in COBEND. (NO BLARVAE)
 2" PUMP used - took long time to PUMPOUT
 - BOTH LARVAE WERE GIZZARD SHAQ.

Review By / Date: AE 8/16/11

Entered By / Date: SA 08-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 43
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T1</u>	IN 2123 6-11 OUT 0900 - 6/17/11	Fill # for Tank (1-2): <u>F2</u>
Task:	<u>P2</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
DEAD		ALIVE	
Number of EGGS:	_____	Number of LARVAE:	<u>1</u> <u>0</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
(TAG READ P/F2 (I THINK I MEAN T/F2) DATED 6-17)													
3899	AC	P	L	45	D	1							

NOTES: LARGEST AC I HAVE SEEN SO FAR (7-22-11)
- TO VOUCHER COLLECTION

Review By / Date: @ 5/16/11
 Entered By / Date: SW 08-10-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1

Survey Start Date: 6/11/11

Sheet #: 32

Location: Pekin

FIELD DATA

Tank # (1-4): T-2 PUMPED 6/12/2011 Fill # for Tank (1-2): F1

Task: PUMP-1 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])

If Ballast or Pump then Volume: _____ Task #: 34 24 Hrs

If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____

Number of EGGS: _____ DEAD ALIVE DEAD ALIVE
 Number of LARVAE: 1 DEAD ALIVE 1 0

LAB DATA

Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900	NON	-AC	L		D	1							

NOTES
 - LARVAE WAS GIZZARD SWAD
 - A FISH BEAD ALSO IN SAMPLE

Review By / Date: SA 5/10/11

Entered By / Date: SA 08-18-11

7/10/15



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-11 Sheet #: 44
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T2</u>	Fill # for Tank (1-2):	<u>F2</u>
Task:	<u>P2</u>	<small>(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])</small>	
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
Number of EGGS:	<u>DEAD</u> _____ <u>ALIVE</u> _____	Number of LARVAE:	<u>DEAD</u> \emptyset _____ <u>ALIVE</u> \emptyset

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
<small>(T1-T4)</small>	<small>(F1-F2)</small>	<small>(B, P#, C#)</small>	<small>(E or L)</small>	<small>(1-48)</small>	<small>(A/D)</small>		<small>(T1-T4)</small>	<small>(F1-F2)</small>	<small>(B, P#, C#)</small>	<small>(E or L)</small>	<small>(1-48)</small>	<small>(A/D)</small>	
		\emptyset											
1413		no fish											

NOTES	Review By / Date: <u>CE 8/16/11</u> Entered By / Date: <u>SH OB 10-11</u>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6.11.11 Sheet #: 66
 Location: PERLIN

FIELD DATA			
Tank # (1-4):	<u>T3</u>	IN 0930 6/11/11	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>Pump-1</u>	OUT 0930 6/13/11	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
	<u>DEAD</u> <u>ALIVE</u>		<u>DEAD</u> <u>ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>13</u> <u> </u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>300</u>	<u>NON</u>	<u>AC</u>	<u>L</u>		<u>D</u>	<u>13</u>							

NOTES - 2 POSS - CY ARMS BUT DAMAGED - 8 GIZZARD SHAD	Review By / Date: <u> </u> 8/16/11 Entered By / Date: <u>SM</u> 08-18-11
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/11 Sheet #: 45
 Location: PEKIN

FIELD DATA			
Tank # (1-4): <u>T3</u>	<u>IO: 1212</u> <u>OUT: 1045</u>	<u>6/13/11</u> <u>6/19/11</u>	Fill # for Tank (1-2): <u>F2</u>
Task: <u>P2</u> (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])			
If Ballast or Pump then Volume: _____		Task #: _____	
If Cage then (# Eggs Inserted): _____		(# Larvae Inserted): _____	
<u>DEAD</u> <u>ALIVE</u>		<u>DEAD</u> <u>ALIVE</u>	
Number of EGGS: _____		Number of LARVAE: <u>1</u> <u>0</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>3900</u>	<u>NON-AC</u>		<u>L</u>		<u>D</u>	<u>1</u>							

<p>NOTES <u>NEW BRACK. PUT IN VOUCHER TO IO" DMB</u></p>	<p>Review By / Date: <u>Q 8/16/11</u></p> <p>Entered By / Date: <u>SA 08-18-11</u></p>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/11 Sheet #: 39
 Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>T4</u> <i>w/ 0930 6/11/11</i>	Fill # for Tank (1-2): <u>F1</u>
Task: <u>PUMP-1</u> <i>or 0930 6/11/11</i>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
If Ballast or Pump then Volume: _____	Task #: _____
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): _____
DEAD ALIVE	DEAD ALIVE
Number of EGGS: _____	Number of LARVAE: <u>14</u> <i>10</i>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
-		Damaged	AC?		D	7							
1456		Damaged	Not AC		D	7 ⁺ (14)							
3306		FRAG	L		D	3							
3899		AC	L	41	D	1							

NOTES

Review By / Date: CE 6/16/11
 Entered By / Date: SA 08/18/11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1

Survey Start Date: 6/10/11

Sheet #: 46

Location: PERA

FIELD DATA			
Tank # (1-4):	<u>T4</u>	Fill # for Tank (1-2):	<u>F2</u>
Task:	<u>P2</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
DEAD		ALIVE	
Number of EGGS:	_____	Number of LARVAE:	<u>1</u> <u>0</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>3900</u>	<u>NON-AC</u>		<u>L</u>		<u>D</u>	<u>1</u>							

NOTES: APPEARS TO BE DAMAGED CYPRINO BUT LOW POSTMORTEM MYOGENIC COUNT
- 12MM TL

Review By / Date: [Signature] 8/16/11

Entered By / Date: [Signature] 8-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Appendix B4: Trial 1. Asian carp survival (Task 3.5) laboratory datasheets – in tank cages

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 5
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T1</u>	<u>0930-1930</u>	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>B-10</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <small>CT - CONTAINER</small>	
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME</u>
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	<u>15 + 15</u>
			<u>SMALL LARGE</u>
	<u>DEAD</u>	<u>ALIVE</u>	
Number of EGGS:	_____	Number of LARVAE:	<u>5</u> <u>29</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
		<u>CYPRINIDAE</u>	<u>L</u>		<u>D</u>	<u>12</u>							
		<u>CYPRINID-NOT AC</u>	<u>L</u>		<u>D</u>	<u>3</u>	<u>3900</u>		<u>NON-AC</u>	<u>L</u>		<u>D</u>	<u>4</u>
		<u>AC</u>	<u>L</u>	<u>42</u>	<u>D</u>	<u>1</u>	<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>D</u>	<u>1</u>
		<u>CYPRINIDAE</u>	<u>L</u>		<u>A</u>	<u>13</u>	<u>3900</u>		<u>NON-AC</u>	<u>L</u>		<u>A</u>	<u>15</u>
		<u>CYPRINID C</u>			<u>A</u>	<u>1</u>	<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>12</u>
		<u>AC</u>		<u>42</u>	<u>A</u>	<u>12</u>	<u>3899</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>2</u>
		<u>AC</u>		<u>43</u>	<u>A</u>	<u>2</u>							
		<u>CYPRINID ?</u>			<u>A</u>	<u>1</u>							

NOTES
 * - 2 damaged that made ID difficult - RES. AC but larger possibly stage 41 also for 2 of them.
 1 alive spot tail to voucher

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 Entered By / Date: ST 08-18-11



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 4
 Location: Perkin

FIELD DATA			
Tank # (1-4): <u>T1</u>	<u>0930-1730</u> <u>6.11.11</u>	Fill # for Tank (1-2): <u>F1</u>	
Task: <u>B-13</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) (T- CONTROL SOAK TIME)		
If Ballast or Pump then Volume: _____	Task #: _____		
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): <u>16+2+16</u>		
	<u>SMALL SMALL LARGE</u>		
<u>DEAD</u>	<u>ALIVE</u>	<u>DEAD</u>	<u>ALIVE</u> ✓
Number of EGGS: _____	Number of LARVAE: <u>1</u>		<u>30</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>T1</u>	<u>F1</u>	<u>B13</u>											
<u>3899</u>	<u>AC</u>		<u>L</u>	<u>42</u>	<u>D</u>	<u>1</u>							
<u>3900</u>	<u>NON-AC</u>		<u>L</u>		<u>A</u>	<u>19</u>							
<u>3899</u>	<u>AC</u>		<u>L</u>	<u>41</u>	<u>A</u>	<u>2</u>							
<u>L</u>	<u>AC</u>		<u>L</u>	<u>42</u>	<u>A</u>	<u>9</u>							

NOTES
 * - DAMAGED AT OUT - BUT HAS FLEXED. Bladder DAMAGED
- Some ALIVE fish to VOUCHER

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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 3
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T1</u>	<u>0930-1730</u>	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>B-16</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CT-CONTROL</u>	
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME</u>
If Cage then (# Eggs Inserted):	<u>0</u>	(# Larvae Inserted):	<u>30</u>
DEAD	ALIVE	DEAD	ALIVE
Number of EGGS:	_____	Number of LARVAE:	<u>0</u> <u>32</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task	(E or L)	(1-48)	(A/D)		Tank	Fill	Task	(E or L)	(1-48)	(A/D)	Count
(T1-T4)	(F1-F2)	(B, P#, C#)					(T1-T4)	(F1-F2)	(B, P#, C#)				
T1	F1	B16											
		Chloromide	L		A	11							
		AC	L	42	A	13	389A		AC	L	42	A	13
		AC	L	41	A	1	L		AC	L	41	A	1
		UNKNOWN - STORAGE	L	?	A	2	3900		NONAC	L		A	18
		CYPRINID B.			A	3							
		CYPRINID C			A	2							
		NON-AC			A	18							

NOTES
 * DUMPED PUTTING INTO VIAL
 - CYPRINID B - CANNOT COUNT MYOZO NO VENTRAL FINFOLD P16
 but body looks correct w/ 11.0-11.5mm

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- CYPRINID C - MYO 2627+9 - P16 SIMILAR TO AC
 VENTRAL BUT ABSENT, NO VENTRAL FINFOLD PROMINENT

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 22
 Location: PEKIN

FIELD DATA								
Tank # (1-4):		<u>T1</u>	IN: <u>2125 (7:25 PM) 6-11-11</u> (<u>10840UR</u>)		Fill # for Tank (1-2):			<u>F2</u>
Task:		<u>B-6</u>	OUT: <u>0920 6/17/11</u>		Task #:			<u>SOAK TIME</u>
If Ballast or Pump then Volume:					Task #:			<u>SOAK TIME</u>
If Cage then (# Eggs Inserted):					(# Larvae Inserted):			<u>30</u>
		<u>DEAD</u>		<u>ALIVE</u>				
Number of EGGS:					Number of LARVAE:		<u>2</u>	<u>26</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>3900</u>		<u>NONAC</u>	<u>L</u>	<u>—</u>	<u>A</u>	<u>15</u>							
<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>3</u>							
<u>L</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>8</u>							
<u>3900</u>		<u>NONAC</u>	<u>L</u>	<u>—</u>	<u>D</u>	<u>2</u>							

NOTES	Review By / Date: <u>CG 8/16/11</u> Entered By / Date: <u>JH 09-18-11</u>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 23
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T1</u> <small>IN-2125 6-11-2011 (108425)</small>	Fill # for Tank (1-2):	<u>F2</u>
Task:	<u>B-13</u> <small>005 0920 6/17/11</small>	(# Larvae Inserted):	<u>30</u>
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME</u>
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	<u>30</u>
	<u>DEAD</u> <u>ALIVE</u>		<u>DEAD</u> <u>ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>2</u> <u>1921</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
				<u>1 AC lost</u>		<u>ALIVE</u>							
<u>3900</u>		<u>NON-AC</u>	<u>L</u>		<u>A</u>	<u>8</u>							
<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>4</u>							
<u>3899</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>8</u>							
<u>1</u>		<u>AC</u>		<u>?</u>	<u>A</u>	<u>1</u>							
<u>3900</u>		<u>NONAC</u>	<u>L</u>	<u>—</u>	<u>D</u>	<u>2</u>							

NOTES

Review By / Date: OE 8/16/11
 Entered By / Date: SHO-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/2011 Sheet #: 24
 Location: FDLW

FIELD DATA			
Tank # (1-4):	<u>T1</u>	<u>30: 2125 (6/11/2011)</u>	<u>(108#2)</u> Fill # for Tank (1-2): <u>F2</u>
Task:	<u>B-16</u>	<u>cut 0920 6/17/11</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CR-CONTROL</u>
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME</u>
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	<u>30</u>
	<u>DEAD</u>	<u>ALIVE</u>	<u>6/16/2011 - 0910 AM ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>3</u> <u>DEAD</u> <u>ALIVE</u> <u>2728</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900		Non-AC		-	A	16							
3899		AC		41	A	3							
I		AC		43	A	9							
3900		Non-AC		-	D	2							
3899		AC		42	D	1							

NOTES

Review By / Date: CE 8/16/11
 Entered By / Date: SH 08-15-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-18-11 Sheet #: 26
 Location: PERLIN

FIELD DATA			
Tank # (1-4):	<u>T2</u>	IN: <u>1200 6-12-2011</u> OUT: <u>0900 6-17-2011</u>	Fill # for Tank (1-2): <u>F2</u>
Task:	<u>B-17</u>	(B - Ballast Tank Water; P# - Pump.RUN.Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	<u>B</u>	(# Larvae Inserted):	<u>30</u>
	<u>DEAD</u>	<u>ALIVE</u>	<u>DEAD</u> <u>ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>34</u> <u>2223</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900		NON-AC		-	A	14							
3599		AC		42	A	3							
I		AC		43	A	5							
1456		DIAMACED		-	A ²	1							
3900		NON-AC		-	D	3							
1456		DIAMACED		-	D	1							

NOTES: 2 LIVE fish NOT doing well ? In Alive vial but in very bad shape } moved to DEAD
 1 dead BEHIND MESH
 Inner label says: T2/F1/B17 (Alive 6-17)
 T2/F1/B17 (Dead 6-17)
 Review By / Date: CE 8/16/11
 Entered By / Date: SH 08-18-11



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1

Survey Start Date: 6-11-2011

Sheet #: 14

Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>T3</u> <small>30 0750 611101</small> <u>48 HOUR</u>	Fill # for Tank (1-2): <u>F1</u>
Task: <u>B-3</u> <small>01 0750 611101</small>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CT-CONTROL</u>
If Ballast or Pump then Volume: _____	Task #: <u>SOAK TIME 48</u>
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): _____
DEAD ALIVE	DEAD ALIVE
Number of EGGS: _____	Number of LARVAE: <u>4</u> <u>21</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900	NON-AC	AC	L		A	14							
3899	AC		L	40	A	1							
I	AC		L	41	A	1							
I	AC		L	42	A	3							
I	AC		L	43	A	2							
3900	NON-AC		L		D	2							
3899	AC		L	42	D	2							

NOTES
 - SOME NON-AC FILLED FOR NIER ID
 - AC#40 TO VOLICHER

Review By / Date: CE 8/16/11
 Entered By / Date: ST 08/16/11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 15
 Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T3</u> <small>IN 0930 6/11/11</small>	<u>48 Hour</u>	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>B-9</u> <small>OUT: 0930 6/13/2011</small>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	<small>CP-COUNTED!</small>
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME 48</u>
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
	DEAD	ALIVE	
Number of EGGS:	_____	Number of LARVAE:	<u>5</u> <u>23</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900	NON-AC		L	-	D	5							
3899	AC		L	41	A	2							
	AC		L	42	A	4							
	AC		L	43	A	5							
3900	NON-AC (2 tanks)		L	-	A	12							

NOTES: Some non-AC pulled for INTERID

Review By / Date: CE 8/16/11
 Entered By / Date: ST 08-08-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 8
 Location: BELOW

FIELD DATA			
Tank # (1-4):	<u>T3</u>	IN: 0930-6(1-1)	Fill # for Tank (1-2): <u>F1</u>
Task:	<u>B-11</u>	OUT: 0930-6(1-3,11) <u>48 Hours</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CT-000101</u>
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME 48</u>
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	<u>32</u>
	<u>DEAD</u>	<u>ALIVE</u>	
Number of EGGS:	_____	Number of LARVAE:	<u>6</u> <u>26</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
3900	NON-AC		L		A	14							
3899	AC		L	42	A	6							
I	AC		L	43	A	6							
3900	NON-AC		L		D	6							

NOTES
 - SOME NON-AC PULLED FOR ANALYSIS
 - AC STAGE 43 TO VOUCHER

Review By / Date: CE B/16/11
 Entered By / Date: SH 08-18-11

3.9.11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-13-2011 Sheet #: 34
 Location: PEKIN

FIELD DATA			
Tank # (1-4): <u>F3</u>	NO: <u>1212</u>	<u>613-2011</u>	Fill # for Tank (1-2): <u>F2</u>
Task: <u>B-19</u>	<u>OCT. 1013</u>	<u>6-17-2011</u>	<u>92% SURVIVAL</u>
If Ballast or Pump then Volume: _____		Task #: _____	
If Cage then (# Eggs Inserted): _____		(# Larvae Inserted): _____	
DEAD	ALIVE	DEAD	ALIVE
Number of EGGS: _____	Number of LARVAE: <u>7</u>	Number of EGGS: _____	Number of LARVAE: <u>19</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
<u>399</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>12</u>							
<u>1</u>		<u>AC</u>	<u>L</u>	<u>44</u>	<u>A</u>	<u>2</u>							
<u>1</u>		<u>AC-damaged</u>	<u>L</u>	<u>?(4/4)</u>	<u>A</u>	<u>1</u>							
<u>3900</u>		<u>NON AC</u>	<u>L</u>	<u>-</u>	<u>A</u>	<u>3</u>							
<u>1456</u>		<u>damaged</u>	<u>L</u>	<u>-</u>	<u>A</u>	<u>1</u>							
<u>3900</u>		<u>NON AC</u>	<u>L</u>	<u>-</u>	<u>D</u>	<u>7</u>							

<p>NOTES</p>	<p>Review By / Date: <u>CE 8/16/11</u></p> <p>Entered By / Date: <u>SH 08-18-11</u></p>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: _____ Survey Start Date: 6/11/2011 Sheet #: 17
 Location: PEKIN

FIELD DATA					
Tank # (1-4):	<u>T4</u>	<u>W: 0930 6/11/11</u>	<u>72 Hours</u>	Fill # for Tank (1-2):	<u>F1</u>
Task:	<u>B.1</u>	<u>W: 0930 6/14/11</u>		(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CF-control</u>	
If Ballast or Pump then Volume:	_____	Task #:	_____	<u>SOAK TIME</u>	
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____		
	<u>DEAD</u>	<u>ALIVE</u>		<u>DEAD</u>	<u>ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>12</u>	<u>19</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
T4	F1	B1	L	42	A	1	3899		AC	L	42	A	1
"	"	"	"	43	A	10	L		AC	L	43	A	10
							3900		NON-AC	L		A	8
		NON-AC			A	2							
		CATSTOMIDAZ			A	6	3899		AC		43	D	1
							3900		NON-AC		-	D	10
							456		3/1 DAMAGE		-	D	1
T4	F1	B1	L	43	D	1							
		NON-AC			D	1							
		CATSTOMIDAZ			D	10							

NOTES _____

Review By / Date: CE 8/16/11

Entered By / Date: SH 08-10-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 18
 Location: PEKIN

FIELD DATA			
Tank # (1-4): <u>T4</u>	<u>20 0930 6-11-11</u>	<u>72 hours</u>	Fill # for Tank (1-2): <u>F1</u>
Task: <u>B-2</u>	<u>20 0930 6-14-11</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CF-00101</u>	
If Ballast or Pump then Volume: _____	Task #: _____	<u>SOAK TIME</u>	
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): _____		
<u>DEAD</u>	<u>ALIVE</u>	<u>DEAD</u>	<u>ALIVE</u>
Number of EGGS: _____	Number of LARVAE: <u>4</u>	<u>2130</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task	(E or L)	(1-48)	(A/D)		Tank	Fill	Task	(E or L)	(1-48)	(A/D)	Count
(T1-T4)	(F1-F2)	(B, P#, C#)					(T1-T4)	(F1-F2)	(B, P#, C#)				
<u>T4</u>	<u>F1</u>	<u>B2</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>2</u>			<u>AC</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>2</u>
		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>12</u>	<u>3899</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>12</u>
		<u>NONAC</u>	<u>L</u>	<u>-</u>	<u>A</u>	<u>16</u>	<u>3900</u>		<u>NONAC</u>	<u>L</u>	<u>-</u>	<u>A</u>	<u>16</u>
		<u>NONAC</u>	<u>L</u>	<u>-</u>	<u>D</u>	<u>4</u>	<u>3900</u>		<u>NONAC</u>	<u>L</u>	<u>-</u>	<u>D</u>	<u>4</u>
		<u>UNID CYPRINIDS</u>			<u>A</u>	<u>3</u>							
		<u>(NIASTOMIDAE)</u>		<u>(2 VIALS)</u>	<u>A</u>	<u>13</u>							

NOTES: DEAD AC MUTILATED SO CANNOT STAGE

Review By / Date: CEB/16/11
 Entered By / Date: STH/08/18/11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 16
 Location: PEKIN

FIELD DATA					
Tank # (1-4):	<u>T4</u>	ID: <u>0930-6-11-11</u>	<u>72 HOURS</u>	Fill # for Tank (1-2):	<u>F1</u>
Task:	<u>B-B</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) (T-CONTROL)			
If Ballast or Pump then Volume:	_____	Task #:	<u>SOAK TIME</u>		
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____		
	<u>DEAD</u>	<u>ALIVE</u>		<u>DEAD</u>	<u>ALIVE</u>
Number of EGGS:	_____	_____	Number of LARVAE:	<u>8</u>	<u>22</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
T4	F1	B-8	L	42	A	2	3899		AC	L	42	A	2
T4	F1	BB	L	43	A	10	L		AC	L	43	A	10
							3900		NON-AC	L	-	A	10
		NON-AC			A	2							
		CADASTOMIDIE			A	8							
							3900		NON-AC	L		D	8
		NON-AC	L	-	D	8							

<p>NOTES</p>	<p>Review By / Date: <u>CP 8/10/11</u></p> <p>Entered By / Date: <u>SH 08-18-11</u></p>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/11 Sheet #: 40

Location: POLW

FIELD DATA					
Tank # (1-4):	<u>T4</u>	IN: <u>1150 6/14/11</u>	Poll Fall	Fill # for Tank (1-2):	<u>F2</u>
Task:	<u>B5</u>	OUT: <u>1130 6/17/11</u>		(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	_____	Task #:	_____		
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	<u>30</u>		
	<u>DEAD</u>	<u>ALIVE</u>		<u>DEAD</u>	<u>ALIVE</u>
Number of EGGS:	_____	Number of LARVAE:	<u>8</u>	<u>21</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
<u>3900</u>		<u>NON AC</u>	L	-	A	1							
<u>3899</u>		<u>AC</u>	L	41	A	1							
<u>I</u>			L	42	A	2							
<u>I</u>			L	43	A	11							
<u>I</u>		<u>I</u>	L	44	A	5							
<u>3900</u>		<u>NON AC</u>	L	-	D	1							
<u>1456</u>		<u>DMATED</u>	L	-	D	7							

NOTES

Review By / Date: Q 8/16/11
 Entered By / Date: SH 08-18-11



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 11
 Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>CONTROL-24</u>	Fill # for Tank (1-2): <u>---</u>
Task: <u>CT-21</u> (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	<u>CT-Control</u>
If Ballast or Pump then Volume: _____	Task #: <u>SOAK TIME</u>
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): <u>30</u>
<u>DEAD</u> <u>ALIVE</u>	<u>DEAD</u> (9) <u>ALIVE</u> (9) <u>must have ALIVE</u>
Number of EGGS: _____	Number of LARVAE: <u>6</u> <u>been damaged or lost??</u> <u>15</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900	Not	AC	L	---	A	15							
L	Not	AC	L	---	D	6							

NOTES: ~ 15 insect larvae also in vial.

Review By / Date: CE 8/16/11
 Entered By / Date: ST 08-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 20
 Location: PEKIN 65 Hours

FIELD DATA

Tank # (1-4): CONTROL (65) 1830 | 6-11-11 | 72HR | CONTROL Fill # for Tank (1-2): _____
 Task: CT-14 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) CONTROL
 If Ballast or Pump then Volume: _____ Task #: _____ SCAK TIME _____
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): 30
 Number of EGGS: DEAD _____ ALIVE _____ Number of LARVAE: DEAD 0 ALIVE 20

LAB DATA

Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3899	AC		L	42	A	1							
1	AC		L	43	A	3							
3900	Not AC		L	—	A	16							

NOTES

Review By / Date: CE 6/16/11
 Entered By / Date: SH CB 6/18/11



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-2011 Sheet #: 21

Location: PERUN 65 Hours

FIELD DATA					
Tank # (1-4):		<u>CONTROL (65)</u> <u>1830</u> - <u>005 6-11-11</u> <u>7216</u> <u>CONTROL</u>		Fill # for Tank (1-2):	
Task:		<u>CF-22</u> (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) <u>CF-CONTROL</u>		Task #:	
If Ballast or Pump then Volume:		<u>Pull 1030 Refuel 6-14-2011</u>		SOAK TIME =	
If Cage then (# Eggs Inserted):				(# Larvae Inserted): <u>30</u>	
<u>DEAD</u>		<u>ALIVE</u>		<u>DEAD</u>	
Number of EGGS:				Number of LARVAE: <u>2</u>	
				<u>ALIVE</u>	
				<u>27</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
<u>10</u>													
<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>D</u>	<u>1</u>							
<u>1</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>D</u>	<u>1</u>							
<u>3899</u>		<u>AC</u>	<u>L</u>	<u>42</u>	<u>A</u>	<u>4</u>							
<u>1</u>		<u>AC</u>	<u>L</u>	<u>43</u>	<u>A</u>	<u>8</u>							
<u>3900</u>		<u>NON-AC</u>	<u>L</u>	<u>-</u>	<u>A</u>	<u>15</u>							

<p>NOTES</p>	<p>Review By / Date: <u>CE 8/16/11</u></p> <p>Entered By / Date: <u>SH 08-18-11</u></p>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/11 Sheet #: 38
 Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>Control (F2)</u>	IN: 1000 6/14/11 48 ^{hrs. entrapment}
Task: <u>C-3</u>	OUT: 1000 6/17/11
Fill # for Tank (1-2): <u>#2</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
If Ballast or Pump then Volume: _____	Task #: <u>3.4</u>
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): _____
<u>DEAD</u> <u>ALIVE</u>	6/16/11 0910 - AT LEAST 2 ANCHORS
Number of EGGS: _____	Number of LARVAE: <u>1</u> <u>DEAD</u> <u>ALIVE</u> <u>23</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
3900	Not	AC		—	D	1							
3900	Not	AC		—	A	3							
3899	AC			43	A	19							
I	AC			44	A	1							

NOTES: _____

Review By / Date: [Signature] 8/16/11

Entered By / Date: [Signature] 08/18/11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6/11/11 Sheet #: 36
 Location: PEKIN

FIELD DATA

Tank # (1-4): CONTROL (F2) IN 1000 6:14/11 Fill # for Tank (1-2): F2
OUT 1000 6/17/11
 Task: C-12 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
 If Ballast or Pump then Volume: 72 HOUR Task #: 3.4
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____
6/16/11 09:30 - AT LEAST A FEW ALIVE
 DEAD ALIVE DEAD ALIVE
 Number of EGGS: _____ Number of LARVAE: 4 22

LAB DATA

Vial Information							Vial Information						
Tank	Fill	Task	Egg / Larv.	Life Stage #	Cond.	Count	Tank	Fill	Task	Egg / Larv.	Life Stage #	Cond.	Count
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
3900	Not	AC	L	—	A	4							
3899	AC		L	42	A	2							
1	AC		L	43	A	13							
1	AC		L	44	A	3							
3900		NONAC	L	—	D	4							

NOTES

Review By / Date: CE 8/16/11
 Entered By / Date: 84 08/18-11



Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-11-11 Sheet #: 37
 Location: PEXIN

FIELD DATA			
Tank # (1-4):	<u>CARRIER (72)</u>	<u>IN: 1000 6-14-11</u> <u>OUT: 1000 6-17-11</u>	Fill # for Tank (1-2): <u>F2</u>
Task:	<u>C-20</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	<u>72 HOUR</u>	Task #: <u>3.f</u>	
If Cage then (# Eggs Inserted):		(# Larvae Inserted):	
		<u>6-16-11 - MOST SWIMMING</u>	
DEAD	ALIVE	DEAD	ALIVE
Number of EGGS: _____	_____	Number of LARVAE: <u>5</u>	<u>14</u>

LAB DATA															
Vial Information				Egg / Larv.	Life Stage #	Cond.	Count	Vial Information				Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task		(E or L)	(1-48)	(A/D)		Tank	Fill	Task		(E or L)	(1-48)	(A/D)	
(T1-T4)	(F1-F2)	(B, P#, C#)					(T1-T4)	(F1-F2)	(B, P#, C#)						
3900	Not	AC		-	D										
3900	Not	AC		-	A										
3899	AC			42	A										
↓	AC			43	A										
↓	AC			44	A										

NOTES	Review By / Date: <u>CE 5/16/11</u> Entered By / Date: <u>SA 08/18/11</u>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1

Survey Start Date: 6-12-2011

Sheet #: 29

Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>CONTROL (118)</u>	Fill # for Tank (1-2): <u>F2</u>
Task: <u>CT-7</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
If Ballast or Pump then Volume: _____	Task #: _____
If Cage then (# Eggs Inserted): _____	(# Larvae Inserted): _____
DEAD	ALIVE
Number of EGGS: _____	Number of LARVAE: <u>1</u>

JU: 1300 6-12-2011
 OUT: 0945 6-17-2011
 96 hours
 THURSDAY MORNING
 (6-16-2011)
 6-16-11-0930 - mostly ALIVE

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900		NON-AC	L	-	D	1							
3900		NON-AC	L	-	A	12							
3899		AC	L	42	A	6							
1		1	L	43	A	9							

NOTES

Review By / Date: CE 8/16/11
 Entered By / Date: SAH 08-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6-12-2011 Sheet #: 30
 Location: PEKIN

FIELD DATA	
Tank # (1-4): <u>CONTROL / 118</u> ID: <u>1202</u> <u>6/12/2011</u>	Fill # for Tank (1-2): <u>F2</u>
Task: <u>G-10</u> (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	Task #: _____
If Ballast or Pump then Volume: _____	(# Larvae Inserted): _____
If Cage then (# Eggs Inserted): _____	Task #: _____
<u>DEAD</u> <u>ALIVE</u>	<u>DEAD</u> <u>ALIVE</u>
Number of EGGS: _____	Number of LARVAE: <u>3</u> <u>21</u>

96 HOURS THAT NOOD 6-16-2011
6-16-2011 - 0930 - mostly ALIVE

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, PR, CH)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, PR, CH)	(E or L)	(1-48)	(A/D)	Count
3899	AC		L	43	A	10							
3899	AC		L	44	A	1							
3900	No + AC		L	—	A	10							
3100	W+AC		L	—	D	3							

NOTES 1 window NOT stuck down well

Review By / Date: CR 6/18/11
 Entered By / Date: SH 08-18-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 1 Survey Start Date: 6.12.2011 Sheet #: 31
 Location: PEKIN

FIELD DATA			
Tank # (1-4): <u>CONTROL (118)</u>		IN: <u>1200</u> 6.12.2011	
Task: <u>CT-15</u>		OUT: <u>0945</u> 6/17/2011	
If Ballast or Pump then Volume: _____		Task #: _____	
If Cage then (# Eggs Inserted): _____		Task #: _____	
		96 HAS THINGS ABOARD 6-16-2011 (# Larvae Inserted): _____ 6-16-11 0930 - mostly alive	
Number of EGGS: _____		Number of LARVAE: <u>3</u> <u>DEAD</u> <u>ALIVE 26</u>	

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900	Not	AC	L	—	A	13							
3899	AC		L	42	A	1							
3899	AC		L	43	A	12							
3900	NONAC		L	—	D	3							

NOTES	Review By / Date: <u>② 6/10/11</u> Entered By / Date: <u>Set 08-18-11</u>
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Appendix B6: Trial 2. Asian carp entrainment/leakage (Task 3.4) laboratory datasheets

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2 Survey Start Date: 6/18/11 Sheet #: 73
 Location: PEKIN

FIELD DATA

Tank # (1-4): T1 *FILLED* 6/18/2011 Fill # for Tank (1-2): F1
 Task: P1 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21]) 6/24/11 *ONLY 1 fill on T1*
 If Ballast or Pump then Volume: _____ Task #: _____
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____
 Number of EGGS: DEAD ALIVE DEAD ALIVE
∅ ∅ 1 ∅

LAB DATA

Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900		NON AC	L	-	D	1							

NOTES

Review By / Date: CE 5/16/11
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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2

Survey Start Date: 6/18/2011

Sheet #: 70

Location: Peoria

FIELD DATA

Tank # (1-4): T2 Pump out 1030 6/19/2011 Fill # for Tank (1-2): F1

Task: P1 24 hour exposure
(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])

If Ballast or Pump then Volume: _____ Task #: _____

If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____

DEAD ALIVE DEAD ALIVE
 Number of EGGS: _____ Number of LARVAE: 2 (w/o head)

LAB DATA

Vial Information				Egg / Larv.	Life Stage #	Cond.	Count	Vial Information				Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task	Cond.					Tank	Fill	Task	Cond.				
<small>(T1-T4)</small>	<small>(F1-F2)</small>	<small>(B, P#, C#)</small>	<small>(E or L)</small>	<small>(1-48)</small>	<small>(A/D)</small>	<small>Count</small>	<small>(T1-T4)</small>	<small>(F1-F2)</small>	<small>(B, P#, C#)</small>	<small>(E or L)</small>	<small>(1-48)</small>	<small>(A/D)</small>	<small>Count</small>		
1456		MUTIVATED	J		D	1									
3900		NON-AC	L		D	1									

NOTES NON-AC IS GIZZARD SHAO

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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2

Survey Start Date: 6/10/11

Sheet #: 74

Location: PEKIN

FIELD DATA			
Tank # (1-4):	<u>T2</u>	IN OUT 0945 6/24/11	Fill # for Tank (1-2): <u>F2</u>
Task:	<u>P2</u>	(B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])	
If Ballast or Pump then Volume:	_____	Task #:	_____
If Cage then (# Eggs Inserted):	_____	(# Larvae Inserted):	_____
	DEAD	ALIVE	
Number of EGGS:	_____	Number of LARVAE:	<u>∅</u>

LAB DATA													
Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count	(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
		∅											
1413		No LARVAE											

NOTES

Review By / Date: CE 8/16/11

Entered By / Date: 8H 08-17-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2

Survey Start Date: 16-18-2011

Sheet #: 71

Location: PEKIN

FIELD DATA

Tank # (1-4): B3 PUMPOUT: 1100 6/20/2011 Fill # for Tank (1-2): 1
TU 1100 6/18/2011
 Task: P1 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
 If Ballast or Pump then Volume: _____ Task #: _____
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____
 DEAD ALIVE DEAD ALIVE
 Number of EGGS: _____ Number of LARVAE: 5 0

LAB DATA

Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
3900		NON-AC	L		D	5							

NOTES

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 Entered By / Date: [Signature] 08-17-11

Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2 Survey Start Date: 6/18/2011 Sheet #: 75
 Location: Pekin

FIELD DATA

Tank # (1-4): T3 IN OUT 1000 6/24/11 Fill # for Tank (1-2): F2
 Task: PZ (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
 If Ballast or Pump then Volume: _____ Task #: _____
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____
 Number of EGGS: DEAD ALIVE Number of LARVAE: DEAD ALIVE
 _____ ✓ _____ ∅

LAB DATA

Vial Information			Egg / Larv.	Life Stage #	Cond.	Count	Vial Information			Egg / Larv.	Life Stage #	Cond.	Count
Tank	Fill	Task					Tank	Fill	Task				
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	
		<u>∅</u>											
<u>1413</u>		<u>NO LARVAE</u>											

NOTES

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Asian Carp Survivability Experiments and Water Transport Surveys in the Illinois River, Volume II

RIVER Mile 150-155

Coast Guard/SAIC Entrainment and Survival of Asian Carp Survival - FIELD/LAB Datasheet

Survey #: 2 Survey Start Date: 6.18.2011 Sheet #: 72
 Location: PEKIN

FIELD DATA

Tank # (1-4): T4 FILLED: 1 6/18/2011 Fill # for Tank (1-2): F1
 Task: P1 OUT: 1100 6/21/11
 (B - Ballast Tank Water; P# - Pump RUN Number [1 or 2]; C# - Cage Number [1-21])
 If Ballast or Pump then Volume: _____ Task #: _____
 If Cage then (# Eggs Inserted): _____ (# Larvae Inserted): _____
 DEAD ALIVE DEAD 47000 ALIVE
 Number of EGGS: _____ Number of LARVAE: 3 LARVAE #2-3 FISH

LAB DATA

Vial Information							Vial Information						
Tank	Fill	Task	Egg / Larv.	Life Stage #	Cond.	Count	Tank	Fill	Task	Egg / Larv.	Life Stage #	Cond.	Count
(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)		(T1-T4)	(F1-F2)	(B, P#, C#)	(E or L)	(1-48)	(A/D)	Count
3900		NON AC	L		D	2							
1456		MUTATED	J		D	1							
3899		AC	L	44	D	1							

NOTES NON-AC TO VOUCHER

Review By / Date: CE 8/16/11
 Entered By / Date: SH 08/17/11

