Exelon Generation LLC's Responses to the Board's Questions

ATTACHMENT 9

Exelon Generation.

Exelon Generation Company, LLC
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450-9765

www.exeloncorp.com

July 24, 2012

Mr. Roger Callaway (CAS-19)
Wastewater Compliance Unit Manager
Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section #19
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9274

Subject: Temperature & Environmental Condition Report
Provisional Variance (IEPA 12-22)
NPDES Permit No. IL0002224
Dresden Nuclear Generation Station
PMLTR 12-0048

Dear Mr. Callaway,

On July 6, 2012, Dresden Nuclear Generation Station was issued the above referenced Provisional Variance for the thermal limits indicated in Special Condition 3C of the NPDES Permit IL0002224. As per Conditions C & D of this provisional variance, Dresden Station is to provide a Temperature and Environmental Condition Report within (7) seven days of the PV expiration date of July 16, 2012. This letter contains the temperature and environmental conditions for the period of July 6, 2012 through July 20, 2012 (four days after PV expiration).

<u>Temperature Condition Summary</u>
Discharge Water:

As documented on the attached Thermal Data, at no time did the Dresden Station exceed the 95°F discharge limit as stipulated in the Provisional Variance. Dresden Station began discharging above 93°F on July 6, 2012 at 18:00 through July 7, 2012 at 01:30, and again on July 7, 2012 at 09:45 through July 7, 2012 at 20:15, with a maximum temperature of 93.4°F and 94.2°F, respectively. The average temperature of the discharge for the entire period of the provincial variance was 90.3°F with a maximum of 94.2°F on July 7, 2012.

Receiving Water:

As documented on the attached Thermal Data, Dresden Station receiving waters were elevated during the beginning of the variance period with a maximum of 93.1 on July 7, 2012. These temperatures are higher than normal for this time of year. The Dresden Station intake temperature was used as the upstream river temperature during the analysis. The Dresden intake temperatures are representative of the Kankakee River upstream of the Dresden Station discharge.

Environmental Condition Summary

As documented on the attached Environmental Observation Logs, the only mortalities noted occurred on July 8, 2012 at 20:15. Four (4) catfish were observed floating in the Dresden Lock & Dam. This was not attributed to any thermal discharge effects as catfish are less sensitive than other fish found in the area. No other fish or aquatic mortalities were observed. Dresden Station personnel performed visual inspections of discharge areas at least four times per day and an additional four subsequent days beyond the expiration of the provincial variance. During this time there were no reports of any stress to fish or aquatic life.

As always, Dresden Station continued to manage its equipment to minimize the discharge temperature during the entire variance period. Should you require any further information or have any questions, please contact Ronald Novy of my staff at 815-416-3211.

Sincerely,

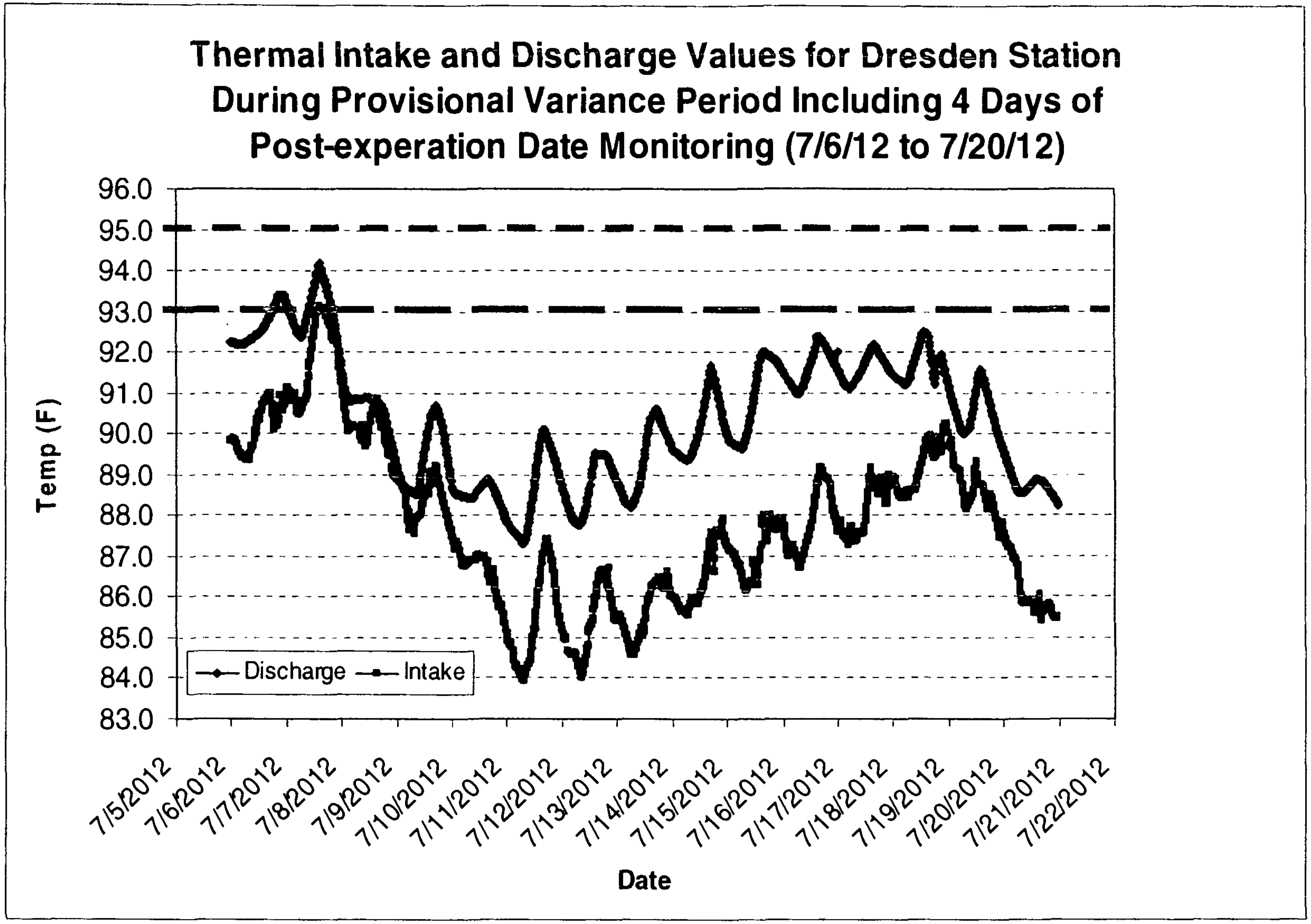
Shane Marik

Shane Marik
Dresden Station Plant Manager

Attachments: (1) Thermal Data
(2) Environmental Observation Logs

CC: J. Petro D. Leggett
J. Gould M. Davis
File

Attachment (1), Thermal Data



Attachment (2), Environmental Observation Logs

7/6/2012	Discharge Canal temperature has reached 93F. Beginning the provisional variance per IEPA 12-22. Commencing inspections to assess any mortalities to fish and other aquatic life. Attempted to notify Roger Callaway, Illinois EPA, by telephone at 217-782-9720 that the provisional variance has begun, but there was no answer and no answering machine. Notified M. Davis to contact IEPA as required by other means and notify the shift when complete.
7/7/2012	**09:00** - Dresden Island lock master (Jay McNall) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:00** - Dresden Island lock master (Jay McNall) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:00** - Dresden Island lock master (T. Valley) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/8/2012	**08:20** - Dresden Island lock master (Jay McNall) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:20** - Dresden Island lock master (Jay McNall) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:09** - Dresden Island lock master (T. Valley) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.

	20:15 - Dresden Island lock master (T. Valley) reports 4 dead catfish. HVO (A. Davis) reports inspection of the area where Dresden Station discharge meets the Illinois River shows 4 dead fish. Morgan Davis and Station Duty Manager(Sipek) notified by SM (Feigl). IR 1384353 generated.
7/9/2012	**08:20** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:02** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Z. Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:02** - Dresden Island lock master (Jay McNall) reports no signs of adverse effects to local marine life. HVO (C. Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:14** - Effluent temperatures, based on the average of computer points E355 and E356, are 89.8 °F. Dresden Island lock master (Jay Gutierrez) reports no signs of adverse effects to local marine life. HVO (C. Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/10/2012	**08:20** - Dresden Island lock master (Jeff Blecekovich) reports no signs of adverse effects to local marine life. HVO (Kuzava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:00** - Dresden Island lock master (Jeff Blecekovich) reports no signs of adverse effects to local marine life. HVO (Kuzava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:02** - Dresden Island lock master (J. McNall) reports no signs of adverse effects to local marine

	life. HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:30** - Dresden Island lock master (J. McNall) reports no signs of adverse effects to local marine life. HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Dresden Island lock master (J. McNall) reports no signs of adverse effects to local marine life.
7/11/2012	**08:20** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Kuzava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:02** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Kuzava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **17:48** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:00** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/12/2012	**10:20** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **13:00** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area

	where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life **17:30** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **19:45** - HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life.
7/13/2012	**09:35** - Dresden Island lock master (Jeff Blezkovich) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:34** - Dresden Island lock master (Jeff Blezkovich) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:55** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (C. Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **19:24** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (C. Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/14/2012	**10:00** - Dresden Island lock master (Jay Gutierrez) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **13:29** - Dresden Island lock master (Mike Walsh)

	reports no signs of adverse effects to local marine life. 14HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:15** - Dresden Island lock master (Mike Campo) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:55** - Dresden Island lock master (Campo) reports no signs of adverse effects to local marine life. HVO (Palutsis) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/15/2012	**09:25** - Dresden Island lock master (Mike Walsh) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:48** Dresden Island lock master (Mike Walsh) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:48** Dresden Island lock master (Tyron Valley) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:05** - Dresden Island lock master (Valley) reports no signs of adverse effects to local marine life. HVO (Osburn) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/16/2012	**08:55** Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:42** Dresden Island lock master (Larry Hibler)

	reports no signs of adverse effects to local marine life. HVO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:28**- Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:43** - Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Kompeda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/17/2012	**08:25** - Dresden Island lock master (Jay Mcnall) reports no signs of adverse effects to local marine life. Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **12:09** Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:34**- Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life. HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **19:47** - HVO (Kompeda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Dresden Island lock master (Tyrone Valley) reports no signs of adverse effects to local marine life.
7/18/2012	**09:00** - Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic

	life. **12:40** Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. HVO (Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **16:27** - Dresden Island lock master (Mike Campo) reports no signs of adverse effects to local marine life. HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:00** Dresden Island lock master (Mike Campo) reports no signs of adverse effects to local marine life. HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/19/2012	**16:30** - Dresden Island lock master (Walsh) reports no signs of adverse effects to local marine life. **17:40** - HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **19;50** - HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. **20:15** - Effluent temperatures, based on the average of computer points E355 and E356, are 90.3 deg F. Dresden Island lock master (Walsh) reports no signs of adverse effects to local marine life.
7/20/2012	**16:20** Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. 11:22 Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.

Attachment 2
Example Verification Completion Form
Page 1 of 1

Verification Documentation

Correspondence/Letter number: PMITR 12-0098 Origination Date: 7/23/12

Agency/External Stakeholder: IEPA Submittal Due Date: 7/23/12

Recipient of Correspondence: Roger Callaway
(name and title if known)

Purpose of Submittal: Close permit report for IEPA 12-22

Originating Office: ☐ Cantera ☐ Kennett Square ☒ Site Dresden
(specify)

Preparer: Ronald Nagy (print) [signature] (sign) 7/23/12 (date)

Peer Reviewer: Morgan Davis (print) [signature] (sign) 7/23/12 (date)

Certified Mail Return Receipt Requested: ☐ Yes ☒ No

Approvals (check box if applicable)

	Applicable	Date Review Needed	Signature of Reviewer	Date of Review
Site Departments				
Chemistry	☒	7/23/12	[signature]	7-23-12
Operations	☐			
Engineering	☐			
Regulatory Assurance	☐			
Other: ______ (specify)	☐			
Corporate				
SME/FAM	☐			
Site Management				
Plant Manager	☒		☐ Report Signed and Approved	
Site Vice President	☐			

Attach additional page for comments.

Exelon Generation LLC's Responses to the Board's Questions

ATTACHMENT 10

Exelon Generation.

Exelon Generation Company, LLC
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450-9765

www.exeloncorp.com

August 8, 2012

Mr. Roger Callaway (CAS-19)
Wastewater Compliance Unit Manager
Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section #19
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9274

Subject: Temperature & Environmental Condition Report
Provisional Variance (IEPA 12-23)
NPDES Permit No. IL0002224
Dresden Nuclear Generation Station
PMLTR 12-0055

Dear Mr. Callaway,

On July 18, 2012, Dresden Nuclear Generation Station was issued the above referenced Provisional Variance for the thermal limits indicated in Special Condition 3C of the NPDES Permit IL0002224. As per Conditions C & D of this provisional variance, Dresden Station is to provide a Temperature and Environmental Condition Report within (7) seven days of the PV expiration date of August 1, 2012. This letter contains the temperature and environmental conditions for the period of July 18, 2012 through August 5, 2012 (four days after PV expiration).

Temperature Condition Summary

Discharge Water:

As recorded on the attached Thermal Data, at no time did the Dresden Station discharge ever go above 93°F, which is 2 degrees below the 95°F maximum discharge limit as stipulated in the Provisional Variance. On July 18, 2012, Dresden Station began this provisional period with 15.9 regular excursion hours remaining in the 259.2 hour permit allotment (as per Condition 3(c) of NPDES Permit IL 0002224). Dresden exhausted the last of its regular excursion hours on July 19, 2012 and started operating under Provisional Variance IEPA12-23 with a discharge temperature of 91.13°F.

After July 25, 2012, Dresden was able to maintain discharge temperatures below 90°F throughout the remainder of the provisional variance period. The average temperature of the discharge for the entire period of this provincial variance was 88.9°F with a maximum of 92.4°F on July 18, 2012 @ 15:30.

Receiving Water:

As documented on the attached Thermal Data, Dresden Station receiving waters were elevated during the beginning of the variance period with a maximum of 90.8 on July 18, 2012. The Dresden Station intake temperature was used as the upstream river temperature during the analysis. The Dresden intake temperatures are representative of the Kankakee River upstream of the Dresden Station discharge.

Environmental Condition Summary

As listed on the attached Environmental Observation Logs, Dresden Station personnel performed visual inspections of discharge areas at least four times per day. No mortalities of fish or aquatic life observed throughout the entire provisional variance period nor were there any reports of any stress to fish or aquatic life.

As always, Dresden Station continues to manage its equipment to minimize the discharge temperature during the entire variance period. Should you require any further information or have any questions, please contact Ronald Novy of my staff at 815-416-3211.

Sincerely,

SLM

Shane Marik
Dresden Station Plant Manager

Attachments: (1) Thermal Data
(2) Environmental Observation Logs

CC: Debbie Bruce, Division Chief, Illinois DNR
1 Natural Resources Way, Springfield, IL 62702,
J. Petro D. Leggett
J. Gould M. Davis
File

Attachment 2
Special Handling Target (SAMPLE)

SPECIAL HANDLING TARGET

BEST AVAILABLE COPY .... **(Next ______ pages)**

CHART/PHOTO(S)/TRACES REMOVED .... **(Next __1__ pages)**

OVERSIZED PAGE/DRAWINGREMOVED .... **(Next ______ pages)**

Record page is larger than 11 x 17 inches.

OTHER .... **(Next ______ pages)**

EXPLANATION: ______________________________________

To Be Completed By Preparer:

Document Number: NPDES

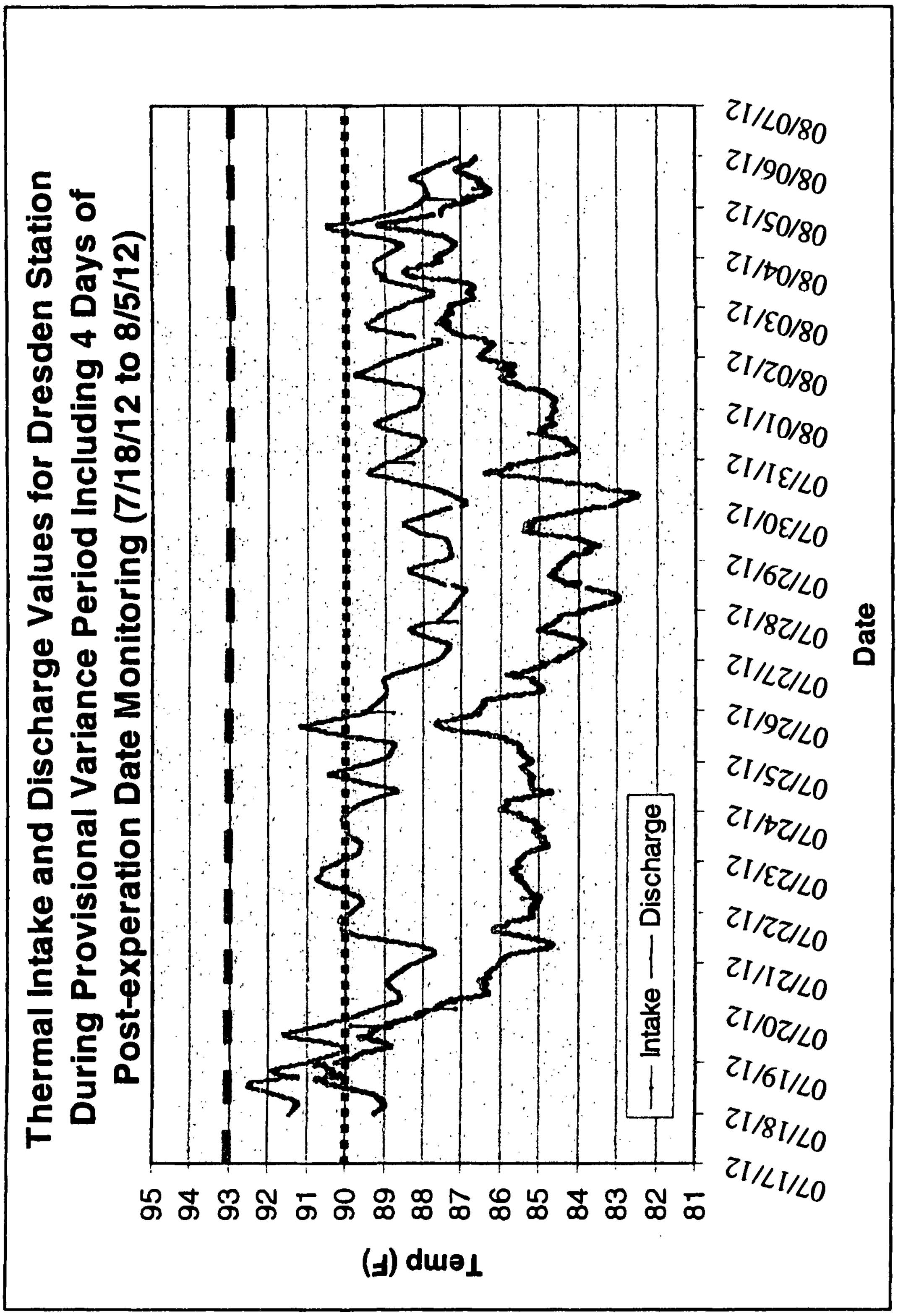
List of pages, documents or drawings removed:

Attachment 1, Thermal Data (7/8/12 to 8/15/12) graph

**** SEE SITE RECORDS MANAGEMENT FOR HARDCOPY LOCATION ****

D204818

Attachment (1), Thermal Data



Attachment (2), Environmental Observation Logs

7/18/2012	09:00 - Effluent temperatures, based on the average of computer points E355 and E356, are 91.4 deg F. Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. 09:40 - HVO (Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. 12:40 - Effluent temperatures, based on the average of computer points E355 and E356, are 92.3 deg F. Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. 13:30 - HVO (Bernardi) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/19/2012	08:15 Computer points E355/E356 values are 88.6 deg F and 90.4 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam 1630 - Effluent temperatures, based on the average of computer points E355 and E356, are 91.6 deg F. Dresden Island lock master (Walsh) reports no signs of adverse effects to local marine life. 1740 - HVO (Komperda) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. 2015 - Effluent temperatures, based on the average of computer points E355 and E356, are 90.3 deg F. Dresden Island lock master (Walsh) reports no signs of adverse effects to local marine life.
7/20/2012	08:25 Computer points E355/E356 values are 88.4 deg F and 88.6 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. 12:40 - Effluent temperatures, based on the average of computer points E355 and E356, are 88.7 deg F. Dresden Island lock master (Larry Hibler) reports no signs of adverse effects to local marine life. 16:20 Computer points E355/E356 values are 89.2 deg F and 89.1 deg F respectively. These values are recorded as part of provisional variances IEPA 12-23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. 21:20 Computer points E355/E356 values are 88.4 deg F and 88.6 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.

7/21/2012	07:55 Computer points E355/E356 values are 87.7 deg F and 87.9 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. 14:10 Computer points E355/E356 values are 89.9 deg F and 89.9 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. [Newton, Michael P - U-3 Aux NSO - Operations Log - Day Shift - 07/21/2012] 17:13 Computer points E355/E356 values are 90.4 deg F and 90.4 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. [Newton, Michael P - U-3 Aux NSO - Operations Log - Day Shift - 07/21/2012] 19:25 - HVO (Manietta) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life.
7/22/2012	10:00 HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.80 deg F and 89.95 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. @ 12:50 HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. 13:20 - Computer points E355/E356 values are 90.4 deg F and 90.5 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. @ 16:10 HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life 20:25 HVO (Mainieta) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life 20:45 - Computer points E355/E356 values are 90.4 deg F and 90.6 deg F respectively. Contacted Dresden Lock and Dam Master (Scott Coin) and he confirmed that there were no mortalities to fish or other aquatic life. This information is recorded as part of provisional variance IEPA 12- 23.
7/23/2012	10:00 HVO (Styka) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.4 deg F and 89.4 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	14:00 HVO (Styka) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.9 deg F and 90.1 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 18:20 - HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. 20:31 Computer points E355/E356 values are 90.1 deg F and 90.1 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.
7/24/2012	10:00 HVO (Piekutowski) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.4 deg F and 88.7 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:38 HVO (Piekutowski) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.4 deg F and 89.6 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 1750 - HVO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. [19:56 Computer points E355/E356 values are 90.2 deg F and 90.4 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. [
7/25/2012	9:00 HVO (Piekutowski) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.6 deg F and 88.9 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:00 HVO (Piekutowski) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 90.7 deg F and 90.5 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	17:31 Computer points E355/E356 values are 90.9 deg F and 90.7 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam. 19:55 Computer points E355/E356 values are 90.1 deg F and 90.2 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.
7/26/2012	09:30 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.7Â°F and 89.0Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:10 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.9°F and 89.0°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 18:09 Computer points E355/E356 values are 88.4 deg F and 88.6 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.] 19:57 Computer points E355/E356 values are 88.4 deg F and 88.6 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.
7/27/2012	09:40, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.5Â°F and 87.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:00, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.3Â°F and 88.3Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 18:01 Computer points E355/E356 values are 88.2 deg F and 88.0 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam 20:20 Computer points E355/E356 values are 87.4 deg F and 87.7 deg F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no fish kills occurring at the Lock and Dam.

7/28/2012	10:40, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.1Â°F and 87.3Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:55, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.7Â°F and 87.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 16:35, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or 20:25, HVO(Kusava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.2Â°F and 88.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
7/29/2012	10:00, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.0Â°F and 87.3Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 13:10, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.4Â°F and 88.4Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 17:00, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. 21:06, HVO(Kuzava) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.4Â°F and 88.6Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to
7/30/2012	09:35, HVO(Sieling) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.1Â°F and 87.3Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	12:52, HVO(Sieling) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.8Â°F and 88.9Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 16:00, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.5Â°F and 89.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 19:45, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.3Â°F and 89.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
7/31/2012	08:35, NLO (Osburn) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.6Â°F and 87.8Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 12:00, HVO(B. Kim) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.6Â°F and 88.6Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 17:10, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.5Â°F and 89.7Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 19:35, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.0Â°F and 89.0Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/1/2012	09:29, HVO (B. Kim) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.6Â°F and 87.9Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	13:00, HVO(B. Kim) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89Â°F and 89Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 16:33, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.8Â°F and 89.8Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 19:10, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.7Â°F and 89.7Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/2/2012	10:10, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.1Â°F and 88.9Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 14:05, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.7Â°F and 89.7Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 17:10, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.6Â°F and 89.6Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 19:32, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.1Â°F and 89.0Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/3/2012	10:15, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.3Â°F and 88.5Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 1230, NLO (Reader) reports inspection of the area where Dresden Station

	discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.4°F and 89.6°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 16:55 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.3Â°F and 89.4Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master who confirmed that there were no mortalities to fish or other aquatic life. 19:30 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 89.0Â°F and 89.2Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master who confirmed that there were no mortalities to fish or other aquatic life.
8/4/2012	09:54, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.8Â°F and 88.9Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 12:44, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 90.1Â°F and 90.1Â°F respectively. These values are recorded as part of provisional variances IEPA 12-22 & 23 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 15:05, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River show no mortalities to fish or other aquatic life. 20:50, NLO (Kim) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.8Â°F and 89.1Â°F respectively. These values are recorded as part of provisional variances IEPA 12-23 & 25 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/5/2012	09:44, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.2Â°F and 87.6Â°F respectively. These values are recorded as part of provisional variances IEPA 12-23 and 12-25 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	12:24, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 88.1Â°F and 88.1Â°F respectively. These values are recorded as part of provisional variances IEPA 12-23 and 12-25 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. 15:30, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River show no mortalities to fish or other aquatic life. 21:00, HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Computer points E355/E356 values are 87.1Â°F and 87.4Â°F respectively. These values are recorded as part of provisional variances IEPA 12-23 and 12-25 granted to Dresden Station. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

Attachment 2
Example Verification Completion Form
Page 1 of 1

Verification Documentation

Correspondence/Letter number: PMLTR 12-0055 Origination Date: 8/8/12

Agency/External Stakeholder: IEPA Submittal Due Date: 8/8/12

Recipient of Correspondence: Roger Callaway (name and title ~~if~~ known)

Purpose of Submittal: PV 12-23 observational Report

Originating Office: ☐ Cantera ☐ Kennett Square ☒ Site Dresden (specify)

Preparer: Ronald Novy (print) [signature] (sign) 8/8/12 (date)

Peer Reviewer: Louis E Maze (print) [signature] (sign) 8/8/12 (date)

Certified Mail Return Receipt Requested: ☐ Yes ☐ No

Approvals (check box if applicable)

	Applicable	Date Review Needed	Signature of Reviewer	Date of Review
Site Departments				
Chemistry	☒	8/8/12	[signature]	8-8-12
Operations	☐			
Engineering	☐			
Regulatory Assurance	☐			
Other: ______ (specify)	☐			
Corporate				
SME/FAM	☐			
Site Management				
Plant Manager	☒	8/8/12	☐ Report Signed and Approved	
Site Vice President	☐			

Attach additional page for comments.

Exelon Generation LLC's Responses to the Board's Questions

ATTACHMENT 11

Exelon Generation.

Exelon Generation Company, LLC
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450-9765

www.exeloncorp.com

COPY

August 22, 2012

Mr. Roger Callaway (CAS-19)
Wastewater Compliance Unit Manager
Illinois Environmental Protection Agency
Bureau of Water
Compliance Assurance Section #19
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9274

Subject: Temperature & Environmental Condition Report
Provisional Variance (IEPA 12-25)
NPDES Permit No. IL0002224
Dresden Nuclear Generation Station
PMLTR 12-0058

Dear Mr. Callaway,

On August 3, 2012, Dresden Nuclear Generation Station was issued the above referenced Provisional Variance for the thermal limits indicated in Special Condition 3C of the NPDES Permit IL0002224. As per Conditions D & E of this provisional variance, Dresden Station is to provide a Temperature and Environmental Condition Report within (7) seven days of the PV expiration date of August 16, 2012. This letter contains the temperature and environmental conditions for the period of August 3, 2012 through August 20, 2012 (four days after PV expiration).

<u>Temperature Condition Summary</u>

Discharge Water:

As recorded on the attached Thermal Data, Dresden Station utilized this variance on August 4, 2012 for a period of 4.25 hours (from 12:30 to 16:45). This would correspond to one (1) day of variance relief as per Condition A of the above referenced provisional variance. After August 4, 2012, Dresden was able to maintain discharge temperatures below 90°F throughout the remainder of the provisional variance period. The average temperature of the discharge for the entire period of this provisional variance was 86.1°F with a maximum of 90.5°F on August 4, 2012 @ 14:00.

Receiving Water:

As documented on the attached Thermal Data, Dresden Station receiving waters were elevated during the beginning of the variance period with a maximum of 89.2 on August 4, 2012. The Dresden Station intake temperature was used as the upstream river temperature during the analysis. The Dresden intake temperatures are representative of the Kankakee River upstream of the Dresden Station discharge.

Environmental Condition Summary

As listed on the attached Environmental Observation Logs, Dresden Station personnel performed visual inspections of discharge areas at least four times per day. No mortalities of fish or aquatic life observed throughout the entire provisional variance period nor were there any reports of any stress to fish or aquatic life.

In addition, river and weather conditions were also monitored twice per day for the entire variance period as per Condition B of IEPA 12-25. No abnormal conditions were noted during this variance period.

As always, Dresden Station continued to manage its equipment to minimize the discharge temperatures throughout the entire variance period. Should you require any further information or have any questions, please contact Ronald Novy of my staff at 815-416-3211.

Sincerely,

Shane Marik

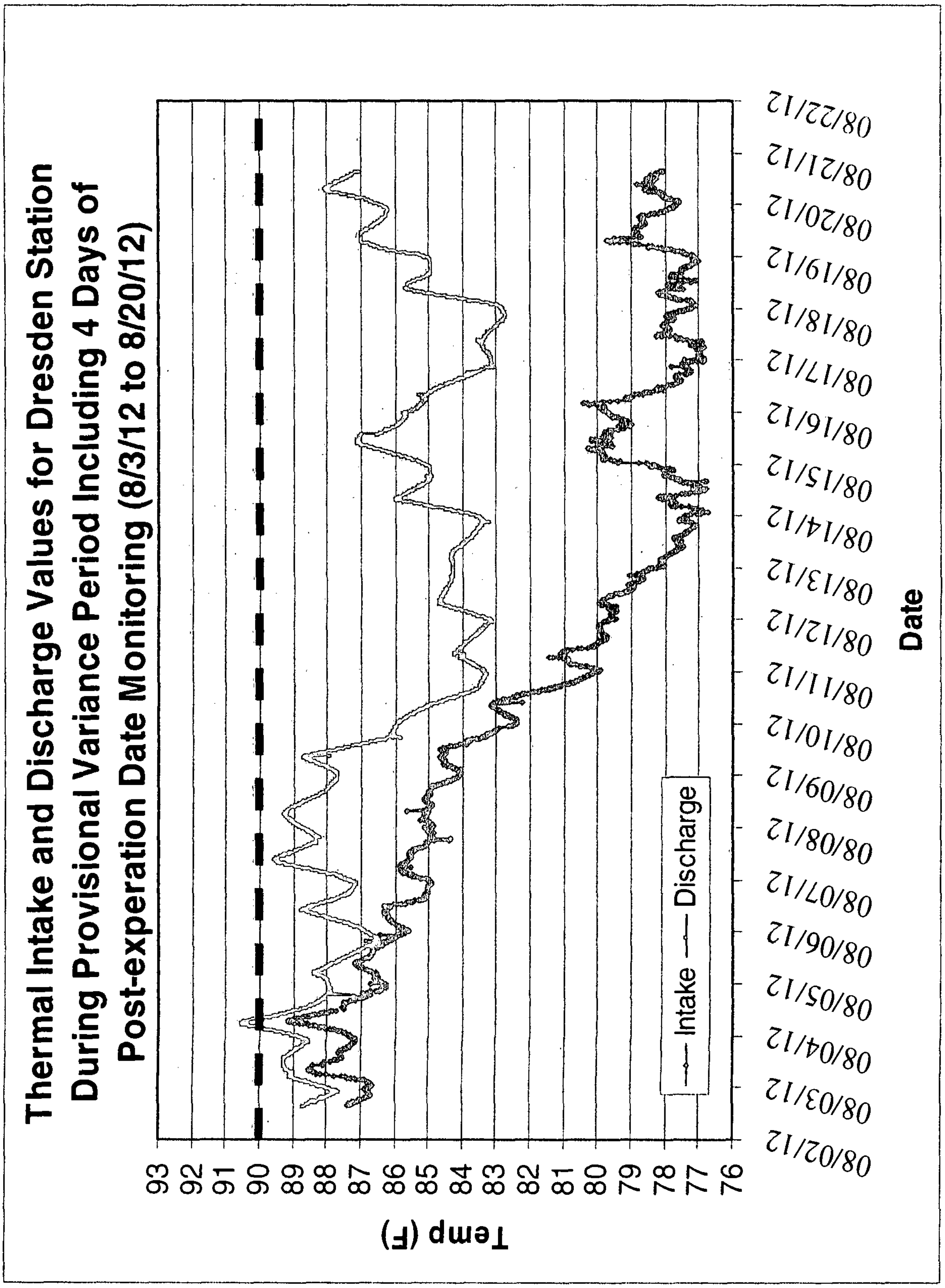
Shane Marik
Dresden Station Plant Manager

Attachments: (1) Thermal Data
(2) Environmental Observation Logs

CC: Debbie Bruce, Division Chief, Illinois DNR
1 Natural Resources Way, Springfield, IL 62702,

J. Petro D. Leggett
J. Gould M. Davis
File

Attachment (1), Thermal Data



Attachment (2), Environmental Observation Logs

8/3/2012	**At 10:15**, NLO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:30**, NLO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 16:55** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master who confirmed that there were no mortalities to fish or other aquatic life. **At 19:30** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master who confirmed that there were no mortalities to fish or other aquatic life.
8/4/2012 **Start PV12-25→**	**At 09:00** Provisional Variance (IEPA - 12-25) from the Illinois EPA begins when discharge canal temperatures exceed 90 degrees. <u>The provisional variance has not been entered at this time however it is anticipated that it will be entered today</u>. Air temperature = 81 degrees Intake canal temperature = 87.2 degrees Discharge canal temperature E355 = 88.6 degrees E356 = 88.9 degrees Kankakee River flow = 603 cfs Des Plaines River flow = 1500 cfs Weather conditions = calm PJM alerts issued = none NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:30** Discharge canal average temperature has exceeded 90 degrees. <u>Begin provisional variance IEPA 12-25</u>. Monitoring requirements per the variance are now in effect. Attempts to notify Illinois EPA (Roger Callaway) by telephone at 217-782-9720 were unsuccessful. Message left via Roger Callaway's office voicemail at 217-782-9852 **At 12:44** NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 72.5 degrees Intake canal temperature = 88.8 degrees Discharge canal temperature E355 = 89.4 degrees E356 = 89.9 degrees Kankakee River flow = 619 cfs Des Plaines River flow = 7150 cfs Weather conditions = Rain storms PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master.

	At 20:50, NLO (Kim) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life
8/5/2012	**At 09:00** Air temperature = 73.3 degrees Intake canal temperature = 86.3 degrees Discharge canal temperature E355 = 87.4 degrees E356 = 87.7 degrees Kankakee River flow = 587 cfs Des Plaines River flow = 1840 cfs Weather conditions = Fair PJM alerts issued = none NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:24**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 15:30**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 81.8 degrees Intake canal temperature = 86.9 degrees Discharge canal temperature E355 = 88.0 degrees E356 = 88.2 degrees Kankakee River flow = 555 cfs Des Plaines River flow = 2450 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 21:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/6/2012	**At 09:00** Air temperature = 75.6 degrees Intake canal temperature = 85.8 degrees Discharge canal temperature E355 = 86.3 degrees E356 = 86.8 degrees Kankakee River flow = 619 cfs Des Plaines River flow = 579 cfs Weather conditions = Fair PJM alerts issued = none NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:00**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	At 17:00 Intake canal temperature = 87.0 degrees Discharge canal temperature E355 = 88.5 degrees E356 = 88.7 degrees Kankakee River flow = 635 cfs Des Plaines River flow = 408 cfs Air temperature = 87.0 degrees Weather conditions = Fair PJM alerts issued = none NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 20:20**, NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/7/2012	**At 09:00** Air temperature = 73.1 degrees Intake canal temperature = 84.9 degrees Discharge canal temperature E355 = 86.7 degrees E356 = 87.0 degrees Kankakee River flow = 669 cfs Des Plaines River flow = 2530 cfs Weather conditions = Fair PJM alerts issued = none NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:20**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 16:00**, NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00 hrs.** Air temperature = 87.0 degrees Intake canal temperature = 87.0 degrees Discharge canal temperature E355 = 89.6 degrees E356 = 90.2 degrees Kankakee River flow = 686 cfs Des Plaines River flow = 966 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 19:30**, NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

8/8/2012	**At 09:00** Air temperature = 78.5 degrees Intake canal temperature = 85.6 degrees Discharge canal temperature E355 = 88.3 degrees E356 = 88.6 degrees Kankakee River flow = 703 cfs Des Plaines River flow = 1750 cfs Weather conditions = Fair PJM alerts issued = none NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:55**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 71.0 degrees Intake canal temperature = 85.0 degrees Discharge canal temperature E355 = 89.2 degrees E356 = 89.5 degrees Kankakee River flow = 756 cfs Des Plaines River flow = 3150 cfs Weather conditions = Cloudy PJM alerts issued = none NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 19:45**, NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/9/2012	**At 09:00** Air temperature = 72.5 degrees Intake canal temperature = 84.7 degrees Discharge canal temperature E355 = 87.4 degrees E356 = 87.8 degrees Kankakee River flow = 775 cfs Des Plaines River flow = 1430 cfs Weather conditions = Fair PJM alerts issued = none NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:03**, NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 87.0 degrees Intake canal temperature = 87.0 degrees Discharge canal temperature E355 = 88.7 degrees E356 = 88.9 degrees Kankakee River flow = 756 cfs Des Plaines River flow = 3740 cfs

	Weather conditions = Fair PJM alerts issued = none NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 20:30**, NLO (Hall) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/10/2012	**At 09:00** Air temperature = 67 degrees Intake canal temperature = 85.5 degrees Discharge canal temperature E355 = 85.8 degrees E356 = 86.2 degrees Kankakee River flow = 721 cfs Des Plaines River flow = 3470 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 12:00** NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 74 degrees Intake canal temperature = 86.3 degrees Discharge canal temperature E355 = 85.0 degrees E356 = 85.3 degrees Kankakee River flow = 703 cfs Des Plaines River flow = 2030 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 18:00**, NLO (Martin) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 19:30**, NLO (Martin) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/11/2012	**At 09:00** Air temperature = 59.7 degrees Intake canal temperature = 80.5 degrees Discharge canal temperature E355 = 82.8 degrees E356 = 83.3 degrees Kankakee River flow = 686 cfs Des Plaines River flow = 1330 cfs Weather conditions = Fair PJM alerts issued = none

	NLO, (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 12:30,** NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 15:30**, NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:16** Air temperature = 79.3 degrees Intake canal temperature = 81.3 degrees Discharge canal temperature E355 = 83.7 degrees E356 = 84.0 degrees Kankakee River flow = 686 cfs Des Plaines River flow = 3640 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 20:15**, NLO (Reader) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/12/2012	**At 09:03** Air temperature = 64.9 degrees Intake canal temperature = 80.1 degrees Discharge canal temperature E355 = 82.9 degrees E356 = 83.3 degrees Kankakee River flow = 703 cfs Des Plaines River flow = 1500 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 12:35** NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:10** Intake canal temperature = 80.4 degrees Discharge canal temperature E355 = 84.7 degrees E356 = 84.8 degrees Kankakee River flow = 703 cfs Des Plaines River flow = 1690 cfs Air temperature = 77.1 degrees Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master.

	At 21:44 NLO (Nagel) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/13/2012	**At 09:00** Air temperature = 63.0 degrees Intake canal temperature = 78.5 degrees Discharge canal temperature E355 = 84.0 degrees E356 = 84.5 degrees Kankakee River flow = 739 cfs Des Plaines River flow = 1270 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 12:24** NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 13:18** NLO (Bay) reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 16:47** Air temperature = 62.4 degrees Intake canal temperature = 78.2 degrees Discharge canal temperature E355 = 84.0 degrees E356 = 84.4 degrees Kankakee River flow = 721 cfs Des Plaines River flow = 1550 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master.
8/14/2012	**At 09:00** Air temperature = 62 degrees Intake canal temperature = 78 degrees Discharge canal temperature E355 = 83 degrees E356 = 83 degrees Kankakee River flow = 793 cfs Des Plaines River flow = 1560 cfs Weather conditions = Fair & Overcast PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal @ 09:22 and calling the Dresden Island lock master. **At 12:53** NLO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

	At 16:57 Air temperature = 81.0 degrees Intake canal temperature = 78.5 degrees Discharge canal temperature E355 = 85.9 degrees E356 = 86.1 degrees Kankakee River flow = 775 cfs Des Plaines River flow = 1730 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock.
8/15/2012	**At 09:00** Air temperature = 69.7 degrees Intake canal temperature E352 = 79.2 degrees Discharge canal temperature E355 = 84.6 degrees E356 = 85.0 degrees Kankakee River flow = 756 cfs Des Plaines River flow = 4030 cfs Weather conditions = Fair & Overcast PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 13:22** NLO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 86.7 degrees Intake canal temperature = 80.7 degrees Discharge canal temperature E355 = 87.2 degrees E356 = 87.4 degrees Kankakee River flow = 775 cfs Des Plaines River flow = 806 cfs Weather conditions = Fair PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 19:31** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/16/2012	**At 09:15** Air temperature = 66.9 degrees Intake canal temperature = 80.5 degrees Discharge canal temperature E355 = 85.1 degrees E356 = 85.5 degrees Kankakee River flow = 1490 cfs Des Plaines River flow = 3330 cfs Weather conditions = Rain PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master.

	At 12:30 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 70.3 degrees Intake canal temperature = 79.2 degrees Discharge canal temperature E355 = 85.2 degrees E356 =85.8 degrees Kankakee River flow = 812 cfs Des Plaines River flow = 607 cfs Weather conditions= Overcast PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 19:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/17/2012	**At 09:00** Air temperature = 66.9 degrees Intake canal temperature = 77.1 degrees Discharge canal temperature E355 = 82.6 degrees E356 = 83.1 degrees Kankakee River flow = 1410 cfs Des Plaines River flow = 3940 cfs Weather conditions = Clear, 8-10mph wind PJM alerts issued = none Op's personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal @1000 and calling the Dresden Island lock master. **At 13:20** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 74.4 degrees Intake canal temperature = 77.9 degrees Discharge canal temperature E355 = 83.7 degrees E356 = 83.8 degrees Kankakee River flow = 869 cfs Des Plaines River flow = 2540 cfs Weather conditions = Clear PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 19:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

8/18/2012	**At 09:03** Air temperature = 65.1 degrees Intake canal temperature = 77.8 degrees Discharge canal temperature E355 = 82.6 degrees E356 = 82.8 degrees Kankakee River flow = 908 cfs Des Plaines River flow = 1490 cfs Weather conditions = Clear, 6-10mph wind PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal @ 0910 and calling the Dresden Island lock master. **At 13:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 76.6 degrees Intake canal temperature = 78.2 degrees Discharge canal temperature E355 = 85.7 degrees E356 = 85.9 degrees Kankakee River flow = 928 cfs Des Plaines River flow = 2980 cfs Weather conditions = Clear and calm PJM alerts issued = none **At 20:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.
8/19/2012	**At 09:00** Air temperature = 76.6 degrees Intake canal temperature = 77.4 degrees Discharge canal temperature E355 = 84.5 degrees E356 = 85.0 degrees Kankakee River flow = 968 cfs Des Plaines River flow = 934 cfs Weather conditions = Calm PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal @ 0910 and calling the Dresden Island lock master. **At 13:00** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:00** Air temperature = 76.6 degrees Intake canal temperature = 79.6 degrees Discharge canal temperature E355 = 87.3 degrees E356 = 87.6 degrees Kankakee River flow = 1070 cfs Des Plaines River flow = 1960 cfs Weather conditions = Clear and NW Wind at 5 mph PJM alerts issued = none

	At 19:25 HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master at 19:30 and he confirmed that there were no mortalities to fish or other aquatic life.
8/20/2012	**At 09:06** Air temperature = 65.1 degrees Intake canal temperature = 78 degrees Discharge canal temperature E355 = 85.6 degrees E356 = 86.4 degrees Kankakee River flow = 968 cfs Des Plaines River flow = 995 cfs Weather conditions = Calm PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal @ 09:00 and calling the Dresden Island lock master. **At 13:58** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life. **At 17:15** Air temperature = 72 degrees Intake canal temperature = 79 degrees Discharge canal temperature E355 = 87.9 degrees E356 = 88.2 degrees Kankakee River flow = 1030 cfs Des Plaines River flow = 2600 cfs Weather conditions = Overcast with NE wind 10 mph PJM alerts issued = none Ops personnel verified no signs of adverse effects to local marine life by checking the Illinois River in the area of the discharge canal and calling the Dresden Island lock master. **At 17:53** HVO reports inspection of the area where Dresden Station discharge meets the Illinois River shows no mortalities to fish or other aquatic life. Contacted Dresden Lock and Dam Master, and he confirmed that there were no mortalities to fish or other aquatic life.

Attachment 2
Example Verification Completion Form
Page 1 of 1

Verification Documentation

Correspondence/Letter number: PMLTR 12-0058 Origination Date: 8/21/12
Agency/External Stakeholder: IEPA Submittal Due Date: 8/22/12
Recipient of Correspondence: Roger Callaway
(name and title if known)

Purpose of Submittal: End Report For provisional variance 12-25

Originating Office: ☐ Cantera ☐ Kennett Square ☒ Site Dresden
(specify)

Preparer: Ronald Nory (print) [signature] (sign) 8/21/12 (date)

Peer Reviewer: Morgan Dale (print) [signature] (sign) 8/21/12 (date)

Certified Mail Return Receipt Requested: ☐ Yes ☒ No

Approvals (check box if applicable)

	Applicable	Date Review Needed	Signature of Reviewer	Date of Review
Site Departments				
Chemistry	☒	8/21/12	Dennis Hazzelt	8-21-12
Operations	☐			
Engineering	☐			
Regulatory Assurance	☐			
Other: ________ (specify)	☐			
Corporate				
SME/FAM	☐			
Site Management				
Plant Manager	☒	8/22/12	☐ Report Signed and Approved	
Site Vice President	☐			

Attach additional page for comments.

Exelon Generation LLC's Responses to the Board's Questions

ATTACHMENT 12

EA Report CWE11

DRESDEN 1981
ENVIRONMENTAL PROGRAM

TEXT

Prepared for
Commonwealth Edison Company
One First National Plaza
Chicago, Illinois 60690

Prepared by

Ecological Analysts, Inc.
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Approved by: Daniel Patulski
D. E. Patulski
Project Manager

Lloyd Everhart
L. D. Everhart
Program Manager

January 1982

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CONTENTS (CONT.)

PREFACE

This report of the 1981 Dresden Environmental Program represents the compilation of three distinct studies conducted at and within the environs of the Dresden Nuclear Station: Water Quality and Plankton Studies; River System Studies; and an Impingement Study. Personnel of Ecological Analysts, Inc. (EAI) conducted all aspects of the studies with the exception of analysis and reporting of water quality data which was performed by Commonwealth Edison Company's (CECo) Operational Analysis Department (OAD). EAI personnel were responsible for the collection of water samples and field chemistry measurements only. Water quality data are not included in this report.

Mr. Daniel Patulski, Project Manager, coordinated and directed the program and compiled the report. Mr. Lloyd Everhart, Program Manager, provided technical and editorial review of the final report.

The following EAI personnel were the principal investigators and authored their respective sections of the report:

Phytoplankton and Zooplankton	Ms. D. Dvorak, Aquatic Sciences
Macroinvertebrates	Mr. D. Geers, Aquatic Sciences
Fisheries (River System and Impingement)	Mr. D. Patulski, Aquatic Sciences

Other staff members who participated in the program or in preparation of the report include Ms. K. Hattala, Mr. R. Lewis, Mr. K. Stimpson, Mr. F. Piron, Mr. T. Hamilton and Mr. J. Protano, field surveys and laboratory analysis; Mr. R. Bockelman and Mr. E. Bernabe, algal analyses; Mr. J. Weitzel, sediment analyses; Ms. B. Ruble, data processing; and Ms. Anne Potter, word processing. The assistance and cooperation of CECo personnel, particularly Ms. Sharon Brinker, program coordinator for CECo, was greatly appreciated. The cooperation of OAD personnel, especially J. Urjevec and P. Noska, in the preparation and delivery of chemistry sample containers was also appreciated.

LIST OF FIGURES

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EXECUTIVE SUMMARY

An environmental program was conducted at the Dresden Nuclear Station in the summer of 1981 to collect biological and water quality data for assessing the environmental effects resulting from indirect open cycle operation of the station. The program encompassed three distinct studies: a water quality and plankton study in the cooling water system; a fish and macroinvertebrate study in the adjacent river system; and a fish impingement study at the intake of Units 2 and 3. Water quality data are presented in a separate report by Brinker (1982).

High river flows were encountered throughout the June - September sampling period, especially in the Kankakee River in June and July. As a result, the Kankakee River was the principle source of cooling water for the station.

In evaluating the total effect of the Dresden Station and cooling pond on phytoplankton, there appeared to be no consistent enhancement or decrease in algal abundance, but chlorophyll a concentration was reduced through the cooling system. A shift in the cooling pond algal community to blue-greens, as previously noted during variable blowdown operation, was not observed in the present study.

Zooplankton abundance decreased slightly after condenser passage but was offset by increased abundance in the cooling pond in most months, particularly for the cladocerans Diaphanosoma and Moina.

Sediment of the Illinois River in Dresden Pool was principally silt and fine sand with some clay. The benthic macroinvertebrate community composition and species dominance were similar at each of the three river locations, being principaly saprophilous tubificids. Organisms were generally most abundant at the location furthest downstream from the discharge. An increase in tubificid densities directly downstream of the discharge during indirect open cycle operation, as noted in earlier studies, was not observed in the present study.

The greatest occurrence and abundance of fish in the Dresden Pool study area were found at the discharge in most months; sunfishes and the emerald shiner were particularly more abundant there. A variety of species, such as the redhorse spp., showed no preference for the discharge as evidenced by their rather even distribution in the study area or their greater abundance in the cooler areas of the river. This indicates that temperature is not the sole contributing factor associated with spatial differences in fish distribution.

There were no consistent or pronounced differences in fish abundance among locations below Dresden Island Lock and Dam. The emerald shiner accounted for much of the spatial and temporal differences in catches.

The fish composition in the Dresden Pool study area has fluctuated over eight years of study (1974-1981) with a trend toward increasing numbers of species at some locations. The relative abundance of fish has also fluctuated with no distinct upward or downward trend. The greatest abundance of fish has been recorded at the discharge in all years. Indirect open cycle operation in the summer of 1981 did not result in any major changes in the distributional patterns of fish compared to previous years under closed or variable blowdown modes; the one exception was that fish avoidance was not observed at the discharge during the period of warmest discharge temperatures, as was typically noted in previous years. The cooler discharge temperatures associated with indirect open cycle than under closed or variable blowdown modes of operation provides a possible explanation for the observed change at the discharge in 1981.

An estimated 225,879 fish weighing 2,421 kg were impinged at the intake of Units 2 and 3 during indirect open cycle operation from 15 June through 30 September 1981. Carp and gizzard shad accounted for most of the impinged fish. This estimate was lower than the estimate for the same time period in 1977 and in 1978 when the station operated under the variable blowdown scheme. The major difference in fish impingement between 1981 and previous years was the number of young carp impinged. The large number of impinged carp in 1981 probably resulted from a strong 1981 year class associated with high spring and summer flows in the Kankakee River. Excluding carp from the impingement estimates, the difference in the number of fish impinged in 1981 vs. 1977 and 1978 was even more pronounced. Numerically, the estimated escapement of fish from Dresden Cooling Pond and impinged at the intake of Units 2 and 3 were similar during the period of indirect open cycle operation in 1981.

1.0 INTRODUCTION

Commonwealth Edison Company (CECo) was granted temporary permission by the Illinois Environmental Protection Agency (IEPA) to operate in an indirect open cycle mode at their Dresden Nuclear Station during the summer of 1981. IEPA issued a modified NPDES Permit (No. 0002224) which allowed CECo to operate indirect open cycle from 15 June through 30 September to collect information to make a final determination on its operating mode. In association with the modified permit, the Illinois Pollution Control Board (IPCB) granted CECo an alternate thermal discharge standard for the Dresden Station that coincided with the life of the permit.

The purpose of the Environmental Program was to collect biological and water quality data to assess the environmental affects resulting from indirect open cycle operation at the Dresden Station. The program, approved by the IEPA, encompassed three distinct studies for assessing station affects on water quality and the aquatic biota: a water quality and plankton study in the cooling water system; a fish and macroinvertebrate study in the adjacent river system; and an impingement study at the intake for Units 2/3.

The specific objectives of the program were as follows:

1. To describe changes in water chemistry and plankton assemblages as they passed from the Kankakee and Des Plaines rivers through the Dresden Station and through the cooling pond under indirect open cycle operation;

2. To determine the affects of indirect open cycle operation on the fish and benthic macroinvertebrate communities in the vicinity of the station; and,

3. To document fish impingement at the intake for Units 2/3 while operating under indirect open cycle conditions.

The design of the 1981 fish study was consistent with historical monitoring in the vicinity of the Dresden Station. These data were compared to determine long-term trends in the indigenous fish populations and to assess the affects of Dresden Station operation, under various operating modes, on these fishes.

Because of the large volume of data presentations generated for this report, tables and figures are presented at the end of each section of the report.

2.0 WATER QUALITY AND PLANKTON STUDIES

2.1 STUDY AREA DESCRIPTION

The study area encompassed the source water bodies and the Dresden Station intake and cooling water system (Figure 2.1-1). Seven locations (Locations A through G) were established along the route of the cooling water mass, beginning at the lower Kankakee and Des Plaines Rivers, through the river intake and station discharge canals and ending at the cooling pond spillway (Table 2.1-1). The study design was to sample the same water mass as it moved from one sampling point to the next, based on a time schedule that considered transit times through the system. Average transit times from Location C (intake forebay) to each of the other sampling points with six circulating water pumps in operation are taken from calculated values obtained from a simulation model developed by NUS Corporation (1976) and are presented in Table 2.1-2. A second estimate of the time of travel through the cooling pond was obtained in July 1981 by CECo (1982) using fluorescent dye as a tracer of the water mass passing through the pond. The calculated mean travel time through the pond (from the lift station to the spillway) from the dye study was similar to the NUS model prediction (55 and 57 hours, respectively). Because of the similarity between the two estimates, the model values were considered acceptable and were therefore used in the present study.

Once sampling was initiated, it was assumed that transit times were as specified for six pump operation. Sample collection at Location G (cooling pond spillway) thus began approximately 59 hours after sample collection was initiated at Location C. River Locations A and B were sampled shortly before Location C. The actual time of transit from Locations A and B to Location C was not determined. The time schedule for collection of samples at each of the seven locations is presented in Table 2.1-3.

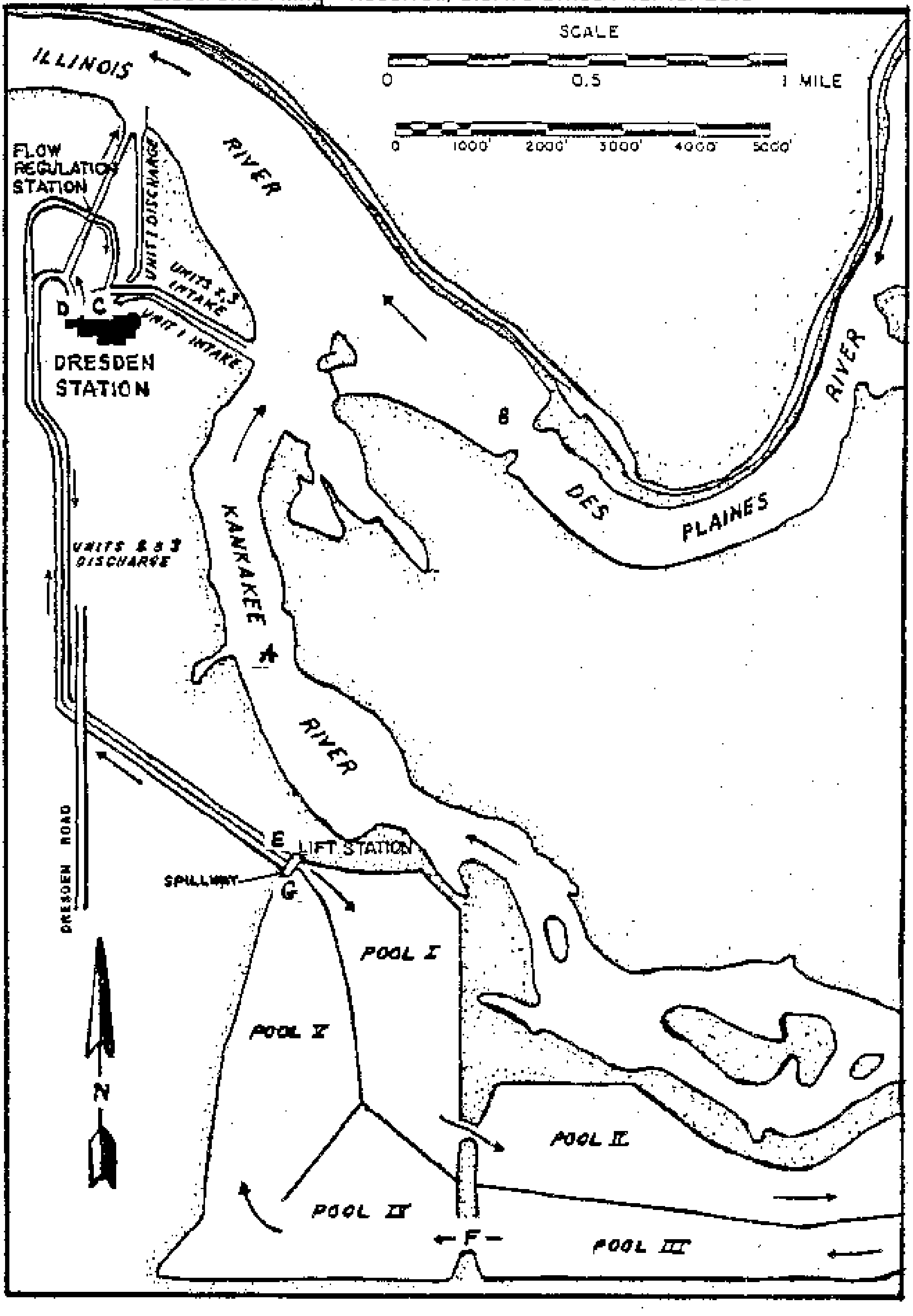

Figure 2.1-1 Schematic of water chemistry and plankton sampling locations, Dresden Station Cooling System.

TABLE 2.1-1 SAMPLING LOCATIONS FOR WATER CHEMISTRY, PHYTOPLANKTON, AND ZOOPLANKTON, DRESDEN STATION, JUNE-SEPTEMBER 1981.

Location	Description
A	Kankakee River, 0.5 mile upstream of Units 1, 2, and 3 intake canals near the transmission lines.
B	Des Plaines River, 0.5 mile upstream of the confluence with the Kankakee River, adjacent to the Joliet Yacht Club in the main channel (RM 273.5).
C	Dresden Station, Units 2/3 intake forebay.
D	Dresden Station, Units 2/3 condenser water discharge canal near the underground discharge port from the station.
E	Discharge canal in front of the lift station and prior to entry into Pool 1 of the cooling pond.
F	Downstream side of County Line Road Bridge which divides Pools 3 and 4 of the cooling pond.
G	Pool 5 of the cooling pond near the spillway where water is discharged from the pond.

TABLE 2.1-2 APPROXIMATE COOLING WATER TRANSIT TIMES FOR LOCATIONS C, D, E, F, AND G.

Locations	Time	Cumulative Time
Location C to Location D	0.06 hours	0.06 hours
Location D to Location E	1.57 hours	1.63 hours
Location E to Location F	36 hours	37.63 hours
Location F to Location G	21 hours	58.63 hours

TABLE 2.1-3 SAMPLING SCHEDULE BY LOCATION AND TIME INTERVAL, DRESDEN WATER QUALITY AND PLANKTON STUDIES.

Day	Location	Time 1	Time 2	Time 3	Time 4	Project Tasks
Tuesday	A	0730 - 0800	1030 - 1100	1330 - 1400	1630 - 1700	Water quality, phytoplankton, zooplankton
Tuesday	B	0700 - 0730	1000 - 1030	1300 - 1330	1600 - 1630	Water quality, phytoplankton, zooplankton
Tuesday	C	0800 - 0830	1100 - 1130	1400 - 1430	1700 - 1730	Water quality, phytoplankton, zooplankton
Tuesday	D	0804 - 0819	1104 - 1119	1404 - 1419	1704 - 1719	Water quality, phytoplankton, zooplankton
Tuesday	E	0938 - 1008	1238 - 1308	1538 - 1608	1838 - 1908	Water quality, phytoplankton, zooplankton, prep. samples
Wednesday-Thursday	F	2138 - 2208	0038 - 0108	0338 - 0408	0638 - 0708	Water quality, phytoplankton, zooplankton
Friday-Saturday	G	1838 - 1908	2138 - 2208	0038 - 0108	0338 - 0408	Water quality, phytoplankton, zooplankton

2.2 WATER QUALITY

2.2.1 Introduction

Previous studies at the Dresden Station have generally noted changes in certain water quality parameters in the discharge water after passage through the cooling water system (Ellis and Shipley 1978). These changes indicated that the cooling pond, under closed cycle operation, functioned as a treatment facility whereby concentrations of most nutrients i.e., phosphorus, ammonia and nitrite, and densities of bacteria were lower in the discharge than in the source or receiving waters. The improvement in water quality in the Illinois River is probably minor because of the low discharge associated with closed cycle or variable blowdown operation. Variable blowdown is defined as an operational scheme whereby the station operates under closed cycle mode (≤50,000 gpm blowdown to the Illinois River) until intake water temperature exceeds 33 C (91.5 F) at which time additional blowdown to the river, not to exceed 500,000 gpm, is permitted. During indirect open cycle operation, however, large volumes of water from the cooling pond are discharged to the Illinois River which could result in considerable improvement in water quality (Ewing 1981).

To further examine the extent of change in water quality during passage through the cooling water system under indirect open cycle operation, the 1981 cooling system study was designed to characterize the physicochemical constituents of the water in the source water bodies and in the cooling water system from late June through September when the station was operating indirect open cycle. Changes were evaluated based on the differences in physicochemical values at the various locations established in the source water bodies and throughout the cooling water system.

The water quality study was conducted through a cooperative program in which personnel from CECo and EAI participated. Water samples and field chemistry measurements were taken by EAI personnel and the samples delivered to CECo (OAD) for analysis. This report describes the water quality field procedures associated with handling of water samples after collection and the field measurements of physicochemical parameters. Other aspects of the field procedures as well as laboratory procedures are described in a separate water quality report by Brinker (1982).

2.2.2 Field Procedures

Water samples were placed in labeled containers provided by CECo and stored in coolers containing ice immediately after collection. All samples were transported to CECo's laboratory in Maywood, Illinois, within 24 hours after collection for analysis. Chain-of-custody procedures were implemented that documented the transfer of samples from EAI to CECo personnel.

Temperature (C), dissolved oxygen (DO) in milligrams per liter, pH (units) and specific conductance (μmhos/cm) were measured in the field using a Hydrolab Water Quality Measurement System. Instrument calibration was performed in the field each day before and after samples were collected. The temperature probe was calibrated against a certified mercury thermometer.

The DO probe was calibrated by the Winkler method based on duplicate DO measurements. The pH probe was calibrated against a pH reference buffer solution of pH 7 (± 0.01 pH unit at 25 C). A pH buffer solution of pH 10 was used as an extra calibration check on most dates. Specific conductance was calibrated against a potassium chloride reference solution of 717.8 µmhs/cm at 0.005 M. As a quality assurance check, duplicate DO samples were generally analyzed about midway through the sampling event. Calibration test data for each sampling date are reported in Appendix F.

To further describe ambient conditions at the time of collection, the following observations (many of which were subjective) were made:

Weather Conditions

- Air Temperature
- Wind Direction
- Wind Description (Still, Breeze, Moderate, Gusts, etc.)
- Precipitation (Drizzle, Sprinkle, Rain)
- Cloud Cover (approximate percent)

Water Surface Conditions (Flat, Ripple, Choppy)

Time of Day

Field observation data are reported in Appendix G.

2.2.3 Results and Discussion

The results of the water quality study are discussed by Brinker (1982).

2.2.4 References

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2.3 PHYTOPLANKTON

2.3.1 Introduction

A phytoplankton sampling program was conducted to describe changes in algal assemblages as they pass from the Kankakee and Des Plaines rivers through the Dresden Station and through the cooling ponds under indirect open cycle operation. The intention was to sample the same water mass as it moved from one sampling point to the next. Average transit times from the station intake to each of the other sampling points is presented in Table 2.1-2.

2.3.2 Field and Analytical Procedures

2.3.2.1 Field Procedures

Single phytoplankton samples were collected from seven locations (A, B, C, D, E, F, and G) (Table 2.1-1, Figure 2.1-1) during June, July, August, and September 1981. Sampling was conducted once per month during a 12-hour period at a frequency of once every three hours. Single samples were collected from a depth of one meter at each location; each sample consisted of 250 ml taken from one six-liter Kemmerer sampler. A total of 112 samples were collected.

One set of samples was taken for the analysis of species composition, abundance (numbers/ml) and biovolume (μl/l). Each sample was placed in a labeled polyethylene bottle and preserved immediately with Lugol's solution at a rate of at least 1 ml Lugol's solution per 100 ml sample as recommended by Standard Methods (APHA et al. 1976). Lugol's solution was used because it: (a) was gentle to fragile forms of algae, such as naked flagellates, and (b) served to stain the chloroplasts of active, viable algae, thereby assisting in the determination of live and dead forms.

A second set of samples was collected for the analysis of chlorophyll *a* and pheophytin a. Samples were placed in appropriately labeled polyethylene bottles. The samples were protected from chlorophyll *a* degradation by storing the samples under ice in a dark cooler. One of the greatest causes of pigment degradation is strong sunlight; therefore, care was exercised throughout the collecting and analytical procedure to prevent sunlight interaction with the samples and extracts. Subsamples (50 ml from each sample) were filtered onto 0.45 μm pore size glass-fiber filters at the field laboratory. Samples were appropriately labeled, iced and kept in the dark during transport to the analytical laboratory.

2.3.2.2 Laboratory Procedures

The inverted microscope method (Lund et al. 1958, Weber 1973) was employed to identify and enumerate phytoplankton. Each preserved sample was mixed, and an aliquot transferred into a settling chamber designed for use on a Zeiss Standard UPL inverted microscope. Algae were identified and cells (10- μm lengths for filaments with indistinguishable cells) enumerated at 400X or 1000X magnification under oil immersion. Most identifications were made to species, and all to the genus level. Separate enumerations were made of "live" (cells containing chloroplasts) and "dead" cells (those without chloroplasts). The analysis of each phytoplankton sample was considered complete when a total of 1,000 live and dead cells had been counted or when a 50.2 mm^2 field (100 mm field x 0.502 mm depth of field) had been scanned. Enumeration of phytoplankton was reported as follows:

Algal Form	Reporting Units
Unicellular	Each cell or diatom frustule
Colonial	4 cells (*Aphanocapsa*, *Aphanothece* and *Microcystis* reported in 50 cell units)
Filamentous	100 μm lengths

Phytoplankton abundance (units/ml) was reported separately for live and dead algae at each location and for each time period.

The cell dimensions of 10 individuals of each "live" taxon were measured during the microscopic analysis. Individual measurements were made of phytoplankton collected from the Kankakee River, Des Plaines River and cooling pond locations (Locations A, B and F, respectively). These dimensions were inserted into the volumetric formula that best approximated the shape of the taxon (Hohn 1969, Vollenweider 1974). By this method, an approximate biovolume per cell was calculated for each taxon. These data, along with the enumeration data, were used to calculate phytoplankton biovolumes (μl/l) at Locations A, B and F for each time period.

Phytoplankton was analyzed by the fluorometric method for chlorophyll *a* and pheophytin *a* concentrations per Method 1002 G.2 and 1002 G.4 of *Standard Methods* (APHA *et* al. 1976). The filtered pigment samples were eluted in 90 percent aqueous acetone for 24 hours at 4 C under dark conditions and then subjected to ultrasonic disruption (Vollenweider 1974, Weber 1973). After samples were clarified by centrifugation, their fluorescence was determined before and after the addition of 1N HCl (Lorenzen 1966, Yentsch and Menzel 1963). Standard equations (Strickland and Parsons 1972, APHA et al. 1976) were used to calculate pheophytin concentrations and chlorophyll *a* (corrected for pheophytin *a*). These concentrations were reported per cubic meter of water (mg/m^3).

Field and laboratory records were maintained to assure that chain-of-custody procedures were followed in accordance with the EA quality assurance program.

2.3.2.3 Data Handling and Analysis

After sample analysis, the data was computer processed using quality control techniques and verified and documented programs. The resultant data tables contained the density (units/ml) and percentage composition for each taxon and total phytoplankton for each location and time period (reported separately for live and dead phytoplankton). Biovolume (μl/l) was reported for live organisms and kept separate by time period and location. Biovolume at Locations A, B and F was determined based on separate measurements at each location. Chlorophyll a and pheophytin a concentrations were reported (mg/m^3) by time period and location.

2.3.3 Results and Discussion

The following section discusses only those phytoplankton enumerated as "live". The densities of "dead" algae may reflect mortalities caused by plant operation, but these numbers could not be accurately separated from those attributed to normal phytoplankton life cycles or other environmental conditions. Therefore, only the data on "dead" cells was provided. Detailed data on densities of live and dead phytoplankton are presented in Appendix A and summaries of dominant live species and major divisions are reported in Tables 2.3-1 through 2.3-15.

2.3.3.2 Community Composition

Of the six algal divisions encountered throughout the study period, diatoms (Bacillariophyta) and green algae (Chlorophyta) usually comprised the major portion of the total phytoplankton at all locations. Diatoms constituted most of the algal community in the water mass sampled before it reached the cooling ponds (Table 2.3-16). Green algae, however, dominated Location F (between Pools III and IV) in June and July. Previous studies in the area of the Dresden Station also documented diatoms as the dominant algal form (Bernabe 1976a, 1976b, 1977; Altstaetter 1978).

Phytoplankton densities in the Des Plaines River were always larger than in the Kankakee River (Table 2.3-1). This may have been a result of slightly higher water temperatures (Table 2.3-17) and slower currents in the Des Plaines River. The Kankakee River also experienced unusually high flows during the study period compared to the previous 10 year period (Section 4.4.1), particularly in June, which undoubtedly had an effect on phytoplankton abundance in the river.

Diatoms were comprised primarily of the centric forms, especially species of *Cyclotella*, *Melosira*, *Stephanodiscus* and *Skeletonema*. The peak observed abundance for diatoms and total phytoplankton occurred during July at Location B, (Des Plaines River) but densities in general were highest in August.

The phytoplankton community in June was dominated by diatoms at all locations except Location F. Nonetheless, Cyanophyta, Chlorophyta, and Euglenophyta all reached maximum abundance in June at Location B. Chlorophyta, primarily *Ankistrodesmus falcatus*, were especially prevalent at Location B, composing 42 percent of the total phytoplankton. Except for the Des Plaines River location, densities were generally quite low in June, perhaps due to flooding conditions and the subsequent heavy amounts of silt in the water. Eddy (1934) and Hynes (1970) also report that turbid floodwaters greatly reduce plankton populations in river systems.

Densities in July increased at all locations perhaps due to favorable seasonal conditions. Daily photoperiod had increased as well as river temperatures. The seasonal peak of phytoplankton was reached in July at Location B.

Diatoms continued to dominate the community except at Location F where green algae, composed primarily of Pediastrum and Scenedesmus, constituted over one-third of the totals.

Diatoms constituted 67 to 78 percent of the total algal assemblage in August when seasonal densities were greatest at five of the seven locations. Chlorophyta also occurred frequently in August. Water temperature was apparently not the major factor contributing to these higher densities, as temperature remained fairly constant from July. Maximum late summer densities were apparently reached by various diatom taxa.

Densities in September decreased from August at all locations except Location F where diatoms were slightly more abundant than at other locations. Diatoms continued to dominate the community at all sampling locations. Skeletonema potamos, one of the most prevalent diatoms, composed nearly 45 percent of the total phytoplankton at Location C. Chlorophyta also continued to be an important division in September.

Chlorophyll a values were generally highest in the Des Plaines River (Location B) (Tables 2.3-18 through 2.3-21). Values were lowest in June and July except at Location B where green algae reached maximum abundance. The largest concentration occurred in July (20.588 mg/m^3). Pheophytin, usually absent or present in low concentrations, did not follow any pattern through the study period (Tables 2.3-18 through 2.3-21). The highest value for pheophytin, found in the cooling pond during August (0.573 mg/m^3), may be correlated to a decrease or breakdown in chlorophyll a pigment at that time.

Maximum mean values for biovolume occurred in June in the Des Plaines River (Tables 2.3-22 through 2.3-25). Coelastrum cambricum, a green algae, composed as much as 92 percent of the total June biovolume in the cooling pond (Location F). Biovolume values were always higher in the Des Plaines River (Location B) than in the Kankakee River (Location A) or in the cooling pond (Location F). Centric diatoms, primarily Cyclotella, Melosira, Stephanodiscus and Skeletonema, consistently had the highest biovolume values.

2.3.3.2 Changes Through the Cooling Water System

Densities of total phytoplankton and major algal divisions were consistently comparable between the Kankakee River (Location A) and the station intake (Location C) during all sampling months, indicating that cooling water was drawn primarily from the Kankakee River. Diatoms composed the majority of the total phytoplankton in the Kankakee River and in the cooling pond system. Cairns (1956) and Bush, Welch and Mar (1974) report that optimum temperatures for diatom growth occur from 15 to 30 C. For that reason it is unusual for diatoms to continue to dominate the community at Locations D, E, F, and G when temperatures during most sampling periods were over 30 C.

Phytoplankton densities from the station intake (Location C) and discharge (Location D) through the spray and cooling canals to the lift station (Location E) were relatively unchanged in June, July, and September (Figure 2.3-1). In August, however, densities increased slightly as water progressed through the system.

The densities of algal populations within the series of cooling ponds did not follow a definite pattern (Figure 2.3-1). In June and July total phytoplankton increased slightly from Location E to Location G (spillway of the cooling pond prior to discharge spray canal), although densities were low at all three locations in both months, presumably because of high flows in the Kankakee River. Densities decreased by two-thirds from Location E to Location F in August (3,074 units/ml to 998 units/ml). This appreciable decrease may have been caused by zooplankton grazing. Very high densities of cladocerans, especially Moina micrura, were reported from Location F in August (Section 2.4). Densities were doubled at the next location (Location G) perhaps due to the retention time within the cooling pond which increased production in some groups of algae, although densities of cladocerans peaked in abundance. Total phytoplankton in September decreased progressively through the cooling pond. Cladocerans continued to be an important part of the total zooplankton in September which again may have accounted for lower algal densities.

Blue-green algae (Cyanophyta) which commonly occur in water with high temperatures were a minor constitutent of the total phytoplankton during the study period (Tables 2.3-14 and 2.3-16). A previous study in the cooling pond (Altstaetter 1978) during variable blowdown operation reported that Cyanophyta became the dominant algal division in the cooling pond in July and August. Patrick (1969) reports that blue-greens usually dominate at temperatures over 35 C. The lack of blue-greens as important constituents in the cooling ponds may have been due to their low numbers in the Kankakee River which contributed the majority of the make-up water to the cooling pond system and the cooler temperatures in the pond asociated with indirect open cycle operation.

Biovolume values reflected the pattern seen for total phytoplankton, with highest numbers reported in the Des Plaines River (Figure 2.3-2). The highest value in June can be attributed to maximum densities of Chlorophyta, in particular Coelastrum cambricum. Values were also high in August due to seasonal increases in algal production. In all months except July, biovolume was lowest in the cooling pond (Location F).

Chlorophyll a values decreased from the Kankakee River and intake locations as they passed through the cooling system (Figure 2.3-3). The decrease in chlorophyll a was often accompanied by increases in pheophytin (chlorophyll degradation product). In most months the pattern of total phytoplankton abundances between locations was not reflected in the chlorophyll a concentrations. Monthly similarities between total densities and chlorophyll a values can be detected, in that June and July algal abundance and chlorophyll a pigments were generally lower than August and September.

2.3.4 Summary and Conclusions

1. Intake water was drawn primarily from the Kankakee River based on the similarity in phytoplankton assemblages at Locations A and C.

2. Diatoms and green algae composed the major portion of the total live phytoplankton at all locations.

3. Densities in general were highest in August, although the seasonal peak for diatoms and total live phytoplankton occurred in July at Location B in the Des Plaines River.

4. Phytoplankton densities in the Des Plaines River were always higher than in the Kankakee River.

5. During June and July, phytoplankton densities increased slightly in the cooling pond while in September abundances declined. Densities in August decreased dramatically from Location E to F, then increased at Location G.

6. Chlorophyll _a_ values decreased from the Kankakee River and intake location as they passed through the cooling pond system.

7. Biovolume values reflected the pattern seen for total phytoplankton, with highest numbers reported in the Des Plaines River.

8. In evaluating the total effect of the Dresden Station and cooling pond system on phytoplankton, there appeared to be no consistent enhancement or decrease in algal densities but chlorophyll _a_ values were reduced through the system. Various changes do take place within the system, but the phytoplankton taken from the Kankakee is not appreciably different in density to that at Location G, prior to discharge into the Illinois River for the river flows encountered during the study.

9. Indirect open cycle operation did not result in a shift of the cooling pond algal community to blue-greens in the summer as was noted for variable blowdown operation.

2.3.5 References

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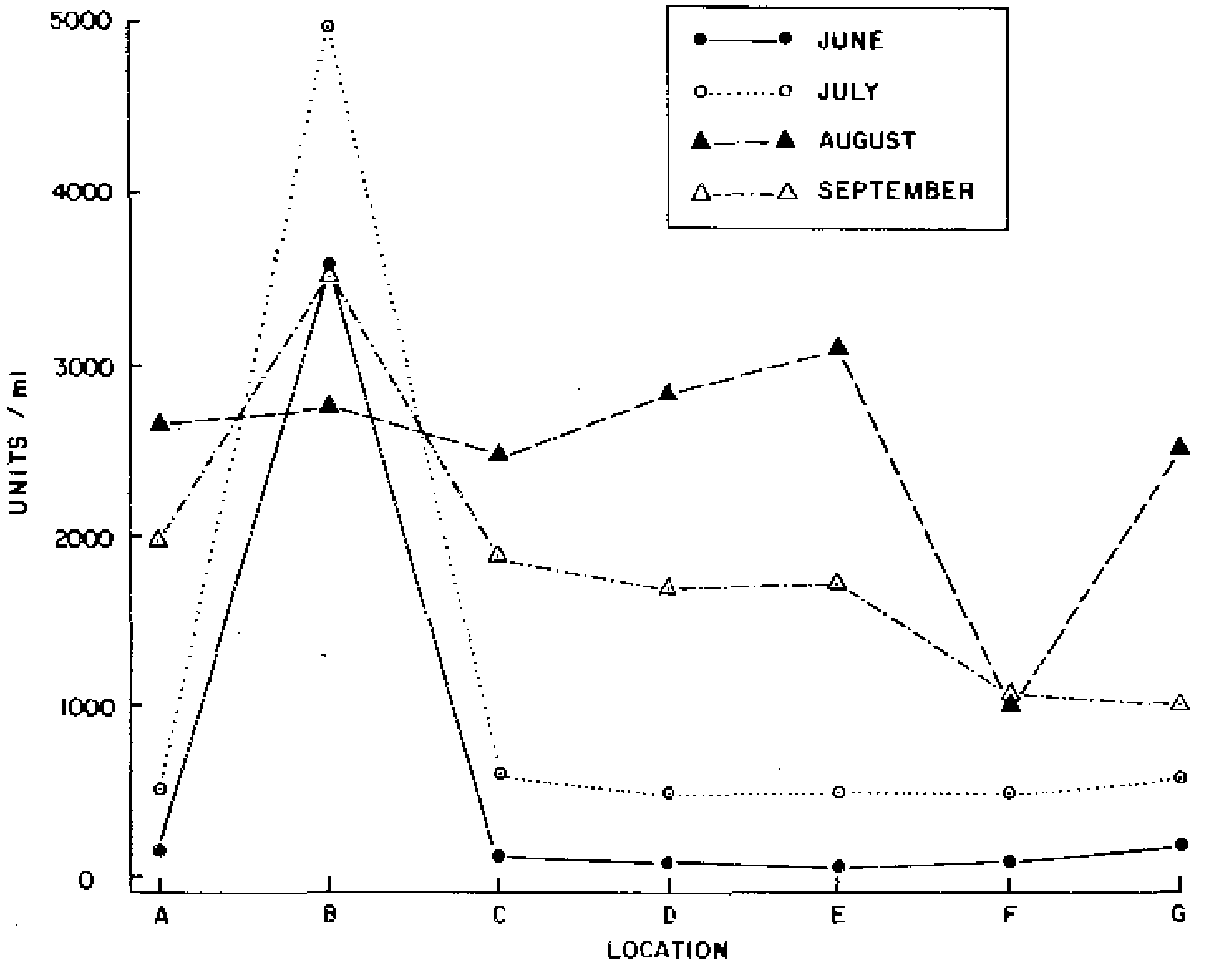

Figure 2.3-1 Mean density (units/ml) of total live phytoplankton collected from seven locations near the Dresden Station, June - September 1981

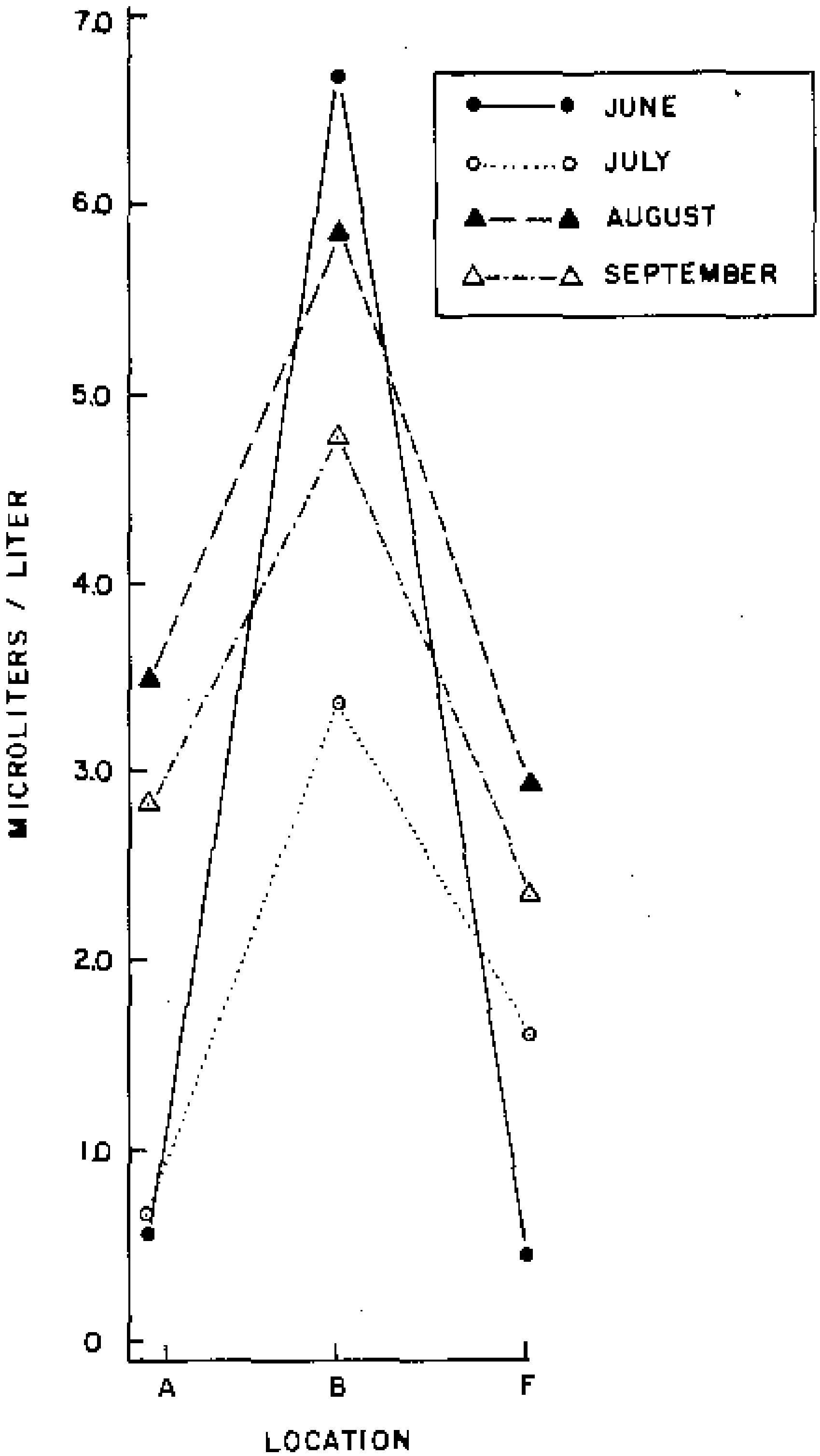

Figure 2.3-2 Mean biovolume (μl/1) of total live phytoplankton collected from three locations near Dresden Station, June - September 1981

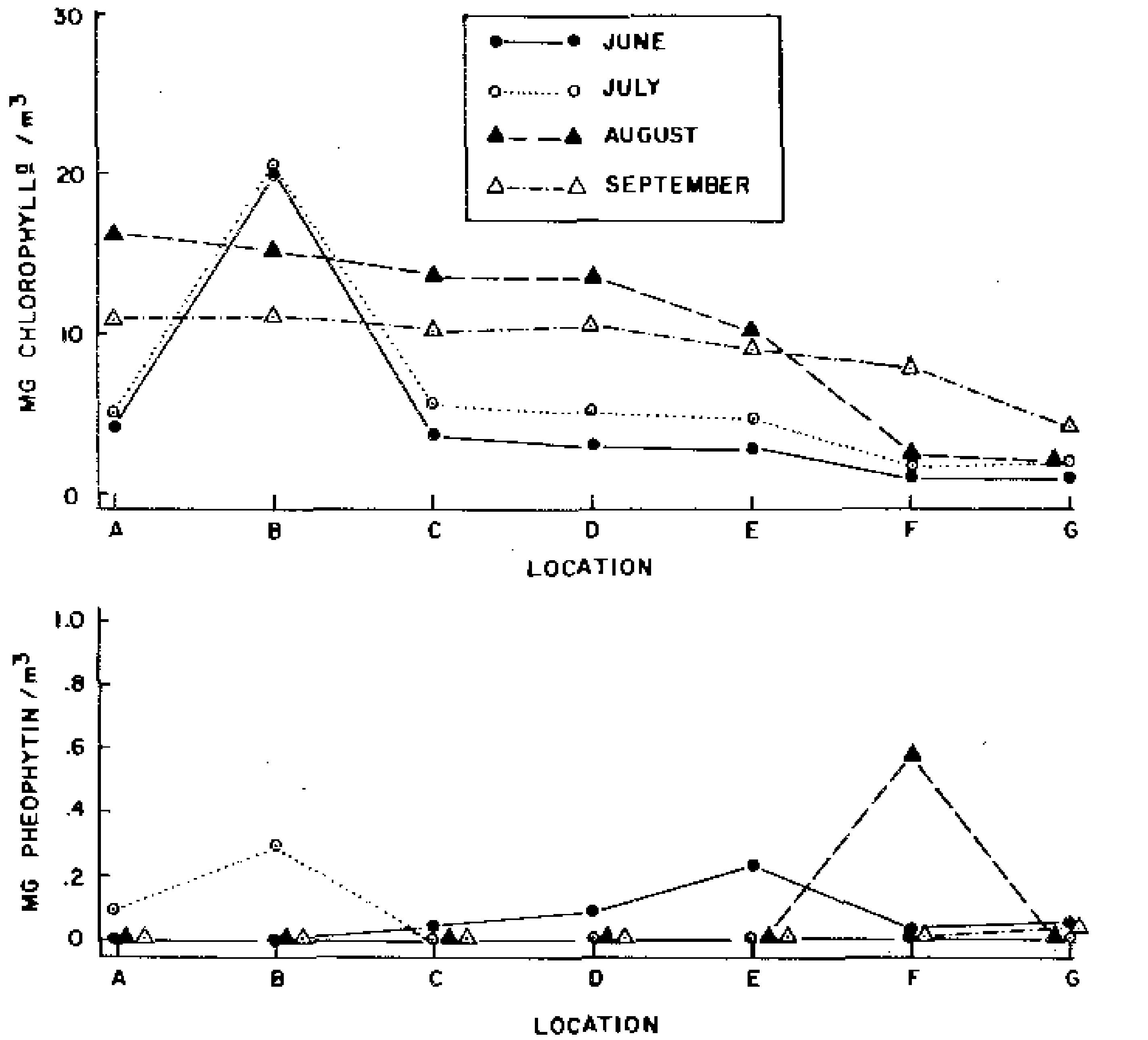

Figure 2.3-3 Mean chlorophyll a and pheophytin concentrations collected from seven locations near Dresden Station, June - September 1981

TABLE 2.3-1 MEAN DENSITY (units/ml) AND RANGE OF TOTAL LIVE PHYTOPLANKTON COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	159.0	3508.5	126.0	70.8	42.3	66.0	176.3
	Range	112-226	3369-3970	47-193	28-122	27-58	40-103	112-251
21 Jul	Mean	509.0	4991.8	608.5	491.5	491.3	506.0	567.5
	Range	368-628	4879-5100	550-690	407-663	330-686	424-555	425-798
25 Aug	Mean	2654.5	2750.5	2481.0	2829.5	3074.5	998.3	2517.0
	Range	2521-2774	2555-2898	2382-2591	2724-2966	2806-3589	967-1033	2288-2703
15 Sep	Mean	1956.5	3530.0	1853.5	1660.5	1705.5	1064.0	1034.5
	Range	1799-2127	3022-4046	1683-2048	1586-1651	1659-1825	1000-1195	967-1146

TABLE 2.3-2 MEAN DENSITY (units/ml) AND RANGE OF TOTAL LIVE BACILLARIOPHYTA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	107.0	1552.0	60.5	34.8	39.5	18.5	119.5
	Range	46-168	1421-1646	18-103	28-55	27-56	9-37	84-149
21 Jul	Mean	375.0	3533.0	351.8	278.0	409.0	214.8	303.0
	Range	280-509	3379-3693	271-439	191-463	304-509	163-266	192-323
25 Aug	Mean	1900.0	1858.2	1786.5	2080.8	2420.8	760.2	1919.7
	Range	1804-2000	1687-1971	1678-1893	2006-2197	2179-2892	675-836	1744-2048
15 Sep	Mean	1385.0	2876.8	1521.8	1187.3	1275.0	820.8	712.8
	Range	1278-1508	2614-3164	1438-1609	1114-1358	1225-1395	785-912	650-795

TABLE 2.3-3 MEAN DENSITY (units/ml) AND RANGE OF LIVE *CYCLOTELLA MENEGHINIANA* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	16.5	432.5	9.5	0	4.5	2.3	28.0
	Range	0-28	327-524	0-19	0	0-9	0-9	9-56
21 Jul	Mean	91.3	730.3	64.3	79.3	64.3	60.8	160.5
	Range	61-136	640-823	37-98	56-131	23-103	51-75	108-290
25 Aug	Mean	125.0	474.5	237.3	356.5	162.0	68.8	304.5
	Range	86-145	271-582	192-288	262-442	122-201	20-108	332-491
15 Sep	Mean	33.5	99.5	44.5	41.0	77.0	59.0	31.8
	Range	22-56	65-131	34-61	28-51	51-111	38-86	23-41

TABLE 2.3-4 MEAN DENSITY (units/ml) AND RANGE OF LIVE *MELOSIRA DISTANS* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	0	0	0	0	0	0
	Range	0	0	0	0	0	0	0
21 Jul	Mean	7.0	0	17.5	0	7.0	0	9.3
	Range	0-14	0	9-33	0	0-14	0	0-37
25 Aug	Mean	0	0	146.3	113.5	169.5	166.0	410.0
	Range	0	0	122-168	82-145	152-189	134-201	376-449
15 Sep	Mean	107.3	117.8	90.5	64.8	108.3	244.3	245.3
	Range	94-126	47-181	70-111	45-98	93-128	217-273	224-273

TABLE 2.3-5 MEAN DENSITY (units/ml) AND RANGE OF LIVE *MELOSIRA GRANULATA* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	0	0	0	0	0	23.0
	Range	0	0	0	0	0	0	0-93
21 Jul	Mean	47.5	57.3	21.0	9.3	11.8	21.0	20.0
	Range	9-79	37-75	0-47	0-23	0-47	0-65	0-61
25 Aug	Mean	33.8	128.0	81.3	53.0	112.0	174.5	54.0
	Range	0-54	72-159	63-103	42-65	51-229	140-248	37-79
15 Sep	Mean	10.5	54.5	13.5	49.5	4.8	165.3	157.3
	Range	0-37	28-81	9-19	12-90	0-14	102-217	136-189

TABLE 2.3-6 MEAN DENSITY (units/ml) AND RANGE OF LIVE NITZSCHIA ACICULARIS COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	9.3	112.0	6.8	6.8	2.3	0	4.5
	Range	0-28	84-140	0-9	0-9	0-9	0	0-9
21 Jul	Mean	28.0	179.0	65.3	40.8	34.0	13.0	17.3
	Range	19-42	150-201	42-84	23-65	19-47	5-19	0-51
25 Aug	Mean	138.5	16.5	93.5	138.5	118.5	29.3	47.8
	Range	96-175	0-28	65-122	105-178	72-168	13-38	0-70
15 Sep	Mean	50.3	52.0	44.8	69.5	39.0	27.3	19.0
	Range	42-61	37-78	28-64	48-89	33-47	20-38	13-25

TABLE 2.3-7 MEAN DENSITY (units/ml) AND RANGE OF LIVE *NITZSCHIA PALEA* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	23.5	124.0	18.5	23.5	16.5	11.5	23.3
	Range	0-47	84-150	9-28	19-37	0-28	9-19	0-37
21 Jul	Mean	137.8	159.0	140.3	102.8	106.5	88.5	76.0
	Range	79-201	122-196	117-187	75-154	56-150	79-103	42-103
25 Aug	Mean	417.8	86.5	325.0	498.3	724.0	192.3	588.0
	Range	374-472	56-105	269-383	465-542	654-849	171-225	526-669
15 Sep	Mean	113.3	166.8	139.3	86.8	122.3	16.3	19.5
	Range	97-131	131-196	108-173	55-112	98-148	10-21	11-25

TABLE 2.3-8 MEAN DENSITY (units/ml) AND RANGE OF LIVE *SKELETONEMA POTAMOS* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	42.0	536.3	0	0	0	0	0
	Range	28-56	505-580	0	0	0	0	0
21 Jul	Mean	4.8	2053.3	4.8	2.3	3.5	0	5.8
	Range	0-19	1973-2122	0-19	0-9	0-14	0	0-14
25 Aug	Mean	717.3	699.5	576.8	464.5	829.5	94.0	248.3
	Range	680-781	643-785	526-624	409-526	781-926	59-121	187-348
15 Sep	Mean	786.8	881.3	827.5	538.3	657.5	142.0	119.3
	Range	725-857	795-966	776-926	477-625	616-689	108-169	70-157

TABLE 2.3-9 MEAN DENSITY (units/ml) AND RANGE OF LIVE *STEPHANODISCUS INVISITATUS* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	2.3	4.8	0	0	0	0	0
	Range	0-9	0-19	0	0	0	0	0
21 Jul	Mean	28.0	208.0	8.0	11.5	9.5	1.3	14.0
	Range	14-51	154-285	5-9	0-28	0-19	0-5	5-28
25 Aug	Mean	418.8	393.3	274.3	367.5	234.3	9.8	102.8
	Range	398-453	353-432	236-304	327-416	192-276	8-12	86-124
15 Sep	Mean	268.5	1412.8	337.3	307.3	228.8	48.3	73.3
	Range	220-309	1200-1624	282-397	257-351	199-262	37-65	49-98

TABLE 2.3-10 MEAN DENSITY (units/ml) AND RANGE OF TOTAL LIVE CHLOROPHYTA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	35.8	1506.0	9.8	14.3	0	33.0	52.0
	Range	19-47	1326-1674	0-18	0-19	0	19-47	19-66
21 Jul	Mean	116.0	1130.8	204.5	183.0	170.3	260.8	231.0
	Range	79-145	837-1408	147-275	172-199	139-237	242-298	182-275
25 Aug	Mean	534.2	739.2	550.8	632.0	615.5	200.0	560.0
	Range	500-573	684-874	520-590	439-735	483-722	161-283	511-600
15 Sep	Mean	350.5	387.3	224.5	338.3	260.0	157.5	233.3
	Range	263-433	238-568	178-241	308-371	210-284	130-195	208-260

TABLE 2.3-11 MEAN DENSITY (units/ml) AND RANGE OF LIVE *ANKISTRODESMUS FALCATUS* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	21.3	514.5	0	14.3	0	11.8	14.0
	Range	19-28	449-580	0	0-19	0	0-19	0-28
21 Jul	Mean	11.5	170.5	25.5	18.5	11.8	43.3	18.5
	Range	9-19	98-243	14-37	9-28	0-19	28-61	9-28
25 Aug	Mean	24.0	92.5	60.8	82.3	95.0	15.8	34.0
	Range	7-42	68-112	40-89	65-96	65-139	0-42	26-42
15 Sep	Mean	86.3	81.0	38.8	61.0	43.8	24.0	24.3
	Range	61-111	56-100	20-65	34-81	28-55	15-37	20-30

TABLE 2.3-12 MEAN DENSITY (units/ml) AND RANGE OF LIVE *SCENEDESMUS ABUNDANS* COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	48.0	0	0	0	0	0
	Range	0	33-68	0	0	0	0	0
21 Jul	Mean	12.8	301.5	19.8	18.8	23.3	20.5	10.5
	Range	7-18	129-395	12-29	16-21	16-34	7-30	5-22
25 Aug	Mean	74.0	157.5	59.8	77.0	88.8	51.8	107.5
	Range	36-99	123-190	46-76	53-99	67-113	33-69	77-129
15 Sep	Mean	56.3	72.0	46.3	37.5	43.3	8.8	2.0
	Range	39-74	0-136	38-56	28-48	34-62	5-12	0-3

TABLE 2.3-13 MEAN DENSITY (units/ml) AND RANGE OF LIVE SCENEDESMUS DENTICULATUS COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	0	0	0	0	0	0
	Range	0	0	0	0	0	0	0
21 Jul	Mean	47.0	0	49.5	42.3	38.3	67.0	41.0
	Range	33-72	0	36-60	34-53	20-54	43-85	23-69
25 Aug	Mean	78.5	25.8	83.3	160.0	102.0	33.5	93.5
	Range	40-106	20-29	71-94	151-178	0-160	28-37	73-109
15 Sep	Mean	17.5	0	14.3	13.3	16.8	20.3	8.3
	Range	11-24	0	8-21	7-19	7-29	14-34	6-11

TABLE 2.3-14 MEAN DENSITY (units/ml) AND RANGE OF TOTAL LIVE CYANOPHYTA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	248.0	23.8	14.8	2.8	0	5.5
	Range	0	183-324	19-32	0-29	0-11	0	0-22
21 Jul	Mean	8.3	166.0	2.0	0	1.8	22.3	0
	Range	6-12	144-184	0-8	0	0-7	0-47	0
25 Aug	Mean	63.0	126.0	14.0	0	16.8	18.0	11.2
	Range	0-112	59-223	0-22	0	8-29	11-24	0-34
15 Sep	Mean	56.5	172.5	51.3	81.0	67.8	55.0	46.8
	Range	34-90	111-237	28-110	67-107	36-87	40-72	36-53

TABLE 2.3-15 MEAN DENSITY (units/ml) AND RANGE OF TOTAL LIVE EUGLENOPHYTA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	4.5	79.3	9.3	0	0	0	0
	Range	0-9	47-103	0-19	0	0	0	0
21 Jul	Mean	9.3	39.5	32.5	23.5	18.5	4.8	29.3
	Range	0-23	14-93	9-75	19-33	9-33	0-14	14-47
25 Aug	Mean	22.8	36.8	24.0	16.5	20.5	5.0	14.5
	Range	0-51	26-49	9-54	12-21	12-35	2-7	7-26
15 Sep	Mean	34.0	14.8	21.8	5.0	8.8	1.0	5.8
	Range	12-79	0-34	8-33	0-12	3-16	0-2	4-9

TABLE 2.3-16 MEAN PERCENT OCCURRENCE OF MAJOR ALGAL DIVISIONS COLLECTED IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date	Division	Location						
		A	B	C	D	E	F	G
Jun	Bacillariophyta	65.5[a]	43.3	44.2	57.8	95.3	27.5	57.9
	Chlorophyta	16.7	42.0	7.3	18.5	0	56.0	29.2
	Cyanophyta	0	6.9	24.8	16.9	4.8	0	2.8
	Euglenophyta	2.4	2.2	5.0	0	0	0	0
	Cryptophyta	7.4	5.6	15.6	6.9	0	25.6	11.4
Jul	Bacillariophyta	73.4	70.9	57.4	54.6	58.2	42.0	52.3
	Chlorophyta	23.2	22.8	34.3	39.1	35.9	52.0	41.9
	Cyanophyta	1.7	3.4	<1	0	<1	4.3	0
	Euglenophyta	<1	<1	5.1	5.0	3.7	1.0	5.2
	Cryptophyta	0	2.2	2.9	1.4	2.0	1.0	1.0
Aug	Bacillariophyta	71.6	67.6	72.0	73.6	78.7	76.2	76.3
	Chlorophyta	20.2	26.9	22.2	22.3	20.1	20.1	22.3
	Cyanophyta	2.4	3.7	1.0	0	1.0	1.8	<1
	Euglenophyta	1.0	1.3	1.0	1.0	1.0	1.0	1.0
	Cryptophyta	5.0	1.0	4.2	3.5	<1	1.5	<1
Sep	Bacillariophyta	71.0	81.8	82.3	71.4	74.8	77.2	68.9
	Chlorophyta	17.8	10.8	12.1	20.4	15.3	14.7	22.6
	Cyanophyta	2.9	4.9	2.7	4.8	3.9	5.2	4.6
	Euglenophyta	1.7	<1	1.2	<1	1.0	<1	1.0
	Cryptophyta	6.1	1.9	1.9	3.1	5.6	2.8	3.4

[a] All percent occurrences are of "live" organisms.

TABLE 2.3-17 SUMMARY OF MEAN TEMPERATURES (C) RECORDED IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date	Location A	B	C	D	E	F	G
Jun	21.6	23.2	21.8	38.4	35.9	30.6	28.4
Jul	24.0	27.7	24.7	37.9	36.1	32.0	30.7
Aug	24.5	27.1	25.5	38.5	36.2	31.5	30.1
Sep	22.8	25.1	23.1	35.6	29.4	24.7	21.6

TABLE 2.3-18 CHLOROPHYLL a AND PHEOPHYTIN CONCENTRATIONS (mg/m^3) FROM SAMPLES COLLECTED AT LOCATIONS A, B, C, D, E, F, AND G IN THE DRESDEN STATION COOLING SYSTEM, JUNE 1981

LOCATION	A		B		C		D		E		F		G	
DATE TIME	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3
JUNE 1	3.908	0.000	13.333	0.000	3.256	0.162	3.256	0.280	3.256	0.280	1.020	0.000	1.412	0.000
2	4.559	0.000	12.549	0.000	3.908	0.000	3.908	0.000	1.804	0.453	1.176	0.000	0.706	0.018
3	4.559	0.000	27.450	0.000	3.256	0.000	1.882	0.077	2.822	0.125	0.941	0.038	1.333	0.000
4	3.908	0.000	27.450	0.000	3.691	0.000	3.039	0.000	3.691	0.082	1.098	0.094	0.863	0.159
MEAN	4.233	0.000	20.195	0.000	3.528	0.041	3.021	0.089	2.893	0.235	1.059	0.033	1.078	0.044

TABLE 2.3-19 CHLOROPHYLL a AND PHEOPHYTIN CONCENTRATIONS (mg/m^3) FROM SAMPLES COLLECTED AT LOCATIONS A, B, C, D, E, F, AND G IN THE DRESDEN STATION COOLING SYSTEM, JULY 1981

LOCATION		A		B		C		D		E		F		G	
DATE	TIME	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3
JULY	1	4.559	0.000	13.333	1.147	4.776	0.000	4.559	0.000	4.125	0.000	2.274	0.000	2.822	0.000
	2	6.947	0.000	18.823	0.000	5.862	0.000	5.210	0.000	4.993	0.000	2.039	0.000	2.118	0.000
	3	4.125	0.473	21.960	0.000	6.730	0.000	6.513	0.000	5.862	0.000	1.569	0.000	1.490	0.000
	4	4.559	0.000	26.234	0.000	4.993	0.000	4.559	0.000	4.342	0.000	1.255	0.023	1.862	0.000
	MEAN	5.048	0.118	20.588	0.287	5.590	0.000	5.210	0.000	4.830	0.000	1.784	0.006	2.078	0.000

TABLE 2.3-20 CHLOROPHYLL a AND PHEOPHYTIN CONCENTRATIONS (mg/m^3) FROM SAMPLES COLLECTED AT LOCATIONS A, B, C, D, E, F, AND G IN THE DRESDEN STATION COOLING SYSTEM, AUGUST 1981

LOCATION	A		B		C		D		E		F		G	
DATE TIME	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3
AUGUST 1	14.117	0.000	15.686	0.000	10.980	0.000	10.980	0.000	7.843	0.000	3.039	0.615	1.961	0.000
2	14.901	0.000	16.470	0.000	11.764	0.000	11.764	0.000	12.549	0.000	3.039	0.261	2.171	0.000
3	17.254	0.000	14.901	0.000	16.470	0.000	15.686	0.000	10.196	0.000	1.954	0.993	1.804	0.000
4	18.039	0.000	13.333	0.000	15.686	0.000	16.470	0.000	10.980	0.000	2.171	0.422	2.388	0.000
MEAN	16.078	0.000	15.098	0.000	13.725	0.000	13.725	0.000	10.392	0.000	2.551	0.573	2.081	0.000

TABLE 2.3-21 CHLOROPHYLL a AND PHEOPHYTIN CONCENTRATIONS (mg/m^3) FROM SAMPLES COLLECTED AT LOCATIONS A, B, C, D, E, F, AND G IN THE DRESDEN STATION COOLING SYSTEM, SEPTEMBER 1981

LOCATION		A		B		C		D		E		F		G	
DATE	TIME	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3	CHL MG/M*3	PHA MG/M*3
SEPT	1	6.296	0.000	14.117	0.000	11.764	0.000	10.196	0.000	8.627	0.000	10.196	0.000	4.342	0.000
	2	8.627	0.000	10.980	0.000	11.764	0.000	10.980	0.000	7.843	0.000	5.427	0.000	3.908	0.100
	3	16.470	0.000	10.980	0.000	8.627	0.000	10.196	0.000	10.196	0.000	8.627	0.000	3.691	0.082
	4	11.764	0.000	9.411	0.000	8.627	0.000	10.980	0.000	9.411	0.000	7.059	0.000	3.908	0.000
	MEAN	10.789	0.000	11.372	0.000	10.196	0.000	10.588	0.000	9.019	0.000	7.827	0.000	3.962	0.045

TABLE 2.3-22 BIOVOLUME OF LIVE PHYTOPLANKTON COLLECTED AT LOCATIONS A, B, AND F IN THE DRESDEN STATION COOLING SYSTEM, JUNE 1981

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
25-27 June 1981	1	Actinastrum hantzschii v. fluviatile	0	0	.053	0.8	a		a		a		.002	0.2	a	
		Ankistrodesmus falcatus	.004	4.5	.125	2.0							0	0		
		Ankistrodesmus spiralis	0	0	.014	0.2							0	0		
		Coelastrum cambricum	0	0	1.610	25.3							.542	50.4		
		Cosmarium spp.	0	0	0	0							.384	35.7		
		Cryptomonas ovata	0	0	.338	5.3							.130	12.1		
		Cyclotella atomus	0	0	.043	0.7							0	0		
		Cyclotella meneghiniana	.045	52.1	1.303	20.5							0	0		
		Dictyosphaerium pulchellum	0	0	.002	<0.1							0	0		
		Euglena acus	0	0	.321	5.0							0	0		
		Euglena polymorpha	0	0	.184	2.9							0	0		
		Navicula cryptocephala	.019	22.3	0	0							0	0		
		Nitzschia acicularis	0	0	.051	0.8							0	0		
		Nitzschia dissipata	0	0	.004	0.1							0	0		
		Nitzschia palea	.011	13.3	.082	1.3							.018	1.6		
		Oscillatoria tenuis	0	0	.082	1.3							0	0		
		Oscillatoria spp.	0	0	.016	0.3							0	0		
		Scenedesmus abundans	0	0	.041	0.6							0	0		
		Scenedesmus acuminatus	0	0	1.140	17.9							0	0		
		Scenedesmus arcuatus	0	0	.067	1.1							0	0		
		Scenedesmus dimorphus	0	0	.020	0.3							0	0		
		Scenedesmus intermedius	0	0	.067	1.1							0	0		
		Scenedesmus longus	0	0	.033	0.5							0	0		
		Scenedesmus opoliensis	0	0	.407	6.4							0	0		
		Scenedesmus quadricauda	0	0	.233	3.7							0	0		
		Schroederia setigera	0	0	.033	<0.1							0	0		
		Skeletonema potamos	.007	7.6	.077	1.2							0	0		
		Stephanodiscus invisitatus	0	0	.008	0.1							0	0		
		Trachelomonas hispida	0	0	.033	0.5							0	0		
		Total Biovolume	.086		6.354								1.08			
	2	Actinastrum hantzschii v. fluviatile	.011	4.3	.065	1.0							0	0		
		Ankistrodesmus falcatus	.004	1.5	.161	2.5							.002	0.4		
		Ankistrodesmus spiralis	.002	0.7	.023	0.4							0	0		
		Coelastrum cambricum	0	0	1.830	28.6							.542	92.4		
		Cryptomonas ovata	.045	17.6	.421	6.6							0	0		
		Cyclotella atomus	.001	0.3	.046	0.7							0	0		
		Cyclotella meneghiniana	.066	26.0	1.198	18.7							0	0		
		Euglena acus	0	0	.321	5.0							0	0		
		Euglena polymorpha	.048	18.6	.359	5.6							0	0		
		Nitzschia acicularis	.047	18.5	.038	0.6							0	0		

TABLE 2.3-22 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
23-27 June 1981	2	Nitzschia palea	.019	7.6	.061	1.0	a		a		a		.008	1.9	a	
		Nitzschia spp.	0	0	.014	0.2							0	0		
		Oscillatoria tenuis	0	0	.101	1.6							0	0		
		Scenedesmus abundans	0	0	.025	0.4							0	0		
		Scenedesmus acuminatus	0	0	.766	12.0							0	0		
		Scenedesmus arcuatus	0	0	.078	1.2							0	0		
		Scenedesmus dimorphus	0	0	.029	0.5							0	0		
		Scenedesmus opoliensis	0	0	.320	5.0							0	0		
		Scenedesmus quadricauda	0	0	.272	4.2							.034	5.9		
		Schroederia setigera	0	0	.003	0.1							0	0		
		Skeletonema potamos	.006	2.2	.087	1.4							0	0		
		Stephanodiscus invisitatus	.007	2.7	0	0							0	0		
		Trachelomonas hispida	0	0	.033	0.5							0	0		
		Trachelomonas tambowika	0	0	.159	2.5							0	0		
		Total Biovolume	.255		6.409								.587			
	3	Actinastrum hantzschii v. fluviatile	.008	0.8	.047	0.7							0	0		
		Ankistrodesmus falcatus	.004	0.4	.138	2.2							.005	4.9		
		Ankistrodesmus spiralis	0	0	.016	0.3							0	0		
		Closteriopsis longissima v. tropica	.119	11.4	0	0							0	0		
		Coelastrum cambricum	0	0	2.311	36.6							0	0		
		Cryptomonas ovata	.095	9.0	.504	8.0							.067	71.1		
		Cyclotella atomus	0	0	.502	0.8							.002	2.3		
		Cyclotella meneghiniana	.045	4.3	.931	14.7							.012	12.9		
		Euglena acus	0	0	.473	7.5							0	0		
		Euglena minuta	0	0	.004	0.1							0	0		
		Euglena polymorpha	.048	4.5	.185	2.9							0	0		
		Kirchneriella lunaris	0	0	.013	0.2							0	0		
		Lagerheimia quadriseta	0	0	.003	<0.1							0	0		
		Merismopedia tenuissima	0	0	.001	<0.1							0	0		
		Navicula lanceolata	.015	1.5	0	0							0	0		
		Nitzschia acicularis	0	0	.051	0.8							0	0		
		Nitzschia linearis	.018	1.7	0	0							0	0		
		Nitzschia palea	.008	0.7	.046	0.7							.008	8.8		
		Oscillatoria tenuis	0	0	.143	2.3							0	0		
		Phacus caudatus	0	0	.035	0.6							0	0		
		Scenedesmus abundans	0	0	.028	0.4							0	0		
		Scenedesmus acuminatus	0	0	.700	11.1							0	0		
		Scenedesmus arcuatus	0	0	.107	1.7							0	0		
		Scenedesmus dimorphus	0	0	.033	0.5							0	0		
		Scenedesmus opoliensis	0	0	.203	3.2							0	0		
		Scenedesmus quadricauda	0	0	.181	2.9							0	0		

TABLE 2.3-22 (CONT.)

			Location A		Location B		Location C		Location D		Location E		Location F		Location G	
Sampling Date	Time	Taxa	µl/l	%	µl/l	%	µl/l	%	µl/l	%	µl/l	%	µl/l	%	µl/l	%
23-27 June 1981	3	*Skeletonema potamos*	.004	0.4	.076	1.2	a		a		a		0	0	a	
		Stephanodiscus niagarae	.683	65.2	0	0							0	0		
		Trachelomonas hispida	0	0	.033	0.5							0	0		
		Total Biovolume	1.047		6.132								.094			
	4	*Actinastrum hantzschii v. fluviatile*	.017	2.1	.041	0.5							.001	7.4		
		Ankistrodesmus falcatus	.006	0.7	.148	1.9							.005	33.0		
		Ankistrodesmus spiralis	0	0	.029	0.4							0	0		
		Coelastrum cambricum	0	0	1.321	16.9							0	0		
		Cryptomonas ovata	.095	11.6	.567	7.2							0	0		
		Cyclotella atomus	0	0	.038	0.5							0	0		
		Cyclotella meneghiniana	0	0	1.491	19.0							0	0		
		Dictyosphaerium pulchellum	0	0	.001	<0.1							0	0		
		Euglena acus	0	0	.794	10.1							0	0		
		Euglena polymorpha	0	0	.272	3.4							0	0		
		Lagerheimia quadriseta	0	0	.003	<0.1							0	0		
		Nitzschia acicularis	.015	1.9	.063	0.8							0	0		
		Nitzschia palea	0	0	.082	1.0							.008	59.6		
		Oscillatoria tenuis	0	0	.158	2.0							0	0		
		Pediastrum boryanum	0	0	.713	9.1							0	0		
		Phacus caudatus	0	0	.035	0.5							0	0		
		Scenedesmus abundans	0	0	.051	0.7							0	0		
		Scenedesmus acuminatus	0	0	1.026	13.1							0	0		
		Scenedesmus dimorphus	0	0	.027	0.3							0	0		
		Scenedesmus intermedius	0	0	.127	1.6							0	0		
		Scenedesmus longus	0	0	.022	0.3							0	0		
		Scenedesmus opoliensis	0	0	.413	5.3							0	0		
		Scenedesmus quadricauda	0	0	.215	2.8							0	0		
		Schroederia setigera	0	0	.002	<0.1							0	0		
		Skeletonema potamos	.003	0.4	.081	1.0							0	0		
		Stephanodiscus niagarae	.683	83.4	0	0							0	0		
		Trachelomonas tambowika	0	0	.108	1.4							0	0		
		Total Biovolume	.819		7.829								.014			

(a) Biovolume not calculated for Locations C, D, E, and G.

TABLE 2.3-23 BIOVOLUME OF LIVE PHYTOPLANKTON COLLECTED AT LOCATIONS A, B, AND F IN THE DRESDEN STATION COOLING SYSTEM, JULY 1981

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
21-25 July 1981	1	Actinastrum hantzschii v.														
		fluviatile	0	0	.022	0.8	a		a		a		0	0	a	
		Ankistrodesmus falcatus	<.001	0.1	.005	0.2							.007	0.4		
		Ankistrodesmus spiralis	0	0	0	0							<.001	<0.1		
		Aphanizomenon flos-aquae	0	0	.125	4.4							0	0		
		Crucigenia rectangularis	0	0	.180	6.3							0	0		
		Crucigenia tetrapedia	0	0	.003	0.1							0	0		
		Cryptomonas ovata	0	0	.133	4.7							.007	0.4		
		Cyclotella atomus	<.001	0.1	.002	0.1							0	0		
		Cyclotella meneghiniana	.192	35.3	.998	34.9							.230	13.5		
		Dictyosphaerium pulchellum	0	0	.006	0.2							0	0		
		Dinobryon divergens	0	0	.009	0.3							0	0		
		Euglena acus	0	0	.362	12.6							.011	0.6		
		Euglena polymorpha	0	0	0	0							.054	3.2		
		Fragilaria construens	.131	24.1	0	0							0	0		
		Lagerheimia ciliata	0	0	.009	0.3							.003	0.2		
		Lagerheimia quadriseta	0	0	.001	<0.1							0	0		
		Lepocinclis ovum	0	0	.017	0.6							0	0		
		Melosira distans	.023	4.2	0	0							0	0		
		Melosira granulata	.007	1.3	.027	0.9							0	0		
		Merismopedia tenuissima	0	0	.008	0.3							.003	0.2		
		Nitzschia acicularis	.007	1.2	.034	1.2							.003	0.2		
		Nitzschia actinastroides	0	0	0	0							.003	0.2		
		Nitzschia closterium	0	0	.054	1.9							0	0		
		Nitzschia palea	.014	2.5	.024	0.9							.012	0.7		
		Nitzschia pseudofonticola	<.001	0.1	0	0							0	0		
		Oscillatoria tenuis	.021	3.9	.099	3.5							.024	1.4		
		Pediastrum duplex v.											0	0		
		reticulatum	.082	15.1	0	0							1.253	73.3		
		Pediastrum tetras	0	0	.068	2.4							0	0		
		Scenedesmus abundans	.006	1.1	.112	3.9							.004	0.3		
		Scenedesmus acuminatus	0	0	.048	1.7							0	0		
		Scenedesmus arcuatus	0	0	0	0							.005	0.3		
		Scenedesmus denticulatus	.033	6.1	0	0							.042	2.5		
		Scenedesmus dimorphus	0	0	.011	0.4							0	0		
		Scenedesmus opoliensis	0	0	.018	0.6							.015	0.9		
		Scenedesmus quadricauda	0	0	.011	0.4							.007	0.4		
		Schroederia setigera	0	0	.001	0.1							0	0		
		Skeletonema potamos	0	0	.396	13.8							0	0		
		Staurastrum sp.	0	0	0	0							.003	0.2		
		Stephanodiscus invisitatus	.027	4.9	.055	1.9							.003	0.2		
		Tetrastrum staurogeniaforme	0	0	.009	0.3							0	0		
		Trachelomonas hispida	0	0	.014	0.5							0	0		
		Trachelomonas tambowika	0	0	0	0							.019	1.1		
		Total Biovolume	.545		2.862								1.710			

TABLE 2.3-23 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
21-25 July 1981	2	Actinastrum hantzschii v. fluviatile	.014	1.7	.017	0.6	a		a		a		.002	0.1	a	
		Ankistrodesmus falcatus	<.001	<0.1	.004	0.1							.004	0.2		
		Ankistrodesmus spiralis	<.001	<0.1	<.001	<0.1							0	0		
		Aphanizomenon flos-aquae	0	0	.163	5.7							0	0		
		Crucigenia apiculata	0	0	0	0							.006	0.3		
		Crucigenia rectangularis	0	0	.150	5.2							0	0		
		Cryptomonas ovata	0	0	.189	6.6							.007	0.4		
		Cyclotella atomus	0	0	.001	<0.1							0	0		
		Cyclotella meneghiniana	.428	53.1	1.115	38.7							.308	17.8		
		Dictyosphaerium pulchellum	0	0	.002	0.1							0	0		
		Euglena acus	.022	2.7	.095	3.3							0	0		
		Euglena minuta	0	0	.004	0.1							0	0		
		Fragilaria construens	0	0	.005	0.2							0	0		
		Kirchneriella lunaris	0	0	0	0							.005	0.3		
		Melosira granulata	.051	6.4	.050	1.7							.008	0.5		
		Melosira varians	.088	11.0	0	0							0	0		
		Merismopedia tenuissima	0	0	.013	0.5							0	0		
		Nitzschia acicularis	.010	1.2	.036	1.2							.003	0.2		
		Nitzschia actinastroides	0	0	0	0							.007	0.4		
		Nitzschia closterium	0	0	.071	2.5							0	0		
		Nitzschia palea	.035	4.3	.031	1.1							.015	0.9		
		Oscillatoria tenuis	.019	2.3	.059	2.1							0	0		
		Pediastrum duplex v. reticulatum	0	0	.204	7.1							1.253	72.5		
		Pediastrum tetras	0	0	.054	1.9							0	0		
		Scenedesmus abundans	.005	0.6	.105	3.6							.008	0.5		
		Scenedesmus acuminatus	0	0	.011	0.4							0	0		
		Scenedesmus arcuatus	.009	1.1	0	0							.002	0.1		
		Scenedesmus denticulatus	.048	6.0	0	0							.084	4.9		
		Scenedesmus dimorphus	0	0	.017	0.6							.002	0.1		
		Scenedesmus opoliensis	.005	0.7	.008	0.3							.015	0.8		
		Scenedesmus quadricauda	0	0	.018	0.6							0	0		
		Schroederia setigera	0	0	.003	0.1							.002	0.1		
		Skeletonema potamos	0	0	.415	14.4							0	0		
		Stephanodiscus invisitatus	.071	8.8	.040	1.4							0	0		
		Total Biovolume	.806		2.881								1.730			

TABLE 2.3-23 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
21-25 July 1981	3	Actinastrum hantzschii v. fluviatile	.021	2.6	.014	0.4	a		a		a		0	0	a	
		Anabaena spp.	.015	1.9	0	0							0	0		
		Ankistrodesmus falcatus	<.001	<0.1	.008	0.3							.006	0.5		
		Ankistrodesmus spiralis	0	0	<.001	<0.1							<.001	<0.1		
		Aphanizomenon flos-aquae	0	0	.085	2.8							0	0		
		Crucigenia apiculata	0	0	0	0							.002	0.1		
		Crucigenia quadrata	0	0	.007	0.2							.002	0.2		
		Crucigenia rectangularis	.015	1.9	.054	1.8							0	0		
		Cryptomonas ovata	0	0	.174	5.7							0	0		
		Cyclotella meneghiniana	.264	32.9	1.159	37.9							.210	17.6		
		Dictyosphaerium pulchellum	0	0	.002	0.1							0	0		
		Euglena acus	.039	4.9	0	0							0	0		
		Euglena minuta	.005	0.6	.007	0.2							0	0		
		Euglena polymorpha	0	0	0	0							.054	4.6		
		Euglena spp.	0	0	.020	0.6							0	0		
		Lagerheimia quadriseta	0	0	.002	0.1							0	0		
		Melosira granulata	.062	7.8	.034	1.1							0	0		
		Melosira varians	.057	7.1	0	0							0	0		
		Merismopedia tenuissima	0	0	.010	0.3							0	0		
		Navicula pupula	.008	0.9	0	0							0	0		
		Nitzschia acicularis	.005	0.7	.038	1.3							.001	0.1		
		Nitzschia actinastroides	0	0	0	0							.004	0.3		
		Nitzschia closterium	0	0	.046	1.5							0	0		
		Nitzschia palea	.027	3.3	.026	0.9							.012	1.0		
		Oscillatoria tenuis	.021	2.6	.225	7.4							0	0		
		Pediastrum boryanum	0	0	.259	0.5							0	0		
		Pediastrum duplex v. reticulatum	.160	20.0	.204	6.7							.785	65.9		
		Pediastrum tetras	0	0	.028	0.9							0	0		
		Phacus nordstedtii	0	0	.010	0.3							0	0		
		Scenedesmus abundans	.002	0.3	.125	4.1							.008	0.7		
		Scenedesmus acuminatus	0	0	.024	0.8							0	0		
		Scenedesmus arcuatus	.003	0.4	.011	0.4							0	0		
		Scenedesmus denticulatus	.032	4.0	0	0							.081	6.8		
		Scenedesmus dimorphus	0	0	.008	0.3							0	0		
		Scenedesmus opoliensis	.004	0.5	.028	0.9							.013	1.1		
		Scenedesmus quadricauda	0	0	.014	0.4							.012	1.0		
		Schroederia setigera	0	0	.002	0.1							0	0		
		Skeletonema potamos	.019	2.4	.389	12.7							0	0		
		Stephanodiscus invisitatus	.039	4.9	.046	1.5							0	0		
		Total Biovolume	.803		3.056								1.191			

TABLE 2.3-23 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
21-25 July 1981	4	Actinastrum hantzschii v. fluviatile	0	0	.013	0.3	a		a		a		0	0	a	
		Ankistrodesmus falcatus	.001	0.2	.009	0.2							.003	0.2		
		Ankistrodesmus spiralis	<.001	0.1	<.001	<0.1							<.001	<0.1		
		Closteriopsis longissima v. tropica	0	0	.468	9.9							0	0		
		Coelastrum cambricum	0	0	.053	1.1							.007	0.4		
		Crucigenia apiculata	0	0	.001	<0.1							0	0		
		Crucigenia quadrata	0	0	.007	0.1							.005	0.3		
		Cryptomonas ovata	0	0	.253	5.3							.007	0.4		
		Cyclotella meneghiniana	.264	19.4	1.284	27.1							.251	14.9		
		Dictyosphaerium pulchellum	0	0	.006	0.1							0	0		
		Euglena acus	.022	4.1	1.066	22.5							0	0		
		Euglena minuta	.002	0.3	.007	0.1							0	0		
		Euglena spp.	0	0	.035	0.8							0	0		
		Fragilaria construens	.045	8.3	0	0							0	0		
		Kirchneriella lunaris	0	0	.006	0.1							0	0		
		Lagerheimia quadriseta	0	0	.003	0.1							0	0		
		Melosira distans	.023	4.3	0	0							0	0		
		Melosira granulata	.029	5.5	.054	1.1							.027	1.6		
		Merismopedia tenuissima	0	0	.017	0.4							.004	0.2		
		Nitzschia acicularis	.005	0.8	.029	0.6							.001	<0.1		
		Nitzschia actinastroides	0	0	0	0							.007	0.4		
		Nitzschia closterium	0	0	.046	1.0							.001	0.1		
		Nitzschia palea	.020	3.8	.019	0.4							.014	0.8		
		Oscillatoria tenuis	.016	3.0	.178	3.8							0	0		
		Oscillatoria sp.	0	0	.010	0.2							0	0		
		Pediastrum boryanum	0	0	.454	9.6							0	0		
		Pediastrum duplex v. reticulatum	0	0	0	0							1.253	74.3		
		Pediastrum simplex	0	0	0	0							.016	0.9		
		Scenedesmus abundans	.004	0.7	.041	0.8							.002	0.1		
		Scenedesmus acuminatus	0	0	0	0							.006	0.3		
		Scenedesmus arcuatus	.007	1.4	.028	0.6							0	0		
		Scenedesmus denticulatus	.071	13.2	0	0							.057	3.4		
		Scenedesmus dimorphus	0	0	.014	0.3							.002	0.1		
		Scenedesmus longus	.003	0.6	0	0							0	0		
		Scenedesmus opoliensis	0	0	.016	0.3							.020	1.2		
		Scenedesmus quadricauda	.004	0.8	.024	0.5							.005	0.3		
		Schroederia setigera	0	0	.003	0.1							0	0		
		Skeletonema potamos	0	0	.418	8.8							0	0		
		Stephanodiscus invisitatus	.020	3.7	.073	1.5							0	0		
		Tetrastrum staurogeniaforme	0	0	.004	0.1							0	0		
		Trachelomonas hispida	0	0	.014	0.3							0	0		
		Trachelomonas tambowika	0	0	.077	1.6							0	0		
		Total Biovolume	.535		4.731								1.687			

(a) Biovolume not calculated for Locations C, D, E, and G.

TABLE 2.3-24 BIOVOLUME OF LIVE PHYTOPLANKTON COLLECTED AT LOCATIONS A, B, AND F IN THE DRESDEN STATION COOLING SYSTEM, AUGUST 1981

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
25-29 August 1981	1	Actinastrum hantzschii v. fluviatile	.018	0.62	0	0	a		a		a		.016	0.78	a	
		Ankistrodesmus falcatus	.015	0.51	.025	0.54							.054	2.81		
		Ankistrodesmus spiralis	.006	0.21	.002	0.05							0	0		
		Aphanizomenon flos-aquae	0	0	.143	3.11							0	0		
		Closteriopsis longissima v. tropica	.027	0.90	0	0							0	0		
		Coelastrum sphaericum	.157	5.27	.512	11.12							0	0		
		Cosmarium spp.	.017	0.58	0	0							0	0		
		Crucigenia apiculata	.012	0.41	.008	0.18							0	0		
		Crucigenia quadrata	.001	0.02	0	0							.003	0.18		
		Crucigenia tetrapedia	0	0	.005	0.10							0	0		
		Cryptomonas ovata	.223	7.46	.020	0.42							.027	1.42		
		Cyclotella meneghiniana	.540	18.10	1.437	31.22							.136	7.18		
		Dictyosphaerium pulchellum	.010	0.33	.013	0.29							0	0		
		Euglena acus	0	0	.045	0.39							0	0		
		Euglena minuta	0	0	.026	0.56							.001	0.03		
		Euglena polymorpha	0	0	.065	1.42							.023	1.21		
		Gomphonema parvulum	.002	0.06	0	0							0	0		
		Kirchneriella lunaris	<.001	<0.01	.002	0.03							0	0		
		Lagerheimia quadriseta	.004	0.12	.003	0.06							<.001	0.01		
		Lepocinclis ovum	0	0	.003	0.07							0	0		
		Melosira ambigua	0	0	.138	2.99							0	0		
		Melosira distans	0	0	0	0							0.89	4.69		
		Melosira granulata	0	0	.472	10.25							.854	45.08		
		Merismopedia tenuissima	0	0	.103	2.23							0	0		
		Navicula tripunctata	.010	0.33	.005	0.11							0	0		
		Nitzschia acicularis	.054	1.82	.005	0.11							.004	0.21		
		Nitzschia linearis	0	0	.004	0.08							0	0		
		Nitzschia palea	.070	2.36	.010	0.21							.053	2.81		
		Oscillatoria tenuis	0	0	0	0							.039	2.06		
		Pediastrum boryanum	.211	7.08	0	0							0	0		
		Pediastrum duplex v. reticulatum	0	0	0	0							.380	20.05		
		Phacus nordstedtii	0	0	.005	0.10							0	0		
		Rhodomonas minuta v. nannoplanctica	.017	0.58	0	0							0	0		
		Scenedesmus abundans	.013	0.43	.052	1.13							.026	1.35		
		Scenedesmus acuminatus	.020	0.66	.016	0.35							.012	0.65		
		Scenedesmus arcuatus	.019	0.63	.030	0.65							.015	0.79		
		Scenedesmus bernardii	0	0	.001	0.01							0	0		
		Scenedesmus denticulatus	.063	2.10	.048	1.05							.032	1.69		
		Scenedesmus dimorphus	.001	0.04	.003	0.08							.001	0.04		
		Scenedesmus intermedius	.001	0.04	.006	0.12							0	0		
		Scenedesmus longus	.008	0.28	0	0							0	0		
		Scenedesmus opoliensis	.004	0.15	.032	.070							.007	0.34		
		Scenedesmus quadricauda	0	0	0	0							.010	0.53		
		Schroederia setigera	0	0	.002	0.06							.001	0.03		
		Skeletonema potamos	.616	20.65	.350	7.60							.082	4.32		
		Stephanodiscus astraea	.246	8.23	.083	1.80							.024	1.26		
		Stephanodiscus invisitatus	.363	12.15	.906	19.67							.004	0.19		
		Stephanodiscus tenuis	.057	1.91	0	0							0	0		
		Synedra radians	.177	5.95	.012	0.27							0	0		
		Synedra ulna	0	0	.011	0.24							.005	0.25		
		Tetraedron minimum	.001	0.04	<.001	0.01							0	0		
		Tetrastrum staurogeniaeforme	0	0	.001	0.03							0	0		
		Total Biovolume	2.965		4.605										1.895			

TABLE 2.3-24 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
25-29 August 1981	2	Actinastrum hantzschii v. fluviatile	.016	0.48	.043	0.72	a		a		a		.014	0.25	a	
		Ankistrodesmus falcatus	.007	0.21	.020	0.47							.004	0.07		
		Ankistrodesmus spiralis	.004	0.12	.003	0.05							0	0		
		Aphanizomenon flos-aquae	0	0	.083	1.39							.045	0.83		
		Aphanocapsa spp.	0	0	.010	0.16							0	0		
		Closteriopsis longissima v. tropica	.019	0.58	.021	0.36							0	0		
		Coelastrum cambricum	.051	1.53	.341	5.69							0	0		
		Coelastrum sphaericum	0	0	.082	1.38							0	0		
		Crucigenia apiculata	.011	0.33	.013	0.22							.001	0.01		
		Crucigenia quadrata	0	0	.003	0.05							.001	0.02		
		Cryptomonas ovata	.146	4.40	.015	0.25							.019	0.35		
		Cyclotella meneghiniana	.823	24.88	2.668	44.60							1.191	21.98		
		Dictyosphaerium pulchellum	.011	0.34	.017	0.29							0	0		
		Elakatothrix viridis	.001	0.04	0	0							0	0		
		Euglena acus	.010	0.30	.136	2.28							.001	0.01		
		Euglena minuta	0	0	.013	0.22							<.001	0.01		
		Euglena polymorpha	.031	0.94	.049	0.82							.006	0.11		
		Euglena spirogyra	0	0	.042	0.71							0	0		
		Fragilaria construens	.020	0.61	0	0							0	0		
		Lepocinclis ovum	0	0	.003	0.06							0	0		
		Melosira distans	0	0	0	0							.251	4.64		
		Melosira granulata	.114	3.43	.278	4.65							3.368	62.17		
		Melosira varians	.037	1.12	.070	1.18							.038	0.70		
		Merismopedia tenuissima	.253	7.61	.068	1.13										
		Navicula cryptocephala	0	0	0	0							.008	0.15		
		Navicula heufleri	.001	0.03	0	0							<.001	<0.01		
		Navicula tripunctata	.004	0.12	0	0							<.001	<0.01		
		Navicula spp.	0	0	0	0							<.001	<0.01		
		Nitzschia acicularis	.047	1.42	0	0							.024	0.45		
		Nitzschia actinastroides	0	0	.011	0.18							0	0		
		Nitzschia closterium	0	0	.009	0.15							0	0		
		Nitzschia palea	.063	1.91	.015	0.25							.111	2.06		
		Nitzschia spp.	0	0	0	0							<.001	0.01		
		Oocystis borgei	0	0	0	0							.002	0.03		
		Oscillatoria tenuis	0	0	0.36	0.61							0	0		
		Pediastrum boryanum	.100	3.03	0	0							0	0		
		Pediastrum duplex v. reticulatum	0	0	.388	6.40							0	0		
		Phacus nordstedtii	0	0	.005	0.90							0	0		
		Scenedesmus abundans	.026	0.77	.059	0.99							.012	0.23		
		Scenedesmus acuminatus	.028	0.86	.013	0.22							.005	0.09		
		Scenedesmus arcuatus	.038	1.14	.054	0.89							0	0		
		Scenedesmus denticulatus	.112	3.40	.036	0.60							.027	0.50		
		Scenedesmus dimorphus	.002	0.05	.003	0.06							0	0		
		Scenedesmus intermedius	.002	0.06	.005	0.09							.002	0.04		
		Scenedesmus longus	.008	0.25	0	0							0	0		
		Scenedesmus opoliensis	.011	0.32	.042	0.70							.008	0.16		
		Scenedesmus quadricauda	.004	0.14	0	0							.013	0.23		
		Schroederia setigera	.001	0.02	.001	0.01							<.001	0.01		
		Skeletonema potamos	.555	16.79	.308	5.14							.223	4.11		
		Stephanodiscus astraea	.246	7.42	0	0							.024	0.44		
		Stephanodiscus invisitatus	.386	11.68	1.008	16.85							.002	0.04		
		Stephanodiscus tenuis	.020	0.61	0	0							0	0		
		Synedra radians	.099	2.98	0	0							.015	0.27		
		Tetrallantos lagerheimii	<.001	<0.01	0	0							0	0		
		Tetrastrum staurogeniaeforme	0	0	0	0							<.001	0.01		
		Trachelomonas hispida	.003	0.09	0	0							0	0		
		Total Biovolume	3.300		5.982										5.417			

TABLE 2.3-24 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
25-29 August 1981	3	Actinastrum hantzschii v. fluviatile	.010	0.23	.031	0.46	a		a		a		.004	0.20	a	
		Ankistrodesmus falcatus	.003	0.06	.031	0.48							0	0		
		Ankistrodesmus spiralis	.006	0.14	.003	0.04							0	0		
		Aphanizomenon flos-aquae	0	0	.081	1.23							.016	0.77		
		Closteriopsis longissima v. tropica	.080	1.87	0	0							0	0		
		Coelastrum cambricum	0	0	.852	12.88							.100	4.85		
		Crucigenia apiculata	.011	0.25	0	0							0	0		
		Crucigenia quadrata	.001	0.02	0	0							.001	0.04		
		Cryptomonas ovata	.100	2.34	.026	0.39							.018	0.86		
		Cyclotella meneghiniana	.911	21.27	3.087	46.70							.524	25.31		
		Dictyosphaerium pulchellum	.007	0.16	.020	0.30							0	0		
		Euglena acus	.024	0.56	.013	0.20							0	0		
		Euglena minuta	0	0	.022	0.34							0	0		
		Euglena polymorpha	.164	3.84	.037	0.56							.012	0.56		
		Lagerheimia quadriseta	.001	0.02	.002	0.02							0	0		
		Melosira ambigua	0	0	.161	2.43							.011	0.53		
		Melosira distans	0	0	0	0							.133	6.44		
		Melosira granulata	.135	3.15	.615	9.30							.832	40.21		
		Melosira varians	0	0	.099	1.49							0	0		
		Merismopedia tenuissima	.169	3.93	.154	2.33							0	0		
		Navicula cryptocephala	0	0	0	0							.001	0.05		
		Navicula heufleri	<.001	0.01	0	0							<.001	<0.01		
		Navicula tripunctata	.014	0.33	.001	0.02							<.001	0.01		
		Nitzschia acicularis	.030	0.69	.012	0.18							.012	0.57		
		Nitzschia closterium	0	0	0	0							.011	0.53		
		Nitzschia palea	.060	1.40	.016	0.25							.041	1.96		
		Nitzschia spp.	.002	0.04	0	0							0	0		
		Oocystis borgei	0	0	.006	0.09							0	0		
		Oscillatoria tenuis	0	0	0	0							.050	2.40		
		Pandorina morum	1.019	23.79	0	0							0	0		
		Pediastrum boryanum	.211	4.93	0	0							0	0		
		Pediastrum duplex v. reticulatum	0	0	0	0							.089	4.20		
		Phacus nordstedtii	0	0	.005	0.07							0	0		
		Rhodomonas minuta v. nannoplanctica	.013	0.30	0	0							0	0		
		Scenedesmus abundans	.032	0.76	.006	0.10							.021	1.04		
		Scenedesmus acuminatus	.041	0.96	.016	0.24							.040	1.94		
		Scenedesmus arcuatus	.055	1.28	.019	0.29							.020	0.96		
		Scenedesmus denticulatus	.097	2.26	.048	0.73							.036	1.74		
		Scenedesmus dimorphus	.002	0.05	.005	0.07							<.001	0.02		
		Scenedesmus intermedius	.002	0.05	0	0							.001	0.03		
		Scenedesmus longus	.015	0.35	0	0							0	0		
		Scenedesmus opoliensis	.017	0.39	.038	0.57							.003	0.14		
		Scenedesmus quadricauda	0	0	.012	0.18							<.001	0.01		
		Schroederia setigera	.001	0.02	0	0							0	0		
		Skeletonema potamos	.537	12.53	.287	4.34							.044	2.10		
		Stephanodiscus astrea	.143	3.34	.083	1.26							.048	2.31		
		Stephanodiscus invisitatus	.349	8.14	.824	12.46							.003	0.16		
		Stephanodiscus tenuis	.020	0.47	0	0							0	0		
		Synedra radians	0	0	<.001	0.01							0	0		
		Trachelomonas hispida	.003	0.07	0	0							0	0		
		Total Biovolume	4.283		6.610										2.070			

TABLE 2.3-24 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
25-29 August 1981	4	Actinastrum hantzschii v. fluviatile	.012	0.36	.051	0.81	a		a		a		.011	0.47	a	
		Ankistrodesmus falcatus	.010	0.31	.019	0.31							0	0		
		Ankistrodesmus spiralis	.002	0.07	.004	0.06							0	0		
		Aphanizomenon flos-aquae	0	0	.047	0.75							.027	1.13		
		Closteriopsis longissima v. tropica	0	0	.021	0.34							0	0		
		Coelastrum cambricum	0	0	.450	7.23							.176	7.45		
		Crucigenia apiculata	.007	0.22	.009	0.15							.002	0.07		
		Crucigenia quadrata	0	0	.003	0.04							.002	0.08		
		Crucigenia tetrapedia	0	0	.002	0.03							0	0		
		Cryptomonas ovata	.100	3.05	.015	0.24							.012	0.49		
		Cyclotella meneghiniana	.867	26.37	2.875	46.18							.735	31.19		
		Dictyosphaerium pulchellum	.009	0.29	.008	0.13							0	0		
		Euglena acus	.014	0.43	.045	0.73							0	0		
		Euglena minuta	0	0	0	0							<.001	0.01		
		Euglena polymorpha	.084	2.57	.057	0.92							.040	1.71		
		Euglena spirogyra	0	0	.105	1.69							0	0		
		Melosira ambigua	0	0	.161	2.58							.017	0.73		
		Melosira distans	0	0	0	0							.118	5.01		
		Melosira granulata	.166	5.04	.615	9.88							.762	32.33		
		Merismopedia tenuissima	.146	4.44	.068	1.09							0	0		
		Navicula heufleri	.001	0.03	0	0							0	0		
		Navicula tripunctata	.010	0.30	.001	0.02							.001	0.03		
		Nitzschia acicularis	.041	1.24	.011	0.18							.011	0.45		
		Nitzschia actinastroides	0	0	0	0							.001	0.05		
		Nitzschia closterium	0	0	0	0							.008	0.33		
		Nitzschia palea	.056	1.69	.018	0.29							.044	1.86		
		Nitzschia spp.	.001	0.03	.003	0.04							0	0		
		Oscillatoria tenuis	0	0	0	0							.053	2.26		
		Pediastrum boryanum	.412	12.52	0	0							0	0		
		Scenedesmus abundans	.036	1.00	.067	1.07							.017	0.74		
		Scenedesmus acuminatus	.034	1.03	.009	0.14							.010	0.44		
		Scenedesmus arcuatus	.047	1.44	.041	0.66							.018	0.78		
		Scenedesmus denticulatus	.139	4.21	.052	0.83							.035	1.49		
		Scenedesmus dimorphus	.003	0.10	.004	0.06							0	0		
		Scenedesmus intermedius	.002	0.05	0	0							0	0		
		Scenedesmus longus	.008	0.25	0	0							0	0		
		Scenedesmus opoliensis	.011	.035	.028	0.44							.007	0.32		
		Scenedesmus quadricauda	0	0	0	0							.008	0.32		
		Schroederia setigera	0	0	<.001	<.01							0	0		
		Skeletonema potamos	.555	16.89	.303	4.87							.063	2.66		
		Stephanodiscus astraea	.143	4.36	.199	3.20							.120	5.08		
		Stephanodiscus invisitatus	.331	10.07	.934	15.00							.002	0.10		
		Synedra radians	.039	1.20	0	0							.058	2.47		
		Total Biovolume	3.288		6.225										2.356			

[a] Biovolume not calculated for Locations C, D, E, and G.

TABLE 2.3-25 BIOVOLUME OF LIVE PHYTOPLANKTON COLLECTED AT LOCATIONS A, B, AND F IN THE DRESDEN STATION COOLING SYSTEM, SEPTEMBER 1981

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
15-19 Sept. 1981	1	Actinastrum hantzschii v. fluviatile	.004	0.16	0	0	a		a		a		.007	0.30	a	
		Ankistrodesmus falcatus	.009	0.32	.010	0.22							.003	0.15		
		Ankistrodesmus spiralis	.002	0.08	0	0							<.001	0.01		
		Aphanizomenon flos-aquae	0	0	0	0							.003	0.15		
		Closteriopsis longissima v. tropica	.011	0.41	.050	1.14							0	0		
		Coelastrum sphaericum	.348	12.34	0	0							0	0		
		Coscinodiscus rothii v. subsalsa	0	0	0	0							.038	1.67		
		Cosmarium spp.	0	0	0	0							.016	0.72		
		Crucigenia apiculata	.001	0.04	.020	0.45							0	0		
		Cryptomonas ovata	.113	4.00	.117	2.66							.052	2.25		
		Cyclotella meneghiniana	.390	13.86	.902	20.46							.303	13.22		
		Dictyosphaerium pulchellum	.004	0.16	.004	0.09							.002	0.10		
		Dinobryon divergens	.003	0.11	0	0							0	0		
		Lagerheimia quadriseta	.001	0.02	.005	0.11							0	0		
		Melosira ambigua	0	0	0	0							.833	36.32		
		Melosira distans	.117	4.14	.102	2.31							.044	1.91		
		Melosira granulata	0	0	.073	1.66							.453	19.75		
		Melosira varians	0	0	.201	4.56							0	0		
		Merismopedia tenuissima	.143	5.06	.294	6.66							.019	0.84		
		Navicula confervacea	0	0	.006	0.12							0	0		
		Navicula spp.	0	0	.011	0.24							0	0		
		Nitzschia acicularis	.017	0.61	.024	0.54							.005	0.20		
		Nitzschia actinastroides	0	0	.007	0.17							.003	0.13		
		Nitzschia angustata	0	0	.007	0.16							0	0		
		Nitzschia closterium	0	0	.005	0.12							0	0		
		Nitzschia linearis	0	0	.005	0.11							0	0		
		Nitzschia palea	.011	0.41	.023	0.51							.003	0.13		
		Oocystis pusilla	0	0	.004	0.09							0	0		
		Oscillatoria tenuis	0	0	.186	4.21							.004	3.67		
		Pediastrum duplex v. reticulatum	0	0	.069	1.56							.101	4.40		
		Phacus orbicularis	.232	8.24	0	0							0	0		
		Rhodomonas minuta v. nannoplanctica	.003	0.10	0	0							0	0		
		Scenedesmus abundans	.036	1.28	.041	0.94							.003	0.12		
		Scenedesmus acuminatus	.034	1.22	0	0							.005	0.22		
		Scenedesmus arcuatus	.006	0.21	.002	0.05							.005	0.23		
		Scenedesmus denticulatus	.014	0.51	0	0							.055	2.42		
		Scenedesmus dimorphus	.002	0.06	.005	0.10							0	0		
		Scenedesmus intermedius	.001	0.02	<0.001	0.01							0	0		
		Scenedesmus longus	.002	0.06	0	0							0	0		
		Scenedesmus opoliensis	.005	0.19	0	0							.010	0.42		

TABLE 2.3-25 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
15-19 Sept. 1981	1	Schroederia setigera	<.001	0.01	.001	0.02							0	0		
		Skeletonema potamos	.194	6.87	.731	16.56							.012	0.52		
		Stephanodiscus invisitatus	.372	13.20	1.405	31.85							.060	2.60		
		Stephanodiscus niagarae	.718	25.51	0	0							.170	7.41		
		Synedra radians	0	0	0	0							.004	0.16		
		Synedra ulna	0	0	.068	1.55							0	0		
		Tabellaria flocculosa	0	0	.025	0.56							0	0		
		Tetrastrum heterocanthum	0	0	.005	0.11							0	0		
		Tetrastrum staurogeniaforme	<0.001	0.01	.004	0.10							0	0		
		Trachelomonas hispida	.016	0.57	0	0							0	0		
		Trachelomonas tambowika	.006	0.22	0	0							0	0		
		Total Biovolume	2.816		4.411								2.293			
	2	Actinastrum hantzschii v. fluviatile	.003	0.09	0	0							.006	0.33		
		Ankistrodesmus falcatus	.013	0.39	.013	0.30							.002	0.12		
		Ankistrodesmus spiralis	0	0	0	0							.001	0.04		
		Aphanizomenon flos-aquae	0	0	0	0							.008	0.43		
		Closteriopsis longissima v. tropica	.008	0.22	.050	1.14							0	0		
		Coelastrum cambricum	0	0	.047	1.07							0	0		
		Coelastrum sphaericum	.167	4.92	.203	4.61							0	0		
		Coscinodiscus rothii v. subsalsa	0	0	.190	4.30							.038	1.99		
		Crucigenia apiculata	.001	0.02	.009	0.19							0	0		
		Cryptomonas ovata	.168	4.96	.069	1.56							.043	2.21		
		Cyclotella meneghiniana	.874	25.76	.620	14.07							.212	10.97		
		Cyclotella michiganiana	0	0	.006	0.13							0	0		
		Dictyosphaerium pulchellum	.012	0.36	.002	0.05							.003	0.15		
		Dinobryon divergens	.006	0.17	.004	0.09							0	0		
		Euglena minuta	.001	0.03	.003	0.06							0	0		
		Euglena polymorpha	.020	0.58	0	0							.004	0.21		
		Melosira ambigua	0	0	.164	3.72							.473	24.54		
		Melosira distans	.135	3.97	.392	8.89							.043	2.25		
		Melosira granulata	0	0	.170	3.85							.715	37.06		
		Melosira varians	0	0	0	0							.031	1.60		
		Merismopedia tenuissima	.075	2.20	.098	2.22							.026	1.36		
		Navicula spp.	.004	0.13	0	0							0	0		
		Nitzschia acicularis	.013	0.39	.016	0.36							.009	0.45		
		Nitzschia actinastroides	0	0	.002	0.05							0	0		
		Nitzschia closterium	0	0	.008	0.18							0	0		
		Nitzschia palea	.013	0.38	.013	0.41							.004	0.19		
		Oscillatoria tenuis	0	0	.130	2.96							.041	2.13		

TABLE 2.3-25 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
15-19 Sept 1981	2	Pediastrum duplex v. reticulatum	.061	0.91	.213	4.83							.072	3.73		
		Phacus orbicularis	.045	1.32	0	0							0	0		
		Rhodomonas minuta v. nannoplanctica	.011	0.04	.003	0.06							0	0		
		Scenedesmus abundans	.042	1.25	0	0							.003	0.18		
		Scenedesmus acuminatus	.064	1.90	.028	0.64							.003	0.18		
		Scenedesmus arcuatus	.008	0.23	0	0							.003	0.14		
		Scenedesmus denticulatus	.010	0.29	0	0							.026	1.35		
		Scenedesmus dimorphus	.004	0.11	.002	0.04							.003	0.16		
		Scenedesmus longus	.002	0.05	0	0							0	0		
		Scenedesmus opoliensis	.017	0.51	.014	0.32							.021	1.09		
		Scenedesmus quadricauda	.019	0.57	0	0							.002	0.11		
		Schroederia setigera	.001	0.03	<.001	0.01							0	0		
		Skeletonema potamos	.229	6.75	.663	15.05							.016	0.81		
		Stephanodiscus invisitatus	.432	12.74	1.243	28.21							.052	2.72		
		Stephanodiscus niagarae	.975	28.74	0	0							.068	3.53		
		Synedra radians	0	0	.017	0.38							0	0		
		Synedra ulna	0	0	.011	0.25							0	0		
		Total Biovolume	3.392		4.406								1.929			
	3	Actinastrum hantzschii v. fluviatile	.005	0.18	0	0							.004	0.18		
		Ankistrodesmus falcatus	.012	0.38	.017	0.28							.006	0.26		
		Ankistrodesmus spiralis	.002	0.07	0	0							<.001	0.02		
		Aphanizomenon flos-aquae	0	0	0	0							.002	0.08		
		Closteriopsis longissima v. tropica	.011	0.37	.050	0.84							0	0		
		Coelastrum sphaericum	.125	4.10	.813	13.52							.013	0.62		
		Coscinodiscus rothii v. subsalsa	0	0	0	0							.057	2.68		
		Crucigenia apiculata	.002	0.08	.027	0.45							0	0		
		Crucigenia quadrata	0	0	.007	0.11							0	0		
		Cryptomonas ovata	.188	6.17	.153	2.54							.035	1.63		
		Cyclotella meneghiniana	.484	15.85	.771	12.84							.134	6.25		
		Diatoma vulgare	0	0	.013	0.22							0	0		
		Dictyosphaerium pulchellum	.007	0.24	.008	0.14							0	0		
		Dinobryon divergens	.005	0.16	.018	0.30							0	0		
		Dinobryon sociale	0	0	.004	0.06							0	0		
		Euglena minuta	.003	0.09	0	0							0	0		
		Euglena polymorpha	.012	0.39	.237	3.94							.004	0.19		
		Fragilaria crotonensis	0	0	.007	0.12							0	0		
		Lagerheimia quadriseta	0	0	.001	0.02							0	0		
		Lepocinclis ovum	0	0	.009	0.16							0	0		

TABLE 2.3-25 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
15-19 Sept 1981	3	Melosira ambigua	0	0	.076	1.26							.515	24.02		
		Melosira distans	.169	5.55	.223	3.71							.039	1.81		
		Melosira granulata	.164	5.38	.212	3.52							.804	37.46		
		Melosira varians	0	0	0	0							.023	1.08		
		Merismopedia tenuissima	.197	6.47	.147	2.45							.045	2.12		
		Navicula spp.	.001	0.05	0	0							0	0		
		Nitzschia acicularis	.014	0.47	.033	0.56							.007	0.32		
		Nitzschia closterium	0	0	.005	0.09							0	0		
		Nitzschia linearis	0	0	.005	0.08							0	0		
		Nitzschia palea	.010	0.31	.015	0.25							.004	0.19		
		Oscillatoria tenuis	0	0	.214	3.56							.092	4.31		
		Pediastrum duplex v. reticulatum	.128	4.21	.288	4.79							.144	6.72		
		Phacus orbicularis	.527	17.26	.053	0.88							0	0		
		Pinnularia spp.	0	0	.002	0.04							0	0		
		Rhodomonas minuta v. nannoplanctica	.005	0.17	0	0							0	0		
		Scenedesmus abundans	.028	0.92	.030	0.63							.002	0.08		
		Scenedesmus acuminatus	.032	1.05	.042	0.70							.006	0.28		
		Scenedesmus arcuatus	.004	0.13	0	0							0	0		
		Scenedesmus denticulatus	.017	0.56	0	0							.028	1.29		
		Scenedesmus dimorphus	.002	0.06	.003	0.05							.002	0.09		
		Scenedesmus intermedius	0	0	<.001	<0.01							0	0		
		Scenedesmus opoliensis	.014	0.46	.009	0.15							.006	0.27		
		Skeletonema potamos	.213	6.98	.806	13.41							.019	0.87		
		Stephanodiscus invisitatus	.325	10.63	1.682	28.01							.069	3.24		
		Stephanodiscus niagarae	.308	10.09	0	0							.085	3.96		
		Synedra radians	.007	0.22	.008	0.14							0	0		
		Synedra ulna	0	0	.011	0.18							0	0		
		Tetraedron minimum	.001	0.04	0	0							0	0		
		Tetrastrum staurogeniaforme	<.001	0.01	0	0							0	0		
		Trachelomonas hispida	.029	0.94	0	0							0	0		
		Total Biovolume	3.053		6.007								2.145			
	4	Actinastrum hantzschii v. fluviatile	.003	0.16	0	0							.006	0.20		
		Ankistrodesmus falcatus	.007	0.34	.015	0.37							.003	0.11		
		Ankistrodesmus spiralis	.001	0.04	0	0							0	0		
		Aphanizomenon flos-aquae	0	0	0	0							.003	0.12		
		Closteriopsis longissima v. tropica	0	0	.025	0.60							0	0		
		Coelastrum cambricum	.089	4.21	0	0							.351	12.25		
		Coelastrum spaericum	.167	7.85	0	0							0	0		
		Coscinodiscus rothii v. subsalsa	0	0	0	0							.038	1.33		

TABLE 2.3-25 (CONT.)

Sampling Date	Time	Taxa	Location A µl/l	Location A %	Location B µl/l	Location B %	Location C µl/l	Location C %	Location D µl/l	Location D %	Location E µl/l	Location E %	Location F µl/l	Location F %	Location G µl/l	Location G %
15-19 Sept 1981	4	Crucigenia apiculata	.001	0.05	.017	0.40							0	0		
		Cryptomonas ovata	.133	6.24	.221	5.29							.049	1.69		
		Cyclotella meneghiniana	.343	16.15	.448	10.72							.183	6.38		
		Dictyosphaerium pulchellum	.004	0.18	.020	0.47							.001	0.02		
		Dinobryon divergens	.004	0.20	.004	0.09							0	0		
		Euglena polymorpha	.020	0.92	0	0							.008	0.29		
		Melosira ambigua	0	0	0	0							.599	20.86		
		Melosira distans	.175	8.23	.303	7.26							.049	1.70		
		Melosira granulata	.027	1.25	.115	2.75							.963	33.55		
		Melosira varians	0	0	.064	1.52							.054	1.88		
		Merismopedia tenuissima	.081	3.82	.196	4.69							.033	1.16		
		Nitzschia acicularis	.012	0.56	.016	0.38							.005	1.65		
		Nitzschia actinastroides	0	0	.005	0.11							.002	0.05		
		Nitzschia closterium	0	0	.008	0.19							0	0		
		Nitzschia linearis	.003	0.15	0	0							.002	0.06		
		Nitzschia palea	.011	0.50	.021	0.51							.002	0.07		
		Oocystis pusilla	0	0	.003	0.08							0	0		
		Oscillatoria tenuis	0	0	.143	3.43							.068	2.36		
		Pediastrum duplex v. reticulatum	.062	2.90	1.44	3.44							.207	7.19		
		Phacus orbicularis	.071	0.36	.084	2.01							0	0		
		Scenedesmus abundans	.022	1.05	.025	0.60							.004	0.14		
		Scenedesmus acuminatus	.025	1.19	.031	0.74							.002	0.06		
		Scenedesmus arcuatus	0	0	.001	0.03							0	0		
		Scenedesmus denticulatus	.022	1.01	0	0							.023	0.79		
		Scenedesmus dimorphus	0	0	.002	0.05							.006	0.20		
		Scenedesmus intermedius	<.001	0.01	0	0							0	0		
		Scenedesmus longus	.003	0.15	0	0							0	0		
		Scenedesmus opoliensis	.020	0.92	0	0							.034	1.20		
		Schroederia setigera	<.001	0.02	.001	0.02							0	0		
		Skeletonema potamos	.205	9.63	.741	17.74							.017	0.58		
		Stephanodiscus invisitatus	.456	21.44	1.524	36.49							.092	3.21		
		Stephanodiscus niagarae	.154	7.24	0	0							.068	2.37		
		Synedra radians	.005	0.21	0	0							0	0		
		Tetrastrum staurogeniaforme	0	0	.001	0.03							0	0		
		Total Biovolume	2.126		4.176								2.872			

(a) Biovolume not calculated for locations C, D, E, and G.

2.4 ZOOPLANKTON

2.4.1 Introduction

Zooplankton samples were collected during summer 1981 to assess any changes in the zooplankton community as water passed from the Kankakee and Des Plaines rivers through the Dresden Station cooling system with the station operating in an indirect open cycle mode. The intention of the study was to sample the same water mass as it traveled through the cooling system and to note any changes in zooplankton community composition and abundance at established collection points.

2.4.2 Field and Analytical Procedures

2.4.2.1 Field Procedures

Samples for zooplankton were collected at seven locations (A, B, C, D, E, F, and G) (Figure 2.1-1). Collections were made every three hours for a 12-hour period in June, July, August, and September 1981. A total of 112 samples were collected.

A single, vertical net tow (bottom to surface) was made to collect each sample. Collections were taken with a 30 cm diameter, No. 25 mesh (64 μm) net equipped with a collection bucket and a flowmeter to estimate the volume of water sampled. Depth (length of tow) was recorded at each location.

Zooplankton samples were narcotized immediately after collection to prevent the contraction upon fixation of rotifers and other soft-bodied organisms; this facilitated more accurate identification of these contractile forms. Narcotization was accomplished with menthol crystals. Time needed for narcotization varied with the size of the organisms encountered and other environmental factors including ambient temperature, but was kept as short as possible to minimize predation by larger plankton during narcotization.

Zooplankton samples were fixed in a final concentration of 5 percent formalin. Samples were appropriately labeled and returned to the laboratory for processing.

2.4.2.2 Laboratory Procedures

Before analysis, each sample was concentrated or diluted, depending on the density of zooplankton or debris in the sample. The sample was thoroughly mixed and a subsample was withdrawn and placed in a Bogorov counting chamber. The contents of the chamber were then entirely scanned while identifying and counting the organisms. Subsampling was continued until a minimum of 300 organisms were enumerated. Any organisms which were difficult to identify were removed from the counting chamber and mounted on glass slides for further examination using a Leitz SM Lux research microscope.

The effort to identify zooplankton varied depending on the organism in question. Mature copepods were identified to species, while immature copepods were identified as copepodites or nauplii. Mature cladocerans were identified to species. Rotifers were identified to genus, except for bdelloid rotifers, which were identified to class. Final zooplankton densities were expressed as number per cubic meter of water.

2.4.2.3 Data Handling and Analysis

Data was computer processed and the resultant data tables contain zooplankton density (number/m^3) by taxon and order for each location and for each time period within a sampling period. Percentage occurrence was calculated per location.

2.4.3 Results and Discussion

2.4.3.1 Community Composition

Ten species of Copepoda, 17 species of Cladocera and 31 species of Rotifera were collected in the Dresden Station cooling system (Table 2.4-1). Detailed data of zooplankton analyses are presented in Tables 2.4-2 through 2.4-13 and Appendix B. These species ranged from limnetic forms commonly found in channel plankton to those forms associated with a littoral habitat. Although differences in species composition between the Kankakee and Des Plaines Rivers were not apparent, there was an obvious difference in zooplankton abundance (Figure 2.4-1). Densities in the Des Plaines River averaged over six times greater than in the Kankakee River each sampling period. Species composition at the station intake and discharge locations reflected the similar communities present in the Kankakee and Des Plaines Rivers. It should be pointed out that although most of the intake water was drawn from the Kankakee River, much greater densities of zooplankton were observed at the intake (Location C) than at Kankakee River Location A in all four months. The discrepancy in abundance between the two locations was probably due to a sampling artifact at Location C associated with the collection procedure used. Actual zooplankton abundance at the intake was probably lower and more comparable to abundance in the Kankakee River as was observed for phytoplankton (Section 2.3.3) and in water quality parameters (Brinker 1982). As the water mass continued through the cooling system the density of cladocerans, especially Moina and Diaphanosoma species, increased dramatically. Densities of copepods and rotifers, on the other hand, generally decreased as the cooling system was traversed.

The zooplankton community in June consisted primarily of rotifers and nauplii. The percentage of Rotifera reached 86 percent at Location D (Figure 2.4-2). Dominant rotifers included Brachionus and Keratella. Brachionus composed over 66 percent of the zooplankton collected from Location B in the Des Plaines River. Cladocerans constituted a minor portion of the community.

Densities increased in July and continued to be dominated by rotifers and immature copepods at most locations. A rise in total zooplankton abundance at Location F reflected an increase in the population of the cladoceran Moina micrura. Moina composed 90 percent of the total community at Location F in July.

In general, the peak densities of the study period were reached in August (over 52,000 organisms/m^3 at Location F) (Table 2.4-2). The majority of the total zooplankton continued to be rotifers and nauplii. One exception occurred at Location G when M. micrura composed over 58 percent of the community (18,000 organisms/m^3).

September samples contained the most diverse cladoceran populations with 12 different taxa enumerated. Densities decreased from August at all locations except Location G where an increase was attributed to higher numbers of Brachionus. Brachionus reached densities over 21,000 organisms/m^3 at Location G.

2.4.3.2 Changes Through the Cooling Water System

Previous studies conducted in the vicinity of Dresden Station have documented distinct differences in the zooplankton assemblages of the Des Plaines and Kankakee Rivers (Czajkowski 1975, 1976a, 1976b, 1977). Species composition was similar between the two rivers in 1981 but pronounced differences in population densities occurred. The variations observed were probably attributable to a number of environmental factors including differences between the two rivers in general water quality, seasonal temperature differences, and river flow rates. Ambient river temperatures during the study period ranged from 1.6 C to 3.7 C higher in the Des Plaines than the Kankakee River (Table 2.3-17). The Des Plaines River also has slow currents, has several low dams along its course which form sluggish pools, and carries a heavy municipal and industrial waste load. All of these factors are in contrast to conditions in the Kankakee and are known to be conducive to plankton development.

Population densities and average water temperatures indicate that the primary cooling water source at time of sampling was the Kankakee River. Lower zooplankton densities were reported at Location A in the Kankakee than at Location C, the station intake, although actual differences were probably small. Condenser passage appeared to reduce the densities of nearly all taxa collected at Location D. Again, the apparent reduction in abundance at Location D may be primarily reflected in the sampling artifact at Location C. Some reduction in abundance may have occurred as a result of condenser passage, however, as evidenced in the lower zooplankton densities at Location E than at Location D in most months. The reduction may have resulted from a combination of thermal and mechanical effects during plant passage. Mean discharge temperatures in excess of 35 C were recorded during all four months of sampling. Temperature affects rates of feeding, reproduction, and life span of the Rotifera and when upper temperature limits are reached, the abundance of organisms drops sharply (Edmondson 1946). Studies of thermal releases on the ecology of the Merrimack River indicated that temperatures in excess of 37.8 C (100 F) caused significant changes in the frequency of occurrence of various groups of zooplankton. Mechanical effects of condenser passage on zooplankton have been documented at a number of power plants and may have also contributed to the reduced numbers observed at Location D.

Increased zooplankton densities in the Dresden cooling pond were observed in July, August and September. Similar increases in zooplankton densities have been observed in previous studies (Czajkowski 1975, 1976a, 1976b, 1977) and were attributed to favorable temperatures and habitat stability within the cooling ponds. These factors were the probable influential agents again in 1981. An increase in the densities of the cladocerans *Diaphanosoma* and *Moina* especially was observed at Locations F and G. These genera flourish during periods of maximum seasonal temperatures (Hutchinson 1967) and have been observed to occur in extremely high densities in the still, backwater habitats of the Mississippi River during the late summer and early fall (Czajkowski and Carpenter 1974). Densities of *Brachionus* also increased in the cooling pond, although the increases were not as pronounced as those of the cladocerans.

The only month in which densities did not increase in the cooling pond was June when silt and detritus from earlier rains caused unfavorable conditions. Williams (1966), Eddy (1934) and Hynes (1970) found that in most streams, dense loads of silt are associated with increased stream flow and extremely low plankton populations.

The results of the study show that the reduction in zooplankton abundance during plant passage is offset by increased production in the cooling pond, resulting in greater numbers in the discharge water from the pond to the Illinois River. In some respects, the cooling pond is acting similar to a backwater habitat as pointed out earlier for the Mississippi River. The Illinois River, which receives the cooling water from the discharge canal, should not be adversely affected by reduced numbers of zooplankton in the cooling water. Past studies (Czajkowski 1975, 1976a, 1976b, 1977) have also shown a positive effect on zooplankton abundance after passage through the cooling pond. In terms of an ecological impact on the Illinois River, this increase should be a positive one because of the value of zooplankton in the food chain. An increase in the zooplankton standing crop could provide a more abundant food supply for secondary consumers in the Illinois River.

2.4.4 Summary and Conclusions

1. Rotifers were the most abundant zooplankton group throughout the majority of the study and reached maximum densities in August.

2. The dominant zooplankton taxa included *Brachionus*, *Keratella*, *Moina micrura*, *Diaphanosoma*, and immature copepods.

3. Differences in population densities between the Des Plaines and Kankakee rivers appear to be related to a number of factors including water quality, temperature and river flow rates.

4. Increases in zooplankton densities occurred in the cooling pond which offset the decreases incurred beforehand in the cooling system. The increases were attributed to favorable temperatures and habitat. Increased numbers of the cladocerans *Diaphanosoma* and *Moina* were primarily responsible for the greater densities at Locations F and G.

2.4.5 References

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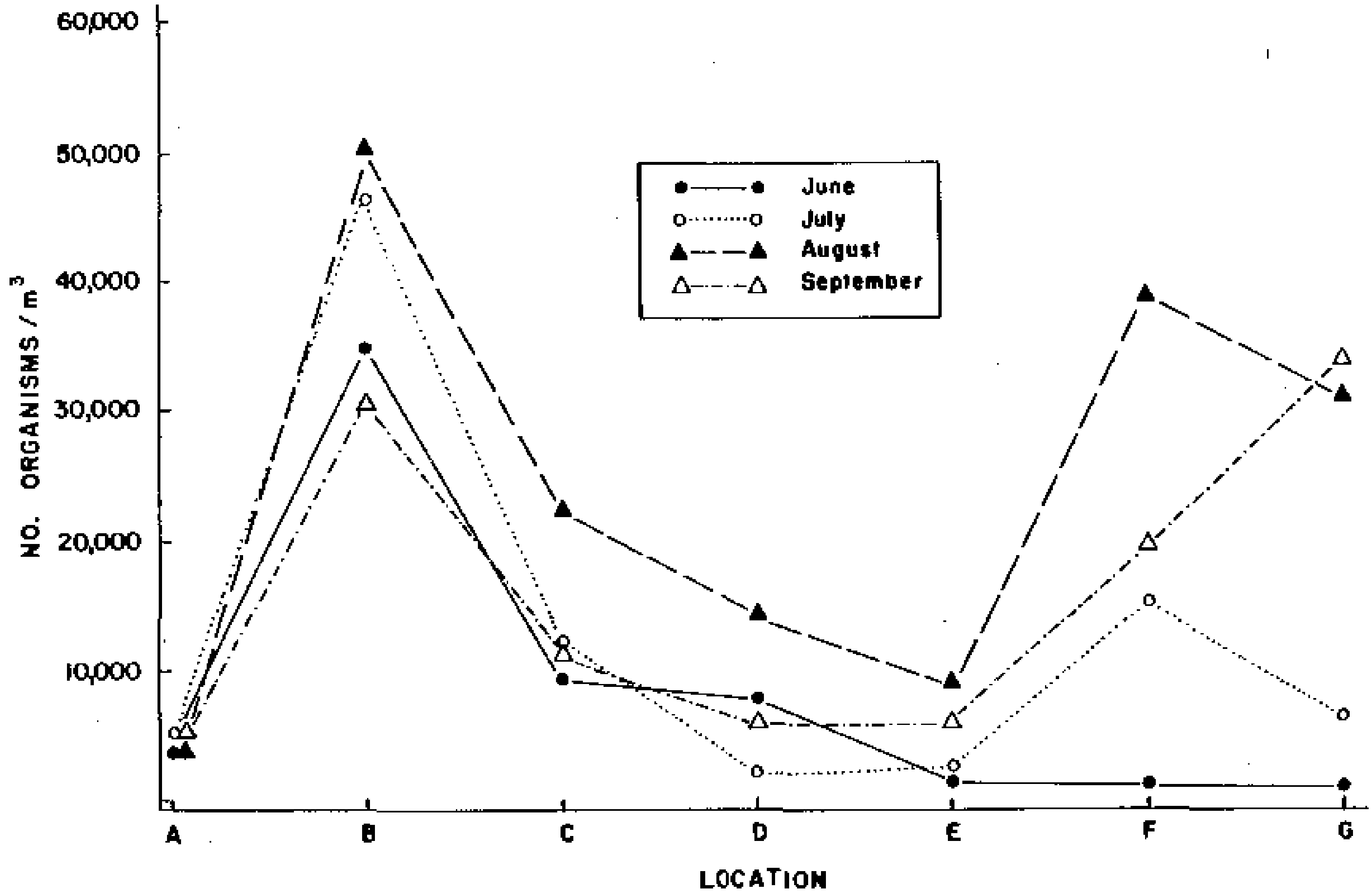

Figure 2.4-1 Mean density of total zooplankton collected from seven locations near Dresden Station, June - September 1981.

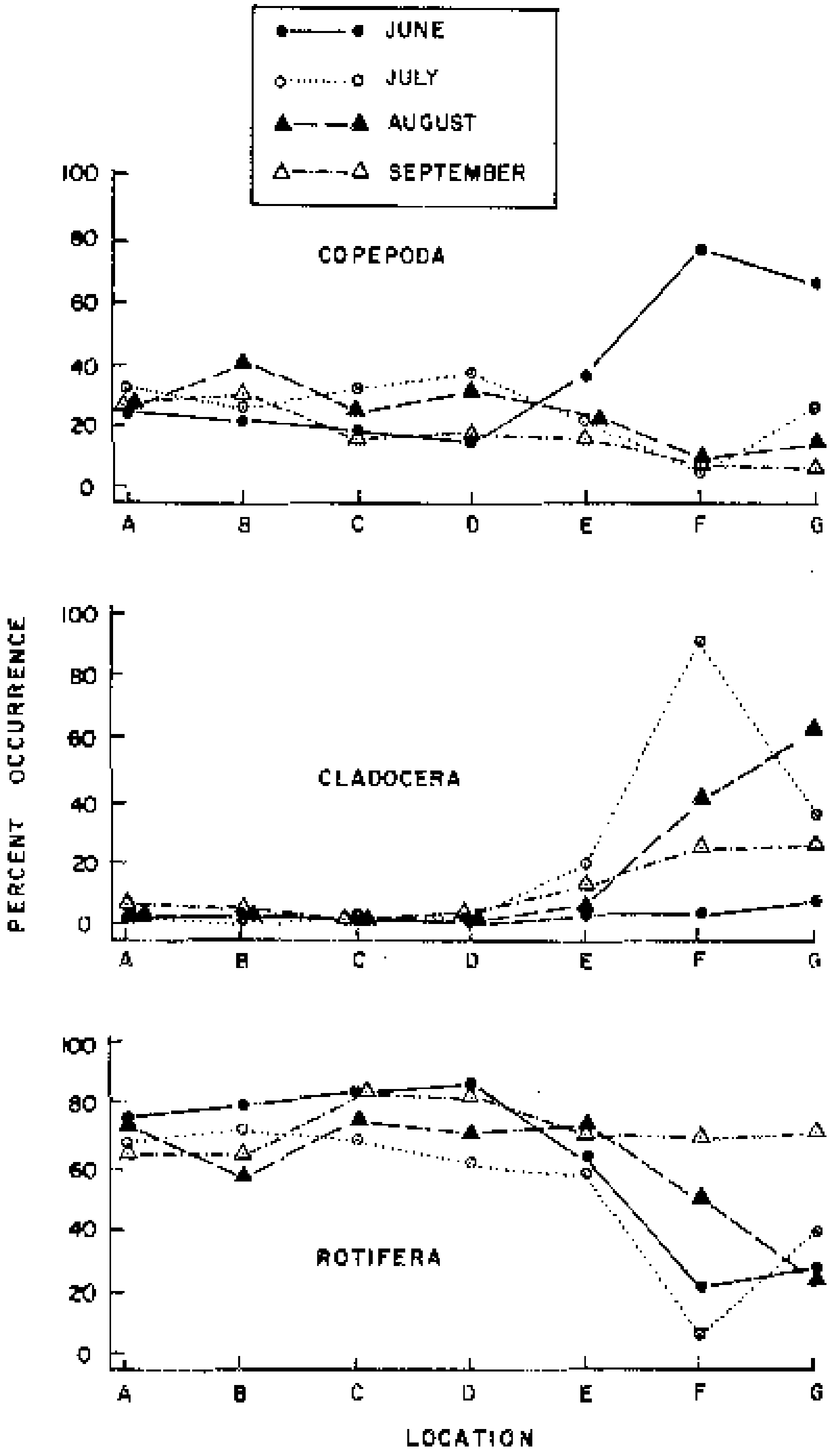

Figure 2.4-2 Mean percentage occurrence of major zooplankton groups collected from seven locations near Dresden Station, June - September 1981

TABLE 2.4-1 TAXONOMIC LIST OF ZOOPLANKTON COLLECTED IN THE DES PLAINES RIVER, KANKAKEE RIVER, AND DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

	DES PLAINES	KANKAKEE	COOLING SYSTEM
COPEPODA			
nauplii	X	X	X
calanoid copepodites	X	X	X
cyclopoid copepodites	X	X	X
Cyclops bicuspidatus thomasi Forbes	X	X	X
Cyclops vernalis Fischer	X	X	X
Diaptomus oregonensis Lilljeborg		X	X
Diaptomus pallidus Herrick		X	X
Diaptomus siciloides Lilljeborg	X	X	X
Epischura lacustris Forbes	X	X	
Eucyclops agilis (Koch)	X		X
Mesocyclops edax (Forbes)			X
Paracyclops fimbriatus poppei (Rehberg)		X	
Tropocyclops prasinus mexicanus (Kiefer)	X	X	X
Harpacticoida			X
CLADOCERA			
Alona circumfimbriata Megard	X		X
Alona spp. Baird	X		X
Bosmina longirostris (Muller)	X	X	X
Ceriodaphnia lacustris Birge		X	
Ceriodaphnia quadrangula (Muller)			X
Ceriodaphnia spp. Dana		X	X
Chydorus sphaericus (Muller)	X		X
Daphnia parvula Fordyce		X	
Daphnia spp. (immature)		X	X
Diaphanosoma leuchtenbergianum Fischer	X	X	X
Diaphanosoma spp. Fischer	X	X	X
Ilyocryptus sordidus (Lieven)	X		X
Ilyocryptus spp. Sars	X	X	X
Leydigia leydigi Schoedler		X	
Macrothrix laticornis (Jurine)			X
Moina micrura Kurz	X	X	X
Scapholeberis kingi Sars			X
ROTIFERA			
Asplanchna spp. Gosse	X	X	X
bdelloid rotifera	X	X	X
Brachionus spp. Pallas	X	X	X
Cephalodella spp. Bory de St. Vincent	X	X	X
Chromogaster spp. Lauterborn			X
Collotheca spp. Harring		X	X
Colurella spp. Bory de St. Vincent		X	
Conochiloides spp. Hlava	X	X	X

TABLE 2.4-1(CONT.)

	DES PLAINES	KANKAKEE	COOLING SYSTEM
ROTIFERA (continued)			
Conochilus spp. Hlava	X	X	X
Dicranophorus spp. Nitzsch			X
Euchlanis spp. Ehrenberg	X	X	X
Filinia spp. Bory de St. Vincent	X	X	X
Hexarthra spp. Schmarda	X		X
Kellicottia spp. Ahlstrom	X	X	X
Keratella spp. Bory de St. Vincent	X	X	X
Lecane spp. Nitzsch	X	X	X
Lepadella spp. Bory de St. Vincent			X
Lophocharis spp. Ehrenberg			X
Monostyla spp. Ehrenberg	X	X	X
Mytilina spp. Bory de St. Vincent			X
Notholca spp. Gosse			X
Platyias spp. Harring	X	X	X
Ploesoma spp. Herrick	X	X	X
Polyarthra spp. Ehrenberg	X	X	X
Pompholyx spp. Gosse	X	X	X
Rotaria spp. Scopoli	X		
Scaridium spp. Ehrenberg			X
Synchaeta spp. Ehrenberg	X	X	X
Testudinella spp. Bory de St. Vincent		X	X
Trichocerca spp. Lamarck	X	X	X
Trichotria spp. Bory de St. Vincent	X	X	X

TABLE 2.4-2 MEAN DENSITY (no./m^3) AND RANGE OF TOTAL ZOOPLANKTON COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	3593.5	34099.5	9020.5	7742.0	1290.4	1082.3	823.9
	Range	2797-4846	27367-41588	3643-13807	1008-11228	1094-1472	461-2299	474-1165
21 Jul	Mean	5154.3	46460.1	12016.9	2027.9	2675.2	15073.8	6484.1
	Range	3405-7342	38866-53048	3277-20474	1604-2375	2573-2920	12841-17863	1606-16379
25 Aug	Mean	3532.3	51108.3	22403.8	14198.6	8741.1	38556.9	31094.4
	Range	1815-6901	36679-74857	8741-40016	3421-35895	3154-19220	31943-52003	23066-45588
15 Sep	Mean	5275.5	30544.7	11824.7	6100.6	5793.5	19594.6	33844.7
	Range	1702-9848	8538-44321	7762-18039	3696-8376	3465-7322	12373-32701	27085-40772

TABLE 2.4-3 MEAN DENSITY (no./m^3) AND RANGE OF TOTAL COPEPODA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	868.0	7294.2	1533.5	1065.0	464.4	832.2	544.2
	Range	524-1343	5981-9287	861-2900	193-1983	333-561	271-1949	319-794
21 Jul	Mean	1629.0	12016.4	3719.4	742.1	600.0	568.8	1596.4
	Range	1010-2579	8674-18723	1047-5724	489-975	491-731	396-936	223-5082
25 Aug	Mean	931.9	20195.3	5564.1	4249.0	1920.3	3345.0	3959.6
	Range	640-1567	17086-21200	1440-11991	806-12175	596-4721	1732-5509	2230-6768
15 Sep	Mean	1488.2	9297.9	1781.3	1004.8	945.7	1227.8	1770.3
	Range	493-2530	3170-14495	960-3064	307-1861	524-1183	751-1807	1472-2360

TABLE 2.4-4 MEAN DENSITY (no./m^3) AND RANGE OF NAUPLII COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	753.1	5510.4	1482.2	1047.9	426.3	761.1	383.5
	Range	451-1218	4388-7167	778-2778	179-1983	299-547	251-1784	213-569
21 Jul	Mean	1253.1	8244.3	3149.9	620.0	369.8	502.3	1508.2
	Range	700-2238	6110-1375	904-4733	378-809	322-442	354-858	218-4347
25 Aug	Mean	679.0	15733.7	4997.8	3816.7	1516.1	2360.7	2433.0
	Range	431-1071	11678-18144	1263-10711	665-11183	348-3934	1408-3590	1463-3831
15 Sep	Mean	1047.7	6980.8	1363.6	817.4	735.3	886.3	1125.5
	Range	358-1768	2471-10732	792-2081	330-1484	428-965	496-1120	704-1574

TABLE 2.4-5 MEAN DENSITY (no./m^3) AND RANGE OF CYCLOPOID COPEPODITES COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	90.0	1592.7	51.5	16.0	29.7	64.1	157.9
	Range	23-185	725-1984	83-123	9-55	11-54	12-150	106-214
21 Jul	Mean	239.8	3306.9	344.6	77.2	173.2	56.5	81.4
	Range	146-340	2282-4681	84-495	45-144	87-317	32-78	5-125
25 Aug	Mean	195.9	3296.5	475.8	409.0	334.9	953.0	1204.8
	Range	113-416	2854-3997	152-1078	84-992	90-618	325-1857	557-2554
15 Sep	Mean	212.8	1078.6	158.1	78.0	117.1	282.2	422.6
	Range	57-356	225-1682	49-289	31-149	55-200	71-632	121-640

TABLE 2.4-6 MEAN DENSITY (no./m^3) AND RANGE OF TOTAL CLADOCERA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	59.5	70.3	23.6	8.0	13.5	22.3	53.5
	Range	28-103	101-180	0-47	0-32	0-19	5-64	27-75
21 Jul	Mean	60.9	857.7	230.0	20.4	513.9	13623.9	2358.9
	Range	32-101	140-1560	101-605	7-39	49-730	11821-16860	1241-2869
25 Aug	Mean	73.0	1039.3	170.5	48.8	470.7	15906.2	19216.4
	Range	28-139	705-1297	101-202	0-90	141-1067	11452-22811	15150-23359
15 Sep	Mean	285.5	1276.1	167.6	111.7	779.4	4940.2	8527.0
	Range	62-549	474-1997	120-211	21-176	182-1564	1679-10659	6082-11015

TABLE 2.4-7 MEAN DENSITY (no./m^3) AND RANGE OF DIAPHANOSOMA SPECIES COLLECTED AT SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	0	0	0	2.0	1.3	2.3
	Range	0	0	0	0	0-8	0-5	0-9
21 Jul	Mean	11.2	143.8	92.4	12.7	87.8	22.6	37.3
	Range	0-78	0-347	0-440	0-22	0-262	0-64	0-235
25 Aug	Mean	2.4	24.8	26.3	4.2	24.3	325.9	473.1
	Range	0-9	0-99	0-101	0-17	0-135	126-739	0-1045
15 Sep	Mean	14.8	15.4	25.9	0	127.7	390.2	1644.1
	Range	0-30	0-73	0-47	0	0-990	80-632	320-4247

TABLE 2.4-8 MEAN DENSITY (no./m^3) AND RANGE OF MOINA MICRURA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	0	0	0	0	0	20.3	12.0
	Range	0	0	0	0	0	4-64	0-18
21 Jul	Mean	30.5	451.5	27.0	6.1	333.4	13578.6	2276.3
	Range	0-62	0-867	0-55	0-24	33-563	11821-16815	1222-2815
25 Aug	Mean	26.0	57.2	23.2	2.7	373.9	15254.4	18252.7
	Range	9-41	0-130	0-67	0-11	131-899	10957-22179	14357-22602
15 Sep	Mean	42.7	24.5	20.5	22.0	27.2[illegible]	4084.2	5159.6
	Range	5-86	0-73	0-58	0-57	0-55	960-9304	3521-8261

TABLE 2.4-9 MEAN DENSITY (no./m^3) AND RANGE OF TOTAL ROTIFERA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	2665.9	27535.0	7475.3	6669.0	812.4	227.6	226.2
	Range	2061-3475	21386-32201	2735-10907	815-7212	697-911	149-302	128-310
21 Jul	Mean	3444.3	33586.0	8067.5	1265.3	1561.4	891.1	2528.9
	Range	2274-5349	29371-37494	2128-14145	1076-1449	1368-1804	547-1521	142-8717
25 Aug	Mean	2527.3	29673.6	16669.2	9900.7	6350.1	19305.6	7918.4
	Range	1088-5195	18808-52154	7124-27823	2560-23629	2147-14162	14228-25148	4573-15451
15 Sep	Mean	3501.9	19970.7	9875.8	4984.1	4068.5	13418.5	23547.4
	Range	1147-6768	4893-28432	6134-14744	3065-6339	2749-5141	7773-20235	18596-29001

TABLE 2.4-10 MEAN DENSITY (no./m^3) AND RANGE OF BDELLOID ROTIFERA COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	83.0	1900.7	352.2	619.2	104.5	20.4	8.6
	Range	0-232	725-4341	47-637	143-962	18-202	12-38	4-14
21 Jul	Mean	260.9	3047.7	509.6	222.7	187.8	69.3	176.4
	Range	65-462	368-5547	169-991	181-247	26-301	0-129	33-586
25 Aug	Mean	46.4	600.5	406.3	429.1	46.2	30.9	96.0
	Range	9-92	198-982	76-909	44-1082	0-107	0-62	0-238
15 Sep	Mean	106.1	1216.9	432.5	155.3	94.1	53.6	16.0
	Range	21-213	275-2230	240-521	29-277	45-127	0-80	0-64

TABLE 2.4-11 MEAN DENSITY (no./m^3) AND RANGE OF BRACHIONUS SPP. COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	1795.7	23370.0	529.7	737.9	320.4	140.2	137.3
	Range	1366-2215	18939-26762	343-728	45-1311	283-373	100-208	84-186
21 Jul	Mean	2654.3	28110.1	3727.5	565.5	1118.0	460.6	2091.1
	Range	1467-4449	25137-30639	1123-6935	419-751	1028-1211	228-780	62-7584
25 Aug	Mean	2275.3	27073.0	14037.7	8230.7	6092.9	19091.7	7592.7
	Range	931-4858	17478-47613	4244-25330	1318-20743	1911-13825	14104-24896	4460-15068
15 Sep	Mean	1988.5	14926.9	5342.1	3093.9	3111.5	11520.5	21122.5
	Range	566-4116	3395-20906	3577-3152	1863-4226	1819-4117	7346-17254	16979-25968

TABLE 2.4-12 MEAN DENSITY (no./m^3) AND RANGE OF KERATELLA SPP. COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	271.1	1109.1	3657.5	2113.9	118.9	10.8	12.0
	Range	185-429	544-1460	1297-5187	457-2898	26-182	4-25	0-23
21 Jul	Mean	95.6	298.5	1535.2	133.3	57.8	39.0	50.4
	Range	78-114	0-693	566-2274	74-187	25-96	0-156	0-162
25 Aug	Mean	18.5	178.3	149.5	153.5	2.5	0	0
	Range	0-40	0-389	25-303	0-451	0-10	0	0
15 Sep	Mean	203.3	2574.3	652.9	417.3	107.7	28.9	63.9
	Range	26-457	924-3345	71-1503	153-615	45-182	0-71	0-131

TABLE 2.4-13 MEAN DENSITY (no./m^3) AND RANGE OF SYNCHAETA SPP. COLLECTED FROM SEVEN LOCATIONS IN THE DRESDEN STATION COOLING SYSTEM, JUNE - SEPTEMBER 1981

Date		Location A	Location B	Location C	Location D	Location E	Location F	Location G
23 Jun	Mean	208.3	234.5	1542.3	1840.1	39.0	0.8	1.5
	Range	93-332	0-365	212-2614	9-2566	8-100	0-3	0-6
21 Jul	Mean	128.9	733.6	717.1	66.7	6.2	8.0	0
	Range	78-235	0-1399	51-1486	29-107	0-16	0-32	0
25 Aug	Mean	19.4	233.0	1602.1	773.4	64.7	0	0
	Range	0-40	0-389	876-3032	388-902	22-112	0	0
15 Sep	Mean	324.6	351.5	1805.3	614.9	339.3	1574.8	1976.1
	Range	47-1006	25-526	755-2867	478-806	273-407	285-2620	1213-2548

3.0 RIVER SYSTEM STUDIES

3.1 STUDY AREA DESCRIPTION

The Dresden Nuclear Station is located at River Mile 273 at the junction of the Des Plaines and Kankakee rivers (Figure 3.1-1). These two rivers form the upstream origin of the Illinois River (Dresden Island Pool). The station's cooling water intake is situated on the Kankakee River from which the greatest percentage of cooling water is drawn. A smaller percentage of cooling water is drawn from the Des Plaines River; the amount varies depending upon water flow in each of the two rivers. The station's discharge is located along the south shoreline of Dresden Island Pool. Because of temperature and water quality differences between the Kankakee and Des Plaines Rivers (CECo 1977), the characteristics of Dresden Island Pool are those of a two-river system, the Kankakee River on the south side and the Des Plaines on the north side of the Illinois River. Substantial mixing does not occur until after the water flows over Dresden Island Dam.

The study area for the river system studies encompassed the lower extremities of the Des Plaines River (Location 1) and the Kankakee River (Location 2), Dresden Island Pool of the Illinois River (Locations 5, 6, 7, 9 and 10), and the upstream extremity of Marseilles Pool below Dresden Island Lock and Dam (Locations 11 through 16) (Figure 3.1-1). Locations in Dresden Island Pool were established upstream from the station discharge (Location 5), in the lower portion of Units 2/3 discharge canal (Location 6), downstream from Dresden Island Lock and Dam on both sides of Dresden Island (Locations 11, 12, 13 and 16) and further downstream near the Elgin, Joliet, and Eastern railroad bridge (Locations 14 and 15). A detailed description of the position of each location is presented in Table 3.1-1.

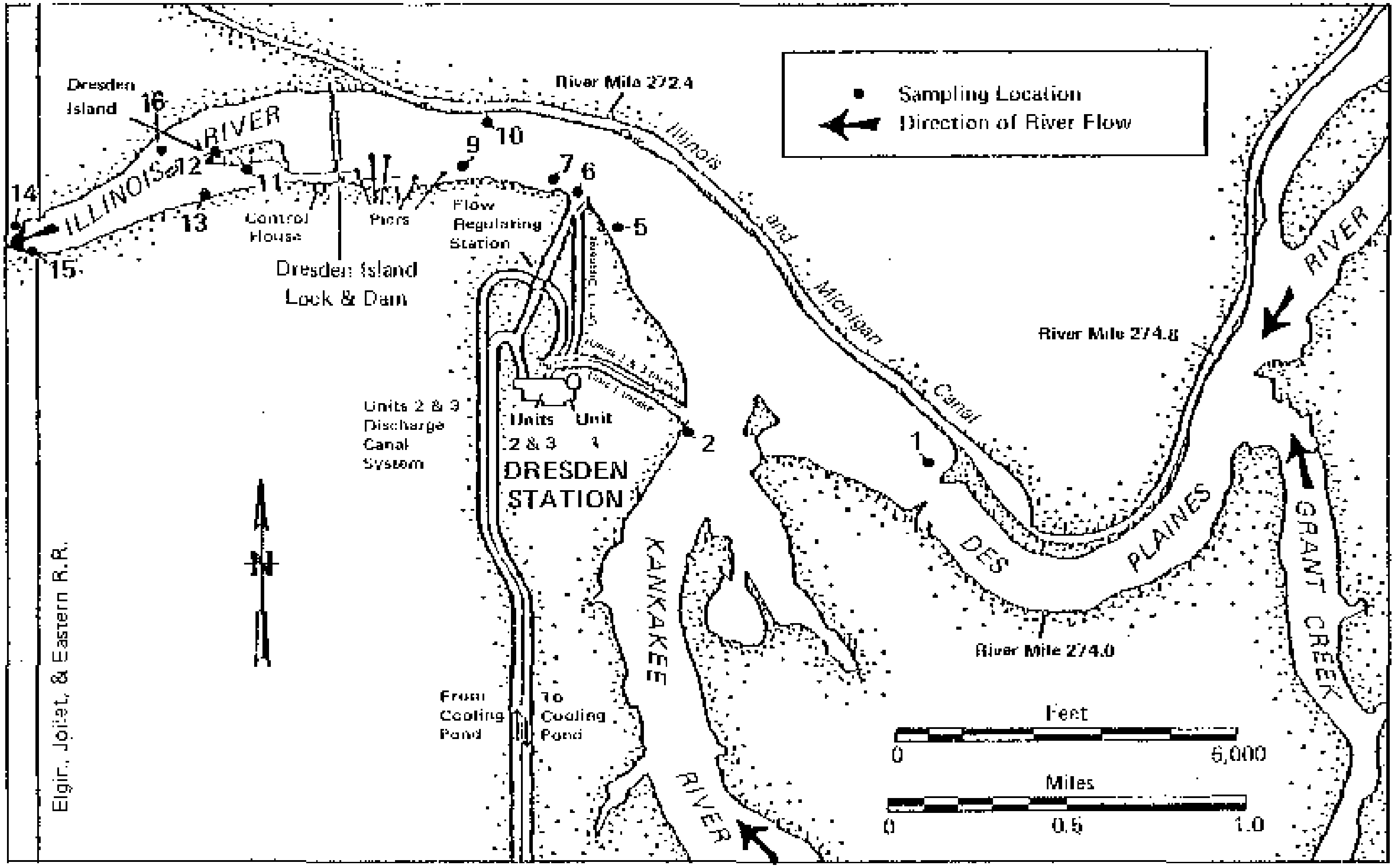

Figure 3.1-1 Sampling locations in the Kankakee, Des Plaines and Illinois Rivers near the Dresden Station.

TABLE 3.1-1 DESCRIPTION OF SAMPLING LOCATIONS FOR MACROINVERTEBRATES AND FISH.

Location	Description
1	On the north shore of the Des Plaines River at RM 273.4.
2	Immediately upstream of the Dresden Units 1, 2 and 3 floating log boom on the Kankakee River.
5	On the south shore of the Illinois River upstream of Dresden Units 1, 2 and 3 discharge canals at RM 272.5.
6	On the south shore of the Illinois River in the immediate area of the Dresden Station discharge at RM 272.3.
7	On the south shore of the Illinois River approximately 150 meters downstream of the Dresden Station discharge at RM 272.1.
9	On the south shore of the Illinois River approximately 800 meters downstream of the Dresden Station discharge at RM 271.7.
10	On the north shore of the Illinois River approximately 500 meters downstream of the Dresden Station discharge at RM 272.0.
11	Downstream of Dresden Island Lock and Dam on the south shore of the island below the lock at RM 271.1.
12	Downstream of Dresden Island Lock and Dam on the north shore of the island below the dam at RM 271.0.
13	Downstream of Dresden Island Lock and Dam on the south shore of the Illinois River at RM 270.8.
14	Downstream of Dresden Island Lock and Dam on the north shore of the Illinois River at RM 270.5.
15	Downstream of Location 13 on the south shore of the Illinois River at RM 270.5.
16	Downstream of Location 12 on the north shore of the Illinois River across from the small island at RM 270.9.

3.2 MACROINVERTEBRATES

3.2.1 Introduction

The aquatic macroinvertebrate community of the Illinois River near Dresden Station was sampled monthly from June through September 1981. The primary objective was to determine the effects of indirect open cycle operation of the station on the benthic community. Primary considerations were macroinvertebrate composition, absolute abundance and relative abundance.

Concurrent with the macroinvertebrate sampling, sediment samples were collected to determine any effects of the indirect open cycle operation on particle size distribution and total organic carbon content of the sediment near the Dresden Station.

3.2.2 Field and Analytical Procedures

3.2.2.1 Field Procedures

Benthic macroinvertebrate samples were collected on 23 June, 21 July, 25 August and 15 September 1981 from Locations 5 (upstream from discharge canals), 7 (150 m downstream from discharge canals) and 9 (800 m downstream from discharge canals) in the Illinois River (Figure 3.1-1 and Table 3.1-1). Two replicate samples for benthic macroinvertebrates were collected at each sampling location utilizing a standard Ponar grab sampler (area sampled = 530 sq. cm). The substrate in each replicate was visually categorized at the time of collection. Samples were placed in plastic containers, labeled and preserved with a 10 percent formalin solution containing rose bengal dye.

3.2.2.2 Laboratory Procedures

In the laboratory, the samples were sieved on a U.S. Standard No. 30 mesh (595 μm aperture) screen. All organisms were sorted from the sieve residue and enumerated under a binocular dissection microscope at 10 to 70X magnification. Occasionally, large amounts of organic material in the sieve residue and/or large numbers of oligochaetes necessitated subsampling. Subsampling was done in accordance with U.S. EPA methods (Weber 1973). Identification of all organisms, except oligochaetes and chironomids was made during the separation process. Oligochaeta and Chironomidae were mounted in a non-resinous clearing media on glass slides and were identified using a binocular compound microscope at magnifications of 40 to 1000X. Density of all organisms was reported in numbers per meter square (No./m^2). All identifications were made to the lowest practicable taxon, usually genus or species.

Concurrent with the collection of the benthic macroinvertebrate samples, two replicate grab samples were taken at each of the three locations for analysis of particle size and total organic carbon content. Samples were placed in labeled containers, frozen and transported to the laboratory. Sediment particle size distribution analysis (PSA) was performed according to Method P422-63 of the American Society for Testing and Materials (1973). Six size classes were differentiated and reported as percentage by weight. Total organic carbon (TOC) was determined by a combustion-infrared method (Menzel and Vaccaro 1964) utilizing an Oceanography International ampule-type analyzer. Data was reported as mg/kg of sediment based on dry weight.

3.2.3 Results and Discussion

3.2.3.1 Sediment Characterization

Sediment of the Illinois River in the vicinity of the Dresden Station was principally silt and fine sand with some clay. Percentages of the various substrate components, however, varied considerably among the locations. The substrate at Location 5 was generally composed of greater than 55 percent silt mixed with clay and fine sand. The greatest percentage of silt and clay occurred at this location throughout the sampling period. Total organic carbon values were also generally highest at Location 5 ranging from 19,004 to 34,500 mg/kg (Tables 3.2-1 through 3.2-4). Little change in the composition of the substrate was observed at this location during the study period.

In June, the substrate at Location 7 was very similar to that observed at Location 5. In the next three months, however, this location contained predominantly fine sand substrates with lesser fractions of silt and medium sand. Location 7, compared to the other locations, had the greatest concentration of fine sand during all collection periods except June. The lowest TOC values were also reported from Location 7 throughout the sampling periods. Visual observations of the substrate in August and September at Location 7 revealed a patchy distribution of a variety of substrates. The substrates, possibly because of the current from the discharge, were a mixture of pockets of silt and clay interspersed with sandy ridges. Depth contours at this location were also quite variable in August and September.

Fine sand was also the major component of the substrate at Location 9. Concentrations of silt and clay were, however, higher at this location than at Location 7. Total organic carbon values were generally very similar to those observed at Location 5.

3.2.3.2 Community Composition

Twenty-eight benthic macroinvertebrate taxa were collected from the Illinois River near the Dresden Station from June to September 1981 (Table 3.2-5). Oligochaetes accounted for the largest number of taxa and greatest percentage of the benthic assemblage. The Tubificidae, represented by 13 species, constituted the major portion of the Oligochaeta in the Illinois River. Dominant tubificids were *Limnodrilus hoffmeisteri*, *L. maumeensis*, *L. cervix* (variant) and *Aulodrilus pigueti*. Many unidentifiable immature tubificids were also collected in the study. These immatures were separated into two groups: "unidentifiable immatures with capilliform chaetae" and "unidentifiable immatures without capilliform chaetae." Immature *Ilyodrilus templetoni* constituted the immatures with capilliforms. *Limnodrilus claparedeianus*, *L. cervix*, *L. cervix* (variant), *L. hoffmeisteri*, and *L. maumeensis* composed the immatures without capilliform chaetae. Chironomidae were the only insects collected. *Procladius* sp. and *Cryptochironomus* sp. were the most abundant of the nine taxa of chironomids encountered near the Dresden Station. Corbicula fluminea, the Asiatic clam, was the only mollusk collected from the Illinois River.

The benthic assemblage encountered near the Dresden Station was indicative of an organically enriched environment. The dominant tubificid, L. hoffmeisteri, is a cosmopolitan species tolerant of organic and inorganic pollution (Brinkhurst 1965). The two other commonly occurring Limnodrilus species, L. maumeensis and L. cervix (variant), have been reported by Hiltunen (1969) as frequently abundant in polluted harbors and river mouths. The chironomids, Procladius sp. and Cryptochironomus sp., are free-living carnivores that feed on protozoa, microcrustaceans and oligochaetes. These two taxa are frequently associated with large concentrations of oligochaetes and are also tolerant of organic enrichment.

3.2.3.3 Spatial and Temporal Distribution

Community composition was very similar at each of the three locations throughout the summer. The same species were generally dominant at each location during each of the four sampling periods. However, no consistent temporal variations in densities were observed in the macroinvertebrate community. Peak abundances of the major groups and species often occurred during different months for each location. Macroinvertebrate densities were greatest at Location 9 on three of the four sampling dates (Table 3.2-6). The total mean density at Location 9 was also over twice as great as densities recorded at Locations 5 or 7.

Unidentified immature tubificids without capilliform chaetae were the most abundant group of organisms at all locations. This group was much more abundant at Location 9 and accounted for the greater macroinvertebrate densities at this location than at other locations. These unidentified immature tubificids composed over 55 percent of the benthos in each collection period at Location 9 with peak densities of 9,828/m^2 occurring in July (Tables 3.2-7 through 3.2-11). At Locations 5 and 7, this group composed from 24 to 50 percent of the benthic fauna. Greatest densities of immature tubificids without capilliform chaetae at Location 5 (2,372.0/m^2) occurred in September and at Location 7 greatest numbers occurred in June. The fewest immature tubificids without capilliforms at Locations 5 and 9 were observed in August, and at Location 7, numbers were smallest in July.

The greatest densities of immature tubificids with capilliform chaetae was reported at Location 9 during each sampling period. The lowest densities of immatures with capilliforms were observed at Location 7. The greatest number of immatures with capilliform chaetae was observed at each location in June, averaging 293.0, 264.6 and 396.9/m^2 at Locations 5, 7 and 9, respectively (Table 3.2-12). The smallest number of immature tubificids with capilliform chaetae occurred in August at all locations.

Limnodrilus hoffmeisteri was the most abundant mature tubificid collected from the Illinois River. Total mean densities were greatest at Location 9; however, peak monthly densities were recorded from a different location in each collection month. The greatest monthly densities were observed at

Location 7 in June (982.8/m^2) and at Location 9 in September (869.4/m^2) (Table 3.2-13). In July and September, numbers of L. hoffmeisteri were much lower near the discharge (Location 7) than at either Location 5 or 9.

Limnodrilus maumeensis was most frequently encountered at Location 5. In June, July and August, it was the second most abundant tubificid collected at this location. L. maumeensis was not recorded from Location 9 in either June or July; however, in September the greatest densities of this species occurred at Location 9 (Table 3.2-14). This organism apparently prefers the greater concentrations of clay and silt that occurred at Location 5, and which were also sampled in the September at Location 9. Densities of L. cervix (variant) were greatest at Location 9 during three of the four sampling periods. Greatest densities at Location 5 and 9 occurred in July (113.4 and 302.4/m^2, respectively). Greatest densities of this taxon at Location 7 occurred in September (189.0/m^2) (Table 3.2-15).

On an annual basis, Aulodrilus pigueti was most abundant at Location 9 (Table 3.2-16). Extremely large numbers of this species (1,587.6/m^2) occurred in September. Aulodrilus pigueti typically undergoes an annual period of asexual budding and fragmentation. This assexual cycle probably accounted for the peaks in abundance at Location 5 and 9 in September.

Chironomidae, represented primarily by Procladius sp., were most abundant at Location 5 during all sampling periods except July (Table 3.2-17). In July, 567.0/m^2 Procladius sp. were collected at Location 9. This represented the greatest density of Procladius sp. reported from any location (Table 3.2-8). Cryptochironomus sp., the second most abundant midge, was also generally most abundant at Location 5. No chironomids were collected in either June or September from Location 7 and very few occurred in either July or August.

Several young Corbicula fluminea were encountered immediately downstream of the Dresden Station discharge at Location 7 (Table 3.2-18). Very few were collected at either Locations 5 or 9. Apparently, this taxon prefers the silty sand substrate present at Location 7 versus the higher concentrations of clay and silt that were present at Locations 5 and 9. The concentrations of young specimens could possibly have originated from a resident population in the discharge canal. Numerous specimens of adult C. fluminea shells were observed along the banks of the discharge canal throughout the study. The variations in abundance of this species at Location 7 may have been related to the unstable and variable substrates of this collection site.

3.2.3.4 Changes in Community Structure

The benthic macroinvertebrate community in the Illinois River near Dresden Station has remained relatively consistent from 1972 through 1976 to the present study. The number of taxa observed in the present study, however, was much smaller than reported from earlier studies. This was explained by the fact that the Kankakee River (Location 2) was not sampled in 1981 and sampling in this study was done only during the summer months instead of throughout the year. Roubik (1975a, 1976a, 1976b and 1977) reported Limnodrilus hoffmeisteri as the dominant tubificid in 1973, 1974, 1975 and 1976 and Limnodrilus maumeensis, L. cervix, L. udekemianus and Aulodrilus pigueti as also abundant. These taxa were also the predominant oligochaetes in the present study. Total numbers of tubificids were generally slightly higher in 1981 than spring and summer densities reported by Roubik (1975a, 1976a, 1976b and 1977) in previous studies. Brice (1978), in reviewing the 1972 through 1976 data, noted that during direct or indirect open cycle operation, tubificid densities were significantly greater at Location 7 than at Location 5. This trend was not observed in the present study.

Procladius sp. and Cryptochironomus sp. were the dominant chironomids reported in both the present study and by Roubik (1975a, 1976a, 1976b and 1977). Densities of Corbicula fluminea (reported as C. manilensis by Roubik) were much greater in the present study than in previous studies. The maximum densities of Corbicula in 1981 were 945/m^2 at Location 7 in August. The largest numbers reported by Roubik (1976b and 1977) were 14/m^2 at Location 7 in November 1975 and 56/m^2 at the same location in December 1976.

3.2.4 Summary and Conclusions

1. Sediments at the three Illinois River collection locations were predominantly fine sand, silt and clay. Greatest percentages of silt and total organic carbon (TOC) generally occurred at Location 5, upstream of the discharge. Location 7, immediately downstream of the discharge, was primarily sand with small relative proportions of TOC. Location 9 was also primarily fine sand but contained TOC concentrations comparable to those of Location 5.

2. The macroinvertebrate community was indicative of a highly enriched to grossly polluted river. Saprophilous Tubificidae were the predominant taxa collected. Few insects or molluscs were encountered.

3. Spatial and seasonal variations in the abundance of the predominant taxa reflected natural seasonal reproductive cycles and the effects of minor variations in substrates between locations and months.

4. Young individuals of Corbicula fluminea were consistently collected at Location 7. Numerous adult C. fluminea were observed in the discharge canal and were likely the source of the young individuals collected at Location 7.

5. The macroinvertebrate community has remained quite constant since 1972. Studies conducted in 1972 through 1976 reported a similar assemblage, predominated by the same taxa reported herein as dominant in 1981.

6. Tubificid abundance did not increase a short distance downstream from the discharge (Location 7) during indirect open cycle operation in 1981 as was reported in earlier studies.

3.2.5 References

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TABLE 3.2-1 SUMMARY OF TOTAL ORGANIC CARBON ANALYSIS (TOC) AND PARTICLE SIZE ANALYSIS (PSA) OF SEDIMENT SAMPLES COLLECTED FROM THE ILLINOIS RIVER NEAR THE DRESDEN POWER STATION, 23 JUNE 1981

Parameter	Units	Location					
		5A	5B	7A	7B	9A	9B
TOC	mg/kg[a]	30,900	27,400	25,300	24,900	41,400	10,500
Clay	%[b]	26.9	30.5	27.6	25.1	18.7	3.9
Silt	%	55.9	59.9	56.2	38.7	27.2	6.7
Fine Sand	%	16.2	8.7	13.4	34.1	45.7	82.7
Medium Sand	%	0.8	0.8	2.1	1.6	5.9	6.0
Coarse Sand	%	0.1	0.1	0.8	0.1	1.5	0.7
Gravel	%	0	0	0	0.3	1.0	0

(a) Data are reported in mg/kg of sediment based on dry weight.
(b) Data are reported as percentage by weight.

TABLE 3.2-2 SUMMARY OF TOTAL ORGANIC CARBON ANALYSIS (TOC) AND PARTICLE SIZE ANALYSIS (PSA) OF SEDIMENT SAMPLES COLLECTED FROM THE ILLINOIS RIVER NEAR THE DRESDEN POWER STATION, 21 JULY 1981

		Location					
Parameter	Units	5A	5B	7A	7B	9A	9B
TOC	mg/kg[a]	33800	34,500	2430	2810	12300	34600
Clay	%[b]	33.0	68.4	1.6	0.8	16.1	56.6
Silt	%	44.6	24.7	2.9	5.2	36.4	24.1
Fine Sand	%	20.9	2.7	84.7	83.3	42.6	17.7
Medium Sand	%	1.4	4.2	10.8	4.5	4.6	1.5
Coarse Sand	%	0.1	0	0	6.1	0.3	0
Gravel	%	0	0	0	0	0	0

(a) Data are reported in mg/kg of sediment based on dry weight.
(b) Data are reported as percentage by weight.

TABLE 3.2-3 SUMMARY OF TOTAL ORGANIC CARBON ANALYSIS (TOC) AND PARTICLE SIZE ANALYSIS (PSA) OF SEDIMENT SAMPLES COLLECTED FROM THE ILLINOIS RIVER NEAR THE DRESDEN POWER STATION, 25 AUGUST 1981

		Location					
Parameter	Units	5A	5B	7A	7B	9A	9B
TOC	mg/kg[a]	19,004	19,782	7,670	8,861	20,824	8,913
Clay	%[b]	28.2	14.3	5.1	5.8	9.7	2.9
Silt	%	58.8	73.3	21.8	21.9	20.7	7.6
Fine Sand	%	12.7	9.4	68.2	56.8	52.5	73.0
Medium Sand	%	0.3	3.0	4.7	15.3	13.7	13.5
Coarse Sand	%	0	0	0.2	0.2	3.4	1.9
Gravel	%	0	0	0	0	0	1.1

(a) Data are reported in mg/kg of sediment based on dry weight.
(b) Data are reported as percentage by weight.

TABLE 3.2-4 SUMMARY OF TOTAL ORGANIC CARBON ANALYSIS (TOC) AND PARTICLE SIZE ANALYSIS (PSA) OF SEDIMENT SAMPLES COLLECTED FROM THE ILLINOIS RIVER NEAR THE DRESDEN POWER STATION, 15 SEPTEMBER 1981

Parameter	Units	Location					
		5A	5B	7A	7B	9A	9B
TOC	mg/kg[a]	28,981	29,630	9,629	11,292	25,186	29,724
Clay	%[b]	32.1	27.2	5.3	7.9	20.4	30.7
Silt	%	36.1	65.5	12.2	26.1	35.1	34.9
Fine Sand	%	10.5	6.9	79.4	54.7	39.2	24.5
Medium Sand	%	1.3	0.4	3.0	8.6	4.5	8.4
Coarse Sand	%	-	-	0.1	0.2	0.4	1.5
Gravel	%	-	-	-	2.5	0.4	-

(a) Data are reported in mg/kg of sediment based on dry weight.
(b) Data are reported as percentage by weight.

TABLE 3.2-5 TAXONOMIC LIST OF BENTHIC MACROINVERTEBRATES ENCOUNTERED IN THE ILLINOIS RIVER NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

Nematoda

Annelida
- Oligochaeta
  - Plesiopora
    - Enchytraeidae
    - Naididae
      - Dero sp. Oken
      - Slavina appendiculata D'Ukekem
      - Wapsa mobilis (Liang)
    - Tubificidae
      - Aulodrilus pigueti Kowalewski
      - Bothrioneurum vejdovskyanum Stolc
      - Branchiura sowerbyi Beddard
      - Ilyodrilus templetoni (Southern)
      - Limnodrilus cervix Brinkhurst
      - L. cervix variant
      - L. claparedianus Ratzel
      - L. hoffmeisteri Claparede
      - L. maumeensis Brinkhurst and Cook
      - L. udekemianus Claparede
      - Peloscolex multisetosus longidentus Brinkhurst and Cook
      - P. m. multisetosus (Smith)
      - Tubifex kessleri americanus Brinkhurst and Cook

Arthropoda
- Insecta
  - Diptera
    - Chironomidae
      - Chironominae
        - Cryptochironomus sp. Kieffer
        - Polypedilum scalaenum type (Schrank)
        - P. simulans type (Schrank)
        - Pseudochironomus sp. Malloch
      - Tanypodinae
        - Coelotanypus sp. Kieffer
        - Procladius sp. Skuse
        - Tanypus stellatus Coquillett
      - Orthocladiinae
        - Cricotopus sylvestris group Sensu Hirvenoja
        - Nanocladius sp. Kieffer

Mollusca
- Pelecypoda
  - Heterodonta
    - Corbiculidae
      - Corbicula fluminea Muller

TABLE 3.2-6 MEAN DENSITY (NO./M^2) AND RANGE FOR TOTAL BENTHOS AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE-SEPTEMBER 1981

	Location 5		Location 7		Location 9	
Date	Mean Density	Range	Mean Density	Range	Mean Density	Range
23 June	2920.3	2816.1-3024.0	4876.2	3704.4-6048.0	4999.7	3704.4-6293.7
21 July	3572.4	3534.2-3609.9	1030.2	774.9-1285.9	11869.2	9374.4-14364.0
25 August	1030.0	850.5-1209.6	2277.4	2192.4-2362.5	1171.8	756.0-1587.6
15 September	3685.5	3042.9-4328.1	1644.3	37.8-3250.8	8353.8	7560.0-9147.6
MEAN	2802.0		2457.0		6598.6	

TABLE 3.2-7 NUMBER PER REPLICATE, MEAN NUMBER PER METER SQUARE AND PERCENT OCCURRENCE OF BENTHIC MACRO-INVERTEBRATES AT THREE LOCATIONS NEAR THE DRESDEN STATION, 23 JUNE 1931.

Taxon	Location 5 No./Replicate A	Location 5 No./Replicate B	Location 5 Mean no./m^2	Location 5 %	Location 7 No./Replicate A	Location 7 No./Replicate B	Location 7 Mean no./m^2	Location 7 %	Location 9 No./Replicate A	Location 9 No./Replicate B	Location 9 Mean no./m^2	Location 9 %
Nematoda												
Unidentified Nematoda	-	-			4	8	113.4	2.3	-	-		
Oligochaeta												
Enchytraeidae												
Unidentified Enchytraeidae	-	1	9.5	0.3	-	-			1	-	9.5	0.2
Naididae												
Slavina appendiculata	-	-			-	-			-	1	9.5	0.2
Tubificidae												
Unidentified Immature with cap. chaetae	20	11	293.0	10.0	16	12	264.6	5.4	25	17	396.9	7.9
Unidentified Immature without cap. chaetae	72	74	1379.7	47.3	212	96	2910.6	59.7	243	142	3638.3	72.0
Aulodrilus pigueti	16	2	170.1	5.8	12	-	113.4	2.3	5	1	56.7	1.1
Bothrioneurum vejdovskyanum	-	-			-	-			-	1	9.5	0.2
Branchiura sowerbyi	-				8	-	75.6	1.6	-	-		
Ilyodrilus templetoni	-	-			4	-	37.8	0.8	3	1	37.8	0.7
Limnodrilus cervix	-				-				1	-	9.5	0.2
L. cervix variant	4	1	47.3	1.6	4	12	151.2	3.1	17	12	274.1	5.5
L. claparedeianus	-	-			-	-			-	2	18.9	0.4
L. hoffmeisteri	24	30	510.3	17.5	52	52	982.8	20.2	34	15	463.1	9.2
L. maumeensis	20	27	444.2	15.2	8	16	226.8	4.6	-	-		
L. udekemianus	-				-	-			-	1	9.5	0.2
Peloscolex multisetosus multisetosus	-	-			-	-			1	2	28.4	0.6
Tubifex kessleri americanus		2	18.9	0.7	-				-	-		
Insecta												
Diptera												
Chironomidae												
Chironominae												
Cryptochironomus sp.		1	9.5	0.3	-	-			-	-		
Polypedilum scalaenum type	-	-			-	-			1	-	9.5	0.2
Pseudochironomus sp.	-	-			-	-			1	-	9.5	0.2
Tanypodinae												
Procladius sp.	4	-	37.8	1.3	-	-			-	-		
Orthocladiinae												
Cricotopus sylvestris group	-	-			-	-			-	1	9.5	0.2
Nanocladius sp.		-							1	-	9.5	0.2
TOTAL BENTHOS			2920.3				4876.2				4999.7	

TABLE 3.2-8 NUMBER PER REPLICATE, MEAN NUMBER PER METER SQUARE AND PERCENT OCCURRENCE OF BENTHIC MACROINVERTEBRATES AT THREE LOCATIONS NEAR THE DRESDEN STATION, 21 JULY 1981.

	Location 5				Location 7				Location 9			
	No./Replicate		Mean		No./Replicate		Mean		No./Replicate		Mean	
Taxon	A	B	no./m^2	%	A	B	no./m^2	%	A	B	no./m^2	%
Oligochaeta												
Naididae												
Dero sp.	1	-	9.5	0.3	1	-	9.5	0.9	-	4	37.8	0.3
Tubificidae												
Unidentified immature with cap. chaetae	10	6	151.2	4.2	-	4	37.8	3.7	20	12	302.4	2.5
Unidentified immature without cap. chaetae	98	85	1729.4	48.4	21	16	349.6	33.9	640	400	9828.0	82.8
Aulodrilus pigueti	-	4	37.8	1.0	-	-			-	-		
Branchiura sowerbyi	1	-	9.5	0.3	-	-			-	-		
Ilyodrilus templetoni	1	1	18.9	0.5	-	-			8	-	75.6	0.6
Limnodrilus cervix variant	9	3	113.4	3.2	1	1	18.9	1.8	16	16	302.4	2.5
L. claparedeianus	-	-			1	-	9.5	0.9	-	-		
L. hoffmeisteri	40	42	774.9	21.7	5	3	75.6	7.3	32	24	529.2	4.5
L. maumeensis	20	19	368.6	10.3	3	-	28.4	2.8	-	-		
L. udekemianus	1	-	9.5	0.3	-	1	9.5	0.9	8	8	151.2	1.3
Peloscolex multisetosus longidentus	-	-			-	-			-	4	37.8	0.3
Insecta												
Chironomidae												
Chironominae												
Cryptochironomus sp.	-	3	28.4	0.8	-	-			-	-		
Polypedilum simulans type	-	-			1	1	18.9	1.8	-	-		
Tanypodinae												
Coelotanypus sp.	1	-	9.5	0.3	-	-			-	-		
Procladius sp.	7	22	274.0	7.7	-	-			32	28	567.0	4.8
Tanypus stellatus	2	2	37.8	1.0	-	-			-	-		
Mollusca												
Pelecypoda												
Corbiculidae												
Corbicula fluminea	-	-			8	42	472.5	45.9	4	-	37.8	0.3
TOTAL BENTHOS			3572.4				1030.2				11869.2	

TABLE 3.2-9 NUMBER PER REPLICATE, MEAN NUMBER PER METER SQUARE AND PERCENT OCCURRENCE OF BENTHIC MACROINVERTEBRATES AT THREE LOCATIONS NEAR THE DRESDEN STATION, 25 AUGUST 1981.

Taxon	Location 5 No./Replicate A	Location 5 No./Replicate B	Location 5 Mean no./m^2	Location 5 %	Location 7 No./Replicate A	Location 7 No./Replicate B	Location 7 Mean no./m^2	Location 7 %	Location 9 No./Replicate A	Location 9 No./Replicate B	Location 9 Mean no./m^2	Location 9 %
Oligochaeta												
Naididae												
Dero sp.	1	1	18.9	1.8								
Wapsa mobilis					1		9.5	0.4				
Tubificidae												
Unidentified immatures with cap. chaetae	6	1	66.1	6.4	3	2	47.2	2.1	8		75.6	6.5
Unidentified immature without cap. chaetae	16	11	255.1	24.8	36	34	661.5	29.0	16	68	793.8	67.7
Aulodrilus pigueti	2	1	28.3	2.8	5	2	66.1	2.9		4	37.8	3.2
Ilyodrilus templetoni		2	18.9	1.8								
Limnodrilus cervix		1	9.5	0.9	3		28.3	1.2				
L. cervix variant					3	4	66.1	2.9				
L. claparedeianus					6		56.7	2.5	4		37.8	3.2
L. hoffmeisteri	10	10	189.0	18.4	12	11	217.4	9.6		4	37.8	3.2
L. maumeensis	12	6	170.1	16.5	4	4	75.6	3.3	4		37.8	3.2
L. udekemianus		1	9.5	0.9	5	1	56.7	2.5				
Peloscolex multisetosus longidentus		1	9.5	0.9					8		75.6	6.5
P. m. multisetosus										4	37.8	3.2
Insecta												
Diptera												
Chironomidae												
Chironominae												
Cryptochironomus sp.	5	4	85.0	8.3	1	2	28.3	1.2				
Polypedilum scalaenum type						1	9.5	0.4				
P. simulans type						1	9.5	0.4				
Tanypodinae												
Procladius sp.	11	6	160.6	15.6						4	37.8	3.2
Mollusca												
Pelecypoda												
Corbiculidae												
Corbicula fluminea	1		9.5	0.9	46	54	945.0	41.5				
TOTAL BENTHOS	64	45	1030.0		125	116	2277.4		40	84	1171.8	

TABLE 3.2-10 NUMBER PER REPLICATE, MEAN NUMBER PER METER SQUARE AND PERCENT OCCURRENCE OF BENTHIC MACROINVERTEBRATES AT THREE LOCATIONS NEAR THE DRESDEN STATION, 15 SEPTEMBER 1981

	Location 5				Location 7				Location 9			
	No./Replicate		Mean		No./Replicate		Mean		No./Replicate		Mean	
Taxon	A	B	no./m^2	%	A	B	no./m^2	%	A	B	no./m^2	%
Nematoda	1		9.5	0.2		8	75.6	4.6	8	4	113.4	1.4
Oligochaeta												
Naididae												
Dero sp.		8	75.6	2.1								
Tubificidae												
Unidentified Immatures with												
cap. chaetae	7	11	170.1	4.6		12	113.4	6.9	24	8	302.4	3.6
Unidentified Immatures without												
cap. chaetae	111	140	2372.0	64.4		104	982.8	59.8	220	272	4649.4	55.6
Aulodrilus pigueti	21	36	538.6	14.6					120	48	1587.6	19.0
Branchiura sowerbyi						4	37.8	2.3	4		37.8	0.4
Ilyodrilus templetoni	1	1	18.9	0.5								
Limnodrilus cervix variant	4	4	75.6	2.1		20	189.0	11.5	20	8	264.6	3.2
L. hoffmeisteri	8	13	198.5	5.4		8	75.6	4.6	52	40	869.4	10.4
L. maumeensis	4	5	85.0	2.3		12	113.4	6.9	8	12	189.0	2.3
L. udekemianus	2	2	37.8	1.0		4	37.8	2.3	4	8	113.4	1.4
Peloscolex multisetosus longidentus									16		151.2	1.8
Insecta												
Diptera												
Chironomidae												
Chironominae												
Cryptochironomus sp.		2	18.9	0.5					8		75.6	0.9
Tanypodinae												
Procladius sp.	2	7	85.0	2.3								
Mollusca												
Pelecypoda												
Corbiculidae												
Corbicula fluminea					2		18.9	1.1				
TOTAL BENTHOS	161	229	3685.5		2	172	1644.3		484	400	8353.8	

TABLE 3.2-11 MEAN DENSITY (NO./m^2) AND RANGE FOR UNIDENTIFIED IMMATURE TUBUFICIDAE WITHOUT CAPILLIFORM CHAETAE AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

	Location 6		Location 7		Location 9	
Date	Mean Density	Range	Mean Density	Range	Mean Density	Range
23 June	1,379.7	1,360.8-1,398.6	2,910.6	1,814.4-4,006.8	3,638.3	2,683.8- 4,592.7
21 July	1,729.4	1,606.5-1,852.2	349.6	302.4- 396.9	9,828.0	7,560.0-12,096.0
25 August	255.1	207.9- 302.4	661.5	642.6- 680.4	793.8	302.4- 1,285.2
15 September	2,372.0	2,097.9-2,646.0	982.8	0.0-1,965.6	4,649.4	4,158.0- 5,140.8
MEAN	1,434.0		1,226.1		4,727.4	

TABLE 3.2-12 MEAN DENSITY (NO./m^2) AND RANGE FOR UNIDENTIFIED IMMATURE TUBUFICIDAE WITH CAPILLIFORM CHAETAE AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

	Location 5		Location 7		Location 9	
Date	Mean Density	Range	Mean Density	Range	Mean Density	Range
23 June	293.0	207.9-378.0	264.6	226.8-302.4	396.9	321.3-472.5
21 July	151.2	113.4-189.0	37.8	0.0- 75.6	302.4	226.8-378.0
25 August	66.1	18.9-113.4	47.2	37.8- 56.7	75.6	0.0-151.2
15 September	170.1	132.3-207.9	113.4	0.0-226.8	302.4	151.2-453.6
MEAN	170.1		115.8		269.3	

TABLE 3.2-13 MEAN DENSITY (NO./m^2) AND RANGE FOR *LIMNODRILUS HOFFMEISTERI* AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

Date	Location 5 Mean Density	Location 5 Range	Location 7 Mean Density	Location 7 Range	Location 9 Mean Density	Location 9 Range
23 June	510.3	453.6-567.0	982.8	982.8-982.8	463.1	283.5-642.6
21 July	774.9	756.0-793.8	75.6	56.7- 94.5	529.2	453.6-604.8
25 August	189.0	189.0-189.0	217.4	207.9-226.8	37.8	0.0- 75.6
15 September	198.5	151.2-245.7	75.6	0.0-151.2	869.4	756.0-982.8
MEAN	418.2		337.8		474.9	

TABLE 3.2-14 MEAN DENSITY (NO./m^2) AND RANGE FOR *LIMNODRILUS MAUMEENSIS* AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

Date	Location 5 Mean Density	Location 5 Range	Location 7 Mean Density	Location 7 Range	Location 9 Mean Density	Location 9 Range
23 June	444.0	378.0-510.3	226.8	151.2-302.4	-	
21 July	368.6	359.1-378.0	28.4	0.0- 56.7	-	
25 August	170.1	113.4-226.8	75.6	75.6- 75.6	37.8	0.0- 75.6
15 September	85.0	75.6- 94.5	113.4	0.0-226.8	189.0	151.2-226.8
MEAN	266.9		110.1		56.7	

TABLE 3.2-15 MEAN DENSITY (NO./m^2) AND RANGE FOR LIMNODRILUS CERVIX VARIANT AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

Date	Location 5 Mean Density	Location 5 Range	Location 7 Mean Density	Location 7 Range	Location 9 Mean Density	Location 9 Range
23 June	47.3	18.9- 75.6	151.2	75.6-226.8	274.1	226.8-321.3
21 July	113.4	56.7-170.1	18.9	18.9- 18.9	302.4	302.4-302.4
25 August	-		66.1	56.7- 75.6	-	
15 September	75.6	75.6-75.6	189.0	0.0-378.0	264.6	151.2-378.0
MEAN	59.1		106.3		210.3	

TABLE 3.2-16 MEAN DENSITY (NO./m^2) AND RANGE FOR *AULODRILUS PIGUETI* AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

	Location 5		Location 7		Location 9	
Date	Mean Density	Range	Mean Density	Range	Mean Density	Range
23 June	170.1	37.8-302.4	113.4	0.0-226.8	56.7	18.9- 94.5
21 July	37.8	0.0- 75.6	-		-	
25 August	28.3	18.9- 37.8	66.1	37.8- 94.5	37.8	0.0- 75.6
15 September	538.6	396.9-680.4	-		1,587.6	907.2-2,268.0
MEAN	193.7		44.9		420.5	

TABLE 3.2-17 MEAN DENSITY (NO./M^2) AND RANGE FOR TOTAL CHIRONOMIDAE AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE-SEPTEMBER 1981

	Location 5		Location 7		Location 9	
Date	Mean Density	Range	Mean Density	Range	Mean Density	Range
23 June	47.3	18.9-75.6	-		37.8	18.9-56.7
21 July	349.6	189.0-510.3	18.9	18.9-18.9	567.0	529.2-604.8
25 August	245.6	189.0-302.4	47.3	18.9-75.6	37.8	0-75.6
15 September	103.9	37.8-170.1	-		75.6	0.0-151.2
MEAN	186.6		16.6		179.6	

TABLE 3.2-18 MEAN DENSITY (NO./m^2) AND RANGE FOR CORBICULA FLUMINEA AT THREE LOCATIONS NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981

Date	Location 5 Mean Density	Location 5 Range	Location 7 Mean Density	Location 7 Range	Location 9 Mean Density	Location 9 Range
23 June	-		-		-	
21 July	-		472.5	151.2 - 793.8	37.8	0.0-75.6
25 August	9.5	0.0-18.9	945.0	869.4-1,020.6	-	
15 September	-		18.9	0.0 - 37.8	-	
MEAN	2.4		359.1		9.5	

3.3 FISH MONITORING

3.3.1 Introduction

Monitoring studies of the fish populations in the vicinity of the Dresden Station have been conducted each year since 1971. These studies have provided information on species composition, abundance, distribution and condition of fishes in the study area as they related to various station operating modes. Over the 10 year period, additions were made in the monitoring design which have increased sampling intensity, sampling locations and the use of a variety of gear in an effort to better address the issue of station impact on the local fish community near the Dresden Station.

The 1981 fish monitoring program represented a continuation of the previous monitoring studies with the overall objective of assessing the effects of station operation, under indirect open cycle mode, on the fish community in the adjacent river systems. The study period coincided with the 15 June through 30 September period that CECo was granted permission by the IEPA to operate indirect open cycle at the Dresden Station. The sampling area included the Kankakee and Des Plaines Rivers, Dresden Island Pool of the Illinois River and below Dresden Island Lock and Dam.

The specific objectives of the study were: (1) to document the species composition and relative abundance of fish at 13 locations in the river system; (2) to determine the distribution of fish within the study area; (3) to determine the coefficient of condition of selected fish species at each location; (4) to document the incidence of external parasites, diseases and physical abnormalities of fish at each location; and (5) to compare these variables among the locations. These objectives provide for a continuation of the historical data base and documentation of long-term trends in the Dresden area. Comparison of data among locations was used: (1) to determine if indirect open cycle operation affected fish distribution in the Dresden Pool, and, (2) to document differences in species diversity and fish abundance among locations above, within and below the station's discharge to the Illinois River. Differences in habitat for locations upstream and downstream from the Dresden Island Lock and Dam were also addressed.

3.3.2 Field and Analytical Procedures

3.3.2.1 Field Procedures

Sampling for fish was conducted at 13 locations in the study area (Figure 3.1-1 and Table 3.1-1). Locations 1, 2, 5, 6, 7, 9 and 10 were upstream of the Dresden Island Lock and Dam and Locations 11, 12, 13, 14, 15, and 16 were downstream of the lock and dam. Fish samples were collected once during the last two weeks in June and within the first two weeks and last two weeks of July, August and September using each gear type. Sample periods within a month and between months were separated by at least one week.

Electrofishing

Electrofishing was conducted with a boat-mounted electrofishing system. The system was energized with a 3000 watt, 230V three phase AC generator.

Sampling was conducted along the shoreline at each of the specified locations (1, 2, 5, 6, 7, 9, 10, 11, 12, 13, 14, and 15). At Location 6, sampling encompassed the entire area immediately in front of Units 2/3 discharge canal up to the chain link fence. Electrofishing at each location was conducted for approximately 15 minutes in an upstream direction. The upstream and downstream boundaries of each location were identified with location markers. All electrofishing and seining samples were collected within a consecutive two-day period with the exception of the first period when seining was not accomplished until the third day.

Seining

Seining was conducted at Locations 1, 2, 5, 7, 9, 10, 11, 12, 13, 14, and 15. A seine, 25 ft in length and 6 ft in depth with a 0.25 in. mesh was used along the shoreline. The sampling distance depended upon the seinable area available at each location and was kept constant, to the extent possible, during each sampling period.

Gill Netting

Single samples (one overnight set) were collected at Locations 1, 2, 5, 7, 9, 10, 11, 12, 13 and 16 for each sample period. The nets were 125 ft long by 6 ft deep and consisted of five panels of nylon monofilament netting with bar mesh sizes ranging from 0.5 to 3 in. at 0.5 in. intervals without the 2.5 in. bar mesh. The nets were set during the afternoon of each date sampled and retrieved the following morning. Gill nets were set perpendicular to the shoreline at Locations 1, 2, 5, 7, 9, 10 and 16 whenever possible. At Locations 11 and 13, the gill net was deployed in a downstream direction at an angle from the shoreline. Gill net Location 12 was at the downstream end of electrofishing Location 12 and the net extended off the tip of Dresden Island, parallel to the shoreline. Changes in the positioning of the nets occurred (i.e., nets were set parallel to the shoreline instead of at an angle) when low river level and/or barge traffic interfered with proper setting of the nets. The duration of the net set at each location was recorded at the time of net retrieval. Three nets were either not recovered or pulled prior to the completion of the set time during the course of the study.

Fish Processing

Individual total length measurements (mm) and weights (g) of fish were recorded in the field for each species collected by electrofishing, seining and gill netting at each location. All fish were identified, weighed, measured, and counted. Weights were not taken of minnow species. When 100 individuals of a species were collected at any location by any single gear, all fish were counted, measured, and subsampled for weight using the following procedure. A minimum of 100 individuals were weighed based on an interval calculated from the total number captured divided by 100. For example, when 500 individuals of a species were captured, then every fifth fish was weighed. The total weight of the remaining individuals was recorded. When the number of fish was between 100 and 200, weights were taken in a systematic manner such that 100 individuals were weighed. A maximum of 10 fish of the following selected species, carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), carp x goldfish, shorthead redhorse (Moxostoma macrolepidotum), and smallmouth bass (Micropterus dolomieui) which were collected at each location and by each sampling gear were examined for sex determination and maturity. The sex and stage of gonadal development were recorded using the following criteria:

1. Immature - young individuals not yet engaged in reproduction; very small sexual organs close under the vertebral column; sex usually not apparent to the naked eye;

2. Mature - sexual organs well-developed; ovaries with eggs clearly discernible; testes reddish-white;

3. Ripe - sexual organs filling ventral cavity; testes white; gonads achieved maximum weight, but sexual products not extruded even with light pressure;

4. Ripe and Running - roe and milt run with slight pressure; most eggs translucent; and,

5. Spent - testes and ovaries empty; a few eggs in state of reabsorption; gonads with appearance of deflated sacs.

Most fish were processed in the field immediately after collection and returned to the river. Some non-sport fish were preserved in formalin and returned to the laboratory for processing: included were specimens requiring taxonomic verification and small fish from seine catches. All fish were examined either in the field or the laboratory to determine the incidence of external disease, parasites and physical abnormalities. A reference collection of most species obtained from electrofishing, seining, and gill netting was compiled. All muskellunge (Esox masquinongy), walleye (Stizostedion vitreum), striped bass (Morone saxatilis), white bass (Morone chrysops), sauger (Stizostedion canadense) and smallmouth bass collected were preserved, identified as to date, sampling gear and location of capture, and delivered to Southern Illinois University personnel.

Field and laboratory personnel kept complete and permanent records and followed EAI's chain-of-custody procedures, in conjunction with the quality assurance program, at all times.

3.3.2.2 Laboratory Procedures

Some fish were returned to the laboratory for analysis. Measuring, counting, and subsampling procedures were the same as those described for the field.

3.3.2.3 Data Handling and Analysis

Most fish data were computer processed using appropriate quality control procedures and verified and documented programs that are part of EAI's "FRESH" software package. Data processed manually followed EAI's quality assurance procedures as specified in the Fisheries Procedures Manual (EAI 1981a). Data summaries were presented following table formats approved by CECo.

Electrofishing data were reported as number, catch-per-unit-effort (CPE per hour of electrofishing) and percent abundance for each species. Data were separated by area (above and below the lock and dam) location and sampling period. Data obtained by seining were reported as number and percent abundance for each species by area, location and sampling period. Data obtained by gill netting were reported as number, percent abundance, and catch-per-unit-effort for each species during an eight-hour sample period; these data were also separated by area, location and sampling period. Summaries of the catch data for each gear type were prepared for combined dates. Total number of fish, average CPE and percent abundance were included in the summaries. Tables which include the letters "AD" after the scientific name of fish species denotes the term "adult" because of the computer program requirement for identifying fish by life stage. These letters do not signify that all of the fish collected are adults and the notation should simply be ignored.

Coefficient of condition (K-factors) were determined for species which were sexed using the equation described by Carlander (1977):

$$K_{(TL)} = \frac{W \times 10^5}{L^3}$$

where:

$K_{(TL)}$ = coefficient of condition where total length is used
W = weight in grams
L = total length in millimeters

Fish from electrofishing, seining and gill netting were combined by month for K-factor and data were reported as mean values for each location. The incidence of external parasites, diseases, and physical abnormalities were reported for each species as number and percent affected at each location and total catch by sampling date.

3.3.2.4 Physicochemical Measurements

Dissolved oxygen concentrations and water temperatures were measured at the surface, at subsequent 1-m depth intervals and at the bottom of each sampling location where depth permitted, but only at mid-depth where water was 1-m or less in depth. Measurements were taken on each sampling day at those locations where sampling was conducted. Specific conductivity measurements were also taken at each electrofishing location during each sampling period. Dissolved oxygen, temperature, and conductivity measurements were taken using a calibrated Hydrolab Water Quality Measurement System. The instrument was calibrated in the field before and after each sampling effort (see Section 2.2.2). Calibration results are reported in Appendix F. Percent oxygen saturation was determined from the relationship of dissolved oxygen in the water and the water temperature.

3.3.2.5 Station Operating Status, Cooling Water and River Flows

Daily station operating status (megawatt output) of Units 2 and 3 and cooling water flows were supplied by CECo. for the period of 15 June through 30 September. Cooling water usage at Units 2 and 3 was based on the number of circulating water pumps in operation each day and the rated capacity

(157,000 gpm) of each pump. The number of lift station pumps that transfer the cooling water from the station discharge canal to the cooling pond was assumed to be generally equal to the number of circulating water pumps in operation. The daily water flow (cu. ft./sec.) in the lower Kankakee and Des Plaines rivers and the upper Illinois River (Dresden Pool) was determined from flow measurements obtained at gaging stations on the Kankakee River at Wilmington and Illinois River at Dresden Island Lock and Dam. The flow of the Des Plaines River was based on the difference in flow between the Kankakee and Illinois rivers.

3.3.3 Results and Discussion - Dresden Pool

3.3.3.1 Review of Catch Results

A total of 52 fish taxa, represented by 47 species, 2 genera, 1 family and 2 hybrids, was collected in the vicinity of Dresden Station during the 22 June through 23 September 1981 sampling period (Table 3.3-1). Of the three gear types used, electrofishing was most productive in terms of both variety and number of fish collected. Forty-six taxa, totaling 2,278 fish, were collected by electrofishing at the seven locations surveyed (Table 3.3-2). Seining at six locations produced 29 taxa totaling 603 fish (Table 3.3-3), while gill netting yielded 21 taxa and 522 fish (Table 3.3-4).

Rough and forage fish made up most of the catch in the study area. Thirty-five percent of the 3,403 fish collected were gizzard shad (*Dorosoma cepedianum*), 20 percent were emerald shiners (*Notropis atherinoides*), and 15 percent were carp.

The most complete description of the spatial distribution and abundance of fish in the study area was provided in the electrofishing data. Gill net data provided supportive information on the spatial abundance of carp. Although a greater number of carp were collected in gill nets than by electrofishing, the proportion within each location was similar, except at Location 9 where carp were more effectively sampled by electrofishing. Goldeye (*Hiodon alosoides*) was the only species collected solely in gill nets. Seining data documented the occurrence of several species which were not collected with other gear. Seining data also revealed that emerald shiners were more abundant at Locations 1 and 2 than was indicated by the electrofishing data; the two methods revealed that the emerald shiner was an abundant species throughout the study area.

3.3.3.1.1 Electrofishing

The dominant species collected by electrofishing were gizzard shad, emerald shiner, green sunfish (*Lepomis cyanellus*) and carp (Table 3.3-2). These fish constituted 77 percent of the total catch. By weight, greatest catches were for carp, gizzard shad, and carp x goldfish hybrid (most minnow species were not weighed). These fish accounted for 70 percent of the total weight of the fishes that were weighed.

A comparison of the total electrofishing catches among the seven locations revealed little difference in the total catch-per-unit-effort (CPE) and number of species, except at Location 6 (discharge) (Table 3.3-5). The total

CPE at Location 6 was at least double the CPE at the other six locations and an additional four to nine species of fish per collection period were encountered at Location 6 as well. Sunfishes (Centrarchidae), especially green sunfish and bluegill (Lepomis macrochirus), and emerald shiners were particularly more abundant at Location 6 and accounted for the greater total CPE at that location. Spatial differences were also noted for other species in the study area. Carp x goldfish hybrids were commonly found only at Location 1 (Des Plaines River). Redhorses were well represented at Locations 1, 2, 5 and 10 but were particularly scarce at Location 6 and low in abundance at Locations 7 and 9. Redhorses were common in the gill net catches at Location 7 (Section 3.3.3.1.3), however, indicating that they were probably more abundant at that location than was shown by the electrofishing data. In contrast, there was little difference in the spatial distribution of gizzard shad and carp in the study area.

3.3.3.1.2 Seining

The dominant species collected by seining were gizzard shad and emerald shiners (Table 3.3-3). Excluding most of the minnow species which were not weighed, the dominant fishes by weight were gizzard shad, carp x goldfish, freshwater drum (Aplodinotus grunniens), white crappie (Pomoxis annularis) and carp.

The total seining catches were comparable among Locations 1, 2, 5 and 10, ranging from 73 to 102 fish (Table 3.3-6). The greatest total catch was obtained at Location 7 whereas Location 9 yielded the smallest catch. Most gizzard shad were collected at Location 7 and accounted for the greater total catch at that location than at the other five locations. The emerald shiner was the dominant species at Locations 1, 2 and 5 and along with gizzard shad, made up most of the catch at Location 10. The most abundant species collected at Location 9 was freshwater drum. Little difference was observed in the number of species among locations, except at Location 2, where the number was noticeably larger.

3.3.3.1.3 Gill Netting

Carp was the dominant species collected in gill nets; it accounted for 57 percent of the numerical catch and 66 percent of the catch by weight (Table 3.3-4). Following carp in numerical abundance were gizzard shad, shorthead redhorse and carp x goldfish hybrid. These three taxa accounted for 20 percent of the total number and 13 percent of the total weight.

Some notable differences occurred in the spatial distribution and abundance of gill net catches in the study area. The number of species collected at each location was quite variable, ranging from 16 species at Location 7 to 4 species at Location 10 (Table 3.3-7). The total catch varied from 10 fish/8 hours of gill netting at Location 7 to 2 fish/8 hours at Locations 2 and 9. Carp was the major species collected at all locations although the numbers captured at Locations 1 and 7 were substantially greater than at the other four locations. Other fishes which made up a substantial part of the total catch at one or more locations were carp x goldfish hybrid at Location 1 and gizzard shad at Locations 2 and 5 Most redhorse spp. were collected at Locations 5 and 7.

3.3.3.2 Physicochemical Measurements

Water temperature, dissolved oxygen concentration (DO) and conductivity were measured in conjunction with each fisheries survey. Temperature followed a consistent and predictable pattern throughout the study period. The lowest temperatures were consistently measured at upstream Locations 2 and 5 (Tables 3.3-8 through 3.3-11). Temperatures were $\leq$1 C different between the two locations on most dates, although in mid-August and late September, the temperature at Location 5 was 1 to 2 C higher than at Location 2. During these periods Kankakee River flow was relatively low (Section 4.0, Table 4.4-1) and the Location 5 sampling area probably represented a mixture of Kankakee and Des Plaines Rivers' water. The highest temperatures were measured at the discharge (Location 6) on the seven dates that measurements were taken there. Discharge temperatures were 3.7 to 7.5 C higher than at Location 2 and 1.1 to 7.2 C higher than at Location 5. On most dates the difference was >4 C. Temperatures at Locations 7, 9 and 10 (downstream of the discharge) were under influence of the thermal plume during six of seven sampling periods. Of the three downstream locations, the thermal influence was most evident at Location 7. Temperatures at Location 7 were 1.3 to 3.5 C lower than at the discharge but 0.8 to 4.8 C higher than at Locations 2 and 5 (one exception to this trend occurred on 21 September when the temperature at the discharge was lower than at Locations 7, 9 and 10). On 10 additional dates (temperatures were not measured at the discharge), temperatures at Location 7 were 0.1 to 4.2 C higher than at Locations 2 and 5. Temperatures at Location 9 (directly downstream from Location 7) were 0.1 to 3.2 C lower than at Location 7 with the greatest difference occurring from mid-June through mid-August. Temperatures at Location 10 (across the river from Location 7) were generally comparable to or slightly higher ($\leq$0.6 C) than at Location 9. Temperatures in the Des Plaines River at Location 1 were 0.6 to 4.8 C higher than in the Kankakee River at Location 2 and frequently >2 C higher. Compared to the discharge, temperatures at Location 1 were 0.2 to 3.7 C lower and generally the difference was $\geq$2 C. Compared to the locations affected by the thermal plume, temperatures at Location 1 were generally higher than at Locations 9 and 10 but lower than at Location 7.

Dissolved oxygen concentrations (DO) at upstream Locations 2 and 5, discharge Location 6 and below the discharge at Location 7, were generally similar from mid-June through mid-August (Tables 3.3-8 through 3.3-11). During this period, DO typically exceeded 7 mg/l. DO was generally slightly lower at Location 9 (6 to 7 mg/l, on most dates) and the lowest DO occurred at Locations 1 and 10 (generally 5.5 to 6.5 mg/l). DO at Location 1 and 10 did not vary much through September but changes were evident at Locations 2, 5 and 6. DO gradually increased from mid-August through September at Location 2 with the highest DO's measured in late September. In contrast, the DO at Location 5 decreased and was <7 mg/l by late September. During this period, Kankakee River flow was relatively low and the Location 5 sampling area probably represented a mixture of Kankakee and Des Plaines Rivers' water. DO at the discharge remained comparable to the DO in the Kankakee River during this period.

Conductivity generally ranged from 400 to 700 μmhos/cm but reached as high as 780 μmhos/cm during the study period (Tables 3.3-8 through 3.3-11). Conductivity was generally comparable at Locations 2, 5, 6, 7 and 9 although notable exceptions occurred, particularly at Location 2 in late September. Conductivity at Locations 1 and 10 was generally comparable and frequently higher than at the other five locations.

3.3.3.3 Spatial and Temporal Distribution of Fish

Fish were typically most abundant at Locations 6 and 7 which also generally exhibited the highest temperatures. This was particularly true at the discharge (Location 6). Location 7 exhibited a similar relationship but not as pronounced. The more random distribution of fish in the study area in late September coincided with an absence of a well-defined thermal plume in the Illinois River. Although Location 1 exhibited higher temperatures than at most locations, catches were frequently as small or smaller than at other locations where temperatures were consistently lower which demonstrates that temperature was not the sole contributing factor associated with the spatial distribution of fishes in the study area.

Location 6 produced the greatest variety of fish by electrofishing on all but one sampling date, although location differences were generally not substantial (Tables 3.3-12 through 3.3-18). Catches of fish at Location 6 were 1.9 to 4.7 fold greater than at the other six locations from mid-June through August. In September the greatest catches were at Location 2 or 5. Catches at Location 7 were consistently greater than at most other locations, although the differences were not substantial. On most dates there were one to two locations that produced much smaller catches although there was no pattern among locations during the study.

The major differences in catches between Location 6 and other locations in June and July were for green sunfish and bluegill. Emerald shiner and in some instances gizzard shad also accounted for some of the difference. Fish were not as concentrated at Location 6 in September as in previous months; rather, they were more evenly distributed within the study area. Gizzard shad was the dominant species at all locations in early September and along with emerald shiner constituted most of the catch in late September.

Gill net and seine data provided limited information on the spatial and temporal distribution of fishes in the study area because: (1) sampling was excluded at the discharge, and (2) neither gear type was very effective in capturing most fishes. Gill nets were most effective for capturing carp. Fish (primarily carp) were most abundant at Locations 7 and 1 from June through August (Tables 3.3-19 through 3.3-23). Location 5 produced the greatest catches in September followed by either Location 1 or 7 (Tables 3.3-24 and 3.3-25). Again, carp was the dominant species at Locations 1 and 7 whereas at Location 5, gizzard shad, followed by carp and goldeye, were dominant.

Seine catches were small on most sampling dates (Tables 3.3-26 through 3.3-32). Gizzard shad accounted for most of the seine catches in June and July; most individuals were collected at Location 7 on 24 June. Emerald shiner dominated the catches in August and September with Locations 2 and 5 generally producing the most fish.

3.3.3.4 Coefficient of Condition

The coefficient of condition (K-factor), a measure of the relative robustness or plumpness of fish, was determined for carp, carp x goldfish hybrid, goldfish, shorthead redhorse and smallmouth bass (Table 3.3-33). Mean K-factors for adult carp were largest in June, ranging from 1.40 to 1.66. There were no consistent differences in K-factors between males and females and values were comparable for both sexes at all locations. Slightly smaller values were observed at most locations in July. K-factor values were comparable for adult fish during August and September. Values were lower than the preceding months, ranging from 1.22 to 1.50, with no consistent differences between the sexes. Values were similar among locations in both months. K-factors for immature carp were variable over the four month period, but were generally slightly smaller than for the adult fish. Values varied among locations but no consistent differences were evident.

During June and July, most K-factor values were similar for adult carp x goldfish hybrids, ranging from 1.51 to 1.87. No consistent differences were apparent between males and females although values for females were slightly higher (range: 1.65 to 2.22) than those observed for males (1.54 to 1.87). Values decreased in August and September (1.35 to 1.81) with few consistent differences between males and females. In both months, K-factors for both sexes were variable among locations. Seven immature carp x goldfish hybrids were collected during the four month period. K-factors among the immatures were generally similar to or slightly smaller than for adult fish during the same period. No distribution differences were evident due to the small number of immature fish collected.

Six goldfish, all adults, were collected and analyzed for K-factors during the study. The K-factor value observed for female fish in June was higher (2.93) than for males (1.59). One female collected in July had a K-factor of 3.39. The two males collected in September had a mean K-factor of 2.60. The small sample size precluded any discussion of distributional differences.

K-factors for adult shorthead redhorse were similar for June and July, ranging from 0.83 to 1.13. Values were more variable for adults in August (0.61 to 1.01) and September (0.66 to 1.04). Differences between males and females were not consistent during the four month period. Values among locations were variable during all months. K-factors for immature shorthead redhorse were similar to those observed for adult fish during all months.

K-factors for the two adult smallmouth bass captured in July differed widely (0.94 and 1.77) but values were similar among the fish captured in August and September, ranging from 1.13 to 1.37. Distributional differences were not apparent from the small sample size. Values for immature fish were fairly consistent from June through September with most values falling within a range of 0.94 to 1.30. Although fewer fish were collected in June and August, the similarity in K-factors of immature smallmouth bass collected during July and September at all locations suggest few spatial differences over the four month period.

3.3.3.5 Incidence of Disease, Parasitism and Abnormalities of Fish

Diseases, parasites and physical abnormalities were identified from 156 fish (4.6 percent of total catch) representing 17 species and one hybrid (Tables 3.3-34 through 3.3-40). The most frequent disorders of fish (75 percent of all disorders identified) were primarily deformed, eroded and/or missing fins. Nearly all 17 species were affected with a fin disorder; more commonly affected species were carp, carpsuckers, buffalo and redhorses.

Physical injuries and deformities represented approximately 19 percent of all disorders. Injuries, in the form of lacerations, lesions, etc., occurred on carp, channel catfish, largemouth bass and redhorses. Physical deformities of knothead and scoliosis affected carp, redhorses and gizzard shad.

Parasites were the most infrequent of all disorders identified; they were encountered on only eight fish. Leeches occurred on channel catfish and shorthead redhorse, with only one incidence each of blackspot, white spot and anchor worm affecting bullhead minnow, shorthead redhorse, and carp, respectively.

Few spatial differences in the incidence of disorders were observed during the study. Generally, occurrence of disorders at locations below the confluence of the Des Plaines and Kankakee Rivers was variable. A slightly higher incidence of disorders was noted for fish collected at Location 1 than at locations in the Kankakee River. The difference was generally associated with the greater numbers of more commonly affected species collected at that location.

3.3.3.6 Changes in the Fish Community in the River System

Monitoring studies of the fish populations at the confluence of the Kankakee and Des Plaines Rivers and in Dresden Island Pool of the upper Illinois River have been conducted annually since 1971. The initial program was limited to seining at three locations (Locations 2, 5 and 7). Over the 11 year period, locations and collection methods were added to the sampling program to enhance the data base and to gather more specific information on the effects of station operation on the local fish community. During this time span, the station has been operating with either two or all three units. Unit 1, which began operation in 1960, was operational through October 1978 but has been out of service since that time. Units 2 and 3 were put into service in August 1970 and November 1971, respectively, and have been operational since that time. The operating mode of Unit 1 was exclusively open cycle. Units 2 and 3, which share a common intake separate from Unit 1, were designed with a cooling water system that has the capacity to operate both closed and open cycle. Upon completion of the spray canal, cooling pond systems, and Unit 3 in 1971, indirect open cycle operation began and continued until October 1974 when the station went to closed cycle operation. Since that time closed cycle has been the principal mode of operation. In July 1977, the Thermal Compliance Plan was approved by the USEPA which allowed the Dresden Station to operate under the daily adjusted variable blowdown scheme during the summer months through 1980. In 1981 CECo was granted permission to operate indirect open cycle from 15 June through 30 September. The following discussion addresses the changes observed in the fish community in the river system over an 11 year period of operation of the Dresden Station.

Electrofishing has been conducted since 1974 and has provided the most complete data on the fish community in the river system near the Dresden

Station. In comparing the changes in the fish community composition and abundance and station operation, no relationship has been apparent with the possible exception of 1981. Over the eight year period the number of species collected at some locations has consistently increased whereas at other locations the number has varied (Tables 3.3-41 through 3.3-47). There has not been a trend toward a decreasing number of species at any location. Locations 1 and 10 have shown the most dramatic increase from 1974 to 1981. At both locations the number of species has approximately doubled since 1974. A trend toward increased numbers of species has also been evident at Locations 5 and 6 in recent years with the exception of 1980 when the number decreased.

The overall trend in abundance of fish in the study area has been relatively consistent at each location. Catches typically increased steadily for three or four years then began to decline in either 1977 or 1978 and continued to decline in 1978 or 1979. Catches either remained low or began to increase in 1980, followed by a substantial increase at all but one location in 1981. The 1981 increase coincided with a change in station operation from variable blowdown to indirect open cycle mode.

Gizzard shad and carp have accounted for most differences in fish abundance in the study area over the eight-year-period. Gizzard shad in particular accounted for the increase in fish abundance in the study area in 1981. Emerald shiners have contributed to some of the differences but only at some locations. Green sunfish and bluegill have also contributed to the changes in fish abundance at the discharge (Location 6). Other species have had relatively low abundance throughout the eight year period with only occasional exceptions. The goldfish has been relatively uncommon at locations in the Kankakee River and Dresden Island Pool but was abundant in the Des Plaines River at Location 1 in 1974. Goldfish abundance has continually declined since 1974, however. This trend has also been reported for goldfish in the lower Des Plaines River during the 1978-1981 period (Ecological Analysts, Inc. 1981b).

Seine catches have been variable over the 11 study years both in terms of diversity and abundance of fish (Tables 3.3-48 through 3.3-52). There has not been any distinct trend toward increasing or decreasing numbers of fish over the 11 year period. The emerald shiner has been the dominant species in the seine catches at most locations. Other species, such as gizzard shad, bullhead minnow and bluntnose minnow, have also contributed substantially to the annual catches at several locations in one or more years and in some years has been the dominant species.

Gill netting was conducted in the study area only in 1980 and 1981. In both years carp have been the dominant species collected at all locations (Table 3.3-53). Gizzard shad has also been a dominant species at Location 2 in both years. The greatest catches have been recorded at Locations 1 and 7 in both years. Lower catches have been recorded at all locations in 1981 than in 1980.

3.3.4 Results and Discussion - Below Dresden Island Lock and Dam

3.3.4.1 Review of Catch Results

A total of 48 taxa, represented by 45 species, 1 family and 2 hybrids, was collected below Dresden Island Lock and Dam during the 22 June through 23 September 1981 sampling period (Table 3.3-54). Of the three gear types used, electrofishing was most productive in terms of both variety and number of fish collected. Forty-six taxa, totaling 2,624 fish, were collected by electrofishing at the five locations surveyed (Table 3.3-55). Seining at five locations produced 25 taxa totaling 605 fish (Table 3.3-56) while gill netting yielded 15 taxa and 221 fish (Table 3.3-57).

Rough and forage fish made up most of the total catch in the study area. Fifty-six percent of the 3,450 fish collected were emerald shiner, 12 percent were gizzard shad and 11 percent were carp.

The most complete description of the spatial distribution and abundance of fish below the lock and dam was provided in the electrofishing data. Gill net data provided additional information on the spatial abundance of carp and documented the occurrence of goldeye in the study area. Seine data provided supportive information on the abundance of emerald shiners and documented the occurrence of the red shiner (*Notropis lutrensis*) in the study area.

3.3.4.1.1 Electrofishing

The dominant species collected by electrofishing were emerald shiner, gizzard shad and carp (Table 3.3-55). These fish constituted 81 percent of the total catch below the lock and dam. By weight, greatest catches were for carp, gizzard shad and largemouth bass (*Micropterus salmoides*) (most minnow species were not weighed). These fish accounted for 79 percent of the total weight of the species that were weighed.

Location comparison of fish community composition revealed little difference among the five locations. The number of fish taxa ranged from 24 to 28 among locations (Table 3.3-58). Location differences in fish abundance were more pronounced. The greatest abundance of fish, as indicated by catch-per-unit-effort (CPE) data, was recorded at Location 15. The CPEs at the other four locations were 82 to 191 less than at Location 15 with the lowest CPE recorded at Location 12.

Although the emerald shiner was the dominant species at all five locations, it also accounted for most of the difference in fish abundance among locations. Green sunfish also accounted for some of the location differences. Gizzard shad were rather evenly distributed within the study area and were second or third in abundance at each location. Spatial differences were also noted for carp, largemouth bass, carp x goldfish and black bullhead but they were not pronounced.

3.3.4.1.2 Seining

The dominant species collected by seining was the emerald shiner; it represented 66 percent of the total catch (Table 3.3-56). Other species accounted small percentages of the total catch. A variety of species accounted for >5 percent of the total weight of fish; the greatest percentage was recorded for largemouth bass.

Location comparison of fish community composition revealed little difference among locations, except at Location 13 where fewer species were collected (Table 3.3-59). Fish abundance was variable among locations but not dramatically different. The largest number of fish were obtained at Locations 12 and 13 and the fewest at Location 15. The emerald shiner was the dominant species at each location but accounted for a greater percentage of the total catch at Locations 12, 13 and 14 than at Locations 11 and 15.

3.3.4.1.3 Gill Netting

Carp was the dominant species collected in gill nets; it accounted for 63 percent of the numerical catch and 78 percent of the catch by weight (Table 3.3-57). Following carp in abundance were gizzard shad, goldeye and carp x goldfish hybrid. These three taxa represented 24 percent of the total number and 15 percent of the total weight.

The greatest number of species and fish were captured at Location 12 (Table 3.3-60). The area sampled at Location 12 was at the downstream point of Dresden Island and was uniquely different from other locations in that it constituted a mixing area of water flowing from the dam and through the lock. Location 11, a short distance upstream from Location 12, produced the second greatest number of species and fish. Locations 13 and 16 produced few fish other than carp. Carp was also the dominant species at Locations 11 and 12 but gizzard shad was also well represented at both locations and goldeye was common at Location 12.

3.3.4.2 Physicochemical Measurements

Water temperature, dissolved oxygen concentration (DO) and conductivity were measured in conjunction with each fish survey. Temperatures were very similar throughout the study area on each sampling date indicating thorough mixing of the water below the lock and dam (Tables 3.3-61 through 3.3-64). The variability in temperature was <1 C on all dates but one and typically was ≤0.5 C among the six locations. Temporal differences in temperature were apparent but were not substantial. The highest temperatures were recorded on 8 July (27.9 to 28.2 C at the surface) and lowest on 23 September (19.7 to 19.9 at the surface). Temperatures typically ranged from 22 to 26 C on other dates.

Dissolved oxygen concentration was similar among Locations 12, 14, 15 and 16 on all sampling dates. The lowest DO was consistently recorded at Location 11 (directly below Dresden Island Lock) and generally the difference between Location 11 and Locations 12, 14, 15 and 16 was >1 mg/l. A similar pattern in DO was observed at these locations in 1980 (EAI 1981c). The DO at Location 13 (a short distance downstream from Location 11) was consistently higher than at Location 11 but generally lower than at other locations. Percent oxygen saturation followed the same pattern as DO. DO saturation at Locations 12, 14, 15 and 16 was typically >90 percent whereas at Location 11 DO generally ranged from 70 to 85 percent saturation. Intermediate values were generally recorded at Location 13.

Conductivity was generally comparable among locations. The one exception was observed in early August when conductivity was variable. Lowest values were recorded in early August and highest values in late August.

3.3.4.3 Spatial and Temporal Distribution of Fish

Electrofishing data indicated little difference in the spatial occurrence of fish on most sampling dates (Tables 3.3-65 through 3.3-71). The one exception was on 6 July when no fish were collected at Location 13 and only two species at Location 14. Temporal variability in species occurrence was apparent but no well-defined pattern was evident among locations. Catches (CPE) generally varied at each location and among locations over time but in no well-defined pattern other than that the catches of fish at Location 15 were as great or greater than at the other four locations on most sampling dates.

Emerald shiner consistently accounted for much of the catch differences among locations and between dates. Gizzard shad and carp also contributed to the spatial and temporal differences in abundance but the differences were not location specific. Green sunfish and largemouth bass were occasionally common in the Locations 11, 14 and/or 15 and accounted for a portion of the catch differences among locations.

Gill net and seine data provided little additional information on the spatial and temporal occurrence and abundance of fish in the study area. Frequently, few species were collected with either gear at any location (Tables 3.3-72 through 3.3-85). Catches with both gear types differed among locations on all dates but they were not substantial. Gill net catches were greatest at Locations 11 and/or 12 on all dates; carp and occasionally goldeye accounted for these differences. Seine catches were greatest at Location 12 and 13 in June, Location 13 in July, and either Location 13 or 14 in August and September. Emerald shiner and occasionally gizzard shad accounted for most of the catch differences among locations during the study.

3.3.4.4 Coefficient of Condition

The coefficient of condition (K-factor), a measure of the relative robustness or plumpness of fish was determined for carp, carp x goldfish hybrid, goldfish, shorthead redhorse and smallmouth bass (Table 3.3-86). K-factor values were similar (range: 1.33 to 1.74) for adult carp at most locations during the months of June and July. Although K-factor values were generally slightly higher for females than for males, differences were often inconsistent. Values decreased for adult fish in August ranging from 1.13 to 1.52. Similar values for males and females were observed at most locations, with no consistent differences between the sexes. Values for immature carp during all months were generally within the range of values observed for adults. No distributional differences were noted due to the small numbers of immature carp collected.

Values for carp x goldfish hybrid adults were variable for each month of the study; most values were within the range of 1.41 to 1.97. K-factors of immature hybrids were similar to the adult fish. Small sample sizes each month precluded any discussion of distributional differences.

Only five goldfish were collected during the first two months of the study. Values for males in June ranged from 1.60 to 2.02; the K-factor for the female collected in July was lower, at 1.45.

K-factors were determined for one adult shorthead redhorse (all females) each month. Values ranged from 0.95 in September to 1.30 in July. Values for immature fish were also variable, but most were within the range observed for adult fish.

Mean K-factors for adult female smallmouth bass ranged from 1.20 in June to 1.42 in July. Adult males collected in August and September had similar K-factor values. Values for immature fish were variable, but most had values lower than those observed for adults, ranging from 0.88 to 1.41. Distributional differences were not apparent from the small sample size of both adult and juvenile fish.

3.3.4.5 Incidence of Disease, Parasites and Abnormalities of Fish

Diseases, parasites and physical abnormalities were identified from 161 fish (4.7 percent of total catch) representing 21 species and one hybrid (Tables 3.3-87 through 3.3-93). Sixty-seven percent of all disorders identified were associated with a form of fin disorder including deformed, eroded or missing fins. Most species were affected; incidence was highest on carp (72 of 108 fish) followed by carpsuckers and redhorse (15 fish) and largemouth bass (6 fish).

Physical injuries and deformities represented approximately 24 percent of the disorders identified. Carp and black bullhead were the species most frequently affected by injuries such as lacerations and abrasions. Centrarchids, drum and quillback were also affected but less frequently. Body deformities, the result of disease or injury were common on carp. Four other species and one hybrid were also affected but in low numbers.

Parasites and disease were the most infrequent of all disorders; they were identified on 14 fish. Blackspot affected four species: green sunfish (4 fish), white crappie (1), yellow perch (1) and spotfin shiner (1). Tumors were present on carp and largemouth bass, and fungus on green sunfish and shorthead redhorse. One incidence of white spot occurred on carp.

Incidence of disorders was variable at all locations. In June and early September the occurence of disorders was higher at Location 12; this was associated with the collection of greater numbers of the more commonly afflicted carp.

3.3.4.6 Changes in the Fish Community in the River System

Monitoring studies of the fish populations below Dresden Island Lock and Dam have been conducted annually since 1979. Electrofishing and seining were used for collecting fish in all three years; gill netting was also used in 1981.

Electrofishing has provided the most complete data on the fish community below the lock and dam. The variety of species collected by electrofishing in 1981 was greater than in 1980 and comparable or greater than in 1979 at all locations (Table 3.3-94). Catches in 1979 were greater than in both 1980 and 1981 at all locations, except at Location 13 where the greatest catch was recorded in 1980. Catches in 1980 and 1981 were comparable at Locations 11, 12 and 15, whereas 1979 and 1981 catches were most comparable at Locations 13 and 14. In all three years, the greatest catches were obtained at Location 15.

Emerald shiner was primarily responsible for the difference in catches among the three years. Gizzard shad abundance varied little in 1980 and 1981 (the exception was at Location 13) but in both years abundance was greater than in 1979. Carp increased slightly from 1979 to 1981, except at Location 13 where abundance has decreased. In contrast, goldfish have consistently declined throughout the study area. Largemouth bass were not abundant in the study area in 1979 but have steadily increased since then. Abundance of other less abundant species, such as green sunfish and white suckers, has differed among the three years but the differences among locations have been variable. The remaining species have been low in abundance in all three years.

The number of species collected by seining has increased in each year at all locations; this difference was most pronounced in 1981 (Tables 3.3-95). In 1980 and 1980 seine catches were comparable at all locations, except at Location 12, but lower than in 1981. The greatest catches were obtained at Locations 12 and 13 in both 1980 and 1981, whereas in 1979 Location 15 produced the greatest number of fish. The emerald shiner has been the dominant species at each location in all three years (one exception was at Location 15 in 1980) and has contributed to most of the yearly differences in catches at all locations.

3.3.5 Habitat and Temperature Differences Above and Below Dresden Island Lock and Dam

Dresden Pool above the lock and dam is a more lentic environment than below the lock and dam. Current is relatively slow with little fluctuation in water level. Locations 1, 2 and 5 are characterized by extensive shallow areas with primarily sand substrates and scattered areas of rubble, with bedrock along the shore at Location 5. Locations 7, 9 and 10, which border the main channel, have less extensive shallow areas with the bottom sloping to a greater degree into the adjacent channel. The substrate is a mixture of sand and/or silt, especially near the channel; rubble often occurs close to the shore. Unlike the remainder of the locations, the current is swift in the discharge (Location 6) and the substrate is mainly bedrock bordered by small patches of gravel.

Macrophytic growth was present at Location 6 along the shore; patches of submerged macrophytes were also scattered in shallow areas at Locations 7 and 9. All locations, except for Location 2 in the Kankakee River, were influenced to some extent by turbulence associated with barge traffic in the main channel.

Water temperatures were variable among locations above the dam. Temperatures recorded in the Kankakee River were cooler than in the Des Plaines River. Temperatures were generally similar at Locations 9 and 10, and were between those observed in the Kankakee and Des Plaines Rivers. Temperatures at Location 7 were generally warmer than at either Location 9 or 10 and were probably influenced to a greater extent by the thermal plume.

The area below Dresden Island Lock and Dam is more characteristic of a riverine environment. Overall, currents are swifter and especially turbulent at Locations 12 and 16 directly downstream of the dam. Greater fluctuations in water level are also evident, influenced by the operation of the lock and dam.

Most of the locations (11, 12, 14, 15, and 16) are similar in that the bottom drops off quickly a short distance from the shore. Substrate is composed mainly of rubble, gravel and larger rocks with sandy areas present only at Locations 12 and 14. Location 13 differs from all other locations by the presence of more extensive shallow areas, a sandy substrate and beach area.

Little macrophytic growth was observed at any location. During periods of high water levels, some cover is provided by terrestrial vegetation along the water's edge.

Shoreline disturbance produced by barge traffic occurs at all locations bordering the channel (Locations 11, 13, 14 and 15).

In contrast to the variability in temperatures observed above the dam, those recorded at all sampling locations below the dam were fairly uniform. Temperatures were most similar to those recorded at Locations 9 and 10 indicating a thorough mixing of the water as it passed through the lock and dam.

3.3.6 Summary and Conclusions

1. The fish communities in both Dresden Pool and below Dresden Island Lock and Dam are primarily rough and forage fish. Obvious differences exist, however, in the abundance of some of these species between the two areas.

2. The greatest occurrence and abundance of fish in the Dresden Pool was found in the Dresden Station discharge in 1981. Sunfishes and emerald shiner were particularly more abundant at the discharge than at all other locations. The apparent attraction to the discharge over other areas was best explained by the higher temperatures that occurred there, although the presence of macrophytic growth, forage and swift current may also have been influencing factors. Relatively high temperatures observed in the Des Plaines River were not associated with high abundance, indicating that other factors also affect fish distribution in the river.

3. A variety of fish species, such as redhorse spp., showed no distinct preference for the discharge area and were rather evenly distributed or showed a preference for other areas in the Dresden Pool area.

4. There were no consistent or pronounced spatial differences in fish abundance below the lock and dam.

5. The spatial differences observed in temperature, DO and conductivity in the Dresden Pool study area were attributed to the discharge of condenser cooling water from Dresden Pond and the existing water quality differences between the Kankakee and Des Plaines Rivers. These water quality parameters were fairly uniformly distributed below the lock and dam.

6. There were no definable spatial differences in the coefficient of condition of selected fish species either above or below the lock and dam. K-factors were generally comparable between the sexes; differences were observed but were inconsistent.

7. Physical abnormalities were commonly found on rough fish but not on other species. The most common disorders were eroded, deformed and missing fins. The incidence of fish disorders was similar above and below the lock and dam.

8. The fish composition in the Dresden Pool study area has fluctuated over the eight years of study from 1974 through 1981 with a trend toward increasing numbers of species at some locations. There has not been a trend toward decreasing numbers of species at any location. Below the lock and dam the trend from 1979 through 1981 has been an increase in the numbers of fish species.

9. The relative abundance of fish in the Dresden Pool study area has fluctuated over the eight year period with no distinct upward or downward trend in abundance. The yearly fluctuations in abundance have been similar at all seven locations surveyed. The greatest abundance of fish has been recorded at the discharge in all years. Fish abundance in 1981 was comparable to or greater than in most previous years. The relative abundance of fish below the lock and dam has also fluctuated over the last three years but with no definite pattern among locations.

10. Most of the yearly differences in fish abundance in the Dresden Pool have been related to fluctuations in abundance of gizzard shad and carp. Emerald shiner, green sunfish and bluegill have also contributed to some of the differences but the differences have generally been location specific. The substantial increase in fish abundance in 1981 over the previous two years is principally a result of an increase in gizzard shad abundance in the study area.

11. Indirect open cycle operations at Dresden Station in the summer of 1981 did not result in any major changes in the distributional patterns of fish in the study area compared to previous years under closed or variable blowdown modes; the one exception was that fish avoidance was not observed at the discharge during the period of warmest discharge

temperatures, as was typically noted in previous years. Recruitment to the river from Dresden Cooling Pond during indirect open cycle operation was evident in the greater abundance of gizzard shad in 1981 over the previous two years.

3.3.7 References

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TABLE 3.3-1 COMMON AND SCIENTIFIC NAMES OF FISHES COLLECTED BY ALL GEAR TYPES IN THE DRESDEN POOL NEAR THE DRESDEN STATION, 1981

Common Name	Scientific Name
LONGNOSE GAR	Lepisosteus osseus
SKIPJACK HERRING	Alosa chrysochloris
GIZZARD SHAD	Dorosoma cepedianum
GOLDEYE	Hiodon alosoides
GRASS PICKEREL	Esox americanus vermiculatus
NORTHERN PIKE	E. lucius
MUSKELLUNGE	E. masquinongy
MINNOWS	Cyprinidae
GOLDFISH	Carrasius auratus
CARP	Cyprinus carpio
CARP x GOLDFISH	
EMERALD SHINER	Notropis atherinoides
COMMON SHINER	N. cornutus
SPOTTAIL SHINER	N. hudsonius
RED SHINER	N. lutrensis
SPOTFIN SHINER	N. spilopterus
SAND SHINER	N. stramineus
SUCKERMOUTH MINNOW	Phenacobius mirabilis
BLUNTNOSE MINNOW	Pimephales notatus
FATHEAD MINNOW	P. promelas
BULLHEAD MINNOW	P. vigilax
CARPSUCKER	Carpoides sp.
RIVER CARPSUCKER	Carpoides carpio
QUILLBACK	C. cyprinus
HIGHFIN CARPSUCKER	C. velifer
WHITE SUCKER	Catostomus commersoni
SMALLMOUTH BUFFALO	Ictiobus bubalus
BIGMOUTH BUFFALO	I. cyprinellus
REDHORSE	Moxostoma sp.
SILVER REDHORSE	Moxostoma anisurum
GOLDEN REDHORSE	M. erythrurum
SHORTHEAD REDHORSE	M. macrolepidotum
BLACK BULLHEAD	Ictalurus melas
YELLOW BULLHEAD	I. natalis
CHANNEL CATFISH	I. punctatus
FLATHEAD CATFISH	Pylodictus olivaris
TROUT-PERCH	Percopsis omiscomaycus
WHITE BASS	Morone chrysops
YELLOW BASS	M. mississippiensis
ROCK BASS	Ambloplites rupestris
GREEN SUNFISH	Lepomis cyanellus
ORANGESPOTTED SUNFISH	L. humilis
PUMPKINSEED	L. gibbosus
BLUEGILL	L. macrochirus
SUNFISH HYBRID	Lepomis sp.
SMALLMOUTH BASS	Micropterus dolomieui

TABLE 3.3-1(CONT.)

Common Name	Scientific Name
LARGEMOUTH BASS	*M. salmoides*
WHITE CRAPPIE	*Pomoxis annularis*
BLACK CRAPPIE	*P. nigromaculatus*
YELLOW PERCH	*Perca flavescens*
LOGPERCH	*Percina caprodes*
FRESHWATER DRUM	*Aplodinotus grunniens*

47 spp

+ Am eel

+ Golden shiner

+ walleye

50

TABLE 3.3-2 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY ELECTROFISHING NEAR THE DRESDEN STATION, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
LEPISOSTEUS OSSEUS AD	1	0.0	0.3000	0.1
ALOSA CHRYSOCHLORIS	1	0.0	0.3250	0.1
DOROSOMA CEPEDIANUM AD	923	40.5	92.6900	29.3
ESOX AMERICANUS VERMICULATUS AD	1	0.0	0.0100	0.0
ESOX LUCIUS AD	1	0.0	0.0550	0.0
ESOX MASQUINONGY	1	0.0	0.0050	0.0
CYPRINIDAE AD	1	0.0		
CARASSIUS AURATUS AD	8	0.4	2.3800	0.8
CYPRINUS CARPIO AD	182	8.0	99.0950	31.3
PIMEPHALES PROMELAS AD	1	0.0		
NOTROPIS CORNUTUS	2	0.1		
NOTROPIS HUDSONIUS AD	1	0.0		
NOTROPIS SPILOPTERUS AD	5	0.2		
NOTROPIS ATHERINOIDES AD	451	19.8		
PIMEPHALES NOTATUS AD	3	0.1		
PIMEPHALES VIGILAX AD	1	0.0		
CARP X GOLDFISH HYBRID	66	2.9	30.6500	9.7
NOTROPIS LUTRENSIS AD	1	0.0		
CARPIODES CARPIO AD	20	0.9	7.3000	2.3
CARPIODES CYPRINUS AD	8	0.4	2.6010	0.8
CARPOIDES VELIFER	2	0.1	0.8900	0.3
CATOSTOMUS COMMERSONI AD	5	0.2	1.3720	0.4
ICTIOBUS BUBALUS AD	10	0.4	3.5050	1.1
ICTIOBUS CYPRINELLUS AD	1	0.0	1.2500	0.4
MOXOSTOMA ANISURUM AD	29	1.3	11.2560	3.6
MOXOSTOMA ERYTHRURUM	48	2.1	8.4900	2.7
MOXOSTOMA MACROLEPIDOTUM AD	26	1.1	4.9110	1.6
MOXOSTOMA SP AD	1	0.0		
ICTALURUS MELAS AD	2	0.1	0.1190	0.0
ICTALURUS NATALIS AD	2	0.1	0.1290	0.0
ICTALURUS PUNCTATUS AD	9	0.4	8.6990	2.7
PYLODICTIS OLIVARIS	1	0.0	0.0520	0.0
MORONE CHRYSOPS AD	2	0.1	0.4600	0.1
MORONE MISSIPPIENSIS AD	6	0.3	0.3390	0.1
AMBLOPLITES RUPESTRIS AD	8	0.4	0.6000	0.2
LEPOMIS CYANELLUS AD	192	8.4	3.5240	1.1
LEPOMIS GIBBOSUS AD	9	0.4	0.2350	0.1
LEPOMIS HUMILIS AD	3	0.1	0.0200	0.0
LEPOMIS MACROCHIRUS AD	101	4.4	2.2090	0.7
MICROPTERUS DOLOMIEUI AD	53	2.3	5.3770	1.7
MICROPTERUS SALMOIDES AD	31	1.4	7.3120	2.3
POMOXIS ANNULARIS AD	6	0.3	0.3400	0.1
POMOXIS NIGROMACULATUS AD	1	0.0	0.0320	0.0
LEPOMIS HYBRID	4	0.2	0.0910	0.0
PERCINA CAPRODES AD	1	0.0		
APLODINOTUS GRUNNIENS AD	47	2.1	19.9070	6.3
TOTAL	2278		316.5300	

TABLE 3.3-3 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY SEINING NEAR THE DRESDEN STATION, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
DOROSOMA CEPEDIANUM AD	230	38.1	0.6450	17.4
ESOX LUCIUS AD	1	0.2	0.0860	2.3
CYPRINUS CARPIO AD	23	3.8	0.3890	10.5
NOTROPIS HUDSONIUS AD	3	0.5		
NOTROPIS SPILOPTERUS AD	4	0.7		
NOTROPIS ATHERINOIDES AD	226	37.5		
PIMEPHALES NOTATUS AD	4	0.7		
PIMEPHALES VIGILAX AD	6	1.0		
NOTROPIS STRAMINEUS AD	1	0.2		
PHENOCOBIUS MIRABILIS AD	1	0.2		
CARP X GOLDFISH HYBRID	1	0.2	0.5700	15.4
NOTROPIS LUTRENSIS AD	1	0.2		
CARPIODES CARPIO AD	5	0.8	0.0110	0.3
CATOSTOMUS COMMERSONI AD	1	0.2	0.1580	4.3
ICTIOBUS BUBALUS AD	1	0.2	0.0030	0.1
CARPOIDES SP AD	1	0.2	0.0040	0.1
ICTALURUS MELAS AD	2	0.3	0.0200	0.5
ICTALURUS PUNCTATUS AD	6	1.0	0.0820	2.2
PERCOPSIS OMISCOMAYCUS AD	2	0.3	0.0020	0.1
LEPOMIS CYANELLUS AD	4	0.7	0.0560	1.5
LEPOMIS HUMILIS AD	10	1.7	0.0530	1.4
LEPOMIS MACROCHIRUS AD	5	0.8	0.1380	3.7
MICROPTERUS DOLOMIEUI AD	5	0.8	0.0910	2.5
MICROPTERUS SALMOIDES AD	5	0.8	0.2640	7.1
POMOXIS ANNULARIS AD	8	1.3	0.4340	11.7
POMOXIS NIGROMACULATUS AD	2	0.3	0.1500	4.0
PERCA FLAVESCENS AD	1	0.2	0.0020	0.1
PERCINA CAPRODES AD	2	0.3	0.0040	0.1
APLODINOTUS GRUNNIENS AD	42	7.0	0.5430	14.7
TOTAL	603		3.7050	

TABLE 3.3-4 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY GILL NETTING NEAR THE DRESDEN STATION, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
LEPISOSTEUS OSSUES AD	14	2.7	14.6850	5.1
ALOSA CHRYSOCHLORIS	2	0.4	0.4550	0.2
DOROSOMA CEPEDIANUM AD	52	10.0	9.6650	3.4
HIODON ALOSOIDES	22	4.2	7.8390	2.7
CYPRINUS CARPIO AD	295	56.5	190.4930	66.2
CARP X GOLDFISH HYBRID	28	5.4	18.3150	6.4
CARPIODES CARPIO AD	15	2.9	8.3450	2.9
CARPIODES CYPRINUS AD	3	0.6	1.2950	0.4
CATOSTOMUS COMMERSONI AD	1	0.2	0.1240	0.0
ICTIOBUS BUBALUS AD	10	1.9	5.2500	1.8
MOXOSTOMA ANISURUM AD	5	1.0	3.0200	1.0
MOXOSTOMA ERYTHRURUM	1	0.2	0.2900	0.1
MOXOSTOMA MACRO AD	26	5.0	10.4900	3.6
ICTALURUS MELAS AD	2	0.4	0.2390	0.1
ICTALURUS PUNCTATUS AD	13	2.5	8.1740	2.8
MORONE CHRYSOPS AD	10	1.9	4.2300	1.5
MORONE MISSISSIPPIENSIS AD	8	1.5	0.5670	0.2
AMBLOPLITES RUPESTRIS AD	1	0.2	0.0720	0.0
POMOXIS ANNULARIS AD	4	0.8	0.1840	0.1
POMOXIS NIGROMACULATUS AD	1	0.2	0.0400	0.0
APLODINOTUS GRUNNIENS AD	9	1.7	4.1370	1.4
TOTAL	522		297.9080	

TABLE 3.3-5 TOTAL NUMBER, AVERAGE CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 1981.

	Location 1			Location 2			Location 5			Location 6			Location 7			Location 9			Location 10		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	1	0.4	0.1	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	1	0.4	0.1	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	77	43.9	38.4	161	92.0	63.6	161	95.7	53.5	135	77.0	18.8	152	87.1	51.4	98	56.1	42.1	139	79.4	54.9
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4
GRASS PICKEREL	1	0.6	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MUSKELLUNGE	1	0.6	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	-	-	-	1	0.6	0.1	-	-	-	-	-	-	-	-	-
GOLDFISH	2	1.1	0.9	-	-	-	-	-	-	3	1.7	0.4	-	-	-	-	-	-	3	1.7	1.2
CARP	29	16.3	13.5	4	2.3	1.6	12	6.9	3.9	39	22.3	5.4	38	21.4	12.6	41	23.4	17.5	19	10.9	7.5
EMERALD SHINER	38	21.6	17.9	12	6.9	4.8	77	46.6	26.0	227	129.6	31.6	36	21.7	12.2	28	16.0	12.0	33	18.9	13.1
SPOTFIN SHINER	-	-	-	1	0.6	0.4	-	-	-	4	2.3	0.6	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	2	1.1	0.3	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	1	0.6	0.1	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	2	1.1	0.8	-	-	-	-	-	-	-	-	-	1	0.6	0.4	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4	-	-	-
BULLHEAD MINNOW	-	-	-	1	0.6	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARP x GOLDFISH	29	16.4	13.6	-	-	-	1	0.6	0.3	3	1.7	0.4	7	4.0	2.4	13	7.4	5.5	13	7.4	5.1
RIVER CARPSUCKER	5	2.7	2.2	2	1.1	0.8	4	2.3	1.3	7	4.0	1.0	1	0.6	0.4	1	0.6	0.4	-	-	-
QUILLBACK	1	0.6	0.5	1	0.6	0.4	1	0.5	0.3	3	1.7	0.4	-	-	-	2	1.1	0.8	-	-	-
HIGHFIN CARPSUCKER	1	0.6	0.5	-	-	-	-	-	-	1	0.6	0.1	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	1	0.6	0.5	-	-	-	-	-	-	5	2.7	0.7	1	0.6	0.4	3	1.7	1.3	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	1	0.4	0.1	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	4	2.3	1.9	14	8.0	5.5	7	4.0	2.2	-	-	-	1	0.6	0.4	1	0.6	0.4	2	1.1	0.8
SHORTHEAD REDHORSE	5	2.9	2.4	9	5.1	3.5	3	1.7	1.0	1	0.6	0.1	1	0.6	0.4	1	0.6	0.4	6	3.4	2.4
GOLDEN REDHORSE	7	4.0	3.3	5	2.9	2.0	12	6.9	3.9	-	-	-	5	2.9	1.7	4	2.3	1.7	15	8.6	5.9
WHITE SUCKER	-	-	-	-	-	-	1	0.5	0.3	-	-	-	-	-	-	-	-	-	4	2.3	1.6
REDHORSE SP.	-	-	-	-	-	-	1	0.5	0.3	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	-	-	-	5	2.9	2.0	-	-	-	-	-	-	1	0.6	0.4	3	1.7	1.3	-	-	-
BLACK BULLHEAD	1	0.6	0.5	-	-	-	-	-	-	-	-	-	1	0.6	0.4	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	2	1.1	0.3	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	1	0.6	0.1	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	1	0.5	0.3	-	-	-	-	-	-	-	-	-	1	0.6	0.4
YELLOW BASS	-	-	-	4	2.3	1.6	2	1.1	0.6	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	3	1.7	1.2	3	1.7	1.0	-	-	-	2	1.1	0.6	-	-	-	-	-	-
GREEN SUNFISH	-	-	-	4	2.3	1.6	-	-	-	157	86.1	21.0	19	11.0	6.5	10	5.7	4.3	2	1.1	0.8
PUMPKINSEED	-	-	-	1	0.6	0.4	-	-	-	8	4.4	1.1	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	1	0.6	0.4	-	-	-	-	-	-	1	0.6	0.4	1	0.6	0.4	-	-	-
BLUEGILL	1	0.6	0.5	-	-	-	1	0.6	0.3	87	47.9	11.7	8	4.7	2.8	3	1.7	1.3	1	0.6	0.4
SUNFISH HYBRID	1	0.6	0.5	-	-	-	-	-	-	3	1.6	0.4	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	2	1.1	0.9	-	-	-	-	-	-	18	9.7	2.4	3	1.7	1.0	4	2.3	1.7	1	0.6	0.4
SMALLMOUTH BASS	2	1.1	0.9	9	5.1	3.5	5	2.9	1.6	15	8.4	2.0	4	2.3	1.4	7	4.0	3.0	11	6.3	4.4

TABLE 3.3-5 (CONT.)

	Location 1			Location 2			Location 5			Location 6			Location 7			Location 9			Location 10		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4	-	-	-
WHITE CRAPPIE	1	0.6	0.5	-	-	-	1	0.6	0.3	3	1.7	0.4	2	1.1	0.6	2	1.1	0.8	-	-	-
LOGPERCH	-	-	-	-	-	-	1	0.6	0.3	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	4	2.3	1.9	14	8.0	5.5	8	4.6	2.6	1	0.6	0.1	11	6.3	3.7	7	4.0	3.0	2	1.1	0.8
TOTAL NUMBER	213			253			302			730			295			232			253		
NUMBER OF SPECIES	19			19			17			24			19			20			15		
TOTAL CPE		120.6			144.6			178.9			410.1			169.6			133.4			144.6	

(a) Represents average CPE for seven sampling dates.

TABLE 3.3-6 TOTAL NUMBER AND RELATIVE ABUNDANCE OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 1981

Species	Location 1		Location 2		Location 5		Location 7		Location 9		Location 10	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
GIZZARD SHAD	4	5.3	6	5.9	25	24.5	163	78.0	3	7.3	29	39.7
NORTHERN PIKE	-	-	1	1.0	-	-	-	-	-	-	-	-
CARP	4	5.3	-	-	3	2.9	4	1.9	2	4.9	11	15.1
EMERALD SHINER	59	77.6	64	62.7	61	59.8	13	6.2	9	22.0	20	27.4
SPOTTAIL SHINER	1	1.3	-	-	-	-	-	-	-	-	2	2.7
SPOTFIN SHINER	1	1.3	3	2.9	-	-	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	1	0.5	-	-	-	-
RED SHINER	-	-	1	1.0	-	-	-	-	-	-	-	-
SUCKERMOUTH MINNOW	-	-	1	1.0	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	3	2.9	-	-	-	-	-	-	1	1.4
BULLHEAD MINNOW	1	1.3	5	4.9	-	-	1	0.5	-	-	-	-
CARP x GOLDFISH	1	1.3	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	-	-	1	1.0	2	2.0	-	-	-	-	1	1.4
SMALLMOUTH BUFFALO	-	-	1	1.0	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	1	1.4
CARPOIDES sp.	1	1.3	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	-	-	5	4.9	-	-	-	-	1	2.4	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	1	2.4	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	2	4.9	-	-
GREEN SUNFISH	-	-	-	-	-	-	3	1.4	1	2.4	-	-
ORANGESPOTTED SUNFISH	-	-	4	3.9	2	2.0	4	1.9	-	-	-	-
BLUEGILL	-	-	-	-	1	1.0	3	1.4	-	-	1	1.4
SMALLMOUTH BASS	-	-	1	1.0	-	-	2	1.0	-	-	2	2.7
LARGEMOUTH BASS	2	2.6	-	-	-	-	1	0.5	-	-	2	2.7
WHITE CRAPPIE	1	1.3	1	1.0	3	2.9	-	-	1	2.4	2	2.7
BLACK CRAPPIE	1	1.3	-	-	1	1.0	-	-	-	-	-	-
LOGPERCH	-	-	1	1.0	-	-	-	-	-	-	1	1.4
YELLOW PERCH	-	-	-	-	1	1.0	-	-	-	-	-	-
FRESHWATER DRUM	-	-	4	3.9	3	2.9	14	6.7	21	51.2	-	-
TOTAL NUMBER	76		102		102		209		41		73	
NUMBER OF SPECIES	9		16		10		11		9		12	

TABLE 3.3-7 TOTAL NUMBER, AVERAGE CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 1981.

	Location 1			Location 2			Location 5			Location 7			Location 9			Location 10		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE[b]	%	No.	CPE	%	No.	CPE[c]	%	No.	CPE	%
LONGNOSE GAR	7	<1	6.7	5	<1	13.2	-	-	-	2	<1	1.2	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	2	<1	<1.0	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	6	<1	5.7	8	<1	21.1	27	2	33.3	7	<1	4.1	4	<1	<1.0	-	-	-
GOLDEYE	1	<1	1.0	3	<1	7.9	13	1	16.7	5	<1	2.9	-	-	-	-	-	-
CARP	79	4	57.1	8	<1	21.1	30	2	33.3	110	6	60.0	20	2	100.0	48	3	100.0
CARP X GOLDFISH	22	1	14.3	-	-	-	-	-	-	5	<1	2.9	-	-	-	1	<1	<1.0
RIVER CARPSUCKER	1	<1	1.0	-	-	-	2	<1	<1.0	9	1	10.0	-	-	-	3	<1	<1.0
QUILLBACK	-	-	-	-	-	-	1	<1	<1.0	2	<1	1.2	-	-	-	-	-	-
SMALLMOUTH BUFFALO	3	<1	2.9	-	-	-	2	<1	<1.0	3	<1	1.8	1	<1	<1.0	1	<1	<1.0
SILVER REDHORSE	-	-	-	-	-	-	2	<1	<1.0	3	<1	1.8	-	-	-	-	-	-
SHORTHEAD REDHORSE	5	<1	4.8	3	<1	7.9	11	1	16.7	7	<1	4.1	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	1	<1	0.6	-	-	-	-	-	-
WHITE SUCKER	1	<1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	1	<1	1.0	1	<1	2.6	4	<1	<1.0	5	<1	2.9	1	<1	<1.0	1	<1	<1.0
BLACK BULLHEAD	1	<1	1.0	-	-	-	-	-	-	-	-	-	1	<1	<1.0	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	4	<1	10.5	-	-	-	6	<1	3.5	-	-	-	-	-	-
YELLOW BASS	2	<1	1.9	-	-	-	4	<1	<1.0	1	<1	0.6	1	<1	<1.0	-	-	-
ROCK BASS	-	-	-	1	<1	2.6	-	-	-	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	1	<1	1.0	1	<1	2.6	1	<1	<1.0	1	<1	0.6	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	1	<1	0.6	-	-	-	-	-	-
FRESHWATER DRUM	1	<1	1.0	4	<1	10.5	2	<1	<1.0	2	<1	1.2	-	-	-	-	-	-
TOTAL NUMBER	131			38			101			170			28			54		
NUMBER OF SPECIES	13			10			13			16			6			4		
AVERAGE CPE		7			2			6			10			2			3	

(a) Represents average CPE for 7 sampling dates.
(b) Represents average CPE for 6 sampling dates.
(c) Represents average CPE for 5 sampling dates.

TABLE 3.3-8 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION IN THE DRESDEN POOL NEAR THE DRESDEN STATION, JUNE 1981

		Location 1				Location 2				Location 5				Location 6			
Date	Depth (m)	T [a]	D.O. [b]	% Sat.	Spec. Cond. [c]	T	D.O.	% Sat.	Spec. Cond.	T	D.O.	% Sat.	Spec. Cond.	T	D.O.	% Sat.	Spec. Cond.
23 June	Surface	26.5	6.9	85	780	23.2	7.9	91	470	22.8	8.2	94	460	27.5	8.2	103	455
	0.5	26.5	6.4	77	--	--	--	--	--	--	--	--	--	27.5	8.4	105	--
	1.0	--	--	--	--	23.0	7.9	91	--	22.8	7.9	91	--	--	--	--	--
	2.0	--	--	--	--	23.0	7.9	91	--	--	--	--	--	--	--	--	--
	2.5	--	--	--	--	23.0	8.0	92	--	--	--	--	--	--	--	--	--
	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24 June	0.5	25.5	4.5	54	--	23.0	8.2	94	--	24.0	7.9	93	--	--	--	--	--

TABLE 3.3-8 (CONT.)

		Location 7				Location 9				Location 10			
Date	Depth (m)	T	D.O.	% Sat.	Spec. Cond.	T	D.O.	% Sat.	Spec. Cond.	T	D.O.	% Sat.	Spec. Cond.
23 June	Surface	--	--	--	--	23.5	7.9	92	465	24.0	6.8	80	730
	0.5	24.0	8.2	96	450	--	--	--	--	--	--	--	--
	1.0	--	--	--	--	23.2	7.9	91	--	23.0	6.9	79	--
	2.0	--	--	--	--	22.5	7.9	90	--	22.8	6.9	79	--
	2.5	--	--	--	--	--	--	--	--	--	--	--	--
	3.0	--	--	--	--	22.5	7.9	90	--	22.8	7.0	80	--
	3.5	--	--	--	--	22.2	7.8	89	--	--	--	--	--
	4.0	--	--	--	--	--	--	--	--	22.5	7.0	80	--
	4.5	--	--	--	--	--	--	--	--	22.5	7.1	81	--
24 June	0.5	25.3	8.3	99	--	24.0	7.1	84	--	25.0	7.2	86	--

(a) Temperature – °C
(b) Dissolved oxygen – mg/l
(c) Specific conductivity – μmhos/cm

TABLE 3.3-9 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION IN THE DRESDEN POOL NEAR THE DRESDEN STATION, JULY 1981.

		Location 1				Location 2				Location 5				Location 6			
Date	Depth (m)	T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
6 July	0.5	27.5	5.5	69	738	26.2	7.2	88	617	25.2	7.4	88	618				
7 July	Surface	-	-	-	-	-	-	-	-	-	-	-	-				
	0.5	27.7	6.3	80	711	26.9	7.2	89	626	26.5	7.9	98	623	31.4	7.1	95	613
	1.0	-	-	-	-	-	-	-	-	-	-	-	-				
8 July	Surface	27.7	6.1	77		25.6	6.9	83		25.5	7.1	86					
	0.5	-	-	-	-	-	-	-	-	-	-	-	-				
	1.0	27.7	6.1	77		25.5	6.9	83		25.4	7.1	86					
	2.0	27.7	6.1	77		25.3	6.9	83		25.4	7.0	84					
	2.5	27.7	6.1	77		-	-	-		-	-	-					
	3.0	-	-	-		25.3	7.0	84		-	-	-					
	4.0	-	-	-		25.3	7.0	84		-	-	-					
	4.5	-	-	-		-	-	-		-	-	-					
	5.0	-	-	-		25.3	7.0	84		-	-	-					
21 July	Surface	-	-	-	-	-	-	-	-	-	-	-					
	0.5	27.4	5.8	72	773	24.3	7.1	84	547	24.6	7.6	90	547	30.7	7.3	97	664
	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23 July	Surface	26.0	6.5	79		-	-	-		22.5	8.1	93					
	0.5	26.2	5.9	72		22.3	8.2	93		22.6	7.9	91					
	1.0	-	-	-		-	-	-		-	-	-					
	2.0	-	-	-		-	-	-		-	-	-					
	3.0	-	-	-		-	-	-		-	-	-					
	4.0	-	-	-		-	-	-		-	-	-					

TABLE 3.3-9 (CONT.)

Date	Depth (m)	Location 7 T[a]	DO[b]	% Sat.	Spec. Cond.	Location 9 T	DO	% Sat.	Spec. Cond.	Location 10 T	DO	% Sat.	Spec. Cond.
6 July	0.5	29.4	7.2	92	616	27.7	5.9	75	650	27.6	5.8	73	732
7 July	Surface	-	-	-		-	-	-		26.0	5.6	69	703
	0.5	29.6	7.3	96	623	26.4	7.0	85	647	-	-	-	-
	1.0	-	-	-	-	-	-	-	-	26.5	5.5	68	-
8 July	Surface	28.2	6.9	87		27.1	6.0	74		27.2	5.1	63	
	0.5	28.2	6.8	86		-	-	-		-	-	-	
	1.0	-	-	-		27.1	6.0	74		27.1	5.1	63	
	2.0	-	-	-		27.1	5.9	73		27.0	5.2	64	
	2.5	-	-	-		-	-	-		26.9	5.2	64	
	3.0	-	-	-		27.2	5.9	73		-	-	-	
	4.0	-	-	-		27.2	5.9	73		-	-	-	
	4.5	-	-	-		27.2	5.8	72		-	-	-	
	5.0	-	-	-		-	-	-		-	-	-	
21 July	Surface	-	-	-		-	-	-		27.6	7.2	90	646
	0.5	28.6	6.8	87	642	27.5	6.5	81	610	-	-	-	-
	1.0	-	-	-	-	-	-	-	-	27.6	6.5	81	642
23 July	Surface	27.2	7.7	95		25.1	7.5	89		26.4	6.6	80	
	0.5	26.7	7.5	93		-	-	-		-	-	-	
	1.0	-	-	-		24.9	7.5	89		26.3	6.3	77	
	2.0	-	-	-		24.8	6.9	82		26.3	6.1	74	
	3.0	-	-	-		24.7	6.8	81		26.1	6.0	73	
	4.0	-	-	-		24.3	6.8	80		25.3	5.9	70	

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - μmhos/cm

TABLE 3.3-10 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION IN THE DRESDEN POOL NEAR THE DRESDEN STATION, AUGUST 1981.

		Location 1				Location 2				Location 5				Location 6			
Date	Depth (m)	T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
3 August	0.5	27.3	5.7	70	415	22.5	7.2	83	450	22.8	7.4	85	377	30.0	7.2	95	383
4 August	0.5	25.8	4.8	59	545	23.4	5.4	74	408	23.2	7.2	83	423				
18 August	0.5	24.4	5.4	64	699	22.0	7.5	88	657	23.8	7.1	84	673	26.4	8.1	99	655
19 August	0.5	26.4	6.8	83	678	24.5	9.5	101	676	25.8	*	-	686				
20 August	Surface	25.5	*[d]	-		22.9	*	-									
	1.0	25.5	*	-		22.9	*	-									

TABLE 3.3-10 (CONT.)

Date	Depth (m)	Location 7 T	Location 7 DO	Location 7 % Sat.	Location 7 Spec. Cond.	Location 9 T	Location 9 DO	Location 9 % Sat.	Location 9 Spec. Cond.	Location 10 T	Location 10 DO	Location 10 % Sat.	Location 10 Spec. Cond.
3 August	0.5	27.3	7.2	89	380	25.0	6.8	81	455	25.5	5.6	68	490
4 August	0.5	27.3	7.2	89	412	25.5	7.0	85	415	25.8	6.1	74	540
18 August	0.5	25.1	6.8	81	669	24.9	6.2	74	673	25.5	5.5	67	698
19 August	0.5	25.9	7.1	87	672	24.8	7.0	83	676	25.3	6.4	76	678
20 August	Surface	26.2	*	-		25.3	6.8	82		-	-	-	
	0.5	-	-	-		-	-	-		25.6	*	-	
	1.0	26.2	*	-		25.3	6.8	82		-	-	-	
	2.0	26.1	*	-		25.0	6.1	73		-	-	-	

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - μmhos/cm
(d) * - Instrument malfunction

TABLE 3.3-11 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION IN THE DRESDEN POOL NEAR THE DRESDEN STATION, SEPTEMBER 1981.

		Location 1				Location 2				Location 5				Location 6			
		T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
8 September	Surface	-	-	-	-	20.8	8.0	89	601	21.6	8.1	91	604	-	-	-	-
	0.5	24.5	6.2	74	651	-	-	-	-	-	-	-	-	26.3	7.8	95	491
	1.0	-	-	-	-	20.3	8.0	87	601	21.2	8.1	90	600	-	-	-	-
	2.0	-	-	-	-	20.2	8.0	87	603	-	-	-	-	-	-	-	-
	2.5	-	-	-	-	20.2	8.0	87	603	-	-	-	-	-	-	-	-
9 September	0.5	23.7	6.0	71	-	20.4	8.0	87	-	20.8	7.8	87	-				
10 September	Surface	24.2	6.4	75	-	20.5	8.1	89	-	20.5	7.9	87	-				
	1.0	24.0	6.4	75	-	19.9	8.1	88	-	20.0	7.8	85	-				
	2.0	23.4	6.0	69	-	19.8	8.0	87	-	-	-	-	-				
	3.0	-	-	-	-	19.8	8.0	87	-	-	-	-	-				
	4.0	-	-	-	-	19.8	8.0	87	-	-	-	-	-				
21 September	0.5	21.5	4.8	54	685	18.0	9.4	99	586	20.6	5.8	64	658	21.7	8.9	101	662
22 September	0.5	20.4	6.1	66	637	17.7	10.3	108	571	19.4	6.8	72	645				
23 September	Surface	20.2	6.0	65	604	16.9	10.2	105	585	18.8	6.8	72	601				
	1.0	20.3	5.8	53	603	17.0	10.1	104	585	18.9	6.6	70	602				
	2.0	20.3	5.7	62	603	17.0	10.1	104	586	18.8	6.5	69	602				
	3.0	20.2	5.6	61	603	-	-	-	-	-	-	-	-				
	4.0	20.2	5.6	61	604	-	-	-	-	-	-	-	-				

TABLE 3.3-11 (CONT.)

		Location 7				Location 9				Location 10			
		T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
8 September	Surface	-	-	-	-	23.5	7.1	83	579	23.1	5.9	68	646
	0.5	23.6	7.3	86	579	-	-	-	-	-	-	-	-
	1.0	-	-	-	-	23.3	7.0	80	579	22.2	6.1	69	637
	2.0	-	-	-	-	-	-	-	-	22.1	6.1	69	636
	2.5	-	-	-	-	-	-	-	-	22.0	6.1	69	636
9 September	0.5	23.3	6.9	79	-	22.9	7.0	80	-	22.9	6.0	69	-
10 September	Surface	23.1	7.2	83	-	23.0	6.9	79	-	23.0	6.0	69	-
	1.0	22.8	7.2	83	-	22.7	6.8	78	-	23.0	6.0	69	-
	2.0	22.8	7.1	83	-	22.5	6.7	77	-	22.9	6.0	69	-
	3.0	-	-	-	-	22.5	6.6	76	-	22.5	5.9	68	-
	4.0	-	-	-	-	22.5	6.6	76	-	22.5	5.9	68	-
21 September	0.5	22.3	7.0	80	661	21.8	6.9	78	660	22.4	5.4	61	677
22 September	0.5	19.9	7.3	79	643	19.8	7.0	76	642	20.2	6.4	70	649
23 September	Surface	19.5	7.7	85	612	19.3	7.8	83	609	19.3	7.5	80	604
	1.0	-	-	-	-	19.5	7.6	81	609	19.4	7.4	79	605
	2.0	-	-	-	-	-	-	-	-	19.5	7.4	80	605
	3.0	-	-	-	-	-	-	-	-	19.5	7.3	78	604
	4.0	-	-	-	-	-	-	-	-	-	-	-	-

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - µmhos/cm

TABLE 3.3-12 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 23 JUNE 1981.

Species	Location 1			Location 2			Location 5			Location 6			Location 7			Location 9			Location 10		
	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
Gizzard shad	16	64	41.0	1	4	3.6	3	12	20.0	13	52	8.8	14	56	41.2	9	36	29.0	6	24	28.6
Cyprinidae	-	-	-	-	-	-	-	-	-	1	4	0.7	-	-	-	-	-	-	-	-	-
Goldfish	1	4	2.6	-	-	-	-	-	-	3	12	2.0	-	-	-	-	-	-	-	-	-
Carp	8	32	20.5	1	4	3.6	-	-	-	21	84	14.3	4	16	11.8	7	28	22.6	1	4	4.8
Goldfish x Carp	8	32	20.5	-	-	-	-	-	-	2	8	1.4	-	-	-	1	4	3.2	1	4	4.8
Emerald shiner	2	8	5.1	1	4	3.6	-	-	-	14	56	9.5	2	8	5.9	2	8	6.5	2	8	9.5
Spotfin shiner	-	-	-	-	-	-	-	-	-	3	12	2.0	-	-	-	-	-	-	-	-	-
Bluntnose minnow	-	-	-	1	4	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
River carpsucker	-	-	-	1	4	3.6	-	-	-	-	-	-	-	-	-	1	4	3.2	-	-	-
Quillback	1	4	2.6	1	4	3.6	-	-	-	1	4	0.7	-	-	-	-	-	-	-	-	-
White sucker	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12	14.3
Silver redhorse	1	4	2.6	8	32	28.6	5	20	33.3	-	-	-	-	-	-	1	4	3.2	2	8	9.5
Shorthead redhorse	-	-	-	6	24	21.4	1	4	6.7	-	-	-	-	-	-	-	-	-	-	-	-
Black bullhead	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2.9	-	-	-	-	-	-
White bass	-	-	-	-	-	-	1	4	6.7	-	-	-	-	-	-	-	-	-	1	4	4.8
Yellow bass	-	-	-	2	8	7.1	2	8	13.3	-	-	-	-	-	-	-	-	-	-	-	-
Rock bass	-	-	-	1	4	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunfish hybrid	1	4	2.5	-	-	-	-	-	-	1	4	0.7	-	-	-	-	-	-	-	-	-
Green sunfish	-	-	-	2	8	7.1	-	-	-	36	144	24.5	1	4	2.9	1	4	3.2	1	4	4.8
Pumpkinseed	-	-	-	-	-	-	-	-	-	3	12	2.0	-	-	-	-	-	-	-	-	-
Orangespotted sunfish	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	3.2	-	-	-
Bluegill	-	-	-	-	-	-	1	4	6.7	40	160	21.2	1	4	2.9	2	8	6.5	1	4	4.8
Smallmouth bass	-	-	-	-	-	-	-	-	-	1	4	0.7	1	4	2.9	1	4	3.2	3	12	14.3
Largemouth bass	1	4	2.6	-	-	-	-	-	-	8	32	5.4	-	-	-	-	-	-	-	-	-
White crappie	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2.9	2	8	6.5	-	-	-
Freshwater drum	-	-	-	4	16	14.3	2	8	13.3	-	-	-	9	36	26.5	3	12	9.7	-	-	-
Total Number	39			29			15			147			34			31			21		
Number of Species	8			12			7			12			9			11			9		
Total CPE		156			116			60			588			136			124			84	

TABLE 3.3-13 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 7 JULY 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	-	-	-	-		-	1	3	1.37
DOROSOMA CEPEDIANUM AD	3	11	17.65	-	-	-	-	-	-	2	7	2.74
ESOX AMERICANUS VERMICULATUS AD	1	4	5.88	-	-	-	-	-	-	-	-	-
ESOX MASQUINONGY	1	4	5.88	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	4	14	23.53	1	4	14.29	1	4	11.11	-	-	-
NOTROPIS HUDSONIUS AD	-	-	-	-	-	-	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	2	7	11.76	-	-	-	1	4	11.11	1	3	1.37
PIMEPHALES NOTATUS AD	-	-	-	1	4	14.29	-	-	-	-	-	-
CARP X GOLDFISH HYBRID	3	11	17.65	-	-	-	1	4	11.11	-	-	-
CARPIODES CARPIO AD	3	11	17.65	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-	2	7	2.74
MOXOSTOMA ANISURUM AD	-	-	-	1	4	14.29	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	-	-	-	-	-	-	1	4	11.11	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	1	4	11.11	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	1	4	14.29	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-	2	8	22.22	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	-	-	-	38	127	52.05
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-	1	3	1.37
LEPOMIS HUMILIS AD	-	-	-	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-	19	63	26.03
MICROPTERUS DOLOMIEUI AD	-	-	-	2	8	28.57	1	4	11.11	1	3	1.37
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-	6	20	8.22
LEPOMIS HYBRID	-	-	-	-	-	-	-	-	-	2	7	2.74
APLODINOTUS GRUNNIENS AD	-	-	-	1	4	14.29	-	-	-	-	-	-
MOXOSTOMA SP.	-	-	-	-	-	-	1	4	11.11	-	-	-
TOTAL NUMBER	17			7			9			73		
NUMBER OF SPECIES	6			6			7			9		
TOTAL CPE		60			28			36			243	

TABLE 3.3-13 (CONT.)

	LOCATION 7 NO.	LOCATION 7 CPE	LOCATION 7 %	LOCATION 9 NO.	LOCATION 9 CPE	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 CPE	LOCATION 10 %
LEPISOSTEUS OSSEUS AD	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	3	12	9.68	4	17	18.18	4	16	19.05
ESOX AMERICANUS VERMICULATUS AD	-	-	-	-	-	-	-	-	-
ESOX MASQUINONGY	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	18	72	58.06	14	60	63.64	1	4	4.76
NOTROPIS HUDSONIUS AD	1	4	3.23	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	-	1	4	4.55	11	44	52.38
PIMEPHALES NOTATUS AD	-	-	-	-	-	-	-	-	-
CARP X GOLDFISH HYBRID	1	4	3.23	1	4	4.55	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	1	4	4.55	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	3	12	9.68	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	2	8	6.45	-	-	-	-	-	-
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-
LEPOMIS HUMILIS AD	1	4	3.23	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	2	8	6.45	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	4	16	19.05
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-
LEPOMIS HYBRID	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	1	4	4.55	1	4	4.76
MOXOSTOMA SP.	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	31			22			21		
NUMBER OF SPECIES	7			6			5		
TOTAL CPE		124			94			84	

TABLE 3.3-14 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 21 JULY 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	28	112	56.00	6	24	31.58	19	76	38.78	36	144	38.71
CARASSIUS AURATUS AD	1	4	2.00	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	12	6.00	1	4	5.26	5	20	10.20	3	12	3.23
PIMEPHALES PROMELAS AD	-	-	-	-	-	-	-	-	-	-	-	-
NOTROPIS CORNUTUS	-	-	-	-	-	-	-	-	-	2	8	2.15
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-	-	1	4	1.08
NOTROPIS ATHERINOIDES AD	2	8	4.00	-	-	-	2	8	4.08	16	64	17.20
PIMEPHALES VIGILAX AD	-	-	-	1	4	5.26	-	-	-	-	-	-
CARP X GOLDFISH HYBRID	9	36	18.00	-	-	-	-	-	-	-	-	-
CARPIODES CARPIO AD	2	8	4.00	-	-	-	3	12	6.12	1	4	1.08
CARPIODES CYPRINUS AD	-	-	-	-	-	-	1	4	2.04	2	8	2.15
CARPOIDES VELIFER	1	4	2.00	-	-	-	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	1	4	2.04	-	-	-
ICTIOBUS BUBALUS AD	1	4	2.00	-	-	-	-	-	-	1	4	1.08
MOXOSTOMA ANISURUM AD	-	-	-	2	8	10.53	2	8	4.08	-	-	-
MOXOSTOMA ERYTHRURUM	1	4	2.00	2	8	10.53	8	32	16.33	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	1	4	5.26	1	4	2.04	-	-	-
ICTALURUS NATALIS AD	-	-	-	-	-	-	-	-	-	2	8	2.15
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-	-	-	-
PYLODICTIS OLIVARIS	-	-	-	-	-	-	-	-	-	1	4	1.08
MORONE MISSISSIPPIENSIS AD	-	-	-	2	8	10.53	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	-	-	-	11	44	11.83
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-	1	4	1.08
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-	11	44	11.83
MICROPTERUS DOLOMIEUI AD	-	-	-	2	8	10.53	2	8	4.08	2	8	2.15
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-	1	4	2.04	3	12	3.23
APLODINOTUS GRUNNIENS AD	2	8	4.00	2	8	10.53	4	16	8.16	-	-	-
TOTAL NUMBER	50			19			49			93		
NUMBER OF SPECIES	9			9			12			15		
TOTAL CPE		200			76			196			372	

TABLE 3.3-14 (CONT.)

	LOCATION 7 NO.	LOCATION 7 CPE	LOCATION 7 %	LOCATION 9 NO.	LOCATION 9 CPE	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 CPE	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	8	32	29.63	14	56	32.56	3	12	8.11
CARASSIUS AURATUS AD	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	12	11.11	11	44	25.58	13	52	35.14
PIMEPHALES PROMELAS AD	-	-	-	1	4	2.33	-	-	-
NOTROPIS CORNUTUS	-	-	-	-	-	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	3	12	11.11	4	16	9.30	3	12	8.11
PIMEPHALES VIGILAX AD	-	-	-	-	-	-	-	-	-
CARP X GOLDFISH HYBRID	2	8	7.41	-	-	-	6	24	16.22
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	-	-	-	-	-	-
CARPOIDES VELIFER	-	-	-	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	1	4	3.70	3	12	6.98	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	1	4	3.70	-	-	-	7	28	18.92
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	2	8	5.41
ICTALURUS NATALIS AD	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	1	4	3.70	3	12	6.98	-	-	-
PYLODICTIS OLIVARIS	-	-	-	-	-	-	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	6	24	22.22	2	8	4.65	1	4	2.70
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	1	4	3.70	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	3	12	6.98	1	4	2.70
MICROPTERUS SALMOIDES AD	-	-	-	2	8	4.65	-	-	-
POMOXIS ANNULARIS AD	1	4	3.70	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-	1	4	2.70
TOTAL NUMBER	27			43			37		
NUMBER OF SPECIES	9			9			8		
TOTAL CPE		108			172			148	

TABLE 3.3-15 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 3 AUGUST 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	1	4	10.00	1	4	11.11	7	28	77.78	27	108	37.50
CYPRINUS CARPIO AD	3	12	30.00	-	-	-	-	-	-	4	16	5.56
NOTROPIS ATHERINOIDES AD	1	4	10.00	1	4	11.11	-	-	-	22	88	30.56
CARP X GOLDFISH HYBRID	1	4	10.00	-	-	-	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	5	20	6.94
CARPIODES CYPRINUS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-	1	4	1.39
MOXOSTOMA ANISURUM AD	-	-	-	1	4	11.11	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	2	8	20.00	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	1	4	11.11	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	-	-	-	7	28	9.72
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-	1	4	1.39
LEPOMIS MACROCHIRUS AD	1	4	10.00	-	-	-	-	-	-	3	12	4.17
MICROPTERUS DOLOMIEUI AD	-	-	-	1	4	11.11	-	-	-	1	4	1.39
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-	1	4	1.39
POMOXIS ANNULARIS AD	1	4	10.00	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	4	16	44.44	2	8	22.22	-	-	-
TOTAL NUMBER	10			9			9			72		
NUMBER OF SPECIES	7			6			2			10		
TOTAL CPE		40			36			36			288	

TABLE 3.3-15 (CONT.)

	LOCATION 7 NO.	CPE	%	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
DOROSOMA CEPEDIANUM AD	7	30	29.17	20	80	52.63	5	20	45.45
CYPRINUS CARPIO AD	6	26	25.00	4	16	10.53	1	4	9.09
NOTROPIS ATHERINOIDES AD	2	9	8.33	3	12	7.89	-	-	-
CARP X GOLDFISH HYBRID	-	-	-	2	8	5.26	2	8	18.18
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	1	4	2.63	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	1	4	4.17	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	-	-	-	4	16	10.53	2	8	18.18
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	1	4	4.17	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	2	9	8.33	-	-	-	-	-	-
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	3	13	12.50	1	4	2.63	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	-	-	-
MICROPTERUS SALMOIDES AD	1	4	4.17	-	-	-	1	4	9.09
POMOXIS ANNULARIS AD	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	1	4	4.17	3	12	7.89	-	-	-
TOTAL NUMBER	24			38			11		
NUMBER OF SPECIES	9			8			5		
TOTAL CPE		103			152			44	

TABLE 3.3-16 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT(FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 18 AUGUST 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	11	44	37.93	38	152	77.55	26	104	60.47	23	92	10.00
ESOX LUCIUS AD	-	-	-	-	-	-	-	-	-	-	-	-
CARASSIUS AURATUS AD	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	4	16	13.79	1	4	2.04	4	16	9.30	-	-	-
NOTROPIS ATHERINOIDES AD	9	36	31.03	2	8	4.08	8	32	18.60	157	628	68.26
CARP X GOLDFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	1	4	0.43
CARPOIDES VELIFER	-	-	-	-	-	-	-	-	-	1	4	0.43
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	1	4	2.04	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	1	4	3.45	1	4	2.04	3	12	6.98	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	3	12	10.34	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	1	4	2.04	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	1	4	2.04	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	-	-	-	31	124	13.48
LEPOMIS GIBBOSUS AD	-	-	-	1	4	2.04	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-	10	40	4.35
MICROPTERUS DOLOMIEUI AD	-	-	-	2	8	4.08	1	4	2.33	6	24	2.61
MICROPTERUS SALMOIDES AD	1	4	3.45	-	-	-	-	-	-	-	-	-
PERCINA CAPRODES AD	-	-	-	-	-	-	1	4	2.33	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	1	4	2.04	-	-	-	1	4	0.43
TOTAL NUMBER	29			49			43			230		
NUMBER OF SPECIES	6			10			6			8		
TOTAL CPE		116			196			172			920	

TABLE 3.3-16 (CONT.)

	LOCATION 7			LOCATION 9			LOCATION 10		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	27	108	75.00	7	28	58.33	21	84	51.22
ESOX LUCIUS AD	-	-	-	-	-	-	1	4	2.44
CARASSIUS AURATUS AD	-	-	-	-	-	-	1	4	2.44
CYPRINUS CARPIO AD	2	8	5.56	2	8	16.67	1	4	2.44
NOTROPIS ATHERINOIDES AD	1	4	2.78	-	-	-	5	20	12.20
CARP X GOLDFISH HYBRID	1	4	2.78	2	8	16.67	2	8	4.88
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-
CARPOIDES VELIFER	-	-	-	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	1	4	2.44
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	1	4	2.78	-	-	-	5	20	12.20
MOXOSTOMA MACROLEPIDOTUM AD	1	4	2.78	-	-	-	3	12	7.32
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	1	4	2.78	-	-	-	-	-	-
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	2	8	5.56	-	-	-	1	4	2.44
MICROPTERUS SALMOIDES AD	-	-	-	1	4	8.33	-	-	-
PERCINA CAPRODES AD	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	36			12			41		
NUMBER OF SPECIES	8			4			10		
TOTAL CPE		144			48			164	

TABLE 3.3-17 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 8 SEPTEMBER 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
ALOSA CHRYSOCHLORIS	–	–	–	–	–	–	–	–	–	1	4	2.38
DOROSOMA CEPEDIANUM AD	10	40	28.57	38	152	67.86	16	64	72.73	12	48	28.57
CARASSIUS AURATUS AD	–	–	–	–	–	–	–	–	–	–	–	–
CYPRINUS CARPIO AD	4	16	11.43	–	–	–	2	8	9.09	7	28	16.67
NOTROPIS SPILOPTERUS AD	–	–	–	1	4	1.79	–	–	–	–	–	–
NOTROPIS ATHERINOIDES AD	4	16	11.43	3	12	5.36	2	8	9.09	1	4	2.38
PIMEPHALES NOTATUS AD	–	–	–	–	–	–	–	–	–	–	–	–
CARP X GOLDFISH HYBRID	7	28	20.00	–	–	–	–	–	–	1	4	2.38
CARPIODES CARPIO AD	–	–	–	1	4	1.79	1	4	4.55	–	–	–
ICTIOBUS BUBALUS AD	–	–	–	–	–	–	–	–	–	1	4	2.38
ICTIOBUS CYPRINELLUS AD	–	–	–	–	–	–	–	–	–	1	4	2.38
MOXOSTOMA ANISURUM AD	2	8	5.71	–	–	–	–	–	–	–	–	–
MOXOSTOMA ERYTHRURUM	3	12	8.57	2	8	3.57	–	–	–	–	–	–
MOXOSTOMA MACROLEPIDOTUM AD	1	4	2.86	2	8	3.57	–	–	–	–	–	–
ICTALURUS MELAS AD	1	4	2.86	–	–	–	–	–	–	–	–	–
ICTALURUS PUNCTATUS AD	–	–	–	2	8	3.57	–	–	–	–	–	–
AMBLOPLITES RUPESTRIS AD	–	–	–	–	–	–	–	–	–	–	–	–
LEPOMIS CYANELLUS AD	–	–	–	2	8	3.57	–	–	–	12	48	28.57
LEPOMIS GIBBOSUS AD	–	–	–	–	–	–	–	–	–	2	8	4.76
LEPOMIS HUMILIS AD	–	–	–	1	4	1.79	–	–	–	–	–	–
LEPOMIS MACROCHIRUS AD	–	–	–	–	–	–	–	–	–	2	8	4.76
MICROPTERUS DOLOMIEUI AD	1	4	2.86	2	8	3.57	1	4	4.55	1	4	2.38
MICROPTERUS SALMOIDES AD	–	–	–	–	–	–	–	–	–	1	4	2.38
APLODINOTUS GRUNNIENS AD	2	8	5.71	2	8	3.57	–	–	–	–	–	–
TOTAL NUMBER	35			56			22			42		
NUMBER OF SPECIES	10			11			5			12		
TOTAL CPE		140			224			88			168	

TABLE 3.3-17(CONT.)

	LOCATION 7 NO.	CPE	%	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	38	152	73.08	6	24	35.29	31	124	83.78
CARASSIUS AURATUS AD	-	-	-	-	-	-	1	4	2.70
CYPRINUS CARPIO AD	1	4	1.92	1	4	5.88	2	8	5.41
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	2	8	3.85	2	8	11.76	-	-	-
PIMEPHALES NOTATUS AD	-	-	-	1	4	5.88	-	-	-
CARP X GOLDFISH HYBRID	1	4	1.92	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-
ICTIOBUS CYPRINELLUS AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	-	-	-	-	-	-	1	4	2.70
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	1	4	5.88	1	4	2.70
ICTALURUS MELAS AD	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	1	4	1.92	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	6	24	11.54	3	12	17.65	-	-	-
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-
LEPOMIS HUMILIS AD	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	1	4	1.92	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	1	4	1.92	3	12	17.65	1	4	2.70
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	1	4	1.92	-	-	-	-	-	-
TOTAL NUMBER	52			17			37		
NUMBER OF SPECIES	9			7			6		
TOTAL CPE		208			68			148	

TABLE 3.3-18 SPECIES COMPOSITION, CATCH -PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 21 SEPTEMBER 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 6		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	8	32	24.24	77	308	91.67	90	386	58.06	22	88	30.14
CARASSIUS AURATUS AD	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	12	9.09	-	-	-	-	-	-	4	16	5.48
NOTROPIS ATHERINOIDES AD	18	72	54.55	5	20	5.95	64	274	41.29	16	64	21.92
CARP X GOLDFISH HYBRID	1	4	3.03	-	-	-	-	-	-	-	-	-
NOTROPIS LUTRENSIS AD	-	-	-	-	-	-	-	-	-	1	4	1.37
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	1	4	3.03	1	4	1.19	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	1	4	3.03	-	-	-	-	-	-	1	4	1.37
AMBLOPLITES RUPESTRIS AD	-	-	-	1	4	1.19	1	4	0.65	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	-	-	-	22	88	30.14
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-	2	8	2.74
MICROPTERUS DOLOMIEUI AD	1	4	3.03	-	-	-	-	-	-	3	12	4.11
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	-	-	-	2	8	2.74
POMOXIS NIGROMACULATUS AD	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	33			84			155			73		
NUMBER OF SPECIES	7			4			3			9		
TOTAL CPE		132			336			664			292	

TABLE 3.3-18(CONT.)

	LOCATION 7 NO.	CPE	%	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
DOROSOMA CEPEDIANUM AD	55	220	60.44	38	152	55.07	69	276	81.18
CARASSIUS AURATUS AD	-	-	-	-	-	-	1	4	1.18
CYPRINUS CARPIO AD	4	16	4.40	2	8	2.90	-	-	-
NOTROPIS ATHERINOIDES AD	26	104	28.57	16	64	23.19	12	48	14.12
CARP X GOLDFISH HYBRID	2	8	2.20	7	28	10.14	2	8	2.35
NOTROPIS LUTRENSIS AD	-	-	-	-	-	-	-	-	-
CARPIODES CARPIO AD	1	4	1.10	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	1	4	1.10	4	16	5.80	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	1	4	1.18
MICROPTERUS SALMOIDES AD	2	8	2.20	1	4	1.45	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	1	4	1.45	-	-	-
TOTAL NUMBER	91			69			85		
NUMBER OF SPECIES	7			7			5		
TOTAL CPE		364			276			340	

TABLE 3.3-19 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 24 JUNE 1981.

Species	Location 1			Location 2			Location 5			Location 7			Location 9			Location 10		
	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
Longnose gar	-	-	-	1	<1	25.0	-	-	-	-	-	-	-	-	-	-	-	-
Gizzard shad	-	-	-	1	<1	25.0	-	-	-	2	1	6.9	-	-	-	-	-	-
Carp	17	6	63.0	2	1	50.0	2	1	40.0	14	6	48.3	4	2	100.0	4	2	100.0
Goldfish x Carp	6	2	22.0	-	-	-	-	-	-	1	<1	3.4	-	-	-	-	-	-
River carpsucker	-	-	-	-	-	-	-	-	-	3	1	10.3	-	-	-	-	-	-
Quillback	-	-	-	-	-	-	-	-	-	2	1	6.9	-	-	-	-	-	-
Smallmouth buffalo	1	<1	3.7	-	-	-	-	-	-	1	<1	3.4	-	-	-	-	-	-
Silver redhorse	-	-	-	-	-	-	1	<1	20.0	1	<1	3.4	-	-	-	-	-	-
Shorthead redhorse	1	<1	3.7	-	-	-	-	-	-	1	<1	3.4	-	-	-	-	-	-
Black bullhead	1	<1	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Channel catfish	-	-	-	-	-	-	1	<1	20.0	-	-	-	-	-	-	-	-	-
White bass	-	-	-	-	-	-	-	-	-	2	1	6.9	-	-	-	-	-	-
Yellow bass	1	<1	3.7	-	-	-	-	-	-	1	<1	3.4	-	-	-	-	-	-
Freshwater drum	-	-	-	-	-	-	1	<1	20.0	1	<1	3.4	-	-	-	-	-	-
Total Number	27			4			5			29			4			4		
Number of Species	5			3			4			10			1			1		
Total CPE		10			1.5			1.9			12			2			2	

TABLE 3.3-20 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 8 JULY 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	3	1	10.71	2	1	66.67	-	-	-	1	<1	2.38
DOROSOMA CEPEDIANUM AD	3	1	10.71	-	-	-	-	-	-	1	<1	2.38
HIODON ALOSOIDES	-	-	-	-	-	-	2	1	11.11	-	-	-
CYPRINUS CARPIO AD	16	6	57.14	1	<1	33.33	7	3	38.89	31	13	73.81
CARP X GOLDFISH HYBRID	4	2	14.29	-	-	-	-	-	-	1	<1	2.38
CARPIODES CARPIO AD	1	<1	3.57	-	-	-	1	<1	5.56	1	<1	2.38
CARPIODES CYPRINUS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	1	<1	5.56	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	1	<1	5.56	1	<1	2.38
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	5	2	27.78	2	1	4.76
ICTALURUS MELAS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	1	<1	3.57	-	-	-	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-	-	-	-	3	1	7.14
POMOXIS ANNULARIS AD	-	-	-	-	-	-	1	<1	5.56	1	<1	2.38
TOTAL NUMBER	28			3			18			42		
NUMBER OF SPECIES	5			2			7			8		
TOTAL CPE		11			1			6			18	

TABLE 3.3-20 (CONT.)

	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-
CYPRINUS CARPIO AD	5	2	100	7	3	100
CARP X GOLDFISH HYBRID	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-
ICTALURUS MELAS AD	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-
TOTAL NUMBER	5			7		
NUMBER OF SPECIES	1			1		
TOTAL CPE		2			3	

TABLE 3.3-21 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 22 JULY 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSUES AD	3	1	11.11	1	<1	14.29	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	1	<1	3.70	2	1	28.57	3	1	50.00	2	1	5.26
HIODON ALOSOIDES	-	-	-	1	<1	14.29	1	<1	16.67	2	1	5.26
CYPRINUS CARPIO AD	12	5	44.44	-		-	1	<1	16.67	25	10	65.79
CARP X GOLDFISH HYBRID	9	4	33.33	-	-	-	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	1	<1	2.63
CATOSTOMUS COMMERSONI AD	1	<1	3.70	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-	2	1	5.26
MOXOSTOMA ERYTHRURUM	-	-	-	-	-	-	-	-	-	1	<1	2.63
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	1	<1	16.67	1	<1	2.63
ICTALURUS MELAS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTALURUS NATALIS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-	3	1	7.89
MORONE CHRYSOPS AD	-	-	-	2	1	28.57	-	-	-	1	<1	2.63
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-	-	-	-	-	-	-
POMOXIS ANNULARIS AD	1	<1	3.70	1	<1	14.29	-	-	-	-	-	-
TOTAL NUMBER	27			7			6			38		
NUMBER OF SPECIES	6			5			4			9		
TOTAL CPE		12			3			2			16	

TABLE 3.3-21 (CONT.)

	LOCATION 9[a]			LOCATION 10		
	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	9	4	90.00
CARP X GOLDFISH HYBRID	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	-		-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-
ICTALURUS MELAS AD	-	-	-	-	-	-
ICTALURUS NATALIS AD	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	1	1	10.00
MORONE CHRYSOPS AD	-	-	-	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-
TOTAL NUMBER	0			10		
NUMBER OF SPECIES	0			2		
TOTAL CPE		0			4	

[a]Net lost.

TABLE 3.3-22 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 5 AUGUST 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	1	0	16.67	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	2	1	33.33	2	1	13.33	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-	1	0	6.67	-	-	-
CYPRINUS CARPIO AD	10	4	90.91	-	-	-	6	2	40.00	11	4	68.75
CARP X GOLDFISH HYBRID	-	-	-	-	-	-	-	-	-	1	0	6.25
CARPIODES CARPIO AD	-	-	-	-	-	-	1	0	6.67	1	0	6.25
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	1	0	6.67	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	1	0	9.09	1	0	16.67	2	1	13.33	1	0	6.25
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	1	0	6.67	-	-	-
MORONE CHRYSOPS AD	-	-	-	1	0	16.67	-	-	-	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	-	-	-	-	-	-	1	0	6.25
APLODINOTUS GRUNNIENS AD	-	-	-	1	0	16.67	1	0	6.67	1	0	6.25
TOTAL NUMBER	11			6			15			16		
NUMBER OF SPECIES	2			5			8			6		
TOTAL CPE		4			2			6			6	

TABLE 3.3-22 (CONT.)

	LOCATION 9			LOCATION 10		
	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	5	2	100
CARP X GOLDFISH HYBRID	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-
TOTAL NUMBER	0			5		
NUMBER OF SPECIES	0			1		
TOTAL CPE		0			2	

TABLE 3.3-23 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 20 AUGUST 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	-	-	-	1	0	25.00	-	-	-	1	0	4.35
CYPRINUS CARPIO AD	15	5	83.33	2	1	50.00	-	-	-	14	5	60.87
CARP X GOLDFISH HYBRID	1	0	5.56	-	-	-	-	-	-	1	0	4.35
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	3	1	13.04
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-	1	0	4.35
MOXOSTOMA MACRO AD	-	-	-	-	-	-	-	-	-	2	1	8.70
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-	-	1	0	4.35
MORONE MISSIPPIENSIS AD	1	0	5.56	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	1	0	5.56	1	0	25.00	-	-	-	-	-	-
TOTAL NUMBER	18			4			0			23		
NUMBER OF SPECIES	4			3			0			7		
TOTAL CPE		6			1			0			8	

TABLE 3.3-23 (CONT.)

	LOCATION 9 NO.	LOCATION 9 CPE	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 CPE	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	1	0	14.29	-	-	-
CYPRINUS CARPIO AD	4	1	57.14	15	5	83.33
CARP X GOLDFISH HYBRID	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	3	1	16.67
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-
MOXOSTOMA MACRO AD	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	1	0	14.29	-	-	-
MORONE MISSIPPIENSIS AD	1	0	14.29	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-
TOTAL NUMBER	7			18		
NUMBER OF SPECIES	4			2		
TOTAL CPE		3			6	

TABLE 3.3-24 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 10 SEPTEMBER 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	1	0	6.25	-	-	-	-	-	-	-	-	-
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-	1	0	3.13	-	-	-
DOROSOMA CEPEDIANUM AD	2	1	12.50	2	1	16.67	16	6	50.00	-	-	-
HIODON ALOSOIDES	1	0	6.25	-	-	-	1	0	3.13	-	-	-
CYPRINUS CARPIO AD	7	3	43.75	3	1	25.00	7	3	21.88	7	3	87.50
CARP X GOLDFISH HYBRID	2	1	12.50	-	-	-	-	-	-	1	0	12.50
CARPIODES CYPRINUS AD	-	-	-	-	-	-	1	0	3.13	-	-	-
ICTIOBUS BUBALUS AD	1	0	6.25	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	2	1	12.50	2	1	16.67	3	1	9.38	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	1	0	8.33	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	1	0	8.33	-	-	-	-	-	-
MORONE MISSIPPIENSIS AD	-	-	-	-	-	-	3	1	9.38	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	1	0	8.33	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	2	1	16.67	-	-	-	-	-	-
TOTAL NUMBER	16			12			32			8		
NUMBER OF SPECIES	7			7			7			2		
TOTAL CPE		6			4			12			3	

TABLE 3.3-24 (CONT.)

	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	-	-	-
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	2	1	33.33	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	1	50.00	1	0	100
CARP X GOLDFISH HYBRID	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	1	0	16.67	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-
TOTAL NUMBER	6			1		
NUMBER OF SPECIES	3			1		
TOTAL CPE		2			0	

TABLE 3.3-25 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 23 SEPTEMBER 1981.

	LOCATION 1			LOCATION 2			LOCATION 5			LOCATION 7		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	-	-	-	-	-	-	1	0	7.14
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-	1	0	4.00	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-	6	2	24.00	1	0	7.14
HIODON ALOSOIDES	-	-	-	2	1	100	8	3	32.00	3	1	21.43
CYPRINUS CARPIO AD	2	1	50.00	-	-	-	7	2	28.00	8	3	57.14
CARP X GOLDFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	1	0	25.00	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACRO AD	1	0	25.00	-	-	-	-	-	-	-	-	-
ICTALURUS MELAS AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	2	1	8.00	1	0	7.14
MORONE MISSIPPIENSIS AD	-	-	-	-	-	-	1	0	4.00	-	-	-
TOTAL NUMBER	4			2			25			14		
NUMBER OF SPECIES	3			1			6			5		
TOTAL CPE		1			1			9			5	

TABLE 3.3-25 (CONT.)

	LOCATION 9 NO.	CPE	%	LOCATION 10 NO.	CPE	%
LEPISOSTEUS OSSUES AD	-	-	-	-	-	-
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	1	0	16.67	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-
CYPRINUS CARPIO AD	4	2	66.67	7	3	77.78
CARP X GOLDFISH HYBRID	-	-	-	1	0	11.11
ICTIOBUS BUBALUS AD	-	-	-	1	0	11.11
MOXOSTOMA MACRO AD	-	-	-	-	-	-
ICTALURUS MELAS AD	1	0	16.67	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-
MORONE MISSIPPIENSIS AD	-	-	-	-	-	-
TOTAL NUMBER	6			9		
NUMBER OF SPECIES	3			3		
TOTAL CPE		2			3	

TABLE 3.3-26 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 24 JUNE 1981.

Species	Location 1		Location 2		Location 5		Location 7		Location 9		Location 10	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Gizzard shad	-	-	-	-	22	73.3	150	90.4	3	12.5	29	82.9
Carp	1	25.0	-	-	-	-	-	-	-	-	2	5.7
Emerald shiner	2	50.0	3	18.8	1	3.3	2	1.2	1	4.2	1	2.9
Spottail shiner	-	-	-	-	-	-	-	-	-	-	2	5.7
Spotfin shiner	-	-	1	6.2	-	-	-	-	-	-	-	-
Suckermouth minnow	-	-	1	6.2	-	-	-	-	-	-	-	-
Bluntnose minnow	-	-	-	-	-	-	-	-	-	-	1	2.9
Bullhead minnow	1	25.0	2	12.5	-	-	-	-	-	-	-	-
Black bullhead	-	-	-	-	-	-	-	-	1	4.2	-	-
Channel catfish	-	-	4	25.0	-	-	-	-	-	-	-	-
Green sunfish	-	-	-	-	-	-	-	-	1	4.2	-	-
Orangespotted sunfish	-	-	2	12.5	2	6.7	3	1.8	-	-	-	-
Bluegill	-	-	-	-	1	3.3	-	-	-	-	-	-
White crappie	-	-	-	-	1	3.3	-	-	-	-	-	-
Black crappie	-	-	-	-	1	3.3	-	-	-	-	-	-
Freshwater drum	-	-	3	18.8	2	6.7	11	6.6	18	75.0	-	-
Total Number	4		16		30		166		24		35	
Number of Species	3		7		6		4		5		5	

TABLE 3.3-27 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 6 JULY 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	-	-	-	2	28.57
NOTROPIS HUDSONIUS AD	-	-	-	-	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	1	16.67	-	-	-	-
PIMEPHALES NOTATUS AD	-	-	1	16.67	-	-	-	-
NOTROPIS STRAMINEUS AD	-	-	-	-	-	-	1	14.29
CARP X GOLDFISH HYBRID	1	50.00	-	-	-	-	-	-
NOTROPIS LUTRENSIS AD	-	-	1	16.67	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	1	16.67	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	2	28.57
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	1	16.67	-	-	-	-
MICROPTERUS SALMOIDES AD	1	50.00	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	1	16.67	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-	2	28.57
TOTAL NUMBER	2		6		0		7	
NUMBER OF SPECIES	2		6		0		4	

TABLE 3.3-27 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
CYPRINUS CARPIO AD	-	-	2	40.00
NOTROPIS HUDSONIUS AD	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	2	40.00
PIMEPHALES NOTATUS AD	-	-	-	-
NOTROPIS STRAMINEUS AD	-	-	-	-
CARP X GOLDFISH HYBRID	-	-	-	-
NOTROPIS LUTRENSIS AD	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	1	20.00
MICROPTERUS SALMOIDES AD	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-
TOTAL NUMBER	0		5	
NUMBER OF SPECIES	0		3	

TABLE 3.3-28 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 21 JULY 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	2	25.00	-	-	3	27.27	8	88.89
ESOX LUCIUS AD	-	-	1	14.29	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	-	2	18.18	1	11.11
NOTROPIS SPILOPTERUS AD	-	-	1	14.29	-	-	-	-
NOTROPIS ATHERINOIDES AD	3	37.50	-	-	1	9.09	-	-
PIMEPHALES VIGILAX AD	-	-	3	42.86	-	-	-	-
CARPIODES CARPIO AD	1	12.50	1	14.29	2	18.18	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	-	-
PERCOPSIS OMISCOMAYCUS AD	-	-	-	-	-	-	-	-
LEPOMIS HUMILIS AD	-	-	1	14.29	-	-	-	-
POMOXIS ANNULARIS AD	1	12.50	-	-	2	18.18	-	-
POMOXIS NIGROMACULATUS AD	1	12.50	-	-	-	-	-	-
PERCA FLAVESCENS AD	-	-	-	-	1	9.09	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-	-	-
TOTAL NUMBER	8		7		11		9	
NUMBER OF SPECIES	5		5		6		2	

TABLE 3.3-28 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
ESOX LUCIUS AD	-	-	-	-
CYPRINUS CARPIO AD	1	20.00	4	33.33
NOTROPIS SPILOPTERUS AD	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	5	41.67
PIMEPHALES VIGILAX AD	-	-	-	-
CARPIODES CARPIO AD	-	-	1	8.33
ICTALURUS PUNCTATUS AD	1	20.00	-	-
PERCOPSIS OMISCOMAYCUS AD	2	40.00	-	-
LEPOMIS HUMILIS AD	-	-	-	-
POMOXIS ANNULARIS AD	-	-	2	16.67
POMOXIS NIGROMACULATUS AD	-	-	-	-
PERCA FLAVESCENS AD	-	-	-	-
APLODINOTUS GRUNNIENS AD	1	20.00	-	-
TOTAL NUMBER	5		12	
NUMBER OF SPECIES	4		4	

TABLE 3.3-29 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 4 AUGUST 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	1	20.00	1	6.25	-	-	4	33.33
CYPRINUS CARPIO AD	1	20.00	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	1	20.00	11	68.75	4	80.00	3	25.00
PIMEPHALES NOTATUS AD	-	-	1	6.25	-	-	-	-
PIMEPHALES VIGILAX AD	-	-	-	-	-	-	1	8.33
CARPOIDES SP AD	1	20.00	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	1	6.25	-	-	-	-
LEPOMIS HUMILIS AD	-	-	1	6.25	-	-	1	8.33
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	1	8.33
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	1	8.33
MICROPTERUS SALMOIDES AD	1	20.00	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-	-	-
PERCINA CAPRODES AD	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	1	6.25	1	20.00	1	8.33
TOTAL NUMBER	5		16		5		12	
NUMBER OF SPECIES	5		6		2		7	

TABLE 3.3-29 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
CYPRINUS CARPIO AD	1	33.33	3	33.33
NOTROPIS ATHERINOIDES AD	-	-	3	33.33
PIMEPHALES NOTATUS AD	-	-	-	-
PIMEPHALES VIGILAX AD	-	-	-	-
CARPOIDES SP AD	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-
LEPOMIS HUMILIS AD	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	-
MICROPTERUS SALMOIDES AD	-	-	2	22.22
POMOXIS ANNULARIS AD	1	33.33	-	-
PERCINA CAPRODES AD	-	-	1	11.11
APLODINOTUS GRUNNIENS AD	1	33.33	-	-
TOTAL NUMBER	3		9	
NUMBER OF SPECIES	3		4	

TABLE 3.3-30 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 19 AUGUST 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	-	-	1	25.00	-	-	-	-
CYPRINUS CARPIO AD	1	50.00	-	-	1	100	-	-
NOTROPIS HUDSONIUS AD	1	50.00	-	-	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	1	25.00	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	2	50.00	-	-	1	25.00
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	1	25.00
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	1	25.00
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	1	25.00
TOTAL NUMBER	2		4		1		4	
NUMBER OF SPECIES	2		3		1		4	

TABLE 3.3-30 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	-
NOTROPIS HUDSONIUS AD	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	-	-
LEPOMIS CYANELLUS AD	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	1	100
TOTAL NUMBER	0		1	
NUMBER OF SPECIES	0		1	

TABLE 3.3-31 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 9 SEPTEMBER 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	-	-	3	30.00	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	5	50.00	10	100	3	75.00
PIMEPHALES NOTATUS AD	-	-	1	10.00	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	1	25.00
PERCINA CAPRODES AD	-	-	1	10.00	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	-	-	-	-
TOTAL NUMBER	0		10		10		4	
NUMBER OF SPECIES	0		4		1		2	

TABLE 3.3-31 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
NOTROPIS ATHERINOIDES AD	5	83.33	-	-
PIMEPHALES NOTATUS AD	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	1	100
LEPOMIS MACROCHIRUS AD	-	-	-	-
PERCINA CAPRODES AD	-	-	-	-
APLODINOTUS GRUNNIENS AD	1	16.67	-	-
TOTAL NUMBER	6		1	
NUMBER OF SPECIES	2		1	
TOTAL CPE				

TABLE 3.3-32 SPECIES COMPOSITON AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, 22 SEPTEMBER 1981.

	LOCATION 1		LOCATION 2		LOCATION 5		LOCATION 7	
	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	1	1.82	1	2.33	-	-	1	14.29
CYPRINUS CARPIO AD	-	-	-	-	-	-	1	14.29
NOTROPIS SPILOPTERUS AD	1	1.82	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	53	96.36	42	97.67	45	100	4	57.14
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-	-	-
MICROPTERUS SALMOIDES AD	-	-	-	-	-	-	1	14.29
TOTAL NUMBER	55		43		45		7	
NUMBER OF SPECIES	3		2		1		4	

TABLE 3.3-32 (CONT.)

	LOCATION 9 NO.	LOCATION 9 %	LOCATION 10 NO.	LOCATION 10 %
DOROSOMA CEPEDIANUM AD	-	-	-	-
CYPRINUS CARPIO AD	-	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-
NOTROPIS ATHERINOIDES AD	3	100	9	90.00
LEPOMIS MACROCHIRUS AD	-	-	1	10.00
MICROPTERUS SALMOIDES AD	-	-	-	-
TOTAL NUMBER	3		10	
NUMBER OF SPECIES	1		2	

TABLE 3.3-33 NUMBER AND MEAN CONDITION FACTOR OF SELECT SPECIES OF FISH COLLECTED AT EACH SAMPLING LOCATION NEAR THE DRESDEN STATION, JUNE - SEPTEMBER 1981.

				Location 1		Location 2		Location 5		Location 6		Location 7		Location 9		Location 10	
Month	Species	Maturity	Sex	No.	Mean K[a]	No.	Mean K	No.	Mean K	No.	Mean K	No.	Mean K	No.	Mean K	No.	Mean K
June	Carp	Adult	M[b]	9	1.52	2	1.42	1	1.67	4	1.54	7	1.54	2	1.66	4	1.48
			F[c]	8	1.63	-	-	1	1.40	5	1.55	6	1.56	5	1.53	1	1.61
		Immature	-	-	-	-	-	-	-	1	1.41	1	1.45	4	1.57		
	Goldfish	Adult	M	-	-	-	-	-	-	3	1.59	-	-	-	-	-	-
			F	1	2.93	-	-	-	-	-	-	-	-	-	-	-	-
	Carp x Goldfish	Adult	M	8	1.57	-	-	-	-	1	1.69	-	-	-	-	1	1.54
			F	7	1.81	-	-	-	-	-	-	1	1.70	-	-	-	-
		Immature	-	-	-	-	-	-	-	1	1.72	-	-	1	1.71	-	-
	Shorthead redhorse	Adult	F	-	-	1	0.82	-	-	-	-	1	1.13	-	-	-	-
		Immature	-	-	-	5	0.91	1	0.91	-	-	-	-	-	-	-	-
	Smallmouth bass	Immature	-	-	-	-	-	-	-	1	0.94	1	1.21	1	1.06	3	1.15
July	Carp	Adult	M	15	1.44	1	1.35	5	1.46	1	1.49	19	1.34	6	1.42	16	1.50
			F	11	1.57	1	1.78	6	1.36	2	1.60	12	1.49	13	1.53	6	1.59
		Immature	-	1	1.30	1	1.39	3	1.34	-	-	1	1.39	7	1.29	2	1.38
	Goldfish	Adult	F	1	3.39	-	-	-	-	-	-	-	-	-	-	-	-
	Carp x Goldfish	Adult	M	17	1.79	-	-	1	1.51	-	-	3	1.72	2	1.87	4	1.83
			F	7	1.81	-	-	-	-	-	-	-	-	1	1.65	2	2.22
		Immature	-	-	-	-	-	-	-	-	-	1	1.26	-	-		
	Shorthead redhorse	Adult	M	-	-	-	-	3	0.87	-	-	2	0.95	-	-	1	0.91
			F	-	-	-	-	1	0.89	-	-	-	-	-	-	-	-
			U[d]	-	-	-	-	2	0.84	-	-	1	0.98	-	-	-	-
		Immature	-	-	-	1	0.96	2	0.83	-	-	-	-	-	-	1	0.71
	Smallmouth bass	Adult	M	-	-	-	-	-	-	-	-	-	-	1	1.77	-	-
			U	-	-	1	0.94	-	-	-	-	-	-	-	-	-	-
		Immature	-	-	-	3	1.02	3	1.18	2	1.14	-	-	2	1.30	5	1.24

TABLE 3.3-33 (CONT.)

Month	Species	Maturity	Sex	Location 1 No.	Location 1 Mean K	Location 2 No.	Location 2 Mean K	Location 5 No.	Location 5 Mean K	Location 6 No.	Location 6 Mean K	Location 7 No.	Location 7 Mean K	Location 9 No.	Location 9 Mean K	Location 10 No.	Location 10 Mean K
August	Carp	Adult	M	16	1.32	-	-	3	1.26	2	1.43	11	1.26	5	1.42	12	1.29
			F	7	1.22	3	1.27	5	1.31	1	1.39	14	1.26	1	1.35	5	1.33
		Immature	-	1	1.03	-	-	1	1.22	1	1.22	1	1.20	2	1.38	-	-
	Carp x Goldfish	Adult	M	1	1.49	-	-	-	-	-	-	2	1.42	1	1.78	3	1.58
			F	1	1.68	-	-	-	-	-	-	1	1.68	1	1.35	1	1.42
		Immature	-	-	-	-	-	-	-	-	-	-	-	1	1.53	-	-
	Shorthead redhorse	Adult	M	3	0.74	-	-	1	0.91	-	-	2	0.61	-	-	2	0.96
			F	1	0.66	-	-	1	0.74	-	-	1	1.01	-	-	1	0.67
			U	-	-	1	0.79	-	-	-	-	1	1.04	-	-	-	-
	Smallmouth bass	Adult	M	-	-	1	1.16	-	-	-	-	-	-	-	-	-	-
			F	-	-	1	1.11	1	1.31	-	-	-	-	-	-	-	-
		Immature	-	-	-	1	1.15	-	-	-	-	1	1.20	-	-	-	-
Sept.	Carp	Adult	M	7	1.49	-	-	9	1.37	7	1.46	9	1.31	2	1.40	6	1.39
			F	8	1.50	3	1.32	7	1.36	4	1.34	8	1.47	8	1.36	4	1.34
		Immature	-	1	1.49	-	-	-	-	-	-	4	1.56	-	-		
	Goldfish	Adult	M	-	-	-	-	-	-	-	-	-	-	-	-	2	2.60
	Carp x Goldfish	Adult	M	8	1.56	-	-	-	-	-	-	2	1.64	3	1.74	2	1.74
			F	2	1.68	-	-	-	-	1	1.78	1	1.55	2	1.64	1	1.81
		Immature	-	-	-	-	-	-	-	-	-	1	1.44	2	1.58	-	-
	Shorthead redhorse	Adult	M	-	-	1	0.76	-	-	-	-	-	-	-	-	-	-
			F	4	0.82	1	0.66	1	1.04	-	-	-	-	1	0.73	-	-
			U	1	0.97	-	-	-	-	1	0.84	-	-	-	-	-	-
		Immature	-	-	-	2	0.95	1	0.96	-	-	-	-	-	-	1	0.96
	Smallmouth bass	Adult	M	1	1.18	-	-	-	-	3	1.37	-	-	-	-	-	-
			F	-	-	-	-	-	-	1	1.25	-	-	-	-	-	-
		Immature	-	1	1.21	-	-	1	1.13	-	-	1	1.17	3	1.13	1	1.18

(a) Mean K-Factor
(b) M = Male
(c) F = Female
(d) U = Undetermined

TABLE 3.3-34 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 22-24 JUNE 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	1 #	1 %	2 #	2 %	5 #	5 %	6 #	6 %	7 #	7 %	9 #	9 %	10 #	10 %
					Number and Percent Affected/Sampling Location													
Carp	Deformed fins		15	17.0	4	15.4	0	0.0	0	0.0	8	38.1	3	16.7	0	0.0	0	0.0
	Eroded fins		6	6.8	2	7.7	0	0.0	0	0.0	4	19.0	0	0.0	0	0.0	0	0.0
	Lacerations		1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0
	Knothead		1	1.1	1	3.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Carp x Goldfish	Eroded fins		3	15.8	1	7.1	-[b]	-	-	-	1	50.0	0	0.0	0	0.0	1	100.0
	Deformed fins		2	10.5	1	7.1	-	-	-	-	1	50.0	0	0.0	0	0.0	0	0.0
River carpsucker	Eroded fins		1	20.0	-	-	1	100.0	-	-	-	-	0	0.0	0	0.0	-	-
Quillback	Deformed fins		1	20.0	0	0.0	0	0.0	-	-	0	0.0	1	50.0	-	-	-	-
Silver redhorse	Eroded fins		4	21.1	0	0.0	0	0.0	3	50.0	-	-	0	0.0	0	0.0	1	50.0
	Lacerations		2	10.5	0	0.0	0	0.0	1	16.7	-	-	0	0.0	1	100.0	0	0.0
Shorthead redhorse	Leech		1	11.1	0	0.0	1	16.7	0	0.0	-	-	0	0.0	-	-	-	-
Largemouth bass	Lesions		1	11.1	0	0.0	-	-	-	-	1	12.5	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-35 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 6-8 JULY 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location													
					1		2		5		6		7		9		10	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Carp	Eroded fins		8	7.3	1	5.0	0	0.0	0	0.0	-[b]	-	6	11.8	1	5.3	0	0.0
	Popeye		1	0.9	0	0.0	0	0.0	0	0.0	-	-	1	2.0	0	0.0	0	0.0
Carp x Goldfish	Eroded fins		1	8.3	1	12.5	-	-	0	0.0	-	-	0	0.0	0	0.0	-	-
Smallmouth buffalo	Eroded fins		2	50.0	-	-	0	0.0	0	0.0	2	100.0	-	-	-	-	-	-
Shorthead redhorse	Eroded fins		1	12.5	-	-	-	-	1	16.7	-	-	0	0.0	-	-	-	-
Channel catfish	Eroded fins		1	50.0	1	100.0	0	0.0	-	-	-	-	-	-	-	-	-	-
Green sunfish	Deformed fins		1	2.4	-	-	-	-	-	-	0	0.0	1	25.0	-	-	-	-
Bluegill	Eroded fins		1	4.8	-	-	-	-	-	-	0	0.0	1	50.0	-	-	-	-
Smallmouth bass	Eroded fins		2	20.0	-	-	0	0.0	0	0.0	0	0.0	-	-	-	-	2	40.0
Freshwater drum	Eroded fins		1	20.0	-	-	0	0.0	-	-	-	-	0	0.0	0	0.0	1	100.0

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-36 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 20-23 JULY 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	1 #	1 %	2 #	2 %	5 #	5 %	6 #	6 %	7 #	7 %	9 #	9 %	10 #	10 %
Gizzard shad	Deformed mouth		1	0.8	1	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Eroded fins		1	0.8	0	0.0	0	0.0	0	0.0	1	2.8	0	0.0	0	0.0	0	0.0
Goldfish	Lesions		1	100.0	1	100.0	-[b]	-	-	-	-	-	-	-	-	-	-	-
Carp	Deformed fins		17	18.1	2	13.3	1	100.0	1	12.5	1	33.3	4	13.8	2	16.7	6	23.1
	Knothead		2	2.1	0	0.0	0	0.0	0	0.0	0	0.0	1	3.4	0	0.0	1	3.8
	Eroded fins		2	2.1	1	6.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.8
	Deformed mouth		2	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3	1	3.8
	Lesions		1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0
	Eye missing		1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0
	Operculum missing		1	1.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0
Carp x Goldfish	Deformed fins		6	21.4	6	33.3	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
	Eroded fins		1	3.6	1	5.6	-	-	-	-	-	-	0	0.0	0	0.0	0	0.0
Bullhead minnow		*Neascus* spp.	1	25.0	-	-	1	25.0	-	-	-	-	-	-	-	-	-	-
River carpsucker	Eroded fins		1	8.3	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	-	-	0	0.0
Quillback	Deformed mouth		1	33.3	-	-	-	-	0	0.0	1	50.0	-	-	-	-	-	-
Smallmouth buffalo	Eroded fins		1	16.7	0	0.0	-	-	-	-	1	100.0	0	0.0	0	0.0	-	-
Silver redhorse	Eroded fins		1	25.0	-	-	0	0.0	1	50.0	-	-	-	-	-	-	-	-
	Deformed fins		1	25.0	-	-	0	0.0	1	50.0	-	-	-	-	-	-	-	-
Golden redhorse	Eroded fins		3	15.0	0	0.0	0	0.0	0	0.0	-	-	0	0.0	-	-	3	42.9
	Lesions		1	5.0	0	0.0	0	0.0	0	0.0	-	-	0	0.0	-	-	1	14.3
Shorthead redhorse	Deformed head		1	16.7	-	-	0	0.0	0	0.0	-	-	0	0.0	-	-	1	50.0
Yellow bullhead	Eroded fins		1	50.0	-	-	-	-	-	-	1	50.0	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-37 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 3-5 AUGUST 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location													
					1		2		5		6		7		9		10	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Carp	Eroded fins		3	5.5	0	0.0	-[b]	-	0	0.0	1	25.0	0	0.0	0	0.0	2	22.2
	Knothead		1	1.8	0	0.0	-	-	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0
		Lernea spp. (Anchor worm)	1	1.8	0	0.0	-	-	0	0.0	0	0.0	0	0.0	1	20.0	0	0.0
River carpsucker	Eroded fins		4	57.1	-	-	-	-	0	0.0	3	60.0	1	100.0	-	-	-	-
Golden redhorse	Eroded fins		2	25.0	1	50.0	-	-	-	-	-	-	-	-	1	25.0	0	0.0
	Lesion		1	12.5	0	0.0	-	-	-	-	-	-	-	-	1	25.0	0	0.0
Channel catfish	Lesion		1	33.3	-	-	1	50.0	0	0.0	-	-	-	-	-	-	-	-
		Leech	1	33.3	-	-	1	50.0	0	0.0	-	-	-	-	-	-	-	-
Freshwater drum		Leech	1	6.3	-	-	1	20.0	0	0.0	-	-	0	0.0	0	0.0	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-38 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 18-20 AUGUST 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	1 #	1 %	2 #	2 %	5 #	5 %	6 #	6 %	7 #	7 %	9 #	9 %	10 #	10 %
Gizzard shad	Eroded fins		1	0.6	0	0.0	0	0.0	0	0.0	1	4.3	0	0.0	0	0.0	0	0.0
Carp	Eroded fins		5	7.6	2	10.0	0	0.0	1	20.0	-[b]	-	2	12.5	0	0.0	0	0.0
River carpsucker	No fins		1	14.3	-	-	-	-	-	-	1	100.0	0	0.0	-	-	0	0.0
Golden redhorse	Eroded fins		4	36.4	0	0.0	0	0.0	1	33.3	-	-	1	100.0	-	-	2	40.0
	Ulcers		1	9.1	0	0.0	0	0.0	1	33.3	-	-	0	0.0	-	-	0	0.0
	Skoliosis		1	9.1	0	0.0	0	0.0	1	33.3	-	-	0	0.0	-	-	0	0.0
Shorthead redhorse	Eroded fins		2	22.2	1	33.3	-	-	-	-	-	-	0	0.0	-	-	1	33.3
Green sunfish	Eye missing		1	3.0	-	-	-	-	-	-	1	3.2	0	0.0	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-39 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 8-10 SEPTEMBER 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	Number and Percent Affected/Sampling Location 1 #	1 %	2 #	2 %	5 #	5 %	6 #	6 %	7 #	7 %	9 #	9 %	10 #	10 %
Gizzard shad	Deformed mouth		1	0.6	0	0.0	0	0.0	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0
Goldfish	Eroded fins		1	-[b]	-	-	-	-	-	-	-	-	-	-	-	-	1	100.0
Carp	Deformed fins		7	15.6	4	36.4	0	0.0	1	11.1	1	14.3	1	12.5	0	0.0	0	0.0
	Knothead		2	4.4	1	9.1	0	0.0	0	0.0	0	0.0	1	12.5	0	0.0	0	0.0
	Eye missing		1	2.2	0	0.0	0	0.0	0	0.0	1	14.3	0	0.0	0	0.0	0	0.0
Smallmouth buffalo	Eroded fins		1	33.3	0	0.0	-	-	-	-	1	100.0	-	-	0	0.0	-	-
Shorthead redhorse		Ichthyophthiriasis (white spot)	1	8.3	1	33.3	0	0.0	0	0.0	-	-	-	-	0	0.0	0	0.0
Channel catfish		Leeches	2	66.7	-	-	2	66.7	-	-	-	-	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-40 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS NEAR THE DRESDEN STATION, 21-23 SEPTEMBER 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	1 #	1 %	2 #	2 %	5 #	5 %	6 #	6 %	7 #	7 %	9 #	9 %	10 #	10 %
Gizzard shad	Eroded fin		1	0.3	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0
Carp	No pelvic fin		1	2.4	0	0.0	-[b]	-	0	0.0	0	0.0	0	0.0	1	16.7	0	0.0
Carp x Goldfish	Eroded fins		1	7.7	0	0.0	-	-	-	-	-	-	0	0.0	1	14.3	0	0.0
Smallmouth buffalo	No caudal fin		1	50.0	0	0.0	-	-	-	-	-	-	-	-	-	-	1	100.0

Column heading: Number and Percent Affected/Sampling Location

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-41 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 1 NEAR THE DRESDEN STATION, 1974-1981.

	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
Species	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.6	-	-	-	-	-	-	-	-	-
ALEWIFE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	3	2.8	2.3	62	57.0	27.7	42	45.8	28.7	102	102.0	40.1	47	30.3	27.2	4	2.0	4.3	15	15.0	19.7	77	43.9	36.4
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.5
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.5
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	1.1	1	1.0	19.7	-	-	-
GOLDFISH	48	44.4	36.6	27	24.8	12.0	17	18.5	11.6	13	16.5	6.5	24	15.5	13.9	7	3.6	7.5	4	4.0	5.3	2	1.1	0.9
CARP	63	58.3	43.1	110	101.2	49.2	59	64.3	40.4	74	99.0	38.9	42	27.1	24.3	22	11.0	23.7	14	14.0	18.4	29	16.3	13.5
CARP X GOLDFISH	-	-	-	3	2.8	1.4	9	9.8	6.1	16	17.0	6.7	14	9.0	8.1	4	2.0	4.3	4	4.0	5.3	29	16.4	13.6
SILVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER	6	5.6	4.6	15	13.8	6.7	4	4.4	2.8	7	7.0	2.7	21	13.5	12.1	18	9.0	19.3	4	4.0	5.3	38	21.6	17.9
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	1.1	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	-	-	-	1	1.0	0.4	1	0.6	0.6	10	5.0	10.8	2	2.0	2.6	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	4	3.7	3.1	-	-	-	-	-	-	1	1.0	0.4	4	2.6	2.3	-	-	-	-	-	-	5	2.7	2.2
QUILLBACK	1	0.9	0.7	-	-	-	2	2.7	1.4	-	-	-	-	-	-	-	-	-	21	21.0	27.6	1	0.6	0.5
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.5
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.6	2	1.0	2.2	1	1.0	1.3	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	3	3.3	2.1	1	1.0	0.4	-	-	-	2	1.0	2.2	-	-	-	1	0.6	0.5
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2.3	1.9
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	1	1.0	0.4	1	0.6	0.6	-	-	-	-	-	-	7	4.0	3.3
SHORTHEAD REDHORSE	-	-	-	-	-	-	-	-	-	6	6.0	2.4	-	-	-	-	-	-	1	1.0	1.3	5	2.9	2.4
REDHORSE SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	2.2	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	1	1.1	0.7	-	-	-	-	-	-	4	2.0	4.3	6	6.0	7.9	1	0.6	0.5
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	-	-	-	-	-	-	-	-	-	1	1.0	0.4	-	-	-	-	-	-	-	-	-	-	-	-
STONECAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	1	0.9	0.7	2	1.8	0.9	5	5.5	3.4	1	1.0	0.4	6	3.9	3.5	1	0.5	1.1	-	-	-	-	-	-

TABLE 3.3-41 (CONT.)

	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
Species	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
PUMPKINSEED	-	-	-	1	0.9	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.6	2	1.0	2.2	1	1.0	1.3	-	-	-
BLUEGILL	4	3.1	3.7	-	-	-	2	2.2	1.4	-	-	-	-	-	-	-	-	-	1	1.0	1.3	1	0.6	0.5
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	-	-	-	-	-	-	-	-	-	1	1.0	0.4	1	0.6	0.6	2	1.0	2.2	1	1.0	1.3	2	1.1	0.9
LARGEMOUTH BASS	1	0.9	0.7	2	1.8	0.9	-	-	-	-	-	-	1	0.6	0.6	-	-	-	-	-	-	2	1.1	0.9
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.5
WHITE CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	4	2.6	2.3	-	-	-	-	-	-	1	0.6	0.5
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	2	1.3	1.2	1	0.5	1.1	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	1.1	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	2	2.2	1.4	-	-	-	1	0.6	0.6	-	-	-	-	-	-	4	2.3	1.9
TOTAL NUMBER	131			222			146			225			172			84			76			213		
NUMBER OF SPECIES	9			9			10			12			16			16			13			19		
TOTAL AVERAGE ANNUAL CPE		121.2			204.1			159.3			254.5			110.6			46.5			76.0			120.6	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-42 YEARLY CATCH VALUES FOR EACH SPECIES OF FISH OBTAINED BY ELECTROFISHING AT LOCATION 2 NEAR THE DRESDEN STATION, 1974-1981.

	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
Species	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	1	0.9	0.6	1	1.1	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALEWIFE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	35	28.0	35.7	99	85.1	61.0	95	103.6	55.2	143	140.3	53.2	197	120.6	61.2	18	9.0	12.6	9	9.0	11.2	161	92.0	63.6
MOONEYE	1	0.8	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	1	0.8	1.0	-	-	-	1	1.1	0.6	3	2.8	1.1	2	1.2	0.6	-	-	-	-	-	-	-	-	-
CARP	17	13.6	17.3	27	23.2	16.6	31	33.8	18.0	45	44.0	16.7	13	20.2	10.2	7	3.5	4.5	-	-	-	4	2.3	1.6
CARP X GOLDFISH	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3	-	-	-	-	-	-	-	-	-
SILVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.7	-	-	-	-	-	-
EMERALD SHINER	1	0.8	1.0	3	2.6	1.8	11	12.0	6.4	6	5.6	2.1	6	3.7	1.9	14	7.0	9.8	18	18.0	22.5	12	6.9	4.8
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3.0	3.7	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	1	0.8	0.3	-	-	-	2	1.0	1.4	1	1.0	1.2	1	0.6	0.4
SAND SHINER	-	-	-	-	-	-	1	1.1	0.6	-	-	-	-	-	-	5	2.5	3.5	1	1.0	1.2	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	1	0.9	0.6	-	-	-	3	2.6	1.0	-	-	-	12	6.0	8.4	2	2.0	2.6	2	1.1	0.8
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	2	1.7	1.2	-	-	-	-	-	-	1	0.6	0.3	16	8.0	11.2	19	19.0	23.7	1	0.6	0.4
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	5	4.0	5.1	2	1.7	1.2	2	2.2	1.2	8	7.8	3.0	9	5.5	2.8	1	0.5	0.7	-	-	-	2	1.1	0.8
QUILLBACK	1	0.8	1.0	-	-	-	1	1.1	0.6	1	1.0	0.4	1	0.6	0.3	10	5.0	7.0	2	2.0	2.5	1	0.6	0.4
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	10	8.0	10.2	3	2.6	1.8	-	-	-	1	1.0	0.4	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	1	0.8	1.0	3	2.6	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH BUFFALO	1	0.8	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	7	6.0	2.3	3	1.8	0.9	2	1.0	1.4	-	-	-	14	8.0	5.5
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	6	3.7	1.9	2	1.0	1.4	1	1.0	1.2	5	2.9	2.0
SHORTHEAD REDHORSE	-	-	-	-	-	-	7	7.6	4.0	20	18.6	7.1	24	14.7	7.4	3	1.5	2.1	15	15.0	18.7	9	5.1	3.5
REDHORSE SPP.	6	4.8	6.1	4	3.4	2.4	-	-	-	-	-	-	-	-	-	5	2.5	3.5	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	4	3.2	4.1	3	2.6	1.8	2	2.2	1.2	1	1.0	0.4	3	1.8	0.9	1	0.5	0.7	-	-	-	5	2.9	2.0
STONECAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	4	3.3	1.2	-	-	-	12	6.0	8.4	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	2	1.6	2.1	2	1.7	1.2	-	-	-	1	1.0	0.4	-	-	-	1	0.5	0.7	-	-	-	-	-	-
YELLOW BASS	-	-	-	-	-	-	-	-	-	1	1.0	0.4	-	-	-	-	-	-	-	-	-	4	2.3	1.6
ROCK BASS	2	1.6	2.1	2	1.7	1.2	-	-	-	1	0.8	0.3	6	3.7	1.9	5	2.5	3.5	1	1.0	1.2	3	1.7	1.2
GREEN SUNFISH	2	1.6	2.1	2	1.7	1.2	5	5.5	2.9	6	5.2	2.0	2	1.2	0.6	1	0.5	0.7	2	2.0	2.5	4	2.3	1.6

TABLE 3.3-42 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE[h]	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[b] No.	1977[b] Annual CPE	1977[b] % of Catch
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	10	8.5	3.2
BLUEGILL	-	-	-	1	0.9	0.6	-	-	-	3	2.7	1.0
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	5	4.0	5.1	3	2.6	1.8	11	12.0	6.4	7	6.2	2.4
LARGEMOUTH BASS	3	2.8	3.6	-	-	-	1	1.1	0.6	1	0.8	0.3
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	1	0.8	0.3
WHITE CRAPPIE	1	0.8	1.0	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	2	1.7	0.6
WALLEYE	-	-	-	1	0.9	0.6	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	3	2.6	1.8	3	3.3	1.8	-	-	-
TOTAL NUMBER	98			162			172			276		
NUMBER OF SPECIES	17			17			14			22		
TOTAL AVERAGE ANNUAL CPE		78.6			139.4			187.7			263.5	

Species	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
PUMPKINSEED	-	-	-	-	-	-	-	-	-	1	0.6	0.4
ORANGESPOTTED SUNFISH	-	-	-	6	3.0	4.2	2	7.0	2.5	1	0.6	0.4
BLUEGILL	1	0.6	0.3	-	-	-	1	1.0	1.2	-	-	-
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	1	0.5	0.7	-	-	-	-	-	-
SMALLMOUTH BASS	20	12.2	6.2	17	8.5	11.9	2	2.0	2.5	9	5.1	3.5
LARGEMOUTH BASS	1	0.6	0.3	-	-	-	-	-	-	-	-	-
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-		-	-
WHITE CRAPPIE	-	-	-	1	0.5	0.7	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	1	0.6	0.3	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	1	-	-	-	-	-	-	-	-
FRESHWATER DRUM	5	3.1	1.2	3	-	-	-	-	-	14	8.0	5.5
TOTAL NUMBER	322			143			79			253		
NUMBER OF SPECIES	18			22			15			19		
TOTAL AVERAGE ANNUAL CPE		197.0			71.5			80.0			144.6	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-43 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 5 NEAR THE DRESDEN STATION, 1974-1981.

	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
Species	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR	1	0.9	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	1	1.0	0.6	-	-	-	-	-	-	-	-	-	-	-	-
ALEWIFE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	55	50.9	35.0	21	21.0	24.1	43	52.2	26.7	75	83.0	49.5	113	77.0	46.7	6	3.0	4.8	8	8.0	13.1	161	95.7	53.5
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	1	1.0	0.6	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	1.6	-	-	-
GOLDFISH	2	1.9	1.3	1	1.0	1.1	3	4.0	1.9	1	1.0	0.6	-	-	-	2	1.0	1.6	-	-	-	-	-	-
CARP	79	73.1	50.3	37	37.0	37.0	85	113.1	52.8	32	32.6	19.4	44	30.0	18.2	13	6.5	10.5	7	7.0	11.5	4	2.3	1.6
CARP X GOLDFISH	-	-	-	-	-	-	1	1.3	0.6	2	2.0	1.2	-	-	-	-	-	-	-	-	-	1	0.6	0.3
SILVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	1	1.0	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER	2	1.9	1.3	1	1.0	1.1	6	8.0	3.7	16	17.0	10.1	31	21.1	12.8	42	21.0	33.9	18	18.0	22.5	77	46.6	26.0
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.0	2.3	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2.0	3.2	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	1.6	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	-	-	-	2	2.0	1.2	5	3.4	2.1	12	6.0	9.7	10	10.0	16.4	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2.5	4.0	2	2.0	2.3	-	-	-
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	4	3.7	2.5	8	8.0	9.2	3	4.0	1.9	2	2.0	1.2	2	1.4	0.8	-	-	-	-	-	-	2	1.1	0.8
QUILLBACK	1	0.9	0.6	3	3.0	3.4	-	-	-	-	-	-	1	0.7	0.4	6	3.0	4.8	1	1.0	1.6	1	0.6	0.3
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	1	0.9	0.6	-	-	-	-	-	-	1	1.0	0.6	1	0.7	0.4	3	1.5	2.4	-	-	-	1	0.6	0.3
SMALLMOUTH BUFFALO	-	-	-	2	2.0	2.3	1	1.3	0.6	-	-	-	1	0.7	0.4	-	-	-	1	1.0	1.6	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	2	2.0	1.2	4	2.7	1.6	2	1.0	1.6	-	-	-	7	4.0	2.2
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.8	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	3	2.0	1.2	10	5.0	8.1	9	9.0	14.7	12	6.9	3.9
SHORTHEAD REDHORSE	-	-	-	2	2.0	2.3	7	9.3	4.3	17	18.0	10.7	23	15.7	9.5	-	-	-	1	1.0	1.6	3	1.7	1.0
REDHORSE SPP.	1	0.9	9.6	2	2.0	2.3	-	-	-	-	-	-	-	-	-	2	1.0	1.6	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	-	-	-	1	1.0	1.1	4	5.3	2.5	2	2.2	1.3	1	0.7	0.4	-	-	-	-	-	-	-	-	-
STONECAT	-	-	-	-	-	-	1	1.3	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.8	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	2	1.9	1.3	-	-	-	1	1.3	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3

TABLE 3.3-43 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE[h]	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[b] No.	1977[b] Annual CPF	1977[b] % of Catch	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.1	0.6
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	0.4	4	2.0	3.2	3	1.7	1.0
GREEN SUNFISH	5	4.6	3.2	1	1.0	1.1	1	1.3	0.6	-	-	-	1	0.7	0.4	-	-	-	-	-	-	-	-	-
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	1	0.9	0.6	-	-	-	-	-	-	1	1.0	0.6	-	-	-	1	0.5	0.8	-	-	-	-	-	-
BLUEGILL	1	0.9	0.6	2	2.0	2.3	1	1.3	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	-	-	-	5	6.0	6.7	4	5.3	2.5	-	-	-	11	7.5	4.6	6	3.0	4.8	1	1.0	1.6	5	2.9	1.6
LARGEMOUTH BASS	2	1.9	1.9	-	-	-	-	-	-	1	1.0	0.5	-	-	-	1	0.5	0.8	-	-	-	-	-	-
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.8	-	-	-	1	0.6	0.3
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	1	1.0	0.6	-	-	-	-	-	-	-	-	-	1	0.6	0.3
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	4.6	2.6
TOTAL NUMBER	157			87			161			157			241			121			65			302		
NUMBER OF SPECIES	13			13			13			15			15			19			12			17		
TOTAL AVERAGE ANNUAL CPE		145.3			87.0			214.0			167.8			165.0			62.0			61.0			178.9	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-44 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 6 NEAR THE DRESDEN STATION, 1974-1981.

Species	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR	-	-	-	2	1.8	0.9	-	-	-	-	-	-	-	-	-	3	1.5	0.9	-	-	-	1	0.4	0.1
SKIPJACK HERRING	-	-	-	5	4.6	2.2	-	-	-	5	7.5	2.1	1	0.8	0.2	7	3.5	2.1	2	2.0	1.6	1	0.4	0.1
ALEWIFE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	43	51.8	19.9	114	104.9	50.5	182	260.3	55.2	96	137.8	38.3	160	133.3	38.7	60	30.0	18.2	6	6.0	4.8	135	77.0	18.8
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	2	2.4	0.9	1	0.9	0.4	1	1.4	0.3	-	-	-	1	0.8	0.2	5	2.5	1.5	1	1.0	0.8	3	1.7	0.4
CARP	96	115.7	44.5	42	38.6	18.6	63	90.1	19.1	39	53.2	14.8	52	43.3	12.6	43	21.5	13.0	5	5.0	4.0	39	22.3	5.4
CARP X GOLDFISH	-	-	-	-	-	-	-	-	-	10	15.0	4.8	4	3.3	1.0	6	3.0	1.8	1	1.0	0.8	3	1.7	0.4
SILVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER	2	2.4	0.9	25	23.0	11.1	28	40.0	8.5	16	23.2	6.4	52	43.3	12.6	80	44.5	27.0	53	53.0	42.1	277	129.6	31.6
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.1	0.3
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	1	1.5	0.4	-	-	-	-	-	-	-	-	-	1	0.6	0.1
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.3	-	-	-	4	2.3	0.6
SAND SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	0.6	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	-	-	-	3	4.5	1.2	1	0.8	0.2	4	2.0	1.2	-	-	-	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.3	-	-	-	-	-	-
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	3	3.6	1.4	5	4.6	2.2	2	2.9	0.6	3	4.0	1.1	1	0.8	0.2	1	0.5	0.3	-	-	-	7	4.0	1.0
QUILLBACK	1	1.2	0.5	2	1.8	0.9	1	1.4	0.3	-	-	-	2	1.7	0.5	7	3.5	2.1	2	2.0	1.6	3	1.7	0.4
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
WHITE SUCKER	1	1.2	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	5	6.0	2.3	1	0.9	0.4	6	8.6	1.8	-	-	-	4	3.3	1.0	17	8.5	5.2	-	-	-	5	2.7	0.7
BIGMOUTH BUFFALO	1	1.2	0.5	1	0.9	0.4	-	-	-	1	1.5	0.4	-	-	-	-	-	-	-	-	-	1	0.4	0.1
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.3	1	1.0	0.8	-	-	-
SHORTHEAD REDHORSE	-	-	-	-	-	-	-	-	-	5	7.5	2.1	2	1.7	0.5	2	1.0	0.6	2	2.0	1.6	1	0.6	0.1
REDHORSE SPP.	-	-	-	1	0.9	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	0.8	2	1.1	0.3
CHANNEL CATFISH	-	-	-	4	3.7	1.8	2	2.9	0.6	-	-	-	2	1.7	0.5	-	-	-	-	-	-	-	-	-
STONECAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	0.6	-	-	-	-	-	-
WHITE BASS	1	1.2	0.5	-	-	-	1	1.4	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3.3-44 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE[h]	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[b] No.	1977[b] Annual CPE	1977[b] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	1	1.5	0.4
GREEN SUNFISH	35	42.2	16.2	10	9.2	4.4	24	34.3	7.3	45	67.0	18.6
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	6	7.2	2.8	-	-	-	-	-	-	-	-	-
BLUEGILL	9	10.6	4.1	3	2.8	1.3	4	5.7	-	9	10.3	2.9
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	11	1.2	0.5	2	2.8	1.3	1	10.0	2.1	6	9.0	2.5
LARGEMOUTH BASS	9	10.8	4.1	3	2.8	1.3	5	7.2	1.5	5	7.5	2.1
SUNFISH HYBRID	-	-	-	4	3.7	1.8	1	1.4	0.3	2	3.0	0.8
WHITE CRAPPIE	1	1.2	0.5	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	1	1.5	0.4
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	1	1.4	0.3	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	1	1.5	0.4
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	2	2.9	0.6	2	3.0	0.8
TOTAL NUMBER	216			226			324			251		
NUMBER OF SPECIES	16			15			15			17		
TOTAL AVERAGE ANNUAL CPE		260.1			207.9			471.9			360.0	

Species	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	1	0.5	0.3	-	-	-	-	-	-
GREEN SUNFISH	51	42.5	12.4	22	11.0	6.7	27	27.0	21.4	157	86.1	21.0
PUMPKINSEED	7	5.8	1.7	3	1.5	0.9	-	-	-	8	4.4	1.1
ORANGESPOTTED SUNFISH	1	0.8	0.2	5	2.5	1.5	1	1.0	0.8	-	-	-
BLUEGILL	37	30.8	9.0	25	12.5	7.6	4	4.0	3.2	87	47.9	11.7
LONGEAR SUNFISH	-	-	-	2	1.0	0.6	1	1.0	0.8	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	18	15.0	4.4	9	4.5	2.7	13	13.0	10.3	15	8.4	2.0
LARGEMOUTH BASS	15	12.5	3.6	7	3.5	2.1	5	5.0	4.0	18	9.7	2.4
SUNFISH HYBRID	2	1.7	0.5	-	-	-	1	1.0	0.8	3	1.6	0.4
WHITE CRAPPIE	1	0.8	0.2	2	1.0	0.6	-	-	-	3	1.7	0.4
BLACK CRAPPIE	-	-	-	2	1.0	0.6	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	1	0.5	0.3	-	-	-	1	0.6	0.1
TOTAL NUMBER	414			330			126			730		
NUMBER OF SPECIES	19			27			15			24		
TOTAL AVERAGE ANNUAL CPE		344.7			165.0			126.0			410.1	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-45 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 7 NEAR THE DRESDEN STATION, 1974-1981.

Species	1974[a] No.	1974[a] Annual CPE[h]	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[b] No.	1977[b] Annual CPE	1977[b] % of Catch	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	2	2.0	0.8	-	-	-	1	-	-	-	-	-	-	-	-
ALEWIFE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	11	9.4	8.9	13	12.0	7.5	61	85.1	30.9	120	133.2	51.5	63	42.0	23.3	38	19.0	22.5	66	66.0	45.5	152	87.1	51.4
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.6	-	-	-	-	-	-
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	2	1.7	1.6	2	1.8	1.1	1	1.3	0.5	2	2.0	0.8	7	4.7	2.6	-	-	-	2	2.0	1.4	-	-	-
CARP	63	53.8	50.7	98	90.2	56.4	66	87.8	31.9	51	54.2	20.9	87	58.0	32.2	15	7.5	8.9	22	22.0	15.2	38	21.4	12.6
CARP X GOLDFISH	-	-	-	-	-	-	-	-	-	15	5.0	1.9	13	8.7	4.8	2	1.0	1.2	-	-	-	7	4.0	2.4
SILVER CHUB	-	-	-	-	-	-	-	-	-	1	1.0	0.4	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	1	0.9	0.6	-	-	-	-	-	-	1	0.7	0.4	1	0.5	0.6	-	-	-	-	-	-
EMERALD SHINER	3	2.6	2.4	13	12.0	7.5	26	34.6	12.6	14	14.2	5.5	28	18.7	10.4	46	23.0	27.2	15	15.0	10.3	36	20.7	12.2
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	1	0.9	0.6	-	-	-	-	-	-	1	0.7	0.4	-	-	-	-	-	-	1	0.6	0.4
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1.5	1.8	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	1.2	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	-	-	-	8	8.0	3.1	2	1.3	0.7	5	2.5	3.0	4	4.0	2.7	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	2	1.8	1.1	-	-	-	-	-	-	-	-	-	1	0.5	0.6	2	2.0	1.4	-	-	-
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	0.7	-	-	-
RIVER CARPSUCKER	4	3.4	3.2	2	1.8	1.1	3	4.0	1.4	6	6.0	2.3	7	3.7	3.1	-	-	-	1	1.0	0.7	1	0.6	0.4
QUILLBACK	1	0.9	0.8	2	1.8	1.1	-	-	-	1	1.0	0.4	-	-	-	2	1.0	1.2	4	4.0	2.7	-	-	-
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	4	3.4	3.2	-	-	-	1	1.3	0.5	-	-	-	1	0.7	0.4	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	2	1.7	1.6	1	0.9	0.6	-	-	-	-	-	-	1	0.7	0.4	-	-	-	1	1.0	0.7	1	0.6	0.4
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	2	2.0	0.8	-	-	-	-	-	-	-	-	-	1	0.6	0.4
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.6	2	2.0	1.4	5	2.9	1.7
SHORTHEAD REDHORSE	-	-	-	1	0.9	0.6	2	2.7	1.0	15	15.0	5.8	3	2.0	2.6	-	-	-	-	-	-	1	0.6	0.4
REDHORSE SPP.	-	-	-	1	0.9	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.6	-	-	-	1	0.6	0.4
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	8	6.8	6.4	3	2.8	1.7	6	8.0	2.9	4	4.0	1.6	1	0.7	0.4	-	-	-	-	-	-	1	0.6	0.4
STONECAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2.5	3.0	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	1	0.9	0.8	-	-	-	-	-	-	1	1.0	0.4	1	0.7	0.4	-	-	-	-	-	-	-	-	-

TABLE 3.3-45 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE[h]	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[b] No.	1977[b] Annual CPE	1977[b] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	1	0.9	0.6	-	-	-	-	-	-
GREEN SUNFISH	11	9.4	8.9	13	12.0	7.5	25	33.3	12.1	5	5.0	1.9
PUMPKINSEED	-	-	-	1	0.9	0.6	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	2	1.7	1.6	-	-	-	-	-	-	3	3.0	1.2
BLUEGILL	5	4.3	4.0	3	2.6	1.7	1	1.3	0.5	-	-	-
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	3	2.6	2.4	11	10.1	6.3	-	-	-	1	1.0	0.4
LARGEMOUTH BASS	2	1.7	1.6	4	3.7	2.3	11	14.6	5.3	1	1.2	0.5
SUNFISH HYBRID	1	0.9	0.8	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	1	0.9	-	1	0.9	0.6	1	1.3	0.5	-	-	-
TOTAL NUMBER	124			174			204			242		
NUMBER OF SPECIES	16			19			12			17		
TOTAL AVERAGE ANNUAL CPE		106.1			160.0			275.3			258.8	

Species	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	1	0.7	0.4	1	0.5	0.6	-	-	-	2	1.1	0.6
GREEN SUNFISH	23	15.3	8.5	19	9.5	11.2	18	18.0	12.4	9	11.0	6.5
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	1	0.5	0.6	-	-	-	1	0.6	0.4
BLUEGILL	1	0.7	0.4	1	0.5	0.6	4	4.0	2.7	8	4.7	2.8
LONGEAR SUNFISH	-	-	-	1	0.5	0.6	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	30	20.0	11.1	20	10.0	11.8	1	1.0	0.7	4	2.3	1.4
LARGEMOUTH BASS	-	-	-	1	0.5	0.6	1	1.0	0.7	3	1.7	1.0
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	1	0.7	0.4	-	-	-	-	-	-	2	1.1	0.6
BLACK CRAPPIE	1	0.7	0.4	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	2	1.3	0.7	1	0.5	0.6	1	1.0	0.7	11	6.3	3.7
TOTAL NUMBER	275			169			145			295		
NUMBER OF SPECIES	20			22			16			19		
TOTAL AVERAGE ANNUAL CPE		183.7			84.5			145.0			169.6	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-46 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 9 NEAR THE DRESDEN STATION, 1974-1981.

	1974[a]			1975[a]			1976[a]			1977[a]			1978[a]			1979[b]			1980[c]			1981[d]		
Species	No.	Annual CPE[e]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR																-	-	-	-	-	-	-	-	-
SKIPJACK HERRING																1	0.5	0.4	-	-	-	-	-	-
ALEWIFE																-	-	-	-	-	-	-	-	-
GIZZARD SHAD																21	10.5	12.0	4	4.0	6.7	98	56.1	42.1
MOONEYE																-	-	-	-	-	-	-	-	-
GRASS PICKEREL																-	-	-	-	-	-	-	-	-
NORTHERN PIKE																-	-	-	-	-	-	-	-	-
MUSKELLUNGE																-	-	-	-	-	-	-	-	-
CYPRINIDAE																-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER																-	-	-	-	-	-	-	-	-
GOLDFISH																1	0.5	0.6	-	-	-	-	-	-
CARP																23	11.5	13.1	3	3.0	5.0	41	23.4	17.5
CARP X GOLDFISH																-	-	-	-	-	-	13	7.4	5.5
SILVER CHUB																-	-	-	-	-	-	-	-	-
GOLDEN SHINER																-	-	-	-	-	-	-	-	-
EMERALD SHINER																42	21.0	24.0	34	34.0	56.7	28	16.0	12.0
RIVER SHINER																-	-	-	-	-	-	-	-	-
GHOST SHINER																-	-	-	-	-	-	-	-	-
STRIPED SHINER																-	-	-	-	-	-	-	-	-
COMMON SHINER																1	0.5	0.6	-	-	-	-	-	-
SPOTTAIL SHINER																1	0.5	0.6	-	-	-	-	-	-
RED SHINER																-	-	-	-	-	-	-	-	-
SPOTFIN SHINER																-	-	-	-	-	-	-	-	-
SAND SHINER																1	0.5	0.6	-	-	-	-	-	-
STEELCOLOR SHINER																-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW																12	6.0	6.9	2	2.0	2.3	1	0.6	0.4
FATHEAD MINNOW																-	-	-	-	-	-	1	0.6	0.4
BULLHEAD MINNOW																3	1.5	1.7	-	-	-	-	-	-
CREEK CHUB																-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER																-	-	-	-	-	-	1	0.6	0.4
QUILLBACK																2	1.0	1.1	3	3.0	5.0	2	1.1	0.8
HIGHFIN CARPSUCKER																-	-	-	-	-	-	-	-	-
WHITE SUCKER																2	1.0	1.1	-	-	-	-	-	-
SMALLMOUTH BUFFALO																-	-	-	-	-	-	3	1.7	1.3
BIGMOUTH BUFFALO																-	-	-	-	-	-	-	-	-
SILVER REDHORSE																-	-	-	-	-	-	1	0.6	0.4
RIVER REDHORSE																-	-	-	-	-	-	-	-	-
BLACK REDHORSE																-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE																2	1.0	1.1	-	-	-	4	2.3	1.7
SHORTHEAD REDHORSE																6	3.0	3.4	-	-	-	1	0.6	0.4
REDHORSE SPP.																5	2.5	2.9	-	-	-	-	-	-
BLACK BULLHEAD																-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD																1	0.5	0.6	-	-	-	-	-	-
CHANNEL CATFISH																-	-	-	-	-	-	3	1.7	1.3
STONECAT																-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH																-	-	-	-	-	-	-	-	-
TROUT-PERCH																-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE																1	0.5	0.6	-	-	-	-	-	-
WHITE BASS																-	-	-	-	-	-	-	-	-

TABLE 3.3-46 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE[e]	1974[a] % of Catch	1975[a] No.	1975[a] Annual CPE	1975[a] % of Catch	1976[a] No.	1976[a] Annual CPE	1976[a] % of Catch	1977[a] No.	1977[a] Annual CPE	1977[a] % of Catch	1978[a] No.	1978[a] Annual CPE	1978[a] % of Catch
YELLOW BASS															
ROCK BASS															
GREEN SUNFISH															
PUMPKINSEED															
ORANGESPOTTED SUNFISH															
BLUEGILL															
LONGEAR SUNFISH															
REDEAR SUNFISH															
SMALLMOUTH BASS															
LARGEMOUTH BASS															
SUNFISH HYBRID															
WHITE CRAPPIE															
BLACK CRAPPIE															
ORANGETHROAT DARTER															
YELLOW PERCH															
LOGPERCH															
WALLEYE															
FRESHWATER DRUM															
TOTAL NUMBER															
NUMBER OF SPECIES															
TOTAL AVERAGE ANNUAL CPE															

Species	1979[b] No.	1979[b] Annual CPE	1979[b] % of Catch	1980[c] No.	1980[c] Annual CPE	1980[c] % of Catch	1981[d] No.	1981[d] Annual CPE	1981[d] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-
ROCK BASS	1	0.5	0.6	-	-	-	-	-	-
GREEN SUNFISH	19	9.5	10.9	9	9.0	15.0	10	5.7	4.3
PUMPKINSEED	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	5	2.5	2.9	-	-	-	1	0.6	0.4
BLUEGILL	-	-	-	4	4.0	6.7	3	1.7	1.3
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	23	11.5	13.1	-	-	-	7	4.0	3.0
LARGEMOUTH BASS	1	0.5	0.6	1	1.0	1.7	4	2.3	1.7
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	-	-	-	-	-	-	2	1.1	0.8
BLACK CRAPPIE	1	0.5	0.6	-	-	-	1	0.6	0.4
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	[illegible]	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	0.5	0.3	-	-	-	7	4.0	3.0
TOTAL NUMBER	175			60			232		
NUMBER OF SPECIES	22			16			20		
TOTAL AVERAGE ANNUAL CPE		87.5			145.0			133.4	

(a) Location 9 not sampled.
(b) Collection periods were in May, June, August, and November.
(c) Collection periods were in May, July, and August.
(d) Collection periods were in June, July, August and September.
(e) Represents average catch per hour of electrofishing for year.

TABLE 3.3-47 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT LOCATION 10 NEAR THE DRESDEN STATION, 1974-1981.

	1974[a]			1975[b]			1976[c]			1977[b]			1978[d]			1979[e]			1980[f]			1981[g]		
Species	No.	Annual CPE[h]	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch	No.	Annual CPE	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	1	1.3	1.1	4	4.0	2.2	-	-	-	-	-	-	-	-	-	-	-	-
ALEWIFE	1	0.9	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	5	4.6	7.6	18	21.6	28.1	34	45.2	37.3	78	96.8	53.2	24	23.2	35.3	6	3.4	7.9	2	2.0	14.3	139	79.4	54.9
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4
MUSKELLUNGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	6	5.6	9.3	2	2.4	12.0	2	2.7	2.2	3	3.8	2.1	2	2.9	2.9	3	1.7	3.9	1	1.0	7.1	3	1.7	1.2
CARP	49	45.4	75.5	30	36.0	46.9	42	55.9	46.2	39	52.8	29.0	20	19.4	29.4	13	7.4	17.1	5	5.0	35.7	19	10.9	7.5
CARP X GOLDFISH	-	-	-	-	-	-	5	6.7	5.5	4	4.2	2.3	1	1.0	1.5	-	-	-	-	-	-	13	7.4	5.1
SILVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER	-	-	-	5	6.0	7.8	-	-	-	13	13.8	7.6	12	11.6	17.6	21	12.0	27.6	5	5.0	35.7	33	18.9	13.1
RIVER SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	1.3	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1.7	3.9	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	-	-	-	2	2.0	1.1	-	-	-	-	-	-	-	-	-	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	1.3	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CREEK CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	-	-	-	3	3.6	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QUILLBACK	-	-	-	1	1.2	1.6	-	-	-	1	1.0	0.5	-	-	-	1	0.6	1.3	1	1.0	7.1	-	-	-
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	2.2	-	-	-	4	2.3	1.6
SMALLMOUTH BUFFALO	1	0.9	1.6	2	2.4	3.2	-	-	-	-	-	-	-	-	-	2	1.0	2.2	-	-	-	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.1	0.8
RIVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	1.3	-	-	-	-	-	-
BLACK REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.1	2.6	-	-	-	15	8.6	5.9
SHORTHEAD REDHORSE	-	-	-	-	-	-	3	6.0	3.3	1	1.0	0.5	-	-	-	1	0.6	1.3	-	-	-	6	3.4	2.4
REDHORSE SPP.	-	-	-	2	2.4	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	1	0.9	1.5	1	1.2	1.6	-	-	-	-	-	-	1	1.0	1.5	-	-	-	-	-	-	-	-	-
STONECAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLATHEAD CATFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4

TABLE 3.3-47 (CONT.)

Species	1974[a] No.	1974[a] Annual CPE	1974[a] % of Catch	1975[b] No.	1975[b] Annual CPE	1975[b] % of Catch	1976[c] No.	1976[c] Annual CPE	1976[c] % of Catch	1977[h] No.	1977[h] Annual CPE	1977[h] % of Catch	1978[d] No.	1978[d] Annual CPE	1978[d] % of Catch	1979[e] No.	1979[e] Annual CPE	1979[e] % of Catch	1980[f] No.	1980[f] Annual CPE	1980[f] % of Catch	1981[g] No.	1981[g] Annual CPE	1981[g] % of Catch
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	1.5	1	0.6	1.3	-	-	-	-	-	-
GREEN SUNFISH	1	0.9	1.5	-	-	-	1	1.3	1.1	-	-	-	5	4.8	7.4	9	5.1	11.8	-	-	-	2	1.1	0.8
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	0.8	-	-	-	-	-	-
BLUEGILL	1	0.9	1.5	-	-	-	3	4.0	3.3	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.4
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	-	-	-	-	-	-	-	-	-	2	2.5	1.4	1	1.0	1.5	8	4.6	10.5	1	1.0	1.6	11	6.3	4.4
LARGEMOUTH BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	1.3	-	-	-	1	0.6	0.4
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGETHROAT DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.1	0.8
TOTAL NUMBER	55			54			91			147			67			76			14			253		
NUMBER OF SPECIES	8			8			7			9			8			16			5			15		
TOTAL AVERAGE ANNUAL CPE		60.7			76.8			121.1			181.9			65.9			43.4			14.0			144.6	

(a) Collection periods were in March, June, August, and November.
(b) Collection periods were in March, May, August, and November.
(c) Collection periods were in March, May, and August.
(d) Collection periods were in May, August, and November.
(e) Collection periods were in May, June, August, and November.
(f) Collection periods were in May, July, and August.
(g) Collection periods were in June, July, August and September.
(h) Represents average catch per hour of electrofishing for year.

TABLE 3.3-48 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT LOCATION 1 NEAR THE DRESDEN STATION, 1971-1981.

Species	1971[a] No.	1971[a] % of Catch	1972[a] No.	1972[a] % of Catch	1973[a] No.	1973[a] % of Catch	1974[b] No.	1974[b] % of Catch	1975[c] No.	1975[c] % of Catch	1976[d] No.	1976[d] % of Catch	1977[c] No.	1977[c] % of Catch	1978[e] No.	1978[e] % of Catch	1979[f] No.	1979[f] % of Catch	1980[g] No.	1980[g] % of Catch	1981[h] No.	1981[h] % of Catch
LONGNOSE GAR							1	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD							1	4.0	4	30.8	2	10.5	-	-	-	-	5	17.2	-	-	4	5.3
GRASS PICKEREL							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH							1	7.7	-	-	-	-	-	-	2	4.9	-	-	-	-	-	-
CARP							5	20.0	1	7.7	3	15.8	-	-	1	2.4	1	3.4	10	33.3	4	5.3
CARP x GOLDFISH							-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3
HORNYHEAD CHUB							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CHUB							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER							17	68.0	1	7.7	7	36.8	105	83.3	30	73.2	18	62.1	17	56.7	59	77.6
RIVER SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER							-	-	2	15.4	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3
RED SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER							-	-	-	-	-	-	1	0.8	-	-	-	-	-	-	1	1.3
SAND SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDFIN SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MIMIC SHINER							-	-	-	-	-	-	-	-	-	-	-	-	1	3.4	-	-
STEELCOLOR SHINER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUCKERMOUTH MINNOW							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW							-	-	4	30.8	2	10.5	12	9.5	5	12.2	2	6.9	-	-	-	-
FATHEAD MINNOW							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW							-	-	-	-	2	10.5	2	1.5	-	-	-	-	1	3.3	1	1.3
RIVER CARPSUCKER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QUILLBACK							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARPSUCKER SPP.							-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3
WHITE SUCKER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH BUFFALO							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE							-	-	-	-	-	-	-	-	-	-	1	3.4	-	-	-	-
SHORTHEAD REDHORSE							-	-	-	-	-	-	3	2.3	-	-	-	-	-	-	-	-
REDHORSE SPP.							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH							-	-	-	-	-	-	1	0.8	-	-	-	-	-	-	-	-
TADPOLE MADTOM							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH							-	-	-	-	1	5.3	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUEGILL							1	4.0	-	-	2	10.5	1	0.8	3	7.3	-	-	2	6.7	-	-
SMALLMOUTH BASS							-	-	-	-	-	-	1	0.8	-	-	-	-	-	-	-	-
LARGEMOUTH BASS							-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.6

TABLE 3.3-48 (CONT.)

	1971[a]		1972[a]		1973[a]		1974[b]		1975[c]		1976[d]		1977[c]		1978[e]		1979[f]		1980[g]		1981[h]	
Species	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
WHITE CRAPPIE							-	-	-	-	-	-	-	-	-	-	1	3.4	-	-	1	1.3
BLACK CRAPPIE							-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3
JOHNNY DARTER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SLENDERHEAD DARTER							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL NUMBER							25		13		19		126		41		29		30		76	
NUMBER OF SPECIES							5		6		7		8		5		7		4		9	

(a) Location 1 not sampled.
(b) Collection periods were in March, June, August, and November.
(c) Collection periods were in March, May, August, and November.
(d) Collection periods were in March, May, and August.
(e) Collection periods were in May, August, and November.
(f) Collection periods were in May, June, August, and November.
(g) Collection periods were in May, July, and August.
(h) Collection periods wre in June, July, August and September.

TABLE 3.3-49 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT LOCATION 2 NEAR THE DRESDEN STATION, 1971-1981.

Species	1971[a]		1972[b]		1973[c]		1974[d]		1975[c]		1976[c]		1977[c]		1978[h]		1979[f]		1980[g]		1981[h]	
	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
LONGNOSE GAR	2	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	9	3.4	1	0.5	18	13.8	-	-	2	7.7	2	1.8	9	6.2	20	20.0	1	2.8	-	-	6	5.9
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.0	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.8	-	-	1	1.0
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARP	1	0.3	2	1.0	-	-	-	-	-	-	-	-	-	-	-	-	4	11.1	-	-	-	-
CARP x GOLDFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-
HORNYHEAD CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CHUB	1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EMERALD SHINER	24	9.2	69	33.2	76	58.5	16	61.5	7	26.9	13	11.9	59	40.6	19	19.0	8	22.2	13	81.2	64	62.7
RIVER SHINER	2	0.8	-	-	-	-	-	-	5	19.2	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	2	1.3	-	-	4	11.1	1	6.2	3	2.9
SAND SHINER	-	-	45	21.6	-	-	-	-	-	-	-	-	1	0.6	-	-	-	-	-	-	-	-
REDFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUCKERMOUTH MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0
BLUNTNOSE MINNOW	71	27.1	14	6.7	22	16.9	2	7.7	-	-	3	2.8	12	8.2	19	19.0	-	-	1	6.2	3	2.9
FATHEAD MINNOW	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	3	3.0	-	-	-	-	-	-
BULLHEAD MINNOW	18	6.9	13	6.3	-	-	4	15.4	9	34.6	88	80.7	38	26.2	20	20.0	7	19.4	-	-	5	4.9
RIVER CARPSUCKER	2	0.8	-	-	-	-	-	-	-	-	-	-	1	0.6	-	-	-	-	-	-	1	1.0
QUILLBACK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARPSUCKER SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3.0	-	-	-	-	1	1.0
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	2	1.0	-	-	-	-	-	-	-	-	4	2.7	6	6.0	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-
SHORTHEAD REDHORSE	-	-	5	2.4	1	0.8	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-
REDHORSE SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8.3	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	1	0.3	-	-	1	0.8	-	-	-	-	-	-	1	0.6	-	-	-	-	-	-	5	4.9
TADPOLE MADTOM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6.2	-	-
TROUT-PERCH	-	-	12	5.8	-	-	-	-	-	-	-	-	4	2.7	-	-	4	11.1	-	-	-	-
BROOK SILVERSIDE	11	4.2	-	-	-	-	-	-	-	-	-	-	1	0.6	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	3	1.2	4	1.9	1	0.8	-	-	1	3.8	1	0.9	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	96	36.7	14	6.7	2	1.5	-	-	1	3.8	1	0.9	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	2	0.8	13	6.3	-	-	-	-	-	-	-	-	7	4.8	1	1.0	1	2.8	-	-	4	3.9
BLUEGILL	-	-	5	2.4	1	0.8	4	15.4	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-
SMALLMOUTH BASS	15	5.8	-	-	3	2.3	-	-	-	-	1	0.9	1	0.6	1	1.0	1	2.8	-	-	1	1.0
LARGEMOUTH BASS	-	-	1	0.5	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3.3-49 (CONT.)

Species	1971[a]		1972[b]		1973[c]		1974[d]		1975[c]		1976[e]		1977[c]		1978[b]		1979[f]		1980[g]		1981[h]	
	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
WHITE CRAPPIE	-	-	-	-	-	-	-	-	1	3.8	-	-	-	-	-	-	1	2.8	-	-	1	1.0
BLACK CRAPPIE	2	0.8	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JOHNNY DARTER	-	-	2	1.0	1	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	1	0.3	4	1.9	2	1.5	-	-	-	-	-	-	-	-	1	1.0	1	2.8	-	-	1	1.0
SLENDERHEAD DARTER	-	-	-	-	-	-	-	-	-	-	-	-	5	3.4	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3.9
TOTAL NUMBER	262		208		130		26		26		109		145		100		36		16		102	
NUMBER OF SPECIES	18		18		13		4		7		7		14		15		11		4		16	

(a) Collection periods were in June, August, and November.
(b) Collection periods were in May, August, and November.
(c) Collection periods were in March, May, August, and November.
(d) Collection periods were in March, June, August, and November.
(e) Collection periods were in March, May, and August.
(f) Collection periods were in May, June, August, and November.
(g) Collection periods were in May, July, and August.
(h) Collection periods were in June, July, August, and September.

TABLE 3.3-50 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT LOCATION 5 NEAR THE DRESDEN STATION, 1971-1981.

	1971[a]		1972[b]		1973[c]		1974[d]		1975[c]		1976[e]		1977[c]		1978[h]		1979[f]		1980[g]		1981[h]	
Species	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	-	-	-	-
GIZZARD SHAD	-	-	1	0.8	14	7.4	12	32.4	1	3.5	3	2.8	3	2.2	-	-	3	4.2	-	-	25	24.5
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	1	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARP	-	-	2	1.6	1	0.5	-	-	-	-	-	-	-	-	-	-	2	2.8	-	-	3	2.9
CARP x GOLDFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HORNYHEAD CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	-	-	-	-
EMERALD SHINER	54	90.2	112	88.9	161	85.2	7	18.9	8	27.6	60	56.6	77	53.3	79	78.2	43	60.6	35	79.5	61	59.8
RIVER SHINER	-	-	-	-	-	-	-	-	1	3.5	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	3	6.8	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	-	-	1	0.5	-	-	-	-	-	-	15	11.3	-	-	1	1.4	3	6.8	-	-
SAND SHINER	3	4.9	1	0.8	1	0.5	-	-	-	-	-	-	12	9.0	-	-	-	-	-	-	-	-
REDFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	2	1.9	-	-	-	-	-	-	-	-	-	-
SUCKERMOUTH MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	3	2.4	7	3.7	7	18.9	1	3.5	5	4.7	1	0.7	14	13.9	1	1.4	3	6.8	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	1	3.5	1	0.9	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	2	3.3	1	0.8	1	0.5	5	13.5	11	37.9	35	33.0	3	2.2	-	-	1	1.4	-	-	-	-
RIVER CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	17	12.8	1	1.0	-	-	-	-	2	2.0
QUILLBACK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARPSUCKER SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	3	3.0	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	-	-	2	6.9	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	1	0.8	-	-	-	-	-	-	-	-	-	-	2	2.0	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	-	-	-	-
SHORTHEAD REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDHORSE SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4.2	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	-	-	3	2.4	-	-	4	10.8	-	-	-	-	1	0.7	-	-	-	-	-	-	-	-
TADPOLE MADTOM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	4.1	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.0
BLUEGILL	-	-	-	-	1	0.5	-	-	1	3.5	-	-	1	0.7	-	-	-	-	-	-	1	1.0
SMALLMOUTH BASS	-	-	1	0.8	1	0.5	2	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.4	-	-	-	-

TABLE 3.3-50 (CONT.)

Species	1971[a] No.	1971[a] % of Catch	1972[b] No.	1972[b] % of Catch	1973[c] No.	1973[c] % of Catch	1974[d] No.	1974[d] % of Catch	1975[c] No.	1975[c] % of Catch	1976[e] No.	1976[e] % of Catch	1977[c] No.	1977[c] % of Catch	1978[h] No.	1978[h] % of Catch	1979[f] No.	1979[f] % of Catch	1980[g] No.	1980[g] % of Catch	1981[h] No.	1981[h] % of Catch
WHITE CRAPPIE	-	-	-	-	-	-	-	-	1	3.5	-	-	-	-	-	-	2	2.8	-	-	3	2.9
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0
JOHNNY DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	1	0.8	-	-	-	-	1	3.5	-	-	-	-	2	2.0	-	-	-	-	1	1.0
SLENDERHEAD DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2.9
TOTAL NUMBER	60		126		189		37		28		106		132		101		71		44		102	
NUMBER OF SPECIES	4		10		10		6		10		6		11		6		13		4		10	

(a) Collection periods were in June, August, and November.
(b) Collection periods were in May, August, and November.
(c) Collection periods were in March, May, August, and November.
(d) Collection periods were in March, June, August, and November.
(e) Collection periods were in March, May, and August.
(f) Collection periods were in May, June, August, and November.
(g) Collection periods were in May, July, and August.
(h) Collection periods were in June, July, August, and September.

TABLE 3.3-51 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT LOCATION 7 NEAR THE DRESDEN STATION, 1971-1981.

Species	1971[a] No.	1971[a] % of Catch	1972[b] No.	1972[b] % of Catch	1973[c] No.	1973[c] % of Catch	1974[d] No.	1974[d] % of Catch	1975[c] No.	1975[c] % of Catch	1976[e] No.	1976[e] % of Catch	1977[c] No.	1977[c] % of Catch	1978[b] No.	1978[b] % of Catch	1979[f] No.	1979[f] % of Catch	1980[g] No.	1980[g] % of Catch	1981[h] No.	1981[h] % of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	1	0.4	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
GIZZARD SHAD	12	2.7	6	0.8	24	7.2	35	13.3	2	2.8	10	5.0	28	8.4	10	6.8	4	5.1	8	66.7	163	78.0
GRASS PICKEREL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	12	2.7	7	0.9	-	-	-	-	1	1.4	-	-	1	0.3	-	-	-	-	-	-	-	-
CARP	6	1.3	10	1.2	1	0.3	-	-	1	1.4	-	-	1	0.3	1	0.7	-	-	2	16.7	4	1.9
CARP x GOLDFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HORNYHEAD CHUB	-	-	-	-	-	-	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
RIVER CHUB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN SHINER	-	-	-	-	1	0.3	-	-	-	-	-	-	1	0.3	1	0.7	-	-	-	-	-	-
EMERALD SHINER	308	69.2	669	80.4	217	65.0	195	73.9	32	45.1	84	42.0	157	47.4	101	68.2	51	64.6	-	-	13	6.2
RIVER SHINER	6	1.3	-	-	-	-	1	0.4	3	4.2	-	-	-	-	-	-	-	-	-	-	-	-
GHOST SHINER	-	-	-	-	3	0.9	2	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STRIPED SHINER	-	-	-	-	6	1.8	6	2.3	1	1.4	1	0.5	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	9	2.0	-	-	4	1.2	-	-	1	1.4	-	-	-	-	6	4.1	-	-	-	-	-	-
BIGMOUTH SHINER	-	-	-	-	1	0.3	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	-	-	18	2.2	-	-	-	-	-	-	-	-	1	0.3	2	1.4	-	-	-	-	-	-
RED SHINER	18	4.1	1	0.1	1	0.3	1	0.4	-	-	27	13.5	-	-	-	-	-	-	-	-	-	-
SPOTFIN SHINER	-	-	2	0.2	3	0.9	14	5.3	-	-	-	-	6	1.8	1	0.7	-	-	-	-	-	-
SAND SHINER	-	-	24	2.9	10	3.0	-	-	-	-	-	-	8	2.4	-	-	1	1.3	-	-	1	0.5
REDFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	1	1.4	2	1.0	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	56	12.6	37	4.4	31	9.3	1	0.4	6	8.5	4	2.0	101	30.5	12	8.1	3	3.8	-	-	-	-
FATHEAD MINNOW	-	-	-	-	-	-	-	-	3	4.2	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	3	0.7	4	0.5	19	5.7	6	2.3	11	15.5	67	33.0	2	0.6	6	4.1	10	12.7	-	-	1	0.5
RIVER CARPSUCKER	-	-	2	0.2	-	-	-	-	1	1.4	-	-	10	3.0	1	0.7	-	-	-	-	-	-
QUILLBACK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5.1	1	8.3	-	-
CARPSUCKER SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3	-	-	-	-
WHITE SUCKER	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-	2	1.4	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	1	0.1	-	-	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	1	0.2	-	-	-	-	-	-	-	-	-	-	3	0.9	-	-	-	-	-	-	-	-
SHORTHEAD REDHORSE	-	-	5	0.6	-	-	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
REDHORSE SPP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5.1	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	-	-	-	-	-	-
CHANNEL CATFISH	5	1.1	-	-	-	-	-	-	-	-	-	-	2	0.6	-	-	-	-	-	-	-	-
TADPOLE MADTOM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	3	0.4	-	-	-	-	-	-	4	2.0	-	-	-	-	-	-	-	-	-	-
BROOK SILVERSIDE	-	-	-	-	2	0.6	-	-	-	-	-	-	1	0.3	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	2	0.5	3	0.4	-	-	-	-	-	-	-	-	1	0.3	-	-	1	1.3	-	-	-	-
GREEN SUNFISH	3	0.7	21	2.5	5	1.5	-	-	1	1.4	1	0.5	-	-	-	-	-	-	-	-	3	1.4
ORANGESPOTTED SUNFISH	3	0.7	5	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1.9
BLUEGILL	-	-	10	1.2	3	0.9	-	-	4	5.6	-	-	1	0.3	3	2.0	-	-	1	8.3	3	1.4
SMALLMOUTH BASS	-	-	-	-	1	0.3	1	0.4	1	1.4	1	0.5	-	-	1	0.7	-	-	-	-	2	1.0
LARGEMOUTH BASS	-	-	1	0.1	1	0.3	1	0.4	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5

TABLE 3.3-51 (CONT.)

Species	1971[a] No.	1971[a] % of Catch	1972[b] No.	1972[b] % of Catch	1973[c] No.	1973[c] % of Catch	1974[d] No.	1974[d] % of Catch	1975[c] No.	1975[c] % of Catch	1976[e] No.	1976[e] % of Catch	1977[c] No.	1977[c] % of Catch	1978[b] No.	1978[b] % of Catch	1979[f] No.	1979[f] % of Catch	1980[g] No.	1980[g] % of Catch	1981[h] No.	1981[h] % of Catch
WHITE CRAPPIE	-	-	2	0.2	-	-	-	-	2	2.8	-	-	1	0.3	-	-	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JOHNNY DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LOGPERCH	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SLENDERHEAD DARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	6.7
TOTAL NUMBER	445		832		334		264		71		201		331		148		79		12		209	
NUMBER OF SPECIES	15		21		19		12		16		10		23		14		7		4		11	

(a) Collection periods were in June, August, and November.
(b) Collection periods were in May, August, and November.
(c) Collection periods were in March, May, August, and November.
(d) Collection periods were in March, June, August, and November.
(e) Collection periods were in March, May, and August.
(f) Collection periods were in May, June, August, and November.
(g) Collection periods were in May, July, and August.
(h) Collection periods were in June, July, August and September.

TABLE 3.3-52 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT LOCATION 9 NEAR THE DRESDEN STATION, 1971-1981.

Species	1971[a]		1972[a]		1973[a]		1974[a]		1975[a]		1976[a]		1977[a]		1978[a]		1979[b]		1980[c]		1981[d]	
	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
LONGNOSE GAR																	-	-	-	-	-	-
SKIPJACK HERRING																	-	-	-	-	-	-
GIZZARD SHAD																	3	16.7	-	-	3	7.3
GRASS PICKEREL																	-	-	-	-	-	-
NORTHERN PIKE																	-	-	-	-	-	-
CENTRAL STONEROLLER																	-	-	-	-	-	-
GOLDFISH																	-	-	-	-	-	-
CARP																	-	-	-	-	2	4.9
CARP x GOLDFISH																	-	-	-	-	-	-
HORNYHEAD CHUB																	-	-	-	-	-	-
RIVER CHUB																	-	-	-	-	-	-
GOLDEN SHINER																	-	-	-	-	-	-
EMERALD SHINER																	10	55.6	18	100.0	9	22.0
RIVER SHINER																	-	-	-	-	-	-
GHOST SHINER																	-	-	-	-	-	-
STRIPED SHINER																	-	-	-	-	-	-
COMMON SHINER																	-	-	-	-	-	-
BIGMOUTH SHINER																	-	-	-	-	-	-
SPOTTAIL SHINER																	1	5.6	-	-	-	-
RED SHINER																	-	-	-	-	-	-
SPOTFIN SHINER																	-	-	-	-	-	-
SAND SHINER																	1	5.6	-	-	-	-
REDFIN SHINER																	-	-	-	-	-	-
MIMIC SHINER																	-	-	-	-	-	-
STEELCOLOR SHINER																	-	-	-	-	-	-
SUCKERMOUTH MINNOW																	-	-	-	-	-	-
BLUNTNOSE MINNOW																	-	-	-	-	-	-
FATHEAD MINNOW																	-	-	-	-	-	-
BULLHEAD MINNOW																	1	5.6	-	-	-	-
RIVER CARPSUCKER																	-	-	-	-	-	-
QUILLBACK																	-	-	-	-	-	-
CARPSUCKER SPP.																	-	-	-	-	-	-
WHITE SUCKER																	-	-	-	-	-	-
SMALLMOUTH BUFFALO																	-	-	-	-	-	-
BIGMOUTH BUFFALO																	-	-	-	-	-	-
SILVER REDHORSE																	-	-	-	-	-	-
GOLDEN REDHORSE																	-	-	-	-	-	-
SHORTHEAD REDHORSE																	-	-	-	-	-	-
REDHORSE SPP.																	-	-	-	-	-	-
BLACK BULLHEAD																	-	-	-	-	1	2.4
CHANNEL CATFISH																	1	5.6	-	-	1	2.4
TADPOLE MADTOM																	-	-	-	-	-	-
TROUT-PERCH																	-	-	-	-	2	4.9
BROOK SILVERSIDE																	-	-	-	-	-	-
WHITE BASS																	-	-	-	-	-	-
ROCK BASS																	-	-	-	-	-	-
GREEN SUNFISH																	-	-	-	-	1	2.4
ORANGESPOTTED SUNFISH																	1	5.6	-	-	-	-
BLUEGILL																	-	-	-	-	-	-
SMALLMOUTH BASS																	-	-	-	-	-	
LARGEMOUTH BASS																	-	-	-	-	-	-

TABLE 3.3-52 (CONT.)

Species	1971[a] No.	1971[a] % of Catch	1972[a] No.	1972[a] % of Catch	1973[a] No.	1973[a] % of Catch	1974[a] No.	1974[a] % of Catch	1975[a] No.	1975[a] % of Catch	1976[c] No.	1976[c] % of Catch	1977[a] No.	1977[a] % of Catch	1978[a] No.	1978[a] % of Catch	1979[b] No.	1979[b] % of Catch	1980[c] No.	1980[c] % of Catch	1981[d] No.	1981[d] % of Catch
WHITE CRAPPIE																	-	-	-	-	1	2.4
BLACK CRAPPIE																	-	-	-	-	-	-
JOHNNY DARTER																	-	-	-	-	-	-
LOGPERCH																	-	-	-	-	-	-
SLENDERHEAD DARTER																	-	-	-	-	-	-
YELLOW PERCH																	-	-	-	-	-	-
FRESHWATER DRUM																	-	-	-	-	21	51.2
TOTAL NUMBER																	19		18		41	
NUMBER OF SPECIES																	6		1		9	

(a) Location 9 not sampled.
(b) Collection periods were in May, June, August, and November.
(c) Collection periods were in May, July, and August.
(d) Collection periods were in June, July, August and September.

TABLE 3.3-53 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY GILL NETTING AT EACH LOCATION NEAR THE DRESDEN STATION, 1980-1981.

	Location 1						Location 2						Location 5					
	1980[a]			1981[b]			1980			1981			1980			1981		
Species	No.	CPE[c]	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
LONGNOSE GAR	8	1	5.0	7	<1	6.7	3	<1	4.3	5	<1	13.2	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	1	<1	1.4	-	-	-	-	-	-	2	<1	<1.0
GIZZARD SHAD	24	2	15.1	6	<1	5.7	11	1	15.7	8	<1	21.1	5	1	5.5	27	2	33.3
GOLDEYE	-	-	-	1	<1	1.0	10	1	14.3	3	<1	7.9	8	1	8.9	13	1	16.7
GOLDFISH	2	<1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARP	101	10	63.5	79	4	57.1	15	2	21.4	8	<1	21.1	56	6	62.2	30	2	33.3
CARP X GOLDFISH	7	1	4.4	22	1	14.3	-	-	-	-	-	-	-	-	-	-	-	-
RIVER CARPSUCKER	1	<1	0.6	1	<1	1.0	-	-	-	-	-	-	1	<1	1.1	2	<1	<1.0
QUILLBACK	3	<1	1.9	-	-	-	-	-	-	-	-	-	1	1	12.2	1	<1	<1.0
SMALLMOUTH BUFFALO	-	-	-	3	<1	2.9	1	<1	1.4	-	-	-	1	<1	1.1	2	<1	<1.0
SILVER REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	<1	<1.0
GOLDEN REDHORSE	-	-	-	-	-	-	4	<1	5.1	-	-	-	-	-	-	-	-	-
SHORTHEAD REDHORSE	-	-	-	5	<1	4.8	3	<1	4.3	3	<1	7.9	3	<1	3.3	11	1	16.7
WHITE SUCKER	-	-	-	1	<1	1.0	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	2	<1	1.2	1	<1	1.0	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	4	<1	2.5	1	<1	1.0	8	1	11.4	1	<1	2.6	1	<1	1.1	4	<1	<1.0
WHITE BASS	-	-	-	-	-	-	1	<1	1.4	4	<1	10.5	1	<1	1.1	-	-	-
YELLOW BASS	-	-	-	2	<1	1.9	3	<1	4.3	-	-	-	-	-	-	4	<1	<1.0
ROCK BASS	-	-	-	-	-	-	1	<1	1.4	1	<1	2.6	-	-	-	-	-	-
GREEN SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	5	1	3.1	-	-	-	2	<1	2.8	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	1	<1	0.6	1	<1	1.0	2	<1	2.8	1	<1	2.6	1	<1	1.1	1	<1	<1.0
BLACK CRAPPIE	1	<1	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	1	<1	1.0	5	1	7.1	4	<1	10.5	2	<1	2.2	2	<1	<1.0
TOTAL NUMBER	159			131			70			38			90			101		
NUMBER OF SPECIES	11			13			14			10			11			13		
AVERAGE CPE		16			7			7			2			9			6	

(a) Collection periods were in June, July and August.
(b) Collection periods were in June, July, August and September.
(c) CPE based on an estimated 20 hours sampling duration for each sampling date.

TABLE 3.3-53 (CONT.)

	Location 7						Location 9						Location 10					
	1980			1981			1980			1981			1980			1981		
Species	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
LONGNOSE GAR	2	<1	1.8	2	<1	1.2	1	<1	1.5	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	5	1	4.5	7	<1	4.1	13	1	19.4	4	<1	<1.0	1	<1	2.7	-	-	-
GOLDEYE	-	-	-	5	<1	2.9	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	1	<1	0.9	-	-	-	1	<1	1.5	-	-	-	-	-	-	-	-	-
CARP	78	8	70.9	110	6	60.0	39	4	58.2	20	2	100.0	29	3	78.4	48	3	100.0
CARP X GOLDFISH	2	<1	1.8	5	<1	2.9	2	<1	3.0	-	-	-	-	-	-	1	<1	<1.0
RIVER CARPSUCKER	1	<1	0.9	9	1	10.0	-	-	-	-	-	-	-	-	-	3	<1	<1.0
QUILLBACK	4	<1	3.6	2	<1	1.2	2	<1	3.0	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	1	<1	0.9	3	<1	1.8	1	<1	1.5	1	<1	<1.0	-	-	-	1	<1	<1.0
SILVER REDHORSE	-	-	-	3	<1	1.8	-	-	-	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	1	<1	0.9	1	<1	0.6	-	-	-	-	-	-	-	-	-	-	-	-
SHORTHEAD REDHORSE	3	<1	2.7	7	<1	4.1	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	1	<1	0.9	-	-	-	-	-	-	1	<1	<1.0	3	<1	8.1	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHANNEL CATFISH	2	<1	1.8	5	<1	2.9	2	<1	3.0	1	<1	<1.0	1	<1	2.7	1	<1	<1.0
WHITE BASS	1	<1	0.9	6	<1	3.5	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BASS	1	<1	0.9	1	<1	0.6	-	-	-	1	<1	<1.0	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	2	<1	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	1	<1	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	-	-	-	-	-	-	-	-	-	-	-	-	1	<1	2.7	-	-	-
WHITE CRAPPIE	2	<1	1.8	1	<1	0.6	-	-	-	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	1	<1	0.9	1	<1	0.6	1	<1	1.5	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	1	<1	0.9	2	<1	1.2	5	1	7.5	-	-	-	2	<1	5.4	-	-	-
TOTAL NUMBER	110			170			67			28			37			54		
NUMBER OF SPECIES	18			16			9			6			6			4		
AVERAGE CPE		11			10			7			2			4			3	

TABLE 3.3-54 COMMON AND SCIENTIFIC NAMES OF FISHES COLLECTED BY ALL GEAR TYPES BELOW DRESDEN ISLAND LOCK AND DAM, 1981

Common Name	Scientific Name
LONGNOSE GAR	*Lepisosteus osseus*
AMERICAN EEL	*Anguilla rostrata*
SKIPJACK HERRING	*Alosa chrysochloris*
GIZZARD SHAD	*Dorosoma cepedianum*
GOLDEYE	*Hiodon alosoides*
GRASS PICKEREL	*Esox americanus vermiculatus*
NORTHERN PIKE	*E. lucius*
MINNOWS	Cyprinidae
GOLDFISH	*Carrasius auratus*
CARP	*Cyprinus carpio*
CARP x GOLDFISH	
GOLDEN SHINER	*Notimegonus crysoleucas*
EMERALD SHINER	*Notropis atherinoides*
COMMON SHINER	*N. cornutus*
SPOTTAIL SHINER	*N. hudsonius*
RED SHINER	*N. lutrensis*
SPOTFIN SHINER	*N. spilopterus*
BLUNTNOSE MINNOW	*Pimephales notatus*
FATHEAD MINNOW	*P. promelas*
BULLHEAD MINNOW	*P. vigilax*
RIVER CARPSUCKER	*Carpoides carpio*
QUILLBACK	*C. cyprinus*
HIGHFIN CARPSUCKER	*C. velifer*
WHITE SUCKER	*Catostomus commersoni*
SMALLMOUTH BUFFALO	*Ictiobus bubalus*
BIGMOUTH BUFFALO	*I. cyprinellus*
SILVER REDHORSE	*Moxostoma anisurum*
GOLDEN REDHORSE	*M. erythrurum*
SHORTHEAD REDHORSE	*M. macrolepidotum*
BLACK BULLHEAD	*Ictalurus melas*
YELLOW BULLHEAD	*I. natalis*
CHANNEL CATFISH	*I. punctatus*
TROUT-PERCH	*Percopsis omiscomaycus*
WHITE BASS	*Morone chrysops*
YELLOW BASS	*M. mississippiensis*
ROCK BASS	*Ambloplites rupestris*
GREEN SUNFISH	*Lepomis cyanellus*
ORANGESPOTTED SUNFISH	*L. humilis*
PUMPKINSEED	*L. gibbosus*
BLUEGILL	*L. macrochirus*
SUNFISH HYBRID	*Lepomis sp.*
SMALLMOUTH BASS	*Micropterus dolomieui*
LARGEMOUTH BASS	*M. salmoides*
WHITE CRAPPIE	*Pomoxis annularis*
BLACK CRAPPIE	*P. nigromaculatus*
YELLOW PERCH	*Perca flavescens*
WALLEYE	*Stizostedion vitreum vitreum*
FRESHWATER DRUM	*Aplodinotus grunniens*

TABLE 3.3-55 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY ELECTROFISHING BELOW DRESDEN ISLAND LOCK AND DAM, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
LEPISOSTEUS OSSEUS AD	4	0.2	0.9410	0.5
ANGUILLA ROSTRATA	1	0.0	0.6200	0.3
ALOSA CHRYSOCHLORIS	4	0.2	0.2830	0.1
DOROSOMA CEPEDIANUM AD	350	13.3	22.4940	10.8
ESOX AMERICANUS VERMICULATUS AD	3	0.1	0.1730	0.1
ESOX LUCIUS AD	3	0.1	0.7750	0.4
CYPRINIDAE AD	1	0.0		
CARASSIUS AURATUS AD	5	0.2	1.2680	0.6
CYPRINUS CARPIO AD	228	8.6	121.2930	58.4
NOTEMIGONUS CRYSOLEUCAS AD	2	0.1		
PIMEPHALES PROMELAS AD	1	0.0		
NOTROPIS CORNUTUS	1	0.0	0.0250	0.0
NOTROPIS HUDSONIUS AD	19	0.7		
NOTROPIS SPILOPTERUS AD	1	0.0		
NOTROPIS ATHERINOIDES AD	1540	58.7		
PIMEPHALES NOTATUS AD	6	0.2		
PIMEPHALES VIGILAX AD	1	0.0		
CARP X GOLDFISH HYBRID	21	0.8	7.2150	3.5
CARPIODES CARPIO AD	14	0.5	2.3850	1.1
CARPIODES CYPRINUS AD	9	0.3	2.4820	1.2
CARPOIDES VELIFER	1	0.0	0.1540	0.1
CATOSTOMUS COMMERSONI AD	5	0.2	0.7940	0.4
ICTIOBUS BUBALUS AD	3	0.1	1.9900	1.0
ICTIOBUS CYPRINELLUS AD	1	0.0	0.0600	0.0
MOXOSTOMA ANISURUM AD	3	0.1	0.4000	0.2
MOXOSTOMA ERYTHRURUM	15	0.6	1.1690	0.6
MOXOSTOMA MACRO AD	7	0.3	1.1260	0.5
ICTALURUS MELAS AD	30	1.1	2.2300	1.1
ICTALURUS NATALIS AD	2	0.1	0.2110	0.1
ICTALURUS PUNCTATUS AD	2	0.1	0.0710	0.0
PERCOPSIS OMISCOMAYCUS AD	2	0.1	0.0030	0.0
MORONE CHRYSOPS AD	11	0.4	2.3740	1.1
MORONE MISSIPPIENSIS AD	10	0.4	0.3750	0.2
AMBLOPLITES RUPESTRIS AD	4	0.2	0.5750	0.3
LEPOMIS CYANELLUS AD	111	4.2	2.0820	1.0
LEPOMIS GIBBOSUS AD	3	0.1	0.1010	0.0
LEPOMIS HUMILIS AD	18	0.7	0.1460	0.1
LEPOMIS MACROCHIRUS AD	21	0.8	0.6530	0.3
MICROPTERUS DOLOMIEUI AD	33	1.3	8.3940	4.0
MICROPTERUS SALMOIDES AD	92	3.5	19.9910	9.6
POMOXIS ANNULARIS AD	17	0.6	1.6580	0.8
POMOXIS NIGROMACULATUS AD	5	0.2	0.5430	0.3
LEPOMIS HYBRID	2	0.1	0.0800	0.0
PERCA FLAVESCENS AD	1	0.0	0.0290	0.0
STIZOSTEDION VITREUM AD	4	0.2	1.2110	0.6
APLODINOTUS GRUNNIENS AD	7	0.3	1.2940	0.6
TOTAL	2624		207.6680	

TABLE 3.3-56 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY SEINING BELOW DRESDEN ISLAND LOCK AND DAM, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
ALOSA CHRYSOCHLORIS	2	0.3	0.0440	1.9
DOROSOMA CEPEDIANUM AD	33	5.5	0.0360	1.5
CYPRINUS CARPIO AD	10	1.7	0.2030	8.6
PIMEPHALES PROMELAS AD	2	0.3	0.0130	0.6
NOTROPIS CORNUTUS	1	0.2		
NOTROPIS HUDSONIUS AD	25	4.1	0.0080	0.3
NOTROPIS SPILOPTERUS AD	18	3.0		
NOTROPIS ATHERINOIDES AD	397	65.6		
PIMEPHALES NOTATUS AD	2	0.3	0.0010	0.0
PIMEPHALES VIGILAX AD	9	1.5		
NOTROPIS LUTRENSIS AD	39	6.4		
CATOSTOMUS COMMERSONI AD	1	0.2	0.1450	6.2
ICTALURUS MELAS AD	2	0.3	0.1220	5.2
ICTALURUS NATALIS AD	1	0.2	0.0010	0.0
MORONE CHRYSOPS AD	1	0.2	0.0800	3.4
AMBLOPLITES RUPESTRIS AD	2	0.3	0.0100	0.4
LEPOMIS CYANELLUS AD	17	2.8	0.3330	14.2
LEPOMIS HUMILIS AD	10	1.7	0.0530	2.3
LEPOMIS MACROCHIRUS AD	5	0.8	0.0320	1.4
MICROPTERUS DOLOMIEUI AD	5	0.8	0.0350	1.5
MICROPTERUS SALMOIDES AD	5	0.8	0.8870	37.7
POMOXIS ANNULARIS AD	9	1.5	0.2810	12.0
POMOXIS NIGROMACULATUS AD	2	0.3	0.0580	2.5
PERCA FLAVESCENS AD	2	0.3	0.0030	0.1
APLODINOTUS GRUNNIENS AD	5	0.8	0.0050	0.2
TOTAL	605		2.3500	

TABLE 3.3-57 SPECIES COMPOSITION, RELATIVE ABUNDANCE AND BIOMASS OF FISH COLLECTED BY GILL NETTING BELOW DRESDEN ISLAND LOCK AND DAM, 1981.

SPECIES	NUMBER	PERCENT OF TOTAL NUMBER	WEIGHT	PERCNT OF TOTAL WEIGHT
LEPISOSTEUS OSSUES AD	7	3.2	2.8000	3.1
ALOSA CHRYSOCHLORIS	4	1.8	0.8060	0.9
DOROSOMA CEPEDIANUM AD	21	9.5	2.5610	2.9
HIODON ALOSOIDES	19	8.6	5.6650	6.3
CYPRINUS CARPIO AD	140	63.3	69.3300	77.5
CARP X GOLDFISH HYBRID	12	5.4	5.0750	5.7
CARPIODES CYPRINUS AD	1	0.5	0.1800	0.2
CARPOIDES VELIFER	1	0.5	0.2400	0.3
ICTIOBUS BUBALUS AD	2	0.9	0.4650	0.5
MOXOSTOMA MACRO AD	4	1.8	0.9400	1.1
ICTALURUS MELAS AD	4	1.8	0.4700	0.5
ICTALURUS NATALIS AD	1	0.5	0.1750	0.2
MORONE CHRYSOPS AD	2	0.9	0.5730	0.6
MORONE MISSIPPIENSIS AD	2	0.9	0.1100	0.1
LEPOMIS MACROCHIRUS AD	1	0.5	0.0410	0.0
TOTAL	221		89.4310	

TABLE 3.3-58 TOTAL NUMBER, AVERAGE CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 1981.

	Location 11			Location 12			Location 13			Location 14			Location 15		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE[b]	%	No.	CPE	%	No.	CPE[c]	%
AMERICAN EEL	-	-	-	-	-	-	-	-	-	1	0.6	0.2	-	-	-
LONGNOSE GAR	-	-	-	1	1.3	0.6	1	0.6	0.2	1	0.4	0.1	1	0.4	0.1
SKIPJACK HERRING	2	1.4	0.4	2	0.6	0.3	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	55	32.0	10.0	81	48.3	22.8	76	43.4	17.7	64	36.1	11.2	74	42.1	10.4
GRASS PICKEREL	-	-	-	-	-	-	1	0.6	0.2	1	0.4	0.1	1	0.6	0.1
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	1	0.6	0.2	2	1.1	0.3
CYPRINIDAE	1	0.7	0.2	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	-	-	-	3	1.7	0.8	1	0.6	0.2	1	0.6	0.2	-	-	-
CARP	57	34.7	10.9	53	31.9	15.0	18	10.3	4.2	35	19.4	6.0	65	34.6	8.6
EMERALD SHINER	306	177.4	55.6	145	84.3	39.7	255	145.7	59.6	375	208.1	64.7	459	262.0	64.9
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
SPOTTAIL SHINER	2	1.1	0.3	-	-	-	14	8.0	3.3	2	1.0	0.3	1	0.6	0.1
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
GOLDEN SHINER	1	0.6	0.2	1	0.6	0.3	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	1	0.7	0.3	-	-	-	3	1.7	0.5	2	1.1	0.3
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	1	0.6	0.2	-	-	-
BULLHEAD MINNOW	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-
CARP x GOLDFISH	15	8.7	2.7	-	-	-	-	-	-	2	1.1	0.3	4	2.3	0.6
RIVER CARPSUCKER	2	1.1	0.3	5	3.0	1.4	3	1.7	0.7	3	1.6	0.5	1	0.6	0.1
QUILLBACK	2	1.3	0.4	5	3.0	1.4	-	-	-	2	1.0	0.3	-	-	-
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
SMALLMOUTH BUFFALO	-	-	-	1	0.6	0.3	1	0.6	0.2	-	-	-	1	0.6	0.1
BIGMOUTH BUFFALO	1	0.7	0.2	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	2	1.1	0.3	-	-	-	1	0.6	0.2	-	-	-	-	-	-
SHORTHEAD REDHORSE	-	-	-	3	1.7	0.8	3	1.7	0.7	1	0.6	0.2	-	-	-
GOLDEN REDHORSE	1	0.6	0.2	1	0.7	0.3	9	5.1	2.1	1	0.6	0.2	3	1.7	0.4
WHITE SUCKER	-	-	-	1	0.6	0.3	2	1.1	0.4	1	0.6	0.2	1	0.6	0.1
CHANNEL CATFISH	1	0.6	0.2	-	-	-	1	0.6	0.2	-	-	-	-	-	-
BLACK BULLHEAD	16	9.1	2.9	8	4.6	2.2	1	0.6	0.2	3	1.6	0.5	2	1.1	0.3
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	1	0.6	0.2	1	0.6	0.1
WHITE BASS	1	0.6	0.2	6	3.6	1.7	4	2.3	0.9	-	-	-	-	-	-
YELLOW BASS	2	1.1	0.3	2	1.1	0.5	5	2.9	1.2	1	0.6	0.2	-	-	-
TROUT-PERCH	-	-	-	-	-	-	2	1.1	0.4	-	-	-	-	-	-
ROCK BASS	1	0.7	0.2	1	0.6	0.3	-	-	-	1	0.6	0.2	1	0.6	0.1
GREEN SUNFISH	25	15.0	4.7	5	2.9	1.4	2	1.1	0.4	40	22.6	7.0	39	21.9	5.4
PUMPKINSEED	-	-	-	-	-	-	1	0.6	0.2	1	0.6	0.2	1	0.6	0.1
ORANGESPOTTED SUNFISH	9	5.6	1.8	1	0.6	0.3	4	2.3	0.9	1	0.4	0.1	3	1.6	0.4
BLUEGILL	6	3.4	1.1	3	1.9	0.9	3	1.7	0.7	-	-	-	9	5.1	1.3
SUNFISH HYBRID	1	0.7	0.2	-	-	-	-	-	-	1	0.4	0.1	-	-	-
LARGEMOUTH BASS	19	11.6	3.6	10	5.9	2.8	9	5.1	2.1	23	13.0	4.0	31	17.1	4.2
SMALLMOUTH BASS	4	2.3	0.7	11	6.3	3.0	5	2.9	1.2	7	4.0	1.2	6	3.3	0.8
BLACK CRAPPIE	1	0.6	0.2	2	1.3	0.6	-	-	-	-	-	-	2	1.0	0.2

TABLE 3.3-58 (CONT.)

	Location 11			Location 12			Location 13			Location 14			Location 15		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE[b]	%	No.	CPE	%	No.	CPE[c]	%
WHITE CRAPPIE	7	4.1	1.3	5	3.0	1.4	4	2.3	0.9	1	0.4	0.1	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.1
WALLEYE	-	-	-	-	-	-	1	0.6	0.2	3	1.4	0.4	-	-	-
FRESHWATER DRUM	3	1.9	0.6	3	1.7	0.8	-	-	-	1	0.4	0.1	-	-	-
TOTAL NUMBER	543			360			428			579			714		
NUMBER OF SPECIES	24			26			27			28			26		
AVERAGE CPE		318.9			212.1			244.6			321.6			403.4	

(a) Represents average CPE for seven sampling dates.

TABLE 3.3-59 TOTAL NUMBER AND RELATIVE ABUNDANCE OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 1981

Species	Location 11		Location 12		Location 13		Location 14		Location 15	
	No.	%	No.	%	No.	%	No.	%	No.	%
GIZZARD SHAD	11	13.1	4	2.1	4	2.4	11	11.6	3	4.4
SKIPJACK HERRING	-	-	-	-	-	-	1	1.1	1	1.5
CARP	4	4.8	-	-	5	2.9	-	-	1	1.5
EMERALD SHINER	31	36.9	148	78.7	122	71.8	68	71.6	28	41.2
SPOTTAIL SHINER	5	6.0	1	0.5	2	1.2	3	3.2	14	20.6
SPOTFIN SHINER	1	1.2	9	4.8	6	3.5	1	1.1	1	1.5
COMMON SHINER	-	-	-	-	-	-	1	1.1	-	-
RED SHINER	-	-	11	5.9	26	15.3	1	1.1	1	1.5
FATHEAD MINNOW	1	1.2	-	-	1	0.6	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	-	-	1	1.1	1	1.5
BULLHEAD MINNOW	1	1.2	5	2.7	-	-	-	-	3	4.4
WHITE SUCKER	-	-	-	-	-	-	1	1.1	-	-
BLACK BULLHEAD	1	1.2	1	0.5	-	-	-	-	-	-
YELLOW BULLHEAD	1	1.2	-	-	-	-	-	-	-	-
WHITE BASS	-	-	1	0.5	-	-	-	-	-	-
ROCK BASS	2	2.4	-	-	-	-	-	-	-	-
GREEN SUNFISH	8	9.5	2	1.1	3	1.8	3	3.2	1	1.5
ORANGESPOTTED SUNFISH	4	4.8	1	0.5	-	-	-	-	5	7.4
BLUEGILL	2	2.4	-	-	-	-	1	1.1	2	2.9
SMALLMOUTH BASS	-	-	1	0.5	-	-	1	1.1	3	4.4
LARGEMOUTH BASS	2	2.4	-	-	-	-	1	1.1	2	2.9
WHITE CRAPPIE	6	7.1	2	1.1	-	-	1	1.1	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	2	2.9
YELLOW PERCH	-	-	2	1.1	-	-	-	-	-	-
FRESHWATER DRUM	4	4.8	-	-	1	0.6	-	-	-	-
TOTAL NUMBER	84		188		170		95		68	
NUMBER OF SPECIES	16		13		9		14		15	

TABLE 3.3-60 TOTAL NUMBER, AVERAGE CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 1981.

	Location 11			Location 12			Location 13			Location 16		
	No.	CPE[a]	%	No.	CPE	%	No.	CPE[b]	%	No.	CPE	%
LONGNOSE GAR	-	-	-	7	<1	7.1	-	-	-	-	-	-
SKIPJACK HERRING	1	<1	<1.0	3	<1	3.0	-	-	-	-	-	-
GIZZARD SHAD	11	1	33.3	9	<1	9.1	-	-	-	1	<1	<1.0
GOLDEYE	4	<1	<1.0	15	1	16.7	-	-	-	-	-	-
CARP	35	2	66.7	54	3	50.0	30	2	100.0	21	1	100.0
CARP x GOLDFISH	7	<1	<1.0	4	<1	4.0	-	-	-	1	<1	<1.0
QUILLBACK	-	-	-	1	<1	1.0	-	-	-	-	-	-
HIGHFIN CARPSUCKER	-	-	-	1	<1	1.0	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	2	<1	2.0	-	-	-	-	-	-
SHORTHEAD REDHORSE	-	-	-	2	<1	2.0	-	-	-	2	<1	<1.0
BLACK BULLHEAD	3	<1	<1.0	1	<1	1.0	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	1	<1	1.0	-	-	-	-	-	-
WHITE BASS	-	-	-	1	<1	1.0	1	<1	<1.0	-	-	-
YELLOW BASS	-	-	-	-	-	-	2	<1	<1.0	-	-	-
BLUEGILL	-	-	-	1	<1	1.0	-	-	-	-	-	-
TOTAL NUMBER	61			102			33			25		
NUMBER OF SPECIES	5			13			3			3		
AVERAGE CPE		3			6			2			1	

(a) Represents average CPE for seven sampling dates.

TABLE 3.3-61 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, JUNE 1981

		Location 11				Location 12				Location 13				Location 14				Location 15				Location 16		
Date	Depth (m)	T[a]	D.O.[b]	% Sat.	Spec. Cond.[c]	T[a]	D.O.[b]	% Sat.	Spec. Cond.	T[a]	D.O.[b]	% Sat.	Spec. Cond.	T[a]	D.O.[b]	% Sat.	Spec. Cond.	T[a]	D.O.[b]	% Sat.	Spec. Cond.	T[a]	D.O.[b]	% Sat.
22 June	Surface	23.5	6.2	72	633	23.5	9.2	107	538	23.5	8.3	97	533	23.7	8.8	102	555	23.0	9.0	103	631			
	1.0	23.3	5.7	66	--	23.5	9.2	107	--	23.5	8.3	97	--	23.5	8.7	101	--	23.0	8.9	102	--			
	2.0	23.0	5.6	63	--	23.5	9.3	108	--	23.5	8.3	97	--	23.5	8.7	101	--	--	--	--	--			
	2.5	--	--	--	--	--	--	--	--	23.5	8.3	97	--	--	--	--	--	--	--	--	--			
	3.0	23.0	5.5	63	--	--	--	--	--	--	--	--	--	23.5	8.7	101	--	--	--	--	--			
24 June	Surface	24.3	8.1	95	--	24.5	*[d]	--	--	24.5	9.0	107	--									25.0	8.8	106
	1.0	24.0	7.9	93	--	24.0	*	--	--	24.5	9.1	108	--									25.0	8.8	105
	2.0	23.5	7.9	92	--	--	--	--	--	--	--	--	--									25.0	8.6	102
	3.0	23.5	7.9	92	--	--	--	--	--	--	--	--	--									25.0	8.7	104
	3.5	23.5	7.9	92	--	--	--	--	--	--	--	--	--									--	--	--

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - µmhos/cm
(d) * - Instrument malfunction

TABLE 3.3-62 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, JULY 1981.

		Location 11				Location 12				Location 13			
Date	Depth (m)	T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
6 July	Surface	26.0	6.4	78	660	26.2	7.4	90	669	-	-	-	-
	0.5	-	-	-	-	-	-	-	-	26.2	7.5	91	662
	1.0	25.8	6.2	75	661	25.9	7.5	91	669	-	-	-	-
	2.0	-	-	-	-	-	-	-	-	-	-	-	-
8 July	Surface	28.1	6.4	81		27.9	7.2	91		27.9	7.1	90	
	1.0	27.9	6.4	80		27.8	7.1	90		27.9	7.1	90	
	2.0	27.7	6.3	79		27.8	7.1	90		27.8	7.1	90	
	3.0	27.7	6.2	78		27.8	7.1	90		27.8	7.1	90	
	3.5	-	-	-	-	-	-	-	-	-	-	-	
	4.0	27.6	6.2	78		-	-	-	-	27.8	7.1	90	
	5.0	27.5	5.8	73		-	-	-	-	-	-	-	
22 July	Surface	26.0	6.1	74	619	25.6	8.0	98	656	26.0	7.1	87	658
	1.0	25.9	6.0	73	622	25.7	7.8	95	656	25.8	7.1	87	658
	2.0	-	-	-	-	25.7	7.8	95	657	-	-	-	-
	3.0	-	-	-	-	25.7	7.5	91	657	-	-	-	-
23 July	Surface	24.7	6.9	82	639	24.9	8.6	102	623	25.0	8.3	99	622
	1.0	24.8	6.5	77	640	24.9	8.4	100	623	25.0	8.1	96	627
	2.0	-	-	-	-	24.9	8.2	98	626	-	-	-	-
	3.0	-	-	-	-	24.9	8.1	96	629	-	-	-	-

TABLE 3.3-62 (CONT.)

Date	Depth (m)	Location 14 T	Location 14 DO	Location 14 % Sat.	Location 14 Spec. Cond.	Location 15 T	Location 15 DO	Location 15 % Sat.	Location 15 Spec. Cond.	Location 16 T	Location 16 DO	Location 16 % Sat.
6 July	Surface	26.1	7.7	94	678	25.6	7.3	88	672			
	0.5	-	-	-	-	-	-	-	-			
	1.0	26.0	7.4	90	679	25.6	7.3	88	-			
	2.0	-	-	-	-	25.5	7.3	88	-			
8 July	Surface									28.2	7.6	96
	1.0									28.2	7.6	96
	2.0									28.2	7.6	96
	3.0									28.2	7.6	96
	3.5									28.2	7.6	96
	4.0									-	-	-
	5.0									-	-	-
22 July	Surface	26.1	7.7	94	688	25.9	7.6	93	660			
	1.0	26.1	7.7	94	688	25.9	7.3	89	659			
	2.0	26.1	7.7	94	689	25.9	7.2	88	661			
	3.0	-	-	-	-	-	-	-	-			
23 July	Surface									25.2	8.5	101
	1.0									25.2	8.2	98
	2.0									25.2	8.2	98
	3.0											

(a) Temperature – °C
(b) Dissolved oxygen – mg/l
(c) Specific conductivity – μmhos/cm

TABLE 3.3-63 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, AUGUST 1981.

		Location 11				Location 12				Location 13			
Date	Depth (m)	T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
3 August	0.5	24.5	6.9	82	405	24.8	7.9	94	395	23.5	7.1	84	303
4 August	0.5	25.8	7.5	91	455	25.6	7.7	94	410	26.0	7.8	95	511
6 August	Surface	26.0	6.1	74		26.2	7.5	91		26.5	7.2	89	
	0.5	26.0	6.1	74		-	-	-		-	-	-	
	1.0	-	-	-		26.2	7.5	91		26.5	7.2	89	
	2.0	-	-	-		26.2	7.5	91		26.5	7.2	89	
	3.0	-	-	-		26.2	7.5	91		26.5	7.2	89	
	4.0	-	-	-		26.2	7.5	91		26.5	7.2	89	
18 August	0.5	24.8	6.1	73	601	24.8	7.6	90	685	24.9	6.3	75	604
19 August	0.5	24.5	7.1	85	683	24.5	7.1	85	683	24.5	7.5	89	683
20 August	Surface	24.4	*[d]	-		24.3	7.9	93		24.4	8.4	99	
	1.0	24.4	*	-		24.3	7.9	93		24.6	8.3	99	
	2.0	-	-	-		24.3	7.9	93		24.6	8.3	99	
	3.0	-	-	-		-	-	93		24.6	8.1	96	

TABLE 3.3-63 (CONT.)

Date	Depth (m)	Location 14 T	Location 14 DO	Location 14 % Sat.	Location 14 Spec. Cond.	Location 15 T	Location 15 DO	Location 15 % Sat.	Location 15 Spec. Cond.	Location 16 T	Location 16 DO	Location 16 % Sat.	Location 16 Spec. Cond.
3 August	0.5	25.0	7.4	88	325	24.5	7.6	89	454				
4 August	0.5	25.8	7.7	94	365	26.0	7.6	93	448				
6 August	Surface									26.3	7.8	95	
	0.5									-	-	-	
	1.0									26.3	7.7	94	
	2.0									-	-	-	
	3.0									-	-	-	
	4.0									-	-	-	
18 August	0.5	25.0	7.8	93	686	24.9	7.2	86	676				
19 August	0.5	24.4	7.7	91	688	24.3	7.2	85	687				
20 August	Surface												
	1.0												
	2.0												
	3.0												

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - umhos/cm
(d) * - Instrument malfunction

TABLE 3.3-64 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT EACH FISH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, SEPTEMBER 1981.

		Location 11				Location 12				Location 13			
		T[a]	DO[b]	% Sat.	Spec. Cond.[c]	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
8 September	Surface	23.0	6.9	79	611	23.2	8.1	93	625	23.2	7.3	84	609
	1.0	23.0	7.0	80	611	23.2	8.1	93	625	23.3	7.4	85	609
	1.5	-	-	-	-	23.2	8.2	94	625	23.3	7.4	85	609
9 September	0.5	22.6	7.2	83	-	22.6	8.0	92	-	22.6	7.9	91	-
10 September	Surface	22.6	6.7	77	-	22.5	8.0	92	-	22.5	7.7	89	-
	1.0	22.6	6.7	77	-	22.5	8.0	92	-	22.5	7.7	89	-
	2.0	22.5	6.6	76	-	22.5	8.0	92	-	22.5	7.7	89	-
	2.5	22.5	6.6	76	-	-	-	-	-	22.5	7.7	89	-
	3.0	-	-	-	-	-	-	-	-	22.5	7.7	89	-
	3.5	-	-	-	-	-	-	-	-	22.5	7.7	89	-
21 September	0.5	21.6	6.7	76	673	21.7	8.2	93	670	21.6	7.0	80	670
22 September	0.5	20.9	7.4	82	638	20.5	8.9	98	636	20.9	7.7	86	639
23 September	Surface	19.8	8.3	90	618	19.9	9.1	99	610	19.7	9.0	98	611
	1.0	19.7	8.1	88	616	19.9	9.0	98	610	19.8	8.9	97	611
	1.5	19.7	8.0	87	617	-	-	-	-	-	-	-	-
	2.0	-	-	-	-	19.9	8.9	97	610	19.8	8.9	97	611
	3.0	-	-	-	-	-	-	-	-	19.9	8.9	97	611

TABLE 3.3-64 (CONT.)

		Location 14				Location 15				Location 16			
		T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.	T	DO	% Sat.	Spec. Cond.
8 September	Surface	23.1	8.1	93	625	23.2	8.0	92	613				
	1.0	23.2	8.2	94	626	23.2	8.0	92	613				
	1.5	-	-	-	-	23.2	8.0	92	613				
9 September	0.5	22.7	8.1	93	-	22.6	8.0	92	-				
10 September	Surface									22.5	8.1	93	-
	1.0									22.5	8.1	93	-
	2.0									22.5	8.1	93	-
	2.5									-	-	-	-
	3.0									-	-	-	-
	3.5									-	-	-	-
21 September	0.5	22.0	8.2	93	667	21.8	8.1	92	665				
22 September	0.5	21.1	8.8	98	644	20.6	8.9	99	641				
23 September	Surface									19.8	9.1	99	611
	1.0									19.9	9.0	98	611
	1.5									-	-	-	-
	2.0									20.0	9.0	98	611
	3.0									-	-	-	-

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Specific conductivity - µmhos/cm

TABLE 3.3-65 SPECIES COMPOSITION, CATCH-PER-UNIT EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 22 JUNE 1981

Species	Location 11			Location 12			Location 13			Location 14			Location 15		
	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
Longnose gar	-	-	-	-	-	-	-	-	-	1	3	1.1	-	-	-
Gizzard shad	1	4	1.0	21	84	25.6	4	16	5.9	5	17	5.3	17	68	22.1
Grass pickerel	-	-	-	-	-	-	-	-	-	1	3	1.1	-	-	-
Northern pike	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1.3
Goldfish	-	-	-	3	12	3.7	1	4	1.5	-	-	-	-	-	-
Carp	9	36	9.1	21	84	25.6	8	32	11.8	6	20	6.3	13	52	16.9
Goldfish x Carp	8	32	8.1	-	-	-	-	-	-	-	-	-	-	-	-
Golden shiner	-	-	-	1	4	1.2	-	-	-	-	-	-	-	-	-
Emerald shiner	48	192	48.5	13	52	15.9	37	148	54.4	65	217	68.4	34	136	44.2
Spottail shiner	-	-	-	-	-	-	-	-	-	1	3	1.1	1	4	1.3
River carpsucker	2	8	2.0	2	8	2.4	2	8	2.9	1	3	1.1	-	-	-
Quillback	-	-	-	2	8	2.4	-	-	-	1	3	1.1	-	-	-
White sucker	-	-	-	-	-	-	1	4	1.5	-	-	-	-	-	-
Smallmouth buffalo	-	-	-	1	4	1.2	1	4	1.5	-	-	-	-	-	-
Silver redhorse	2	8	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Shorthead redhorse	-	-	-	-	-	-	2	8	2.9	-	-	-	-	-	-
Black bullhead	9	36	9.1	7	28	8.5	1	4	1.5	2	7	2.1	1	4	1.3
Channel catfish	1	4	1.0	-	-	-	-	-	-	-	-	-	-	-	-
White bass	1	4	1.0	1	4	1.2	3	12	4.4	-	-	-	-	-	-
Yellow bass	-	-	-	1	4	1.2	2	8	2.9	-	-	-	-	-	-
Sunfish hybrid	-	-	-	-	-	-	-	-	-	1	3	1.1	-	-	-
Green sunfish	-	-	-	2	8	2.4	1	4	1.5	3	10	3.2	4	16	5.2
Orangespotted sunfish	3	12	3.0	-	-	-	1	4	1.5	1	3	1.1	-	-	-
Bluegill	2	8	2.0	1	4	1.2	-	-	-	-	-	-	2	8	2.6
Smallmouth bass	3	12	3.0	3	12	3.7	-	-	-	-	-	-	1	4	1.3
Largemouth bass	2	8	2.0	2	8	2.4	4	16	5.9	2	7	2.1	2	8	2.6
White crappie	5	20	5.1	-	-	-	-	-	-	1	3	1.1	-	-	-
Black crappie	1	4	1.0	-	-	-	-	-	-	-	-	-	-	-	-
Yellow perch	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1.3
Walleye	-	-	-	-	-	-	-	-	-	3	10	3.2	-	-	-
Freshwater drum	2	8	2.0	1	4	1.2	-	-	-	1	3	1.1	-	-	-
Total Number	99			82			68			95			77		
Number of Species	15			16			14			16			11		
Total CPE		396			328			272			315			308	

TABLE 3.3-66 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 6 JULY 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	1	4	2.50	7	28	20.59	-	-	-	-	-	-	9	36	14.06
CYPRINUS CARPIO AD	9	36	22.50	4	16	11.76	-	-	-	2	8	50.00	13	52	20.31
NOTEMIGONUS CRYSOLEUCAS AD	1	4	2.50	-	-	-	-	-	-	-	-	-	-	-	-
NOTROPIS HUDSONIUS AD	1	4	2.50	-	-	-	-	-	-	-	-	-	-	-	-
NOTROPIS ATHERINOIDES AD	19	76	47.50	16	64	47.06	-	-	-	2	8	50.00	30	120	46.88
PIMEPHALES NOTATUS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1.56
CARP X GOLDFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1.56
CARPIODES CYPRINUS AD	1	4	2.50	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	1	4	2.94	-	-	-	-	-	-	-	-	-
ICTALURUS MELAS AD	1	4	2.50	-	-	-	-	-	-	-	-	-	1	4	1.56
MORONE CHRYSOPS AD	-	-	-	1	4	2.94	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	3	12	7.50	1	4	2.94	-	-	-	-	-	-	4	16	6.25
LEPOMIS HUMILIS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1.56
LEPOMIS MACROCHIRUS AD	1	4	2.50	-	-	-	-	-	-	-	-	-	1	4	1.56
MICROPTERUS DOLOMIEUI AD	1	4	2.50	-	-	-	-	-	-	-	-	-	1	4	1.56
MICROPTERUS SALMOIDES AD	1	4	2.50	2	8	5.88	-	-	-	-	-	-	2	8	3.13
POMOXIS ANNULARIS AD	1	4	2.50	1	4	2.94	-	-	-	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	1	4	2.94	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	40			34			0			4			64		
NUMBER OF SPECIES	12			9			0			2					
TOTAL CPE		160			136			0			16			256	

TABLE 3.3-67 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 22 JULY 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	29	116	11.74	2	8	3.64	12	48	8.28	2	8	1.12	7	28	2.62
ESOX AMERICANUS VERMICULATUS AD	-	-	-	-	-	-	1	4	0.69	-	-	-	1	4	0.37
CARASSIUS AURATUS AD	-	-	-	-	-	-	-	-	-	1	4	0.56	-	-	-
CYPRINUS CARPIO AD	13	52	5.26	4	16	7.27	5	20	3.45	3	12	1.68	7	28	2.62
PIMEPHALES PROMELAS AD	-	-	-	-	-	-	-	-	-	1	4	0.56	-	-	-
NOTROPIS HUDSONIUS AD	1	4	0.40	-	-	-	13	52	8.97	1	4	0.56	-	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	0.37
NOTROPIS ATHERINOIDES AD	182	728	73.68	33	132	60.00	94	376	64.83	149	596	83.24	229	916	85.77
PIMEPHALES VIGILAX AD	-	-	-	-	-	-	1	4	0.69	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	1	4	1.82	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	1	4	1.82	-	-	-	-	-	-	-	-	-
CARPOIDES VELIFER	-	-	-	-	-	-	-	-	-	-	-	-	1	4	0.37
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	1	4	0.69	-	-	-	-	-	-
MOXOSTOMA ERYTHRURUM	1	4	0.40	-	-	-	6	24	4.14	1	4	0.56	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	1	4	0.69	-	-	-	-	-	-
ICTALURUS MELAS AD	6	24	2.43	1	4	1.82	-	-	-	-	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	1	4	1.82	1	4	0.69	-	-	-	-	-	-
MORONE MISSIPPIENSIS AD	1	4	0.40	1	4	1.82	1	4	0.69	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	-	-	-	1	4	1.82	-	-	-	1	4	0.56	1	4	0.37
LEPOMIS CYANELLUS AD	7	28	2.83	2	8	3.64	1	4	0.69	9	36	5.03	9	36	3.37
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	1	4	0.69	-	-	-	1	4	0.37
LEPOMIS HUMILIS AD	2	8	0.81	1	4	1.82	3	12	2.07	-	-	-	1	4	0.37
LEPOMIS MACROCHIRUS AD	1	4	0.40	-	-	-	-	-	-	-	-	-	4	16	1.50
MICROPTERUS DOLOMIEUI AD	-	-	-	2	8	3.64	1	4	0.69	2	8	1.12	2	8	0.75
MICROPTERUS SALMOIDES AD	4	16	1.62	2	8	3.64	-	-	-	9	36	5.03	2	8	0.75
POMOXIS ANNULARIS AD	-	-	-	2	8	3.64	2	8	1.38	-	-	-	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	0.37
STIZOSTEDION VITREUM AD	-	-	-	-	-	-	1	4	0.69	-	-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	1	4	1.82	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	247			55			145			179			267		
NUMBER OF SPECIES	11			15			17			11			14		
TOTAL CPE		988			220			580			716			1068	

TABLE 3.3-68 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 3 AUGUST 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	.	-	-	-	-	-	..	.	..	-	1	3	3.85
ALOSA CHRYSOCHLORIS	.	-	-	1	5	4.55	..	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	4	20	10.53	14	70	63.64	6	24	33.33	1	4	4.00	1	3	3.85
ESOX LUCIUS AD	-	-	-	..	..	-	-	-	-	1	4	4.00	-	-	..
CYPRINUS CARPIO AD	12	60	31.58	4	20	18.18	2	8	11.11	12	48	48.00	14	38	53.85
NOTROPIS ATHERINOIDES AD	13	65	34.21	..		-	5	20	27.78	2	8	8.00	2	6	7.69
CARPIODES CARPIO AD	.	-	-	1	5	4.55	-	-	-	-	-	-	-	-	..
CARPIODES CYPRINUS AD	1	5	2.63	1	5	4.55	-	-		-	-	-	-	.	..
ICTIOBUS CYPRINELLUS AD	1	5	2.63	-	-	.	-	-	-	.	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	.	.	-	-	-	1	4	5.56	-	-	-	..	-	-
MOXOSTOMA ERYTHRURUM	-	-	..	-	-	-	1	4	5.56	.	-	-	-	-	-
MORONE CHRYSOPS AD	-	-	.	1	5	4.55	-	-	-	-	.	-	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-		.	-	1	4	4.00	-	-	-
LEPOMIS CYANELLUS AD	2	10	5.26	-	-	-	-	-	-	2	8	8.00	2	5	7.69
LEPOMIS HUMILIS AD		-	-	-	-	.	.	-	-	-	-	-	1	3	3.85
LEPOMIS MACROCHIRUS AD	-	-	-	..	.	-	1	4	5.56	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	-	-	-	..	..	-	1	3	3.85
MICROPTERUS SALMOIDES AD	4	20	10.53	-	-	-	1	4	5.56	6	24	24.00	3	8	11.54
POMOXIS ANNULARIS AD	-	-	-	-	-	-	1	4	5.56	-	-	-	..	..	-
POMOXIS NIGROMACULATUS AD	-	-	.	-	-	-	-	-	-	-	-	-	1	3	3.85
APLODINOTUS GRUNNIENS AD	1	5	2.63	-	-	..	.	..	..	.	-	-	-	-	-
TOTAL NUMBER	38			22			18			25			26		
NUMBER OF SPECIES	8			6			8			7			9		
TOTAL CPE		190			110			72			100			71	

TABLE 3.3-69 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 18 AUGUST 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	-	-	-	1	4	1.08	-	-	-	-	-	-
ALOSA CHRYSOCHLORIS	-	-	-	1	4	1.61	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	11	44	20.00	13	52	20.97	40	160	43.01	5	20	4.81	5	20	4.90
CYPRINUS CARPIO AD	-	-	-	8	32	12.90	1	4	1.08	4	16	3.85	1	4	0.98
NOTROPIS CORNUTUS	-	-	-	-	-	-	-	-	-	-	-	-	1	4	0.98
NOTROPIS ATHERINOIDES AD	31	124	56.36	30	120	48.39	49	196	52.69	86	344	82.69	77	308	75.49
CARPIODES CARPIO AD	-	-	-	1	4	1.61	1	4	1.08	2	8	1.92	-	-	-
CARPIODES CYPRINUS AD		-	-	1	4	1.61	-	-	-	1	4	0.96	-		-
MORONE CHRYSOPS AD	-	-	-	2	8	3.23	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	8	32	14.55	-	-	-	-	-	-	3	12	2.88	8	32	7.84
LEPOMIS HUMILIS AD	1	4	1.82	-	-	-	-	-	-	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	4	16	6.45	-	-	-	2	8	1.92	-	-	-
MICROPTERUS SALMOIDES AD	4	16	7.27	1	4	1.61	1	4	1.08	1	4	0.95	10	40	9.80
POMOXIS ANNULARIS AD	-	-	-	1	4	1.61	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	55			62			93			104			102		
NUMBER OF SPECIES	5			10			6			8			6		
TOTAL CPE		220			248			372			416			400	

TABLE 3.3-70 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 8 SEPTEMBER 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
ANGUILLA ROSTRATA	-	-	-	-			-	-	-	1	4	3.33	-	-	-
ALOSA CHRYSOCHLORIS	2	10	9.09	-	-	-	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	-	-	-	-	-	-	1	4	3.33	5	20	11.63
ESOX LUCIUS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2.33
CYPRINIDAE AD	1	5	4.55	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	15	13.64	7	35	30.43	-	-	-	4	16	13.33	10	40	23.26
NOTROPIS HUDSONIUS AD	-		-		-	-	1	4	4.00	-	-	-		-	-
NOTROPIS ATHERINOIDES AD	5	25	22.73	10	50	43.48	17	68	68.00	4	16	13.33	7	28	16.28
PIMEPHALES NOTATUS AD		-	-	1	5	4.35	-	-	-	-	-	-	-	-	-
CARP X GOLDFISH HYBRID	1	5	4.55	-	-	-	-	-	-	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	-	-	-	1	4	3.33	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2.33
MOXOSTOMA ERYTHRURUM	-	-	-	1	5	4.35	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-	1	4	3.33	-	-	-
ICTALURUS MELAS AD	-	-	-	-	-	-	-	-	-	1	4	3.33	-	-	-
ICTALURUS NATALIS AD	-	-	-	-	-	-	-	-	-	1	4	3.33	1	4	2.33
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-	1	4	4.00	-	-	-	-	-	-
AMBLOPLITES RUPESTRIS AD	1	5	4.55	-	-	-	-	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	3	15	13.64		-	-	-	-	-	10	40	33.33	11	44	25.58
LEPOMIS GIBBOSUS AD	-	-	-	-	-	-	-	-	-	1	4	3.33	-	-	-
LEPOMIS HUMILIS AD	3	15	13.64	-	-	-	-	-	-	-	-	-	-	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	1	5	4.35	1	4	4.00	-		-	2	8	4.65
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	3	12	12.00	3	12	10.00	-	-	-
MICROPTERUS SALMOIDES AD	1	5	4.55	1	5	4.35	2	8	8.00	2	8	6.67	5	20	11.63
POMOXIS ANNULARIS AD	1	5	4.55	1	5	4.35	-	-	-	-	-	-	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	1	5	4.35	-	-	-	-		-	-	-	-
LEPOMIS HYBRID	1	5	4.55	-	-	-	-		-	-	-	-	-	-	-
TOTAL NUMBER	22			23			25			30			43		
NUMBER OF SPECIES	11			8			6			12			9		
TOTAL CPE		110			115			100			120			172	

TABLE 3.3-71 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER HOUR), AND PERCENT OF CATCH OF FISH COLLECTED BY ELECTROFISHING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 21 SEPTEMBER 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 14			LOCATION 15		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	1	4	1.22	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	9	36	21.43	24	96	29.27	14	56	17.72	50	200	35.21	30	120	22.22
CYPRINUS CARPIO AD	11	44	26.19	5	20	6.10	2	8	2.53	4	16	2.82	7	28	5.19
NOTROPIS ATHERINOIDES AD	8	32	19.05	43	172	52.44	53	212	67.09	67	268	47.18	80	320	59.26
PIMEPHALES NOTATUS AD	-	-	-	-	-	-	-	-	-	3	12	2.11	1	4	0.74
CARP X GOLDFISH HYBRID	6	24	14.29	-	-	-	-	-	-	2	8	1.41	3	12	2.22
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	-	-	-	1	4	0.74
CATOSTOMUS COMMERSONI AD	-	-	-	1	4	1.22	-	-	-	-	-	-	1	4	0.74
MOXOSTOMA ERYTHRURUM	-	-	-	-	-	-	2	8	2.53	-	-	-	3	12	2.22
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	2	8	2.44	-	-	-	-	-	-	-	-	-
PERCOPSIS OMISCOMAYCUS AD	-	-	-	-	-	-	2	8	2.53	-	-	-	-	-	-
MORONE MISSISSIPPIENSIS AD	1	4	2.38	-	-	-	2	8	2.53	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	2	8	4.76	-	-	-	-	-	-	13	52	9.15	1	4	0.74
LEPOMIS MACROCHIRUS AD	2	8	4.76	1	4	1.22	1	4	1.27	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD	-	-	-	2	8	2.44	1	4	1.27	-	-	-	1	4	0.74
MICROPTERUS SALMOIDES AD	3	12	7.14	2	8	2.44	1	4	1.27	3	12	2.11	7	28	5.19
POMOXIS ANNULARIS AD	-	-	-	-	-	-	1	4	1.27	-	-	-	-	-	-
POMOXIS NIGROMACULATUS AD	-	-	-	1	4	1.22	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	42			82			79			142			135		
NUMBER OF SPECIES	8			10			10			7			11		
TOTAL CPE		168			328			316			568			540	

TABLE 3.3-72 SPECIES COMPOSITION, CATCH-PER-UNIT EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 24 JUNE 1981.

Species	Location 11			Location 12			Location 13			Location 16		
	No.	CPE	%	No.	CPE	%	No.	CPE	%	No.	CPE	%
Gizzard shad	2	1	20.0	-	-	-	-	-	-	1	<1	33.3
Carp	7	3	70.0	4	2	80.0	1	<1	100.0	2	1	66.7
Goldfish x Carp	1	<1	10.0	-	-	-	-	-	-	-	-	-
Shorthead redhorse	-	-		1	<1	20.0	-	-	-	-	-	-
Total Number	10			5			1			3		
Number of Species	2			2			1			2		
Total CPE		4			2			<1			1	

TABLE 3.3-73 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 7 JULY 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	-	-	-	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	-	-	-	2	<1	10.53	-	-	-	-	-	-
HIODON ALOSOIDES	-	-	-	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	1	60.00	15	6	78.95	8	3	100	3	1	100
CARP X GOLDFISH HYBRID	1	<1	20.00	1	<1	5.26	-	-	-	-	-	-
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	-	-	-
CARPIODES CYPRINUS AD	-	-	-	1	<1	5.26	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA ANISURUM AD	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-	-	-	-
ICTALURUS MELAS AD	1	<1	20.00	-	-	-	-	-	-	-	-	-
ICTALURUS PUNCTATUS AD	-	-	-	-	-	-		-	-	-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-	-	-	-	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	5			19			8			3		
NUMBER OF SPECIES	2			3			1			1		
TOTAL CPE		2			7			3			1	

TABLE 3.3-74 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 22 JULY 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	2	1	9.52	-	-	-	-		-
DOROSOMA CEPEDIANUM AD	-	-	-	1	< 1	4.76	-	-	-	-	-	-
HIODON ALOSOIDES	-	-		3	1	14.29	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	1	60.00	11	5	52.30	7	3	77.78	6	3	85.71
CARP X GOLDFISH HYBRID	1	< 1	20.00	1	< 1	4.76	-	-	-	1	< 1	14.29
CARPIODES CARPIO AD	-	-	-	-	-	-	-	-	-	-	-	-
CATOSTOMUS COMMERSONI AD		-	-	-	-	-	-	-	-	-	-	-
ICTIOBUS BUBALUS AD	-	-	-	2	1	9.52	-		-	-	-	-
MOXOSTOMA ERYTHRURUM	-	-	-	-	-	-	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-		-	-	-	-	-
ICTALURUS MELAS AD	1	< 1	20.00	-	-	-	-	-	-	-	-	-
ICTALURUS NATALIS AD	-	-	-	1	< 1	4.76		-		-	-	
ICTALURUS PUNCTATUS AD	-	-	-		-	-	-	-		-	-	-
MORONE CHRYSOPS AD	-	-	-	-	-	-	1	< 1	11.11	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-	1	< 1	11.11	-	-	-
POMOXIS ANNULARIS AD	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	5			21			9			7		
NUMBER OF SPECIES	3			7			3			2		
TOTAL CPE		2			9			4			3	

TABLE 3.3-75 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 5 AUGUST 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
DOROSOMA CEPEDIANUM AD	5	2	29.41	1	0	7.69	-	-	-	-	-	-
HIODON ALOSOIDES	2	1	11.76	-	-	-	-	-	-	-	-	-
CYPRINUS CARPIO AD	7	3	41.18	10	4	76.92	2	1	100	2	1	66.67
CARP X GOLDFISH HYBRID	3	1	17.65	1	0	7.69	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-	1	0	33.33
MORONE CHRYSOPS AD	-	-	-	1	0	7.69	-	-	-	-	-	-
TOTAL NUMBER	17			13			2			3		
NUMBER OF SPECIES	4			4			1			2		
TOTAL CPE		6			5			1			1	

TABLE 3.3-76 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 20 AUGUST 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	3	1	25.00	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	2	1	14.29	1	0	8.33	-	-	-	-	-	-
HIODON ALOSOIDES	1	0	7.14	4	1	33.33	-	-	-	-	-	-
CYPRINUS CARPIO AD	10	4	71.43	3	1	25.00	2	1	66.67	-	-	-
CARP X GOLDFISH HYBRID	1	0	7.14	-	-	-	-	-	-	-	-	-
CARPOIDES VELIFER	-	-	-	1	0	8.33	-	-	-	-	-	-
MORONE MISSISSIPPIENSIS AD	-	-	-	-	-	-	1	0	33.33	-	-	-
TOTAL NUMBER							3			0		
NUMBER OF SPECIES	14			12			2			0		
TOTAL CPE	4			5				1			0	
		5			4							

TABLE 3.3-77 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 10 SEPTEMBER 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
LEPISOSTEUS OSSEUS AD	-	-	-	2	1	10.53	-	-	-	-	-	-
ALOSA CHRYSOCHLORIS	1	0	16.67	2	1	10.53	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	1	0	16.67	2	1	10.53	-	-	-	-	-	-
HIODON ALOSOIDES	1	0	16.67	7	3	36.84	-	-	-	-	-	-
CYPRINUS CARPIO AD	3	1	50.00	4	1	21.05	6	2	100	7	3	87.50
CARP X GOLDFISH HYBRID	-	-	-	1	0	5.26	-	-	-	-	-	-
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	-	-	-	-	-	-	1	0	12.50
LEPOMIS MACROCHIRUS AD	-	-	-	1	0	5.26	-	-	-	-	-	-
TOTAL NUMBER	6			19			6			8		
NUMBER OF SPECIES	4			7			1			2		
TOTAL CPE		2			7			2			3	

TABLE 3.3-78 SPECIES COMPOSITION, CATCH-PER-UNIT-EFFORT (FISH PER 8 HOURS), AND PERCENT OF CATCH OF FISH COLLECTED BY GILL NETTING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 23 SEPTEMBER 1981.

	LOCATION 11			LOCATION 12			LOCATION 13			LOCATION 16		
	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%	NO.	CPE	%
ALOSA CHRYSOCHLORIS	-	-	-	1	0	7.69	-	-	-	-	-	-
DOROSOMA CEPEDIANUM AD	1	0	25.00	2	1	15.38	-	-	-	-	-	-
HIODON ALOSOIDES	-	-	-	1	0	7.69	-	-	-	-	-	-
CYPRINUS CARPIO AD	2	1	50.00	7	3	53.85	4	2	100	1	0	100
MOXOSTOMA MACROLEPIDOTUM AD	-	-	-	1	0	7.69	-	-	-	-	-	-
ICTALURUS MELAS AD	1	0	25.00	1	0	7.69	-	-	-	-	-	-
TOTAL NUMBER	4			13			4			1		
NUMBER OF SPECIES	3			6			1			1		
TOTAL CPE		1			5			2			0	

TABLE 3.3-79 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN LOCK AND DAM, 22 JUNE 1981.

Species	Location 11		Location 12		Location 13		Location 14		Location 15	
	No.	%	No.	%	No.	%	No.	%	No.	%
Gizzard shad	-	-	-	-	1	1.5	2	11.1	1	4.0
Emerald shiner	6	18.8	44	68.8	35	53.8	13	72.2	10	40.0
Spottail shiner	4	12.5	-	-	-	-	-	-	7	28.0
Red shiner	-	-	10	15.6	23	35.4	-	-	1	4.0
Spotfin shiner	-	-	6	9.4	4	6.2	-	-	-	-
Bluntnose minnow	-	-	-	-	-	-	1	5.6	-	-
Fathead minnow	1	3.1	-	-	1	1.5	-	-	-	-
Bullhead minnow	-	-	-	-	-	-	-	-	3	12.0
Black bullhead	-	-	1	1.6	-	-	-	-	-	-
Yellow bullhead	1	3.1	-	-	-	-	-	-	-	-
White bass	-	-	1	1.6	-	-	-	-	-	-
Rock bass	2	6.2	-	-	-	-	-	-	-	-
Green sunfish	4	12.5	1	1.6	1	1.5	-	-	-	-
Orangespotted sunfish	2	6.2	-	-	-	-	-	-	-	-
Bluegill	1	3.1	-	-	-	-	1	5.6	-	-
Smallmouth bass	-	-	-	-	-	-	-	-	1	4.0
Largemouth bass	2	6.2	-	-	-	-	-	-	1	4.0
White crappie	6	18.8	1	1.6	-	-	1	5.6	-	-
Black crappie	-	-	-	-	-	-	-	-	1	4.0
Freshwater drum	3	9.4	-	-	-	-	-	-	-	-
Total Number	32		64		65		18		25	
Number of Species	11		7		6		5		8	

TABLE 3.3-80 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 6 JULY 1981.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	2	15.38	-		1	9.09	-	-	-	
CYPRINUS CARPIO AD	3	23.08	-		5	45.45	-		-	
NOTROPIS HUDSONIUS AD	1	7.69	-	-	-	-			-	-
NOTROPIS SPILOPTERUS AD	-	-	3	8.57	-	-			-	
NOTROPIS ATHERINOIDES AD	2	15.38	31	88.57	2	18.18	4	66.67		-
PIMEPHALES NOTATUS AD	-	-	-	-	-		-	-	-	
NOTROPIS STRAMINEUS AD	-	-	-	-	-		-	-	-	
CARP X GOLDFISH HYBRID	-	-	-		-	-		-	-	
NOTROPIS LUTRENSIS AD	-	-	1	2.86	1	9.09		-	-	
ICTIOBUS BUBALUS AD	-	-	-	-	-	-		-	-	-
LEPOMIS CYANELLUS AD	3	23.08			2	18.18	1	16.67	-	-
LEPOMIS MACROCHIRUS AD	1	7.69	-	-	-		-		-	-
MICROPTERUS DOLOMIEUI AD	-					-	-		-	-
MICROPTERUS SALMOIDES AD	-	-	-	-		-	1	16.67		-
POMOXIS ANNULARIS AD	-	-				-	-	-	-	
APLODINOTUS GRUNNIENS AD	1	7.69			-		-		-	-
TOTAL NUMBER	13		35		11		6		0	
NUMBER OF SPECIES	7		3		5		3		0	

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TABLE 3.3-81 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 22 JULY 1891.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	8	61.54	3	5.00	1	3.57	1	12.50	2	12.50
CYPRINUS CARPIO AD	1	7.69	-			-	-	-	-	-
NOTROPIS HUDSONIUS AD		-	1	1.67	2	7.14	3	37.50	5	31.25
NOTROPIS SPILOPTERUS AD	1	7.69		-	1	3.57	-	-	-	
NOTROPIS ATHERINOIDES AD	1	7.69	48	80.00	24	85.71	4	50.00	2	12.50
PIMEPHALES VIGILAX AD		-	5	8.33	-	-			-	-
LEPOMIS CYANELLUS AD	-	-		-	-	-			1	6.25
LEPOMIS HUMILIS AD	2	15.38	-	-			-	-	4	25.00
MICROPTERUS SALMOIDES AD		-	-						1	6.25
POMOXIS ANNULARIS AD	-	-	1	1.67						
POMOXIS NIGROMACULATUS AD	-	-	-		-		-	-	1	6.25
PERCA FLAVESCENS AD	-		2	3.33			-	-	-	-
TOTAL NUMBER	13		60		28		8		16	
NUMBER OF SPECIES	5		6		4		3		7	

TABLE 3.3-82 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 4 AUGUST 1981.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
CYPRINUS CARPIO AD	-	-	-	-	-	-	-	-	1	14.29
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	1	20.00	-	-
NOTROPIS ATHERINOIDES AD	13	86.67	1	33.33	18	94.74	2	40.00	6	85.71
CATOSTOMUS COMMERSONI AD	-	-	-	-	-	-	1	20.00	-	-
ICTALURUS MELAS AD	1	6.67	-	-	-	-	-	-	-	-
LEPOMIS CYANELLUS AD	1	6.67	-	-	-	-	1	20.00	-	-
LEPOMIS HUMILIS AD	-	-	1	33.33	-	-	-	-	-	-
MICROPTERUS DOLOMIEUI AD		-	1	33.33		-	-	-	-	-
APLODINOTUS GRUNNIENS AD	-	-	-	-	1	5.26	-	-	-	-
TOTAL NUMBER	15		3		19		5		7	
NUMBER OF SPECIES	3		3		2		4		2	

TABLE 3.3-83 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 17 AUGUST 1981.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
DOROSOMA CEPEDIANUM AD	1	100	1	100	1	33.33	8	66.67	-	-
NOTROPIS SPILOPTERUS AD	-	-	-	-	1	33.33	-	-	-	-
NOTROPIS ATHERINOIDES AD	-	-	-	-	1	33.33	2	16.67	1	50.00
LEPOMIS CYANELLUS AD	-	-	-	-	-	-	1	8.33	-	-
LEPOMIS HUMILIS AD	-	-	-	-	-	-	-	-	1	50.00
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	1	8.33	-	-
TOTAL NUMBER	1		1		3		12		2	
NUMBER OF SPECIES	1		1		3		4		2	

TABLE 3.3-84 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 9 SEPTEMBER 1981.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
ALOSA CHRYSOCHLORIS	-	-	-	-	-	-	1	5.26	1	5.88
NOTROPIS HUDSONIUS AD	-	-	-	-	-	-	-	-	2	11.76
NOTROPIS SPILOPTERUS AD	-	-	-	-	-	-	-	-	1	5.88
NOTROPIS ATHERINOIDES AD	8	88.89	13	100	37	94.87	17	89.47	8	47.06
PIMEPHALES NOTATUS AD	-	-	-	-	-	-	-	-	1	5.88
PIMEPHALES VIGILAX AD	1	11.11		-		-	-	-	-	-
NOTROPIS LUTRENSIS AD		-	-	-	2	5.13	1	5.26	-	-
LEPOMIS MACROCHIRUS AD	-	-	-	-	-	-		-	2	11.76
MICROPTERUS DOLOMIEUI AD	-	-	-	-	-	-	-	-	2	11.76
TOTAL NUMBER	9		13		39		19		17	
NUMBER OF SPECIES	2		1		2		3		7	

TABLE 3.3-85 SPECIES COMPOSITION AND PERCENT OF CATCH OF FISH COLLECTED BY SEINING AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 22 SEPTEMBER 1981.

	LOCATION 11		LOCATION 12		LOCATION 13		LOCATION 14		LOCATION 15	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
NOTROPIS CORNUTUS	-		-	-	-		1	3.70	-	
NOTROPIS ATHERINOIDES AD	1	100	11	91.67	5	100	26	96.30	1	100
LEPOMIS CYANELLUS AD	-		1	8.33	-		-	-	-	-
TOTAL NUMBER	1		12		5		27		1	
NUMBER OF SPECIES	1		2		1		2		1	

TABLE 3.3-86 NUMBER AND MEAN CONDITION FACTOR OF SELECT SPECIES OF FISH COLLECTED AT EACH SAMPLING LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, JUNE-SEPTEMBER 1981.

Month	Species	Maturity	Sex	Location 11 No.	Location 11 Mean K[a]	Location 12 No.	Location 12 Mean K	Location 13 No.	Location 13 Mean K	Location 14 No.	Location 14 Mean K	Location 15 No.	Location 15 Mean K	Location 16 No.	Location 16 Mean K
June	Carp	Adult	M[b]	6	1.53	5	1.45	3	1.33	3	1.51	6	1.60	1	1.49
			F[c]	1	1.48	10	1.49	5	1.49	2	1.74	3	1.42	-	-
		Immature	-	4	1.54	-	-	-	-	-	-				
	Goldfish	Adult	M	-	-	3	2.02	1	1.60	-	-	-	-	-	-
	Carp x Goldfish	Adult	M	3	1.81	-	-	-	-	-	-	-	-	-	-
			F	1	1.77	-	-	-	-	-	-	-	-	-	-
		Immature	-	5	1.86	-	-	-	-	-	-	-	-	-	-
	Shorthead redhorse	Adult	F	-	-	1	1.03	-	-	-	-	-	-	-	-
		Immature	-	-	-	-	-	2	1.08	-	-	-	-	-	-
	Smallmouth bass	Adult	F	2	1.20	1	1.27	-	-	-	-	-	-	-	-
			M[d]	-	-	1	1.31	-	-	-	-	-	-	-	-
		Immature	-	1	1.41	1	1.15	-	-	-	-	1	0.88	-	-
July	Carp	Adult	M	10	1.35	18	1.57	7	1.40	1	1.40	6	1.37	4	1.61
			F	13	1.49	8	1.43	14	1.59	2	1.41	6	1.54	4	1.61
		Immature	-	2	1.48	1	1.49	-	-	2	1.31	5	1.38	-	-
	Goldfish	Adult	F	-	-	-	-	-	-	1	1.45	-	-	-	-
	Carp x Goldfish	Adult	M	-	-	1	1.41	-	-	-	-	-	-	1	1.85
			F	2	1.63	-	-	-	-	-	-	-	-	-	-
		Immature	-	-	-	-	-	-	-	-	-	1	1.61	-	-
	Shorthead redhorse	Adult	F	-	-	1	1.30	-	-	-	-	-	-	-	-
		Immature	-	-	-	-	-	1	1.05	-	-	-	-	-	-
	Smallmouth bass	Adult	F	-	-	2	1.42	-	-	-	-	-	-	-	-
		Immature	-	1	1.33	-	-	1	1.02	2	1.10	2	1.24	-	-

TABLE 3.3-86 (CONT.)

Month	Species	Maturity	Sex	Location 11 No.	Location 11 Mean K	Location 12 No.	Location 12 Mean K	Location 13 No.	Location 13 Mean K	Location 14 No.	Location 14 Mean K	Location 15 No.	Location 15 Mean K	Location 16 No.	Location 16 Mean K
August	Carp	Adult	M	16	1.35	15	1.25	3	1.36	10	1.44	7	1.46	1	1.13
			F	11	1.29	7	1.32	4	1.30	4	1.52	5	1.30	1	1.26
		Immature	-	-	-	3	1.25	-	-	-	-	-	-	-	-
	Carp x Goldfish	Adult	M	2	1.61	-	-	-	-	-	-	-	-	-	-
			F	-	-	1	1.44	-	-	-	-	-	-	-	-
		Immature	-	1	1.76	-	-	-	-	-	-	-	-	-	-
	Shorthead redhorse	Adult	F	-	-	-	-	-	-	-	-	-	-	1	1.04
	Smallmouth bass	Adult	M	-	-	3	1.21	-	-	-	-	1	1.18	-	-
		Immature		-	-	-	-	-	-	1	1.17	-	-	-	-
Sept.	Carp	Adult	M	9	1.38	11	1.44	7	1.48	6	1.40	12	1.41	5	1.46
			F	6	1.27	12	1.40	3	1.40	1	1.44	5	1.49	3	1.39
		Immature	-	4	1.26	-	-	1	1.44	1	1.16	-	-	-	-
	Carp x Goldfish	Adult	M	3	1.54	-	-	-	-	-	-	2	1.97	-	-
			F	1	1.75	1	1.47	-	-	1	1.62	1	1.83	-	-
		Immature	-	2	1.60	-	-	-	-	1	1.75	-	-	-	-
	Shorthead redhorse	Adult	F	-	-	1	0.95	-	-	-	-	-	-	-	-
			U	-	-	1	0.99	-	-	-	-	-	-	-	-
		Immature	-	-	-	1	1.33	-	-	1	0.84	-	-	1	1.14
	Smallmouth bass	Adult	M	-	-	-	-	-	-	1	1.44	-	-	-	-
		Immature	-	-	-	-	-	4	1.19	1	1.21	1	1.33	-	-

(a) Mean K-factor
(b) M = Male
(c) F = Female
(d) U = Undetermined

TABLE 3.3-87 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 22-24 JUNE 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location											
					11		12		13		14		15		16	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%
Longnose gar	Eroded fins		1	100.0	-[b]	-	-	-	-	-	1	100.0	-	-	-	-
	Snout missing		1	100.0	-	-	-	-	-	-	1	100.0	-	-	-	-
Carp	Deformed fins		14	19.7	1	6.2	9	36.0	2	22.2	0	0.0	2	15.4	0	0.0
	Eroded fins		7	9.9	1	6.2	2	8.0	1	11.1	0	0.0	3	23.1	0	0.0
	Abrasions		3	4.2	1	6.2	1	4.0	1	11.1	0	0.0	0	0.0	0	0.0
	Knothead		2	2.8	0	0.0	2	8.0	0	0.0	0	0.0	0	0.0	0	0.0
	Lesions		1	1.4	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0
	Lacerations		1	1.4	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	0	0.0
	Deformed mouth		1	1.4	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0
Carp x Goldfish	Eye missing		1	11.1	1	11.1	-	-	-	-	-	-	-	-	-	-
River carpsucker	Eroded fins		1	14.3	0	0.0	0	0.0	1	50.0	0	0.0	-	-	-	-
Quillback	Abrasions		1	33.3	-	-	0	0.0	-	-	1	100.0	-	-	-	-
Silver redhorse	Eroded fins		2	100.0	2	100.0	-	-	-	-	-	-	-	-	-	-
Black bullhead	Abrasions		5	23.8	4	44.4	1	12.5	0	0.0	0	0.0	0	0.0	-	-
	Lesions		1	4.8	1	11.1	0	0.0	0	0.0	0	0.0	0	0.0	-	-
	Eroded fins		1	4.8	1	11.1	0	0.0	0	0.0	0	0.0	0	0.0	-	-
Green sunfish	Eroded fins		1	6.2	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0	-	-
	Lacerations		1	6.2	0	0.0	1	33.3	0	0.0	0	0.0	0	0.0	-	-
Bluegill	Eroded fins		1	14.3	0	0.0	0	0.0	-	-	0	0.0	1	50.0	-	-
Largemouth bass	Deformed fins		1	6.7	0	0.0	0	0.0	0	0.0	0	0.0	1	33.3	-	-
	Eroded fins		1	6.7	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	-	-
White crappie		*Neascus* spp. (Blackspot)	1	7.1	1	9.1	0	0.0	-	-	0	0.0	-	-	-	-
Yellow perch		*Neascus* spp.	1	100.0	-	-	-	-	-	-	-	-	1	100.0	-	-
Freshwater drum	Abrasions		1	14.3	0	0.0	0	0.0	-	-	1	100.0	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-88 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 6-8 JULY 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location											
					11		12		13		14		15		16	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%
Carp	Eroded fins		9	13.8	2	13.3	2	10.5	3	23.1	0	0.0	1	7.7	1	33.3
	Lordosis		1	1.5	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0
Spotfin shiner		*Neascus* spp.	1	33.3	-[b]	-	1	33.3	-	-	-	-	-	-	-	-
Shorthead redhorse	Eroded fins		1	100.0	-	-	1	100.0	-	-	-	-	-	-	-	-
Black bullhead	Lacerations		2	66.7	1	50.0	-	-	-	-	-	-	-	-	-	-
Green sunfish	Lacerations		1	7.1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	-	-
		Neascus spp.	1	7.1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	-	-
Bluegill	Eroded fins		1	33.3	0	0.0	-	-	-	-	-	-	1	100.0	-	-
Largemouth bass	Eroded fins		1	16.7	0	0.0	1	50.0	-	-	0	0.0	0	0.0	-	-
	Tumor		1	16.7	0	0.0	1	50.0	-	-	0	0.0	0	0.0	-	-
Freshwater drum	Eroded fins		1	50.0	0	0.0	1	100.0	-	-	-	-	-	-	-	-
	Scar		1	50.0	0	0.0	1	100.0	-	-	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-89 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 20-23 JULY 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location											
					11		12		13		14		15		16	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%
Goldfish	Eroded fins		1	100.0	-[b]	-	-	-	-	-	1	100.0	-	-	-	-
	Lesion		1	100.0	-	-	-	-	-	-	1	100.0	-	-	-	-
Carp	Deformed fins		8	13.3	2	11.8	2	13.3	3	25.2	0	0.0	0	0.0	1	16.7
	Eroded fins		6	10.0	0	0.0	2	13.3	1	8.3	0	0.0	2	28.6	1	16.7
	Deformed mouth		1	1.7	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0	0	0.0
Carp x Goldfish	Deformed fins		1	33.3	0	0.0	1	100.0	-	-	-	-	-	-	0	0.0
Quillback	Eroded fins		1	100.0	-	-	1	100.0	-	-	-	-	-	-	-	-
Golden redhorse	Eroded fins		4	50.0	0	0.0	-	-	3	50.0	1	100.0	-	-	-	-
White bass	Popeye		1	33.3	-	-	0	0.0	1	50.0	-	-	-	-	-	-
Green sunfish	Deformed mouth		1	3.4	0	0.0	1	50.0	0	0.0	0	0.0	0	0.0	-	-
		Neascus spp. (Blackspot)	2	6.9	1	14.3	0	0.0	0	0.0	1	11.1	0	0.0	-	-
Bluegill	Eroded fins		1	20.0	-	-	-	-	-	-	-	-	1	25.0	-	-
Largemouth bass	Lesion		1	5.6	1	25.0	0	0.0	-	-	0	0.0	0	0.0	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-90 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 3-5 AUGUST 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	11 #	11 %	12 #	12 %	13 #	13 %	14 #	14 %	15 #	15 %	16 #	16 %
Gizzard shad	Lesion		1	3.1	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0	-[b]	-
Carp	Eroded fins		8	12.1	0	0.0	0	0.0	0	0.0	2	16.7	5	33.3	1	50.0
	Tumor		2	3.0	0	0.0	0	0.0	0	0.0	1	8.3	1	6.7	0	0.0
	Operculum missing		1	1.5	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0	0	0.0
Bigmouth buffalo	Eye missing		1	100.0	1	100.0	-	-	-	-	-	-	-	-	-	-
Green sunfish	Eroded fins		1	12.5	1	33.3	-	-	-	-	0	0.0	0	0.0	-	-
		Fungus	1	12.5	0	0.0	-	-	-	-	0	0.0	1	50.0	-	-
Largemouth bass	Eroded fins		1	7.1	0	0.0	-	-	1	100.0	0	0.0	0	0.0	-	-
Freshwater drum	Eroded fins		1	50.0	1	100.0	-	-	0	0.0	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-91 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 18-20 AUGUST 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	11 #	11 %	12 #	12 %	13 #	13 %	14 #	14 %	15 #	15 %	16 #	16 %
Goldeye	Eroded fins		1	20.0	0	0.0	1	25.0	-[b]	-	-	-	-	-	-	-
Carp	Eroded fins		1	3.4	0	0.0	1	9.1	0	0.0	0	0.0	0	0.0	-	-
	Deformed fins		1	3.4	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	-	-
River carpsucker	Eroded fins		2	50.0	-	-	1	100.0	0	0.0	1	50.0	-	-	-	-
Largemouth bass	Eroded fins		1	5.9	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	-	-
	Scars on operculum		1	5.9	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-92 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 8-10 SEPTEMBER 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Total Catch[a] Percent Affected	11 #	11 %	12 #	12 %	13 #	13 %	14 #	14 %	15 #	15 %	16 #	16 %
Carp	Deformed fins		12	27.3	2	33.3	5	45.4	2	33.3	0	0.0	2	20.0	1	14.3
	Eroded fins		2	4.5	0	0.0	1	9.1	1	16.7	0	0.0	0	0.0	0	0.0
	Eye missing		2	4.5	1	16.7	1	9.1	0	0.0	0	0.0	0	0.0	0	0.0
	Knothead		1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	14.3
	Tumor		1	2.3	0	0.0	1	9.1	0	0.0	0	0.0	0	0.0	0	0.0
		Ichthyophthiriasis (White spot)	1	2.3	0	0.0	1	9.1	0	0.0	0	0.0	0	0.0	0	0.0
Carp x Goldfish	Eroded fins		1	50.0	1	100.0	0	0.0	–[b]	–	–	–	–	–	–	–
Smallmouth buffalo	Eroded fins		1	100.0	–	–	–	–	–	–	–	–	1	100.0	–	–
Golden redhorse	Eroded fins		1	100.0	–	–	1	100.0	–	–	–	–	–	–	–	–
Shorthead redhorse	Eroded fins		1	50.0	–	–	–	–	–	–	0	0.0	–	–	1	100.0
Black bullhead	Damaged caudal fin		1	100.0	–	–	–	–	–	–	1	100.0	–	–	–	–
Green sunfish		Neascus sp. (Blackspot)	1	4.2	0	0.0	–	–	–	–	0	0.0	1	9.1	–	–

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-93 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED AT ALL SAMPLING LOCATIONS BELOW DRESDEN ISLAND LOCK AND DAM, 21-23 SEPTEMBER 1981.

			Total Catch[a]		Number and Percent Affected/Sampling Location											
					11		12		13		14		15		16	
Species	Physical Abnormality	Disease or Parasite	Number Affected	Percent Affected	#	%	#	%	#	%	#	%	#	%	#	%
Carp	Eroded fins		3	7.0	1	7.7	1	8.3	1	16.7	0	0.0	0	0.0	0	0.0
	Deformed fins		1	2.3	1	7.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Eye missing		1	2.3	0	0.0	1	8.3	0	0.0	0	0.0	0	0.0	0	0.0
	Deformed head		1	2.3	0	0.0	0	0.0	0	0.0	0	0.0	1	14.3	0	0.0
Carp x Goldfish	Eroded fins		2	18.2	1	16.7	-[b]	-	-	-	0	0.0	1	33.3	-	-
	No caudal fin		1	9.1	1	16.7	-	-	-	-	0	0.0	0	0.0	-	-
Golden redhorse	Eroded fins		1	20.0	-	-	-	-	1	50.0	-	-	0	0.0	-	-
Shorthead redhorse	Eroded fins		1	33.3	-	-	1	33.3	-	-	-	-	-	-	-	-
		Fungus	1	33.3	-	-	1	33.3	-	-	-	-	-	-	-	-

(a) Total catch represents combined catch from all locations and all methods.
(b) Species not collected.

TABLE 3.3-94 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY ELECTROFISHING AT EACH LOCATION BELOW DRESDEN ISLAND LOCK AND DAM, 1979-1981.

	Location 11									Location 12								
	1979a			1980b			1981c			1979a			1980b			1981c		
Taxa	No.	Annual CPEd	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPEd	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch
AMERICAN EEL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3
SKIPJACK HERRING	-	-	-	11	14.7	4.5	2	1.4	0.4	2	1.6	0.4	-	-	-	2	1.3	0.6
GIZZARD SHAD	9	7.2	2.0	30	40.0	12.3	55	32.0	10.0	4	3.2	0.9	27	36.0	17.8	81	48.3	22.8
MOONEYE	-	-	-	-	-	-	-	-	-	1	0.8	0.2	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	1	1.3	0.4	-	-	-	-	-	-	-	-	-	-	-	-
NORTHERN PIKE	2	1.6	0.4	1	1.3	0.4	-	-	-	1	0.8	0.2	-	-	-	-	-	-
CYPRINIDAE	-	-	-	-	-	-	1	0.7	0.2	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	7	5.6	1.6	1	1.3	0.4	-	-	-	6	4.8	1.3	-	-	-	3	1.7	0.8
CARP	13	10.4	2.9	14	18.7	5.8	67	34.7	10.9	19	15.2	4.2	5	6.7	3.3	53	31.9	15.0
CARP x GOLDFISH	1	0.8	0.2	6	8.0	2.5	15	8.7	2.7	1	0.8	0.2	-	-	-	-	-	-
GOLDEN SHINER	2	1.6	0.4	-	-	-	1	0.6	0.2	-	-	-	-	-	-	1	0.6	0.3
EMERALD SHINER	321	256.8	72.5	150	200.0	61.7	306	177.4	55.6	342	273.6	76.3	102	136.0	67.1	145	84.3	39.7
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	5	4.0	1.1	-	-	-	2	1.1	0.3	1	0.8	0.2	-	-	-	-	-	-
SPOTFIN SHINER	3	2.4	0.7	-	-	-	-	-	-	1	0.8	0.2	-	-	-	-	-	-
SAND SHINER	4	3.2	0.9	-	-	-	-	-	-	13	10.4	2.9	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	3	2.4	0.7	1	1.3	0.6	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	1	0.8	0.2	-	-	-	-	-	-
NOTROPIS SP.	7	5.6	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	4	3.2	0.9	-	-	-	-	-	-	6	4.8	1.3	-	-	-	1	0.7	0.3
FATHEAD MINNOW	1	0.8	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	4	3.2	0.9	-	-	-	-	-	-	1	0.8	0.2	1	1.3	0.6	-	-	-
RIVER CARPSUCKER	1	0.8	0.2	2	2.7	0.8	2	1.1	0.3	2	1.6	0.4	-	-	-	5	3.0	1.4
QUILLBACK	6	4.8	1.4	8	10.7	3.3	2	1.3	0.4	16	12.8	3.6	3	4.0	2.0	5	3.0	1.4
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	7	9.3	2.9	-	-	-	-	-	-	1	1.3	0.6	1	0.6	0.3
NORTHERN HOGSUCKER	-	-	-	-	-	-	-	-	-	1	0.8	0.2	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.3
BIGMOUTH BUFFALO	-	-	-	-	-	-	1	0.7	0.2	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	2	1.1	0.3	2	1.6	0.4	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	-	-	-	1	0.6	0.2	3	2.4	0.7	1	1.3	0.6	1	0.7	0.3
SHORTHEAD REDHORSE	-	-	-	-	-	-	-	-	-	-	-	-	5	6.7	3.3	3	1.7	0.8
BLACK BULLHEAD	7	5.6	1.6	-	-	-	16	9.1	2.9	3	2.4	0.7	-	-	-	8	4.6	2.2
BROWN BULLHEAD	-	-	-	1	1.3	0.4	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	1	0.8	0.2	-	-	-	-	-	-
CHANNEL CATFISH	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	-	-	-
WHITE BASS	2	1.6	0.4	3	4.0	1.2	1	0.6	0.2	1	0.8	0.2	-	-	-	6	3.6	1.7
YELLOW BASS	-	-	-	-	-	-	2	1.1	0.3	-	-	-	2	2.7	1.3	2	1.1	0.5
TROUT-PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	2	1.6	0.4	-	-	-	1	0.7	0.2	-	-	-	-	-	-	1	0.6	0.3
GREEN SUNFISH	28	22.4	6.3	2	2.7	0.8	25	15.0	4.7	5	4.0	1.1	2	2.7	1.3	5	2.9	1.4

TABLE 3.3-94 (CONT.)

	Location 11									Location 12								
	1979[a]			1980[b]			1981[c]			1979[a]			1980[b]			1981[c]		
Taxa	No.	Annual CPE[d]	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE[d]	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch
PUMPKINSEED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ORANGESPOTTED SUNFISH	3	2.4	0.7	1	1.3	0.4	9	5.6	1.8	4	3.2	0.9	1	1.3	0.6	1	0.6	0.3
BLUEGILL	1	0.8	0.2	-	-	-	6	3.4	1.1	1	0.8	0.2	-	-	-	3	1.9	0.9
LONGEAR SUNFISH	3	2.4	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUNFISH HYBRID	-	-	-	-	-	-	1	0.7	0.2	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	2	1.6	0.4	1	1.3	0.4	4	2.3	0.7	2	1.6	0.4	-	-	-	11	6.3	3.0
SPOTTED BASS	-	-	-	1	1.3	0.4	-	-	-	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	3	0.8	0.7	1	1.3	0.4	19	11.6	3.6	1	0.8	0.2	1	1.3	0.6	10	5.9	2.8
WHITE CRAPPIE	1	0.8	0.2	2	2.7	0.8	7	4.1	1.3	1	0.8	0.2	-	-	-	5	3.0	1.4
BLACK CRAPPIE	1	2.4	0.2	-	-	-	1	0.6	0.2	-	-	-	-	-	-	2	1.3	0.6
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	3	1.9	0.6	3	2.4	0.7	-	-	-	3	1.7	0.8
TOTAL NUMBER	443			243			543			448			152			360		
NUMBER OF SPECIES	25			18			24			29			13			26		
TOTAL ANNUAL CPE		354.4			323.9			318.9			358.4			202.6			212.1	

TABLE 3.3-94 (CONT.)

	Location 13									Location 14								
	1979[a]			1900[b]			1981[c]			1979			1980			1981		
Taxa	No.	Annual CPE[d]	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch
AMERICAN EEL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.2
LONGNOSE GAR	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	1	0.4	0.1
SKIPJACK HERRING	-	-	-	4	5.3	1.4	-	-	-	1	1.3	0.3	1	1.3	0.6	-	-	-
GIZZARD SHAD	5	4.0	1.7	103	137.3	35.9	76	43.4	17.7	5	6.7	1.7	32	42.7	18.2	64	36.1	11.2
MOONEYE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRASS PICKEREL	-	-	-	-	-	-	1	0.6	0.2	1	1.3	0.3	-	-	-	1	0.4	0.1
NORTHERN PIKE	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3	0.6	1	0.6	0.2
CYPRINIDAE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	1	0.8	0.3	1	1.3	0.3	-	-	-	-	-	-	-	-	-	-	-	-
GOLDFISH	4	3.2	1.3	-	-	-	1	0.6	0.2	9	12.0	3.2	5	6.7	2.8	1	0.6	0.2
CARP	62	49.6	20.9	4	5.3	1.4	18	10.3	4.2	8	10.7	2.8	12	16.0	6.8	35	19.4	6.0
CARP x GOLDFISH	5	4.0	1.7	1	1.3	0.3	-	-	-	2	2.7	0.7	-	-	-	2	1.1	0.3
GOLDEN SHINER	-	-	-	-	-	-	-	-	-	-	-	-	1	1.3	0.6	-	-	-
EMERALD SHINER	162	129.6	54.7	125	166.7	43.5	255	145.7	59.6	190	253.3	66.7	105	140.0	59.6	375	200.1	64.7
COMMON SHINER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	5	4.0	1.7	7	9.3	2.4	14	8.0	3.3	8	10.7	2.8	1	1.3	0.6	2	1.0	0.3
SPOTFIN SHINER	-	-	-	-	-	-	-	-	-	9	12.0	3.2	-	-	-	-	-	-
SAND SHINER	-	-	-	-	-	-	-	-	-	11	14.7	3.9	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	1	1.3	0.3	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	1	1.3	0.3	-	-	-	-	-	-
NOTROPIS SP.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE SHINER	5	4.0	1.7	2	2.7	0.7	-	-	-	11	14.7	3.9	-	-	-	3	1.7	0.5
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.2
BULLHEAD MINNOW	4	3.2	1.3	-	-	-	1	0.6	0.2	5	6.7	1.7	-	-	-	-	-	-
RIVER CARPSUCKER	-	-	-	-	-	-	3	1.7	0.7	-	-	-	-	-	-	3	1.6	0.5
QUILLBACK	3	2.4	1.0	9	12.0	3.1	-	-	-	1	1.3	0.3	2	2.7	1.1	2	1.0	0.3
HIGHFIN CARPSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WHITE SUCKER	-	-	-	18	24.0	6.3	2	1.1	0.4	-	-	-	1	1.3	0.6	1	0.6	0.2
NORTHERN HOGSUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	-	-	-
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	2	2.7	0.7	9	5.1	2.1	-	-	-	-	-	-	1	0.6	0.2
SHORTHEAD REDHORSE	-	-	-	-	-	-	3	1.7	0.7	-	-	-	-	-	-	1	0.6	0.2
BLACK BULLHEAD	4	3.2	1.3	1	1.3	0.3	1	0.6	0.2	1	1.3	0.3	1	1.3	0.6	3	1.6	0.5
BROWN BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.2
CHANNEL CATFISH	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	1	1.3	0.3	4	2.3	0.9	-	-	-	-	-	-	-	-	-
YELLOW BASS	-	-	-	1	1.3	0.3	5	2.9	1.2	-	-	-	-	-	-	1	0.6	0.2
TROUT-PERCH	-	-	-	-	-	-	2	1.1	0.4	-	-	-	-	-	-	-	-	-
ROCK BASS	1	0.8	0.3	-	-	-	-	-	-	-	-	-	-	-	-	1	0.6	0.2
GREEN SUNFISH	22	17.6	7.4	6	8.0	2.1	2	1.1	0.4	18	24.0	6.3	11	14.7	6.2	40	22.5	7.0

TABLE 3.3-94 (CONT.)

Taxa	Location 13									Location 14								
	1979[a]			1980[b]			1981[c]			1979			1980			1981		
	No.	Annual CPE[d]	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch
PUMPKINSEED	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	1	0.6	0.2
ORANGESPOTTED SUNFISH	7	5.6	2.4	1	1.3	0.3	4	2.3	0.9	3	4.0	1.0	2	2.7	1.1	1	0.4	0.1
BLUEGILL	1	0.8	0.3	-	-	-	3	1.7	0.7	-	-	-	-	-	-	-	-	-
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.4	0.1
SMALLMOUTH BASS	1	0.8	0.3	-	-	-	5	2.9	1.2	1	1.3	0.3	-	-	-	7	4.0	1.2
SPOTTED BASS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	-	-	-	-	-	-	9	5.1	2.1	-	-	-	1	1.3	0.6	23	13.0	4.0
WHITE CRAPPIE	1	0.8	0.3	1	1.3	0.3	4	2.3	0.9	-	-	-	-	-	-	1	0.4	0.1
BLACK CRAPPIE	3	2.4	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALLEYE	-	-	-	-	-	-	1	0.6	0.2	-	-	-	-	-	-	3	1.4	0.4
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.4	0.1
TOTAL NUMBER	296			287			428			286			176			579		
NUMBER OF SPECIES	17			16			27			17			14			28		
TOTAL ANNUAL CPE		236.8			382.4			244.6			381.3			234.6			321.6	

TABLE 3.3-94 (CONT.)

	Location 15								
	1979			1980			1981		
Taxa	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch	No.	Annual CPE	Percent of Catch
AMERICAN EEL	-	-	-	-	-	-	-	-	-
LONGNOSE GAR	-	-	-	1	1.3	0.3	1	0.4	0.1
SKIPJACK HERRING	-	-	-	5	6.7	1.6	-	-	-
GIZZARD SHAD	12	16.0	3.0	52	69.3	16.8	74	42.1	10.4
MOONEYE	-	-	-	-	-	-	1	-	-
GRASS PICKEREL	-	-	-	-	-	-	1	0.6	0.1
NORTHERN PIKE	2	2.7	0.5	-	-	-	2	1.1	0.3
CYPRINIDAE	-	-	-	-	-	-	-	-	-
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-
GOLDFISH	13	17.3	3.3	1	1.3	0.3	-	-	-
CARP	17	22.7	4.3	24	32.0	7.8	65	34.6	8.6
CARP X GOLDFISH	-	-	-	1	1.3	0.3	4	2.3	0.6
GOLDEN SHINER	-	-	-	-	-	-	-	-	-
EMERALD SHINER	296	394.7	74.7	171	228.0	55.3	459	262.0	64.9
COMMON SHINER	-	-	-	-	-	-	1	0.6	0.1
SPOTTAIL SHINER	1	1.3	0.2	6	8.0	1.9	1	0.6	0.1
SPOTFIN SHINER	4	5.3	1.0	-	-	-	1	0.6	0.1
SAND SHINER	11	14.7	2.8	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-
NOTROPIS SP.	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	5	6.7	1.3	1	1.3	0.3	2	1.1	0.3
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	8	10.7	2.0	1	1.3	0.3	-	-	-
RIVER CARPSUCKER	1	1.3	0.2	-	-	-	1	0.6	0.1
QUILLBACK	3	4.0	0.8	2	2.7	0.6	-	-	-
HIGHFIN CARPSUCKER	-	-	-	-	-	-	1	0.6	0.1
WHITE SUCKER	-	-	-	18	24.0	5.8	1	0.6	0.1
NORTHERN HOGSUCKER	-	-	-	-	-	-	-	-	-
SMALLMOUTH BUFFALO	-	-	-	-	-	-	1	0.6	0.1
BIGMOUTH BUFFALO	-	-	-	-	-	-	-	-	-
SILVER REDHORSE	-	-	-	-	-	-	-	-	-
GOLDEN REDHORSE	-	-	-	9	12.0	2.9	3	1.7	0.4
SHORTHEAD REDHORSE	-	-	-	2	2.7	0.6	-	-	-
BLACK BULLHEAD	-	-	-	1	1.3	0.3	2	1.1	0.3
BROWN BULLHEAD	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	1	0.6	0.1
CHANNEL CATFISH	1	1.3	0.2	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-
YELLOW BASS	-	-	-	-	-	-	-	-	-
TROUT-PERCH	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	1	0.6	0.1
GREEN SUNFISH	10	13.3	2.5	8	10.7	2.6	39	21.9	5.4

TABLE 3.3-94 (CONT.)

Taxa	1979 No.	1979 Annual CPE	1979 Percent of Catch	1980 No.	1980 Annual CPE	1980 Percent of Catch	1981 No.	1981 Annual CPE	1981 Percent of Catch
	Location 15								
PUMPKINSEED	-	-	-	-	-	-	1	0.6	0.1
ORANGESPOTTED SUNFISH	1	1.3	0.2	-	-	-	3	1.6	0.4
BLUEGILL	1	1.3	0.2	1	1.3	0.3	9	5.1	1.3
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-
REDEAR SUNFISH	1	1.3	0.2	-	-	-	-	-	-
SUNFISH HYBRID	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	7	9.3	1.8	2	2.7	0.6	6	3.3	0.8
SPOTTED BASS	-	-	-	-	-	-	-	-	-
LARGEMOUTH BASS	1	1.3	0.2	2	2.7	0.6	31	17.1	4.2
WHITE CRAPPIE	-	-	-	-	-	-	-	-	-
BLACK CRAPPIE	1	1.3	0.2	-	-	-	2	1.0	0.2
YELLOW PERCH	-	-	-	-	-	-	1	0.6	0.1
WALLEYE	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	1	1.3	0.3	-	-	-
Total Number	396			309			714		
Number of Species	20			19			26		
Total Annual CPE		528.0			411.9			403.4	

(a) Collection periods were in May, June, August and November.
(b) Collection periods were in May, July and August.
(c) Collection periods were in June, July, August and September.
(d) Represents average catch per hour of electrofishing for year.

TABLE 3.3-95 YEARLY CATCH VALUES FOR EACH SPECIES OBTAINED BY SEINING AT EACH LOCATION BELOW DRESDEN LOCK AND DAM, 1979-1981.

	Location 11						Location 12						Location 13					
	1979[a]		1980[b]		1981[c]		1979		1980		1981		1979		1980		1981	
	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.7	-	-
SKIPJACK HERRING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GIZZARD SHAD	-	-	9	26.5	11	13.1	-	-	2	1.6	4	2.1	9	8.5	-	-	4	2.4
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CARP	-	-	-	-	4	4.8	-	-	-	-	-	-	-	-	1	0.7	5	2.9
EMERALD SHINER	33	84.6	18	52.9	31	36.9	26	81.3	121	95.3	148	78.7	89	84.0	126	94.0	122	71.8
GHOST SHINER	-	-	1	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	-	-	1	3.1	-	-	-	-	-	-	-	-	-	-
SPOTTAIL SHINER	1	2.6	2	5.9	5	6.0	-	-	1	0.8	1	0.5	4	3.8	3	2.2	2	1.2
SPOTFIN SHINER	1	2.6	-	-	1	1.2	2	6.2	-	-	9	4.8	-	-	-	-	6	3.5
SAND SHINER	4	10.3	-	-	-	-	2	6.2	-	-	-	-	3	2.8	1	0.7	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	1	0.8	-	-	-	-	1	0.7	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	1	0.8	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	-	-	-	-	-	-	11	5.9	-	-	-	-	26	15.3
FATHEAD MINNOW	-	-	-	-	1	1.2	-	-	-	-	-	-	-	-	-	-	1	0.6
BLUNTNOSE MINNOW	-	-	1	2.9	-	-	1	3.1	-	-	-	-	-	-	-	-	-	-
BULLHEAD MINNOW	-	-	1	2.9	1	1.2	-	-	-	-	5	2.7	-	-	-	-	-	-
WHITE SUCKER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	1	1.2	-	-	-	-	1	0.5	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-
YELLOW BASS	-	-	-	-	-	-	-	-	1	0.8	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	2	2.4	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	-	-	-	-	8	9.5	-	-	-	-	2	1.1	-	-	1	0.7	3	1.8
ORANGESPOTTED SUNFISH	-	-	-	-	4	4.8	-	-	-	-	1	0.5	1	0.9	-	-	-	-
BLUEGILL	-	-	2	5.9	2	2.4	-	-	-	-	-	-	-	-	-	-	-	-
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SMALLMOUTH BASS	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-
LARGEMOUTH BASS	-	-	-	-	2	2.4	-	-	-	-	-	-	-	-	-	-	-	-
WHITE CRAPPIE	-	-	-	-	6	7.1	-	-	-	-	2	1.1	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	2	1.1	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	4	4.8	-	-	-	-	-	-	-	-	-	-	1	0.6
TOTAL NUMBER	39		34		84		32		127		188		106		134		170	
NUMBER OF SPECIES	4		7		16		5		6		13		5		7		9	

TABLE 3.3-95 (CONT.)

	Location 14						Location 15					
	1979[a]		1980[b]		1981[c]		1979		1980		1981	
	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch	No.	% of Catch
LONGNOSE GAR	-	-	-	-	-	-	-	-	-	-	-	-
SKIPJACK HERRING	-	-	2	5.4	1	1.1	-	-	-	-	1	1.5
GIZZARD SHAD	-	-	-	-	11	11.6	3	4.5	-	-	3	4.4
CENTRAL STONEROLLER	-	-	-	-	-	-	-	-	4	9.5	-	-
CARP	-	-	-	-	-	-	-	-	-	-	1	1.5
EMERALD SHINER	6	50.0	27	73.0	68	71.6	63	94.0	3	7.1	29	41.2
GHOST SHINER	-	-	-	-	-	-	-	-	-	-	-	-
COMMON SHINER	-	-	-	-	1	1.1	-	-	1	2.4	-	-
SPOTTAIL SHINER	-	-	5	13.5	3	3.2	-	-	25	59.5	14	20.6
SPOTFIN SHINER	-	-	-	-	1	1.1	1	1.5	-	-	1	1.5
SAND SHINER	6	50.0	-	-	-	-	-	-	-	-	-	-
MIMIC SHINER	-	-	-	-	-	-	-	-	-	-	-	-
STEELCOLOR SHINER	-	-	-	-	-	-	-	-	-	-	-	-
RED SHINER	-	-	-	-	1	1.1	-	-	-	-	1	1.5
FATHEAD MINNOW	-	-	-	-	-	-	-	-	-	-	-	-
BLUNTNOSE MINNOW	-	-	-	-	1	1.1	-	-	2	4.8	1	1.5
BULLHEAD MINNOW	-	-	3	8.1	-	-	-	-	4	9.5	3	4.4
WHITE SUCKER	-	-	-	-	1	1.1	-	-	-	-	-	-
BLACK BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BULLHEAD	-	-	-	-	-	-	-	-	-	-	-	-
WHITE BASS	-	-	-	-	-	-	-	-	-	-	-	-
YELLOW BASS	-	-	-	-	-	-	-	-	-	-	-	-
ROCK BASS	-	-	-	-	-	-	-	-	-	-	-	-
GREEN SUNFISH	-	-	-	-	3	3.2	-	-	2	4.8	1	1.5
ORANGESPOTTED SUNFISH	-	-	-	-	-	-	-	-	-	-	5	7.4
BLUEGILL	-	-	-	-	1	1.1	-	-	-	-	2	2.9
LONGEAR SUNFISH	-	-	-	-	-	-	-	-	1	2.4	-	-
SMALLMOUTH BASS	-	-	-	-	1	1.1	-	-	-	-	3	4.4
LARGEMOUTH BASS	-	-	-	-	1	1.1	-	-	-	-	2	2.9
WHITE CRAPPIE	-	-	-	-	1	1.1	-	-	-	-	-	-
BLACK CRAPPIE	-	-	-	-	-	-	-	-	-	-	2	2.9
YELLOW PERCH	-	-	-	-	-	-	-	-	-	-	-	-
FRESHWATER DRUM	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL NUMBER	12		37		95		67		42		68	
NUMBER OF SPECIES	2		4		14		3		8		15	

(a) Collection periods were in May, June, August and November.
(b) Collection periods were in May, July, and August.
(c) Collection periods were in June, July, August and September.

4.0 IMPINGEMENT STUDY

4.1 STUDY AREA DESCRIPTION

During indirect open cycle operation, cooling water for Units 2 and 3 of Dresden Station is taken in through an intake canal that adjoins the Kankakee River (Figure 4.1-1). The canal is approximately 2400-ft long, 56-ft wide and 13-ft deep. Water from both the Kankakee and Des Plaines Rivers is drawn into the canal in varying proportions. The water flows from the canal to an intake forebay and then through a single cribhouse where debris and fish are collected (impinged) on revolving (traveling) screens before the water enters the station. The screens are cleaned by a backflushing procedure and the accumulated material is washed into a sluiceway that transports the material to a collection (trash) basket constructed of 0.375-in stainless steel mesh. The fish from the basket serve as the basis for determining the number and biomass of fish impinged at Units 2/3 intake.

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4.2 INTRODUCTION

Impingement studies were conducted at Dresden Station in 1976, 1977 and 1978 which provided information on the numbers and biomass of fish impinged on the station's intake screens during closed cycle operation (CECo 1977, Patulski 1978 and 1979). These studies also provided substantial evidence regarding the major source of impinged fish, that being the Dresden cooling pond. During the summer of 1981, CECo was granted temporary permission to operate the station in an indirect open cycle mode which provided an opportunity to determine the quantity of fish impinged on Units 2/3 intake screens directly from the river system.

The 1981 impingement study at Dresden Station had the following specific objectives: (1) to document the species composition, numbers and biomass of fish impinged on Units 2/3 intake screens; (2) to determine the temporal changes in impingement rate; (3) to determine the length distribution of the dominant fishes collected from the intake screens; and (4) to estimate the total numbers and biomass of fish impinged during the period of open cycle operation.

4.3 FIELD AND ANALYTICAL PROCEDURES

4.3.1 Field Procedures

Impinged fish were collected from the intake screens of Units 2/3 by concentrating screen washings over a 24-hour period. The impingement study was conducted over a four-month period from 16 June through 29 September and encompassed 29 sampling dates. Samples were collected twice each week on Tuesdays and Fridays. The sample period began at approximately 0900 hours on Monday and Thursday of each week. Immediately before each sampling period, the traveling screens were manually backflushed by station personnel to remove all fish and debris and a clean trash basket was set in place. At the end of each 24-hour sample period, the screens were again backflushed to remove all impinged fish and the trash basket was emptied. The fish were then separated from the debris and processed. Fish that were obviously dead longer than 24 hours were removed from the sample and processed separately as to species and number. The time of day the basket was put in place was recorded on a log sheet by station personnel.

All fish were counted, measured for total length to the nearest millimeter and weighed in grams. Species (except gizzard shad) having more than 30 individuals in a sample were subsampled for length and weight according to the following procedure. A minimum of 30 individuals were selected based on an interval calculated by dividing the total number collected by 30. The remaining specimens were counted and batch weighed. For gizzard shad, when 100 or fewer specimens were collected, all individuals were measured to the nearest millimeter and weighed to the nearest gram. For samples with greater than 100 individuals, only the first 30 and the last 30 specimens were measured and weighed. The remaining fish were then batched weighed and generally counted. When samples were excessively large (>1000 fish) an average weight was calculated for the 60 weighed specimens and divided into the batch weight to obtain an estimate of the batch number. Fish with frayed or missing caudal fins were not measured for length.

All measured fish were examined for disease, external parasites, and physical abnormalities. Fish that were not identified in the field were preserved in formalin, labeled, and returned to the laboratory for processing. Scientific and common names of fish followed Robins et al. (1980).

4.3.2 Laboratory Procedures

Some fish were returned to the laboratory for analysis. Measuring, counting, and subsampling procedures were the same as those described above. A voucher collection was maintained at EAI's Midwest Regional Office.

4.3.3 Data Handling and Analysis

Most impingement data was computer processed using appropriate quality control procedures and documented, verified programs that are part of EAI's "FRESH" software package. Data summaries were prepared in table formats approved by CECo. Daily impingement results were reported as total number, total weight, average weight, and length range for each species. Monthly summaries of the data were also prepared. It was assumed that the quantity of fish impinged on non-sampling days was equal to the quantity observed on dates during the month that sampling was completed. Monthly estimates were calculated using the following formula:

$$\text{Estimated number (or weight) impinged per month} = \frac{\Sigma \text{ Number (or weight) per 24 hr}}{\text{Sampling dates per month}} \times \text{Days in month}$$

Length-frequency distribution of dominant species (>1 percent of total number for combined dates) was determined for each sampling date. When fish were subsampled, the lengths of those individuals of a species measured were used to determine the length distribution of all fish of that species collected per date.

4.3.4 Physicochemical Measurements

Water temperature and dissolved oxygen (DO) measurements were taken at approximately 0830 hours each collection day at the upper end of the intake forebay. Measurements were taken at the surface, at subsequent 1-m depth intervals and at the bottom using a Hydrolab Temperature/DO meter (Model TDO-2) or a Hydrolab Water Quality Measurement System. Instrument calibration was performed in the field just prior to taking field measurements (see Section 2.2.2). Calibration test data for each sampling data are reported in Appendix F. Percent oxygen saturation was determined from the relationship of DO in the water and the water temperature.

4.4 RESULTS AND DISCUSSION

4.4.1 Station Operating Status and Cooling Water Usage

Units 2 and 3 were operating on 100 of the 108 days during the 15 June through 30 September 1981 period that Dresden Station was operated in an indirect open cycle mode (Table 4.4.-1). On the remaining 8 days, only one of the two units was operating. The output of Unit 2 ranged from 0 to 823 MWe and averaged 684 MWe or 82 percent of capacity. Unit 3 output ranged from 0 to 804 MWe and averaged 613 MWe or 74 percent of capacity. Five or six circulating water pumps were operating during the 15 June - 30 September study period, supplying 1,749 and 2,099 ft^3/sec (cfs) of water for condenser cooling, respectively. The average intake flow (exclusive of service water usage) at Units 2/3 intake was 1,979 cfs.

The flow of the Kankakee River ranged from 2,640 to 17,500 cfs during the study with the highest flows occurring in June and the lowest flows in September (Table 4.4-1). Kankakee River flow always exceeded the station cooling water flow and on 82 of the 108 days (76 percent of the time) the river flow was at least twice the station intake flow. Based on these differences, it is reasonable to assume that the Kankakee River supplied all or most of the daily cooling water supply for the station. Supportive evidence for this assumption is provided in the physicochemical and plankton data obtained monthly from the intake forebay (Section 2.0 and Brinker 1982). Flows in the Kankakee and Illinois Rivers were exceptionally high for the months of June through September 1981. Compared to the average flows for the same months during the previous 10 yr period (1971-1980), the flows in the Kankakee River in 1981 were twice or more than the 10 yr averages and in the Illinois River they were 1.2 to 1.8 fold higher in 1981 (Table 4.4-2). The average monthly flows in the Des Plaines River in 1981 were comparable to the previous 10 yr average except in June, which was higher in 1981.

4.4.2 Composition of Impinged Fish

A total of 59 fish taxa, comprising 54 species, 3 genera, 1 family and 1 hybrid, were removed from the trash basket at Units 2/3 intake over 29 sampling dates between 16 June and 29 September 1981 (Table 4.4-3). These taxa were represented by 59,190 fish weighing 705 kg (1,554 lbs). The minnow (Cyprinidae), sucker (Catostomidae) and sunfish (Centrarchidae) families were represented by the greatest number of species; 13, 10 and 9 respectively. Carp and gizzard shad were the dominant species, accounting for 46.5 and 44.9 percent of the total number, respectively. Three other species composed ≥ 1 percent of the total number: channel catfish, white crappie and freshwater drum. The order of dominance by weight was: gizzard shad (46.5 percent), carp (26.2 percent), channel catfish (6.0 percent), and shorthead redhorse (5.7 percent). Five other species composed ≥ 1 percent of the total weight: white crappie, smallmouth buffalo, river carpsucker, freshwater drum and black crappie.

Three non-indigenous species to the Illinois, Kankakee and Des Plaines Rivers (Smith 1979) were collected during the study: striped bass, threadfin shad and rainbow smelt. The first two species probably originated from Dresden cooling pond where they were stocked in 1980 and 1981. The stocking program is part of a research project, conducted by Southern Illinois University, and funded by CECo and the Electric Power Research Institute to investigate the sport fishery potential of power plant cooling reservoirs. The rainbow smelt undoubtedly originated from Lake Michigan.

Fish found in the impingement samples that were obviously dead longer than 24 hours were excluded from the impingement numbers. A noticeable percentage of the counted fish were in a deteriorated condition, particularly channel catfish, and a portion of these fish could possibly have been dead prior to being impinged. Because there was no conclusive means of determining the length of time these fish were dead, they were included in the impingement counts.

4.4.3 Physicochemical Measurements

Intake temperatures ranged from 17.4 to 27.5 C during the 16 June through 29 September sampling period (Tables 4.4-4 through 4.4-7). On most dates (22) temperatures were within the 21 to 25 C range. The temperature was generally homogeneous within the water column with only an occasional difference from surface to bottom. Temperatures generally varied less than 2 C between sampling dates and only twice varied more than 3 C. The temporal variability in temperature was undoubtedly related to a number of seasonal factors, although the major factor appeared to be river flow. Temperatures generally increased as the flow of the Kankakee River receded and, contrastingly, decreased with increased river flow. Temperatures were generally similar between the intake and Kankakee River but lower than in the Des Plaines River; the latter was confirmed by comparison of temperatures on the four sampling dates for the water chemistry and plankton studies (CECo 1982) and on four additional dates that impingement and fisheries studies coincided (Section 3.3.3.2).

Dissolved oxygen concentration (DO) at the intake ranged from 5.5 to 9.1 mg/l but generally was within the 6.6 to 8.0 mg/l range (Tables 4.4-4 through 4.4-7). DO concentration was generally homogeneous within the water column. Between most sampling dates the variability in DO was less than 1 mg/l. DO at the intake was typically greater than in the Des Plaines River but lower than in the Kankakee River on the eight dates that DO was measured in the three water bodies.

Oxygen saturation ranged from 56 to 95 percent and typically was within the 75 to 90 percent range (Tables 4.4-4 through 4.4-7). Oxygen saturation generally varied $\leq$ 10 percent between most sampling dates.

4.4.4 Temporal Abundance of Fish

Over 55 percent (32,859 fish) of the fish impinged during the study were taken in July (Tables 4.4-8 through 4.4-11). The lowest number of fish (4,451) was impinged in June. The initial collections in mid-June ranged from 637 to 688 fish/date and consisted primarily of gizzard shad (Appendix E). By late June the impingement number doubled and continued to increase on each date through mid-July when the highest number (6,026 fish) was collected on 14 July. The consistent increase was reflected principally in the number of carp collected on each date. Gizzard shad numbers remained relatively similar until 14 July when the number increased substantially. Impingement numbers slowly declined from mid-July through early August (2,355 fish were collected on 7 August) followed by a further, more rapid, decline until mid-August. The decline in impingement during this period was most pronounced for carp. Gizzard shad impingement was variable but generally greater than in June or early July. There were subsequent periodic pulses or increases in numbers impinged (1500-2500 fish) followed by sharp declines (300-600 fish). This pattern was observed from mid-August through September and was reflected in the numbers of gizzard shad collected on each date. Carp numbers were low throughout this period, ranging from 2 to 79 fish/date.

The temporal differences in fish impingement were associated with the occurrence and abundance of small, young-of-the-year (YOY) fish in the adjacent river system and their apparent vulnerability to impingement. Most fish collected during the study were small, young fish. The sharp increases in impingement in late June that continued through mid-July were associated with greater numbers of small fish in the collections. A detailed discussion of the length-frequency distribution of five dominant species is presented in Section 4.4.5.

Other possible variables associated with impingement were also examined, including river flow, intake flow, temperature and DO. None were shown to be closely related to impingement. Impingement increased when Kankakee River flow decreased and vice versa on 18 of 28 dates, although there were substantial inconsistencies. In addition, the relationship was most often observed in July and early August when river flows typically decline and, correspondingly, when young fish are most abundant in the river. Intake flows varied little during the study period whereas impingement numbers were quite variable. The station was operating with either five or six circulating pumps throughout the study period and changes in the number of pumps operating occurred on only nine dates. There was no consistent pattern observed between changes in pumping operation and impingement. Temperatures and DO concentrations at the intake were generally stable with only subtle changes (<2 C and <1 mg/l DO) ocurring during most of the study period. No extreme values were measured that would cause impingement levels to change dramatically. There were no consistent changes in impingement numbers on those dates when the greatest changes in temperature and DO occurred.

4.4.5 Length Distribution of Selected Species

Analysis of the length frequency distribution of fish was performed for the five dominant species: gizzard shad, carp, channel catfish, white crappie and freshwater drum. These fish composed 96.7 percent of the total impingement. Most of the fish impinged at Units 2/3 intake were small (Tables 4.4-12 through 4.4-16). Although detailed analysis was not performed for the other species, empirical examination of the data showed that most of these fish were small in size (Appendix E).

Impinged carp ranged from 21 to 565 mm in length over the study period but most were less than 110 mm and were probably YOY fish (Table 4.4-12). The mean length of 682 measured carp was 83.4 mm. The greatest number were within the 50 to 79.9 mm length interval. Few fish larger than 140 mm were collected. From the initial collections in mid-June through mid-July most carp impinged were 50 to 80 mm in length. By mid-July fish 80 to 110 mm in length became more evident in the collections and by late July they were comparable in abundance to fish 50 to 80 mm in length. Carp abundance declined sharply in late August and remained low through September. During this period, 50 to 110 mm fish remained dominant although 110 to 140 mm fish constituted a notable proportion of the total number.

Gizzard shad ranged from 16 to 390 mm in length over the study period with most fish ranging from 50 to 140 mm (Table 4.4-13). The mean length of 1,741 measured fish was 127 mm. The greatest number of fish were within the 50 to 79.9 length interval. Although small YOY fish dominated the total impingement collection, larger fish were well represented throughout the study period. Most gizzard shad collected in June were $\geq$ 110 mm and the greatest number were 140 to 200 mm in length. In the first half of July, most fish impinged were 110 to 140 mm in length. By mid-July, small fish, mostly 50 to 80 mm in length, became abundant in the collections. They were the dominant size group through early August, and along with fish of 80 to 110 mm length, comprised the dominant groups through September.

Channel catfish ranged from 45 to 415 mm in length over the study period (Table 4.4-14). The mean length of 726 measured fish was 130.1 mm. The greatest number of fish were within the 110 to 139.9 mm length interval. Larger fish ($\geq$ 170 mm) were commonly collected throughout the study period. Fish between 80 and 140 mm were dominant in the collections throughout the study period although smaller fish were well represented from late August through September.

White crappie ranged from 44 to 245 mm in length over the study period with most fish ranging from 110 to 200 mm (Table 4.4-15). The mean length of 711 measured fish was 140.9 mm. Only a small proportion of fish $\geq$ 200 mm or < 80 mm were collected. White crappie 80 to 110 mm in length were dominant in the June collections; thereafter, most fish were larger with the greatest number within the 140 to 169.9 mm length interval.

Freshwater drum ranged from 40 to 462 mm in length over the study period with most fish ranging from 50 to 110 mm (Table 4.4-16). The mean length of 416 measured fish was 89.0 mm. Only a small proportion of fish $\geq$ 140 mm or < 50 mm were collected. Prior to mid-July most fish impinged were 50 to 80 mm in length; thereafter, 50 to 110 mm length fish made up most of the collections with periodic shifts toward the upper and lower ends of the length interval.

4.4.6 Incidence of Physical Abnormalities, Disease and Parasites

Only six fish, representing four species, exhibited some form of abnormality or parasites (Table 4.4-17). The exceptionally low number was probably related to two factors: difficulty in identifying fish disorders because of the deteriorated and mutilated condition of many fish; and the low incidence of abnormalities, disease and parasites typically associated with young fish (young fish constituted most of the impingement).

4.4.7 Estimation of Impingement Losses

An estimated 225,879 fish weighing 2,421 kg (5,344 lbs) were impinged at Units 2/3 intake during the 15 June through 30 September 1981 period when Dresden Station was operated in an indirect open cycle mode (Table 4.4-18). Numerically, the dominant species were carp (48.1 percent) and gizzard shad (44.0 percent). Other species representing ≥ 1 percent of the total number were channel catfish, white crappie and freshwater drum. By weight, the dominant species were gizzard shad (48.7 percent) and carp (29.0 percent). Channel catfish, shorthead redhorse, white crappie and black crappie also composed > 1 percent of the estimated weight of fish impinged.

The largest impingement occurred in July (56.4 percent) and the smallest in June (6.3 percent). Impingement in August and September was comparable at 19.5 and 17.8 percent, respectively, of the total impingement. Gizzard shad was the major species impinged in all months except July when carp was dominant.

The 1981 estimated impingement was compared to previous years estimates for the same time period (15 June to 30 September) to evaluate impingement losses during varying station operational modes. Species that were dominant in one or more years were selected for evaluation. Impingement studies were conducted at Dresden Station in 1976, 1977 and 1978. The 1976 impingement estimates were excluded from the yearly comparisons because the method of calculating the estimates was uncomparable to other years (volumetric basis instead of time) and the station operating mode varied during the summer months between direct open, indirect open and closed cycles. The smallest estimated impingement occurred in 1981 when the station was operated in an indirect open cycle mode (Table 4.4-19). The largest impingement occurred in 1977 when the station operated under the variable blowdown scheme. It should be pointed out that despite the large estimated losses, the 1977 estimate included only the months of August and September (questionable data precluded estimates for June and July). Impingement in 1978 under variable blowdown operation was smaller than in 1977 but larger than in 1981 under indirect open cycle operation.

Gizzard shad represented 96 to 99 percent of the total impingement in 1977 and 1978, with the largest number impinged in 1977. The relative abundance of gizzard shad in the 1981 impingement was also high but much lower than in 1977 and 1978. The major difference in impingement between 1981 and previous years was the number of carp impinged. In the two previous years carp constituted only a small proportion (0.1 percent or less) of the total impingement whereas in 1981 carp was the major species impinged (48 percent of the total impingement estimate). The unusually large number of impinged carp in 1981 probably resulted from exceptional recruitment of YOY fish in the river system associated with high spring and summer flows in the Kankakee River. Most carp impinged in 1981 were small (Table 4.4-12) and represented YOY fish. Other species impinged in greater numbers in 1981 than in other years were channel catfish and white crappie. For the remaining four species, their relative abundance was not related to any particular operating mode. Impingement of skipjack herring in 1977 was noticeably larger than in 1978 and 1981 whereas emerald shiners and freshwater drum showed a higher impingement in 1978 and 1981. Impingement of bluegill varied only slightly in all three years.

The comparison of fish impingement under different station operational modes was based on one or two year's data for each mode of operation. Because of natural variability in fish populations from year to year, impingement can also be expected to vary from year to year; this probably accounted for some of the differences in impingement among the three years of study. This was particularly evident for carp which was only abundant in the 1981 impingement. Nonetheless, these data provide a measure of the differences in impingement attributable to station operational mode. Impingement losses were smaller when operating indirect open cycle rather than under the variable blowdown scheme, although the difference was quite variable. The concomitant question regarding the source of impinged fish under each operating mode must also be considered. Under variable blowdown operation, most impinged fish apparently originate from the cooling pond (Patulski 1979) whereas with indirect open cycle operation, the source of impinged fish is the river system. A study conducted at the Dresden cooling pond spillway in 1978 (Patulski 1979) showed that escapement of fish from the pond during variable blowdown operation was high and substantially greater than the loss of fish from impingement. The spillway study was again conducted in 1981 (Lewis and Heidinger 1982) that included the summer period when the station operated indirect open cycle. The estimated number of fish that escaped from the cooling pond during the summer was much lower than in 1978 but was comparable to the number impinged at the intake of Units 2 and 3. Unlike variable blowdown operation when large numbers of fish that escape from the pond are impinged, under indirect open cycle mode many of these fish are recruited to the river system, thereby minimizing the impact of impingement losses on the fish population in the adjoining rivers.

4.5 SUMMARY AND CONCLUSIONS

1. Carp and gizzard shad accounted for 91 percent of the fish collected from impingement samples from 15 June through 30 September 1981. The highest impingement rate occurred in July and lowest in June. Temporal variability in impingement was considerable and was reflected in the collections of carp and gizzard shad.

2. Most fish impinged were small, young fish.

3. Impingement was not closely related to the river flows, intake flows, temperature or dissolved oxygen concentrations experienced during the sampling period.

4. An estimated 225,879 fish were impinged during indirect open cycle operation at Dresden Station from 15 June through 30 September 1981.

5. A comparison of impingement between different operating modes showed lower numbers of fish impinged during indirect open cycle than variable blowdown operation.

6. The major difference in abundance of fish impinged between the different operating modes was observed for carp. The high impingement of carp during indirect open cycle operation probably resulted from exceptional recruitement of the 1981 year class associated with unusually high Kankakee River flows.

4.6 REFERENCES

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TABLE 4.4-1 DAILY OPERATIONAL STATUS AT UNITS 2 AND 3, DRESDEN STATION, AND FLOW DATA FOR ILLINOIS, KANKAKEE AND DES PLAINES RIVERS, 15 JUNE - 30 SEPTEMBER 1981.

Date	Unit 2 (MWe)	Unit 3 (MWe)	Circulating Water Pumps	Intake[a] Water Flow (cfs)	Illinois[b] River Flow (cfs)	Kankakee[c] River Flow (cfs)	Des Plaines[d] River Flow (cfs)
June 15	280	784	5	1,749	52,000	17,500	34,500
16	557	789	5	1,749	35,662	16,400	19,262
17	723	745	5	1,749	25,942	15,800	10,142
18	679	804	6	2,099	21,952	14,500	7,452
19	749	753	5	1,749	20,360	13,200	7,160
20	623	798	5	1,749	17,760	12,200	5,560
21	682	702	5	1,749	15,960	11,500	4,460
22	680	707	5	1,749	18,870	12,500	6,370
23	776	796	5	1,749	26,200	14,100	12,100
24	780	726	5	1,749	23,300	14,500	8,800
25	766	753	5	1,749	20,290	14,800	5,490
26	612	785	5	1,749	20,290	14,800	5,490
27	691	648	5	1,749	21,420	14,200	7,220
28	646	419	5	1,749	20,030	13,100	6,930
29	478	583	5	1,749	17,770	11,700	6,070
30	267	675	5	1,749	15,440	10,200	5,240
July 1	0	775	5	1,749	13,440	9,000	4,440
2	193	775	5	1,749	13,440	8,100	5,340
3	524	769	6	2,099	12,240	7,550	4,190
4	662	756	5	1,749	10,920	7,050	3,870
5	730	718	5	1,749	10,920	6,760	4,160
6	721	769	6	2,099	10,770	6,890	3,880
7	728	759	6	2,099	10,770	7,260	3,510
8	729	755	6	2,099	10,770	6,800	3,970
9	730	451	6	2,099	8,520	5,990	2,630
10	729	714	6	2,099	7,050	5,360	1,690
11	531	744	6	2,099	7,710	4,860	2,850
12	738	732	6	2,099	8,370	4,670	3,700
13	757	733	6	2,099	14,760	4,440	10,320
14	795	729	6	2,099	8,520	4,140	4,380
15	62	728	6	2,099	13,560	3,920	9,640
16	149	726	6	2,099	8,370	3,770	4,600
17	510	712	6	2,099	7,050	3,660	3,390
18	638	510	6	2,099	7,050	3,480	3,570
19	738	657	6	2,099	6,390	3,520	2,870
20	798	736	6	2,099	10,770	6,360	4,410
21	783	724	6	2,099	11,970	7,890	4,080
22	805	671	6	2,099	13,100	8,570	4,530
23	790	691	6	2,099	13,100	8,180	4,920
24	745	667	6	2,099	10,770	7,300	3,470
25	725	665	6	2,099	9,570	6,520	3,050

TABLE 4.4-1 (CONT.)

Date	Unit 2 (MWe)	Unit 3 (MWe)	Circu-lating Water Pumps	Intake[a] Water Flow (cfs)	Illinois[b] River Flow (cfs)	Kankakee[c] River Flow (cfs)	Des Plaines[d] River Flow (cfs)
July 26	809	725	6	2,099	12,240	6,520	5,720
27	725	716	6	2,099	11,900	7,010	4,890
28	808	715	6	2,099	26,770	12,200	14,570
29	726	711	6	2,099	26,770	15,900	10,870
30	810	705	5	1,749	24,210	14,900	9,310
31	819	705	6	2,099	20,480	13,250	7,230
Aug. 1	818	656	6	2,099	17,020	10,970	6,050
2	635	703	6	2,099	13,370	9,080	4,290
3	796	691	6	2,099	21,490	8,310	13,180
4	800	687	6	2,099	16,450	7,550	8,900
5	817	684	6	2,099	12,240	6,930	5,310
6	821	680	6	2,099	9,450	7,010	2,440
7	820	678	6	2,099	11,970	7,470	4,500
8	820	666	6	2,099	11,970	8,010	3,960
9	724	674	6	2,099	11,970	7,890	4,080
10	774	669	6	2,099	11,970	6,850	5,120
11	756	668	6	2,099	10,770	5,790	4,980
12	808	664	6	2,099	10,170	5,160	5,010
13	511	658	6	2,099	8,250	4,820	3,430
14	327	656	6	2,099	9,570	4,440	5,130
15	20	654	6	2,099	9,840	4,740	5,100
16	207	652	6	2,099	11,760	4,860	6,900
17	497	650	6	2,099	12,960	5,130	7,830
18	633	648	6	2,099	8,370	5,280	3,090
19	747	646	6	2,099	9,840	4,930	4,910
20	801	641	6	2,099	6,810	4,250	2,560
21	814	613	6	2,099	7,980	3,590	4,390
22	815	641	6	2,099	5,580	3,240	2,340
23	717	672	6	2,099	5,580	2,290	2,660
24	806	629	6	2,099	5,580	2,760	2,820
25	782	624	6	2,099	7,050	2,640	4,410
26	746	622	6	2,099	8,370	2,640	5,730
27	814	621	6	2,099	9,670	3,340	6,330
28	817	619	6	2,099	13,100	4,900	8,200
29	820	619	6	2,099	13,440	6,310	7,130
30	762	616	6	2,099	13,440	6,890	6,550
31	816	612	6	2,099	17,960	6,640	11,320
Sept. 1	813	595	6	2,099	14,570	8,010	6,560
2	818	0	6	2,099	15,890	9,410	6,480
3	804	0	6	2,099	17,020	9,990	7,030
4	800	113	6	2,099	17,090	9,550	7,540
5	809	582	6	2,099	15,890	8,480	7,410

TABLE 4.4-1 (CONT.)

Date	Unit 2 (MWe)	Unit 3 (MWe)	Circu-lating Water Pumps	Intake[a] Water Flow (cfs)	Illinois[b] River Flow (cfs)	Kankakee[c] River Flow (cfs)	Des Plaines[d] River Flow (cfs)
Sept. 6	638	609	6	2,099	13,560	6,970	6,590
7	784	561	6	2,099	12,240	5,710	6,530
8	776	608	6	2,099	9,720	5,010	4,710
9	784	607	6	2,099	11,040	4,590	6,450
10	821	603	6	2,099	9,570	4,330	5,240
11	823	599	6	2,099	9,570	3,990	5,580
12	821	593	6	2,099	9,570	3,700	5,870
13	782	588	6	2,099	8,370	3,450	4,920
14	808	574	5	1,749	9,570	3,300	6,270
15	812	26	5	1,749	7,050	3,100	3,950
16	813	0	5	1,749	8,370	2,920	5,450
17	815	0	5	1,749	8,370	2,820	5,550
18	818	0	5	1,749	8,370	2,990	5,380
19	763	0	5	1,749	9,570	3,810	5,760
20	750	340	5	1,749	9,570	4,250	5,320
21	779	586	5	1,749	8,970	3,590	5,380
22	0	595	5	1,749	7,300	3,240	4,060
23	149	586	5	1,749	5,580	2,290	3,290
24	579	585	5	1,749	6,180	3,410	2,770
25	717	583	5	1,749	6,780	3,310	3,470
26	800	115	5	1,749	7,050	3,380	3,670
27	751	574	5	1,749	6,780	3,700	3,080
28	810	581	5	1,749	7,050	4,550	2,500
29	819	566	5	1,749	9,450	5,010	4,440
30	822	562	5	1,749	9,570	7,220	2,350
Average	684	613		1,979			

(a) Intake flow does not include service water usage which the station, during normal operation, has four pumps (each at 15,000 gpm or 33 cfs capacity) operating, for a total flow of 132 cfs.
(b) Data from Gaging Station, Dresden Island Lock and Dam.
(c) Data from Gaging Station, Wilmington Dam.
(d) Based on the difference in flow between Illinois and Kankakee Rivers.

TABLE 4.4-2 MEAN MONTHLY FLOW DATA FOR THE KANKAKEE, DES PLAINES AND ILLINOIS RIVERS.

	Year	Mean River Flow (cfs)			
		June	July	August	September
Kankakee River	1971-1980	6,388	2,661	2,232	2,492
	1981	13,813[a]	7,155	5,656	4,869
Des Plaines River	1971-1980	6,237	5,081	5,666	5,690
	1981	9,515[a]	5,176	5,440	5,120
Illinois River	1971-1980	12,625	7,742	7,898	8,182
	1981	23,328[a]	12,331	11,096	9,989

(a) Mean is representative of data from 15-30 June.

TABLE 4.4-3 TOTAL NUMBER AND WEIGHT OF ALL FISH TAXA COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, 15 JUNE-30 SEPTEMBER 1981.

Scientific Name	Common Name	Total No.	%	Total Weight (g)	%
CYPRINUS CARPIO	CARP	27550	46.5	184471	26.2
DOROSOMA CEPEDIANUM	GIZZARD SHAD	26559	44.9	327555	46.5
ICTALURUS PUNCTATUS	CHANNEL CATFISH	1736	2.9	42398	6.0
POMOXIS ANNULARIS	WHITE CRAPPIE	828	1.4	27396	3.9
APLODINOTUS GRUNNIENS	FRESHWATER DRUM	596	1.0	8051	1.1
NOTROPIS ATHERINOIDES	EMERALD SHINER	406	0.7	-	-
ICTALURUS MELAS	BLACK BULLHEAD	242	0.4	3011	0.4
POMOXIS NIGROMACULATUS	BLACK CRAPPIE	218	0.4	7139	1.0
NOTURUS FLAVUS	STONECAT	163	0.3	4090	0.6
MOXOSTOMA MACROLEPIDOTUM	SHORTHEAD REDHORSE	155	0.3	40509	5.7
CARPOIDES SP.	CARPSUCKER SP.	125	0.2	1266	0.2
LEPOMIS MACROCHIRUS	BLUEGILL	66	0.1	1847	0.3
ESOX LUCIUS	NORTHERN PIKE	59	0.1	3739	0.5
PERCOPSIS OMISCOMAYCUS	TROUT-PERCH	54	0.1	299	<0.1
PYLODICTUS OLIVARIS	FLATHEAD CATFISH	44	0.1	2105	0.3
NOTEMIGONUS CRYSOLEUCAS	GOLDEN SHINER	41	0.1	-	-
LEPOMIS HUMILIS	ORANGESPOTTED SUNFISH	37	0.1	237	<0.1
MORONE MISSISSIPPIENSIS	YELLOW BASS	28	<0.1	1296	0.2
CARPOIDES CARPIO	RIVER CARPSUCKER	28	<0.1	12684	1.8
LEPOMIS CYANELLUS	GREEN SUNFISH	21	<0.1	243	<0.1
ICTIOBUS BUBALUS	SMALLMOUTH BUFFALO	18	<0.1	23060	3.3
MORONE SAXATILIS	STRIPED BASS	18	<0.1	502	0.1
PIMEPHALES VIGILAX	BULLHEAD MINNOW	16	<0.1	-	-
CARPOIDES CYPRINUS	QUILLBACK	15	<0.1	2159	0.3
MICROPTERUS SALMOIDES	LARGEMOUTH BASS	15	<0.1	471	0.1
ALOSA CHRYSOCHLORIS	SKIPJACK HERRING	13	<0.1	246	<0.1
PIMEPHALES NOTATUS	BLUNTNOSE MINNOW	13	<0.1	4	<0.1
POMOXIS SP.	CRAPPIE SP.	12	<0.1	-	-
MICROPTERUS DOLOMIEUI	SMALLMOUTH BASS	11	<0.1	248	<0.1
AMIA CALVA	BOWFIN	9	<0.1	193	<0.1
NOTURUS GYRINUS	TADPOLE MADTOM	8	<0.1	33	<0.1
NOTROPIS SPILOPTERUS	SPOTFIN SHINER	7	<0.1	-	-
NOTROPIS LUTRENSIS	RED SHINER	7	<0.1	4	<0.1
MOXOSTOMA ERYTHRURUM	GOLDEN REDHORSE	7	<0.1	886	0.1
AMBLOPLITES RUPESTRIS	ROCK BASS	7	<0.1	128	<0.1
MORONE CHRYSOPS	WHITE BASS	6	<0.1	781	0.1
HIODON ALOSOIDES	GOLDEYE	5	<0.1	3725	0.5
DOROSOMA PETENENSE	THREADFIN SHAD	4	<0.1	51	<0.1
CARRASIUS AURATUS	GOLDFISH	4	<0.1	613	0.1
MOXOSTOMA ANISURUM	SILVER REDHORSE	4	<0.1	1527	0.2
LEPISOSTEUS OSSEUS	LONGNOSE GAR	3	<0.1	336	<0.1
SEMOTILUS ATROMACULATUS	CREEK CHUB	3	<0.1	8	<0.1
MOXOSTOMA SP.	REDHORSE SP.	3	<0.1	25	<0.1
ESOX AMERICANUS VERMICULATUS	GRASS PICKEREL	2	<0.1	36	<0.1
CYPRINIDAE	MINNOWS	2	<0.1	-	-
	CARP X GOLDFISH	2	<0.1	1040	0.1
NOCOMIS BIGUTTATUS	HORNYHEAD CHUB	2	<0.1	134	<0.1
NOTROPIS HUDSONIUS	SPOTTAIL SHINER	2	<0.1	-	-
PHENACOBIUS MIRABILIS	SUCKERMOUTH MINNOW	2	<0.1	-	-
CATOSTOMUS COMMERSONI	WHITE SUCKER	2	<0.1	15	<0.1
ICTALURUS NATALIS	YELLOW BULLHEAD	2	<0.1	14	<0.1
LABIDESTHES SICCULUS	BROOK SILVERSIDE	2	<0.1	5	<0.1
LEPOMIS GIBBOSUS	PUMPKINSEED	2	<0.1	58	<0.1
OSMERUS MORDAX	RAINBOW SMELT	1	<0.1	5	<0.1
NOTROPIS CORNUTUS	COMMON SHINER	1	<0.1	-	-
CARPOIDES VELIFER	HIGHFIN CARPSUCKER	1	<0.1	2	<0.1
ICTIOBUS CYPRINELLUS	BIGMOUTH BUFFALO	1	<0.1	155	<0.1
MINYTREMA MELANOPS	SPOTTED SUCKER	1	<0.1	293	<0.1
PERCA FLAVESCENS	YELLOW PERCH	1	<0.1	15	<0.1
TOTAL		59190		705088	

TABLE 4.4-4 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT UNITS 2/3 INTAKE DURING THE JUNE 1981 IMPINGEMENT SAMPLING PROGRAM.

Depth (m)	16 June			19 June			23 June			26 June			30 June		
	T[a]	D.O.[b]	% Sat.	T[a]	D.O.[b]	% Sat.	T[a]	D.O.[b]	% Sat.	T[a]	D.O.[b]	% Sat.	T[a]	D.O.[b]	% Sat.
Surface	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	21.8	7.4	84	23.0	7.6	87
1.0	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	21.8	7.4	84	23.0	7.6	87
2.0	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	21.8	7.4	84	23.0	7.6	87
3.0	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	21.8	7.4	84	23.0	7.6	87
4.0	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	21.8	7.4	84	23.0	7.6	87
4.5	26.0	6.9	84	25.0	7.1	85	20.8	7.0	78	--	--	--	23.0	7.5	86

(a) Temperature - °C
(b) Dissolved oxygen - mg/l

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TABLE 4.4-5 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT UNITS 2/3 INTAKE DURING THE JULY 1981 IMPINGEMENT SAMPLING PROGRAM.

Depth (m)	7 July			10 July			14 July			17 July		
	T[a]	DO[b]	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	24.3	7.3	86	26.1	6.9	84	27.5	6.8	85	25.0	7.2	86
1.0	24.5	7.3	87	26.1	6.9	84	27.5	6.8	85	25.0	7.2	86
2.0	24.6	7.3	87	26.1	6.9	84	27.5	6.8	85	25.0	7.2	86
3.0	24.6	7.3	87	26.1	6.9	84	27.5	6.8	85	25.0	7.2	86
4.0	24.6	7.3	87	26.1	6.9	84	27.5	6.9	86	25.0	7.2	86
4.5	-	-	-	26.1	6.9	84	27.5	6.9	86	25.0	7.2	86

Depth (m)	21 July			24 July			28 July			31 July		
	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	25.2	6.8	81	22.2	*[c]	-	20.6	6.8	75	20.5	7.4	81
1.0	25.1	6.6	79	22.2	*	-	20.6	6.8	75	20.5	7.4	81
2.0	25.1	6.6	79	22.2	*	-	20.6	6.8	75	20.5	7.3	80
3.0	25.1	6.5	77	22.2	*	-	20.7	6.8	75	20.5	7.3	80
4.0	25.1	6.5	77	22.2	*	-	20.7	6.8	75	20.5	7.3	80
4.5	-	-	-	22.2	*	-	-	-	-	-	-	-
5.0	-	-		-	-	-	20.7	6.8	75	-	-	-

(a) Temperature - °C
(b) Dissolved oxygen - mg/l
(c) Instrument malfunction

TABLE 4.4-6 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT UNITS 2/3 INTAKE DURING THE AUGUST 1981 IMPINGEMENT SAMPLING PROGRAM.

Depth (m)	4 August			7 August			11 August			14 August		
	T[a]	DO[b]	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	22.7	7.3	84	23.0	7.3	84	22.3	6.6	75	24.2	5.5	65
1.0	22.6	7.3	84	23.0	7.3	84	22.3	6.6	75	24.2	5.5	65
2.0	22.6	7.3	84	23.0	7.2	83	22.3	6.6	75	24.2	5.5	65
3.0	22.6	7.2	83	23.0	7.2	83	22.3	6.6	75	24.2	5.4	64
4.0	22.6	7.2	83	23.0	7.2	83	22.3	6.6	75	24.2	5.4	64
5.0	22.6	7.2	83	-	-	-	-	-	-	-	-	-

Depth (m)	18 August[c]			21 August			25 August			28 August		
	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	-	-	-	23.0	7.9	91	24.2	7.9	93	24.5	7.7	92
0.5	22.0	7.5	85	-	-	-	-	-	-	-	-	-
1.0	-	-	-	23.0	7.9	91	24.2	7.9	93	24.5	7.7	92
2.0	-	-	-	23.0	7.9	91	24.2	7.7	91	24.5	7.7	92
3.0	-	-	-	23.0	7.9	91	24.2	7.6	89	24.5	7.7	92
4.0	-	-	-	-	-	-	24.3	7.5	88	24.5	7.7	92

(a) Temperature - °C.
(b) Dissolved oxygen - mg/l.
(c) Measurements taken in Kankakee River adjacent intake canals.

TABLE 4.4-7 PHYSICOCHEMICAL MEASUREMENTS RECORDED AT UNITS 2/3 INTAKE DURING THE SEPTEMBER 1981 IMPINGEMENT SAMPLING PROGRAM.

Depth (m)	1 September			4 September			11 September			15 September		
	T[a]	DO[b]	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	23.7	6.7	78	20.7	7.3	80	21.5	8.3	93	23.1	7.5	86
1.0	23.7	6.7	78	20.7	7.2	79	21.5	8.3	93	23.1	7.1	82
2.0	23.7	6.7	78	20.7	7.2	79	21.5	8.3	93	23.1	7.1	82
3.0	23.7	6.7	78	20.7	7.2	79	21.5	8.3	93	23.1	7.1	82
4.0	23.6	6.7	78	20.7	7.2	79	21.5	8.3	93	23.1	7.1	82
4.5	-	-	-	-	-	-	21.5	8.3	93	-	-	-

Depth (m)	18 September			22 September			25 September			29 September		
	T[a]	DO[b]	% Sat.	T	DO	% Sat.	T	DO	% Sat.	T	DO	% Sat.
Surface	17.6	8.0	83	18.2	5.3	56	17.4	9.2	96	20.0	8.5	92
1.0	17.5	7.9	82	18.2	5.3	56	17.4	9.1	95	20.2	8.6	93
2.0	17.5	7.9	82	18.2	5.3	56	17.4	9.0	94	20.3	8.6	95
3.0	17.5	7.9	82	18.2	5.3	56	17.4	9.0	94	20.3	8.6	95
4.0	17.5	7.9	82	18.2	5.3	56	17.4	9.0	94	20.4	8.6	95

(a) Temperature ~ °C.
(b) Dissolved oxygen ~ mg/l.

TABLE 4.4-8 NUMBER, WEIGHT AND LENGTH RANGE OF ALL FISH TAXA COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE 1981

Taxa	No.	Total Weight (g)	Average Weight (g)	Length Range (mm)
Gizzard shad	2,852	70,634	24.8	48-297
Carp	864	3,814	4.4	38-92
Black bullhead	214	2,295	10.7	67-165
White crappie	184	4,119	22.4	78-222
Channel catfish	78	1,703	21.8	65-415
Emerald shiner	55	-[a]	-	68-108
Black crappie	41	1,022	24.9	80-219
Stonecat	29	1,035	35.7	82-190
Bluegill	27	832	30.8	46-190
Northern pike	20	1,751	87.6	102-595
Freshwater drum	12	440	36.7	40-262
Green sunfish	10	125	12.5	50-152
Trout-perch	9	59	6.6	84-96
Bowfin	6	116	19.3	112-144
Smallmouth bass	5	32	6.4	72-103
Golden shiner	4	-	-	79-115
Yellow bass	4	185	46.2	135-170
Quillback	4	136	34.0	100-133
Carpsucker sp.	4	96	24.0	90-151
Spotfin shiner	4	-	-	66-83
Smallmouth buffalo	3	50	16.7	101-110
Rock bass	3	7	2.3	46-54
Redhorse sp.	3	25	8.3	87-102
Bluntnose minnow	2	-	-	65-72
Orangespotted sunfish	2	22	11.0	51-105
Suckermouth minnow	2	-	-	102-103
Shorthead redhorse	2	15	7.5	87-106
Grass pickerel	1	6	6.0	100
Longnose gar	1	192	192.0	494
Threadfin shad	1	11	11.0	120
River carpsucker	1	13	13.0	126
Hornyhead chub	1	65	65.0	200
Cyprinidae	1	-	-	42
Largemouth bass	1	35	35.0	145
Pumpkinseed	1	23	23.0	99
Total	4,451	88,858		

[a]Weights not taken of most minnow species.

TABLE 4.4-9 NUMBER, WEIGHT, AND LENGTH RANGE OF ALL FISH TAXA COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JULY 1981.

Scientific Name	Common Name	No.	Total Weight (g)	Avg. Weight (g)	Length (mm) Min.	Length (mm) Max.
CYPRINUS CARPIO	CARP	23275	127902	5.5	46	377
DOROSOMA CEPEDIANUM	GIZZARD SHAD	7505	78872	10.5	15	371
ICTALURUS PUNCTATUS	CHANNEL CATFISH	1022	23235	22.7	48	366
NOTROPIS ATHERINOIDES	EMERALD SHINER	245	-[a]	-	56	121
POMOXIS ANNULARIS	WHITE CRAPPIE	232	8218	35.4	44	237
APLODINOTUS GRUNNIENS	FRESHWATER DRUM	186	1260	6.8	45	246
POMOXIS NIGROMACULATUS	BLACK CRAPPIE	110	3437	31.2	38	245
NOTURUS FLAVUS	STONECAT	55	1308	23.8	44	188
ESOX LUCIUS	NORTHERN PIKE	33	1496	45.3	109	275
PERCOPSIS OMISCOMAYCUS	TROUT-PERCH	28	151	5.4	40	111
MOXOSTOMA MACROLEPIDOTUM	SHORTHEAD REDHORSE	18	6129	340.5	187	502
ICTALURUS MELAS	BLACK BULLHEAD	16	376	23.5	71	167
NOTEMIGONUS CRYSOLEUCAS	GOLDEN SHINER	16	-	-	72	140
LEPOMIS HUMILIS	ORANGESPOTTED SUNFISH	11	63	5.7	56	80
MICROPTERUS SALMOIDES	LARGEMOUTH BASS	11	57	5.2	33	97
POMOXIS SPP.	CRAPPIE	11	-	-	27	41
MORONE SAXATILIS	STRIPED BASS	10	40	4.0	62	71
MORONE MISSISSIPIENSIS	YELLOW BASS	9	331	36.8	134	160
PIMEPHALES VIGILAX	BULLHEAD MINNOW	9	-	-	68	80
CARPOIDES CYPRINUS	QUILLBACK	7	1293	184.7	94	340
PIMEPHALES NOTATUS	BLUNTNOSE MINNOW	7	-	-	57	81
LEPOMIS MACROCHIRUS	BLUEGILL	6	180	30.0	97	141
LEPOMIS CYANELLUS	GREEN SUNFISH	5	84	16.8	55	160
MOXOSTOMA ERYTHRURUM	GOLDEN REDHORSE	4	189	47.3	78	196
NOTURUS GYRINUS	TADPOLE MADTOM	4	24	6.0	75	81
AMIA CALVA	BOWFIN	3	77	25.7	83	160
MICROPTERUS DOLOMIEUI	SMALLMOUTH BASS	3	49	16.3	92	157
NOTROPIS SPILOPTERUS	SPOTFIN SHINER	2	-	-	66	96
NOTROPIS HUDSONIUS	SPOTTAIL SHINER	2	-	-	80	91
MOXOSTOMA ANISURUM	SILVER REDHORSE	2	624	312.0	285	355
AMBLOPLITES RUPESTRIS	ROCK BASS	2	31	15.5	90	96
LEPISOSTEUS OSSEUS	LONGNOSE GAR	2	144	72.0	156	475
SEMOTILUS ATROMACULATUS	CREEK CHUB	1	-	-	110	110
NOCOMIS BIGUTTATUS	HORNYHEAD CHUB	1	69	69.0	186	186
NOTROPIS LUTRENSIS	RED SHINER	1	4	4.0	70	70
NOTROPIS CORNUTUS	COMMON SHINER	1	-	-	68	68
ALOSA CHRYSOCHLORIS	SKIPJACK HERRING	1	10	10.0	105	105
CATOSTOMUS COMMERSONI	WHITE SUCKER	1	9	9.0	100	100
LEPOMIS GIBBOSUS	PUMPKINSEED	1	35	35.0	112	112
PERCA FLAVESCENS	YELLOW PERCH	1	15	15.0	112	112
TOTAL		32959	255712			

(a) Weights not taken

TABLE 4.4-10 NUMBER, WEIGHT AND LENGTH RANGE OF ALL FISH TAXA COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, AUGUST 1981.

Scientific Name	Common Name	No.	Total Weight (g)	Avg. Weight (g)	Length (mm) Min.	Length (mm) Max.
DOROSOMA CEPEDIANUM	GIZZARD SHAD	6,549	80,551	12.3	44	390
CYPRINUS CARPIO	CARP	3,292	50,018	15.2	42	565
ICTALURUS PUNCTATUS	CHANNEL CATFISH	435	9,843	22.5	46	372
POMOXIS ANNULARIS	WHITE CRAPPIE	197	6,966	35.4	47	210
APLODINOTUS GRUNNIENS	FRESHWATER DRUM	162	4,051	25.0	56	462
MOXOSTOMA MACROLEPIDOTUM	SHORTHEAD REDHORSE	96	24,925	259.6	88	415
NOTROPIS ATHERINOIDES	EMERALD SHINER	53	-a	-	45	106
POMOXIS NIGROMACULATUS	BLACK CRAPPIE	60	2,501	41.7	60	237
CARPIODES SP.	CARPSUCKER	55	292	5.3	50	121
NOTURUS FLAVUS	STONECAT	46	883	19.2	56	186
PYLODICTIS OLIVARIS	FLATHEAD CATFISH	44	2,105	47.8	53	310
CARPIODES CARPIO	RIVER CARPSUCKER	18	10,418	578.8	42	506
ICTIOBUS BUBALUS	SMALLMOUTH BUFFALO	15	23,010	1,534.0	412	525
LEPOMIS HUMILIS	ORANGESPOTTED SUNFISH	14	88	6.3	56	92
NOTEMIGONUS CRYSOLEUCAS	GOLDEN SHINER	12	-	-	74	162
LEPOMIS MACROCHIRUS	BLUEGILL	10	357	35.7	68	197
ICTALURUS MELAS	BLACK BULLHEAD	8	226	28.3	76	250
MORONE MISSISSIPIENSIS	YELLOW BASS	8	424	53.0	150	175
MORONE SAXATILIS	STRIPED BASS	8	462	57.8	64	316
PERCOPSIS OMISCOMAYCUS	TROUT-PERCH	7	34	4.9	46	108
PIMEPHALES VIGILAX	BULLHEAD MINNOW	6	-	-	55	71
HIODON ALOSOIDES	GOLDEYE	5	3,725	745.0	332	459
ESOX LUCIUS	NORTHERN PIKE	5	302	60.4	184	228
NOTROPIS LUTRENSIS	RED SHINER	5	-	-	68	76
MORONE CHRYSOPS	WHITE BASS	5	776	155.0	193	269
LEPOMIS CYANELLUS	GREEN SUNFISH	5	24	4.8	53	92
CARRASIUS AURATUS	GOLDFISH	4	613	153.3	150	263
PIMEPHALES NOTATUS	BLUNTNOSE MINNOW	4	4	1.0	52	71
CARPIODES CYPRINUS	QUILLBACK	3	515	171.7	175	335
MOXOSTOMA ERYTHRURUM	GOLDEN REDHORSE	3	697	323.3	142	425
NOTURUS GYRINUS	TADPOLE MADTOM	3	6	2.0	46	52
MICROPTERUS SALMOIDES	LARGEMOUTH BASS	3	379	126.3	91	297
	CARP x GOLDFISH	2	1,040	520.0	265	360
MICROPTERUS DOLOMIEUI	SMALLMOUTH BASS	2	163	81.5	145	210
DOROSOMA PETENENSE	THREADFIN SHAD	1	20	20.0	133	133
CYPRINIDAE	MINNOW	1	-	-	40	40
NOTROPIS SPILOPTERUS	SPOTFIN SHINER	1	-	-	60	60
SEMOTILUS ATROMACULATUS	CREEK CHUB	1	-	-	130	130
MINYTREMA MELANOPS	SPOTTED SUCKER	1	283	283.0	306	306
CARPOIDES VELIFER	HIGHFIN CARPSUCKER	1	2	2.0	75	75
CATOSTOMUS COMMERSONI	WHITE SUCKER	1	6	6.0	105	105
AMBLOPLITES RUPESTRIS	ROCK BASS	1	10	10.0	94	94
POMOXIS SP.	CRAPPIE	1	-	-	44	44
TOTAL		11,163	225,716			

(a) Weight not taken.

TABLE 4.4-11 NUMBER, WEIGHT, AND LENGTH RANGE OF ALL FISH TAXA COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, SEPTEMBER 1981.

Scientific Name	Common Name	No.	Total Weight (g)	Avg. Weight (g)	Length (mm) Min.	Length (mm) Max.
DOROSOMA CEPEDIANUM	GIZZARD SHAD	9,553	97,498	10.1	56	395
APLODINOTUS GRUNNIENS	FRESHWATER DRUM	236	2,300	9.7	53	245
POMOXIS ANNULARIS	WHITE CRAPPIE	215	8,083	37.6	42	322
ICTALURUS PUNCTATUS	CHANNEL CATFISH	201	7,617	37.9	45	391
CYPRINUS CARPIO	CARP	119	2,737	23.0	21	362
CARPOIDES SP.	CARPSUCKER	66	878	13.3	50	365
NOTROPIS ATHERINOIDES	EMERALD SHINER	43	-[a]	-	42	110
MOXOSTOMA MACROLEPIDOTUM	SHORTHEAD REDHORSE	39	9,440	242.1	225	427
NOTURUS FLAVUS	STONECAT	33	864	26.2	75	200
LEPOMIS MACROCHIRUS	BLUEGILL	23	478	20.8	49	157
ALOSA CHRYSOCHLORIS	SKIPJACK HERRING	12	236	19.7	105	203
PERCOPSIS OMISCOMAYCUS	TROUT-PERCH	10	55	5.5	55	102
LEPOMIS HUMILIS	ORANGESPOTTED SUNFISH	10	64	6.4	52	89
NOTEMIGONUS CRYSOLEUCAS	GOLDEN SHINER	9	-	-	85	125
CARPOIDES CARPIO	RIVER CARPSUCKER	9	2,253	250.3	81	380
MORONE MISSISSIPPIENSIS	YELLOW BASS	7	356	50.9	154	182
POMOXIS NIGROMACULATUS	BLACK CRAPPIE	7	179	25.5	72	173
ICTALURUS MELAS	BLACK BULHEAD	4	114	28.5	55	152
DOROSOMA PETENSE	THREADFIN SHAD	2	20	10.0	88	106
MOXOSTOMA ANISURUM	SILVER REDHORSE	2	903	451.5	298	445
ICTALURUS NATALIS	YELLOW BULLHEAD	2	14	7.0	63	83
LABIDESTHES SICCULUS	BROOK SILVERSIDE	2	5	2.5	62	97
OSMERUS MORDAX	RAINBOW SMELT	1	5	5.0	102	102
ESOX AMERICANUS VERMICULATUS	GRASS PICKEREL	1	30	30.0	190	190
ESOX LUCIUS	NORTHERN PIKE	1	190	190.0	325	325
NOTROPIS LUTRENSIS	RED SHINER	1	-	-	69	69
PIMEPHALES VIGILAX	BULLHEAD MINNOW	1	-	-	73	73
SEMOTILUS ATROMACULATUS	CREEK CHUB	1	8	8.0	102	102
CARPOIDES CYPRINUS	QUILLBACK	1	215	215.0	260	260
ICTIOBUS CYPRINELLUS	BIGMOUTH BUFFALO	1	155	155.0	257	257
NOTURUS GYRINUS	TADPOLE MADTOM	1	3	3.0	58	56
MORONE CHRYSOPS	WHITE BASS	1	6	6.0	88	88
AMBLOPLITES RUPESTRIS	ROCK BASS	1	80	80.0	166	166
LEPOMIS CYANELLUS	GREEN SUNFISH	1	10	10.0	90	90
MICROPTERUS DOLOMIEUI	SMALLMOUTH BASS	1	4	4.0	72	72
TOTAL		10,717	134,800			

(a) Weight not taken.

TABLE 4.4-12 LENGTH-FREQUENCY DISTRIBUTION OF CARP COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

					LENGTH INTERVALS (MM)										RANGE		
DATE	F	N	X	SD	20.0 49.9	50.0 79.9	80.0 109.9	110.0 139.9	140.0 169.9	170.0 199.9	200.0 229.9	230.0 259.9	260.0 289.9	290.0 999.9	MIN	MED	MAX
15 JUN 81	0	1	60.0	0.0	0	1	0	0	0	0	0	0	0	0	60.0	60.0	60.0
19 JUN 81	0	9	61.0	5.1	0	9	0	0	0	0	0	0	0	0	55.0	62.0	70.0
22 JUN 81	36	30	66.5	7.3	0	27	3	0	0	0	0	0	0	0	50.0	67.0	88.0
25 JUN 81	178	30	61.7	8.7	1	29	0	0	0	0	0	0	0	0	38.0	62.0	78.0
29 JUN 81	550	30	66.7	10.9	0	26	4	0	0	0	0	0	0	0	52.0	66.0	92.0
6 JUL 81	2979	30	78.4	57.6	0	26	2	1	0	0	0	0	0	1	52.0	66.0	377.0
9 JUL 81	4362	30	65.9	9.7	1	26	3	0	0	0	0	0	0	0	47.0	65.5	85.0
13 JUL 81	4444	30	67.4	8.0	0	28	2	0	0	0	0	0	0	0	56.0	66.0	88.0
16 JUL 81	3460	30	69.3	11.3	0	22	8	0	0	0	0	0	0	0	52.0	67.5	94.0
20 JUL 81	1567	30	81.4	11.3	0	11	19	0	0	0	0	0	0	0	60.0	82.0	105.0
23 JUL 81	2540	30	73.4	17.7	3	16	11	0	0	0	0	0	0	0	46.0	75.0	108.0
27 JUL 81	1604	30	73.7	15.0	0	20	10	0	0	0	0	0	0	0	53.0	69.5	104.0
30 JUL 81	1873	31	73.7	13.0	0	19	12	0	0	0	0	0	0	0	50.0	72.0	109.0
3 AUG 81	2374	30	94.1	16.0	0	6	19	5	0	0	0	0	0	0	63.0	94.0	135.0
6 AUG 81	407	30	90.1	15.7	0	8	17	5	0	0	0	0	0	0	56.0	89.0	116.0
10 AUG 81	124	30	87.0	15.6	0	10	18	2	0	0	0	0	0	0	63.0	88.0	124.0
13 AUG 81	87	30	84.8	21.0	0	15	10	5	0	0	0	0	0	0	54.0	81.5	137.0
17 AUG 81	38	32	86.6	54.7	0	20	11	0	0	0	0	0	0	1	54.0	73.0	375.0
20 AUG 81	37	42	174.9	125.6	0	2	13	16	0	2	0	0	0	9	54.0	122.5	565.0
24 AUG 81	1	20	86.3	50.1	0	12	7	0	0	0	0	0	0	1	50.0	75.0	290.0
27 AUG 81	0	8	56.6	16.8	3	4	1	0	0	0	0	0	0	0	42.0	52.5	92.0
31 AUG 81	0	52	73.7	51.7	3	40	7	0	0	0	0	0	1	1	42.0	60.0	362.0
3 SEP 81	0	31	74.7	23.7	1	22	4	4	0	0	0	0	0	0	45.0	64.0	138.0
10 SEP 81	0	11	78.7	19.9	0	6	4	1	0	0	0	0	0	0	50.0	70.0	114.0
14 SEP 81	0	2	184.0	142.8	0	0	1	0	0	0	0	0	1	0	83.0	184.0	285.0
17 SEP 81	0	4	100.8	107.5	0	0	2	0	0	0	0	1	0	1	87.0	170.5	295.0
21 SEP 81	0	8	70.0	36.3	1	5	0	1	1	0	0	0	0	0	49.0	64.0	150.0
24 SEP 81	0	3	71.7	29.5	0	2	1	0	0	0	0	0	0	0	50.0	60.0	105.0
29 SEP 81	0	8	120.0	100.3	2	1	1	2	0	0	1	0	0	1	21.0	97.5	326.0
SUMMARY TOTALS	26053	682	83.4	50.9	15	413	190	42	1	2	1	1	2	15	21.0		545.0

F=NUMBER OF UNMEASURED ORGANISMS;
N=NUMBER OF LENGTHS; MIN=SHORTEST LENGTH
X=MEAN LENGTH MED=MEDIAN LENGTH
SD=STANDARD DEVIATION; MAX=GREATEST LENGTH
NA=DATA NOT AVAILABLE

TABLE 4.4-13 LENGTH-FREQUENCY DISTRIBUTION OF GIZZARD SHAD COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

DATE	P	N	X	SD	20.0 49.9	50.0 79.9	80.0 109.9	110.0 139.9	140.0 169.9	170.0 199.9	200.0 229.9	230.0 259.9	260.0 289.9	290.0 999.9	RANGE MIN	RANGE MED	RANGE MAX
					LENGTH INTERVALS (MM)												
15 JUN 81	446	61	164.4	31.7	0	0	3	9	25	16	6	2	0	0	106.0	162.0	254.0
18 JUN 81	353	60	168.4	42.3	0	4	0	5	16	22	10	3	0	0	51.0	172.0	240.0
22 JUN 81	466	60	175.0	44.9	0	0	1	14	11	18	6	8	1	1	97.0	175.5	297.0
25 JUN 81	808	60	145.7	40.8	1	3	3	21	16	10	4	2	0	0	48.0	146.5	243.0
29 JUN 81	478	60	142.4	33.5	0	1	1	34	15	5	3	1	0	0	57.0	131.5	259.0
6 JUL 81	285	60	150.8	57.9	0	3	2	31	6	5	5	3	3	1	19.0	127.5	316.0
9 JUL 81	367	60	142.2	47.1	0	0	11	31	6	3	2	5	2	0	93.0	121.5	285.0
13 JUL 81	1360	61	120.9	17.3	0	0	7	51	2	0	1	0	0	0	90.0	118.0	226.0
16 JUL 81	1445	60	133.3	50.4	0	5	0	45	3	2	1	2	0	2	56.0	122.0	355.0
20 JUL 81	1473	60	82.1	39.4	4	35	1	18	0	1	0	1	0	0	27.0	60.0	246.0
23 JUL 81	916	61	80.1	48.2	0	46	0	12	1	0	0	0	1	1	52.0	60.0	320.0
27 JUL 81	971	60	76.3	49.1	0	51	1	5	0	1	1	0	0	1	54.0	60.0	371.0
30 JUL 81	[illegible]	62	87.7	59.7	1	46	2	5	0	2	1	1	2	1	16.0	64.5	294.0
3 AUG 81	865	60	93.9	53.7	0	37	7	12	0	0	0	2	0	2	55.0	72.0	310.0
6 AUG 81	1711	60	88.6	47.2	0	40	9	7	0	2	0	0	1	1	59.0	72.0	323.0
10 AUG 81	[illegible]	61	173.2	96.6	0	13	14	4	0	3	6	6	5	10	63.0	172.0	368.0
13 AUG 81	463	55	131.3	77.0	0	19	9	12	2	3	4	0	2	4	65.0	108.0	390.0
17 AUG 81	1304	61	140.0	83.1	0	17	17	13	2	1	1	1	4	5	61.0	88.0	360.0
20 AUG 81	923	60	145.3	85.5	0	13	20	5	1	4	3	6	2	6	54.0	105.0	349.0
24 AUG 81	352	60	104.2	68.8	2	28	17	5	0	1	1	3	1	2	44.0	79.5	360.0
27 AUG 81	[illegible]	60	115.1	77.5	1	23	20	3	0	3	2	4	0	4	46.0	85.0	346.0
31 AUG 81	1009	60	89.2	44.9	0	40	12	3	3	0	0	0	1	1	56.0	76.0	314.0
3 SEP 81	[illegible]	60	97.7	51.2	0	28	19	9	0	1	1	0	1	1	61.0	80.0	385.0
10 SEP 81	767	60	161.6	99.3	0	22	8	3	3	1	7	2	2	12	64.0	108.0	385.0
14 SEP 81	327	60	101.6	64.8	0	28	22	5	0	0	1	1	0	3	58.0	80.0	353.0
17 SEP 81	1418	60	170.3	94.4	0	8	19	3	1	9	3	2	4	11	57.0	139.0	374.0
21 SEP 81	1102	60	180.0	92.6	0	5	16	7	4	4	4	6	4	10	73.0	154.0	356.0
24 SEP 81	466	60	109.8	50.9	0	15	25	12	0	3	3	0	1	1	60.0	96.5	302.0
29 SEP 81	1653	59	124.8	68.7	0	5	34	9	1	2	0	2	3	3	65.0	96.0	325.0
SUMMARY TOTALS	24848	1741	127.1	70.4	9	535	300	393	110	122	76	63	40	93	16.0		390.0

P=NUMBER OF UNMEASURED ORGANISMS;
N=NUMBER OF LENGTHS; MIN=SHORTEST LENGTH
X=MEAN LENGTH; MED=MEDIAN LENGTH
SD=STANDARD DEVIATION; MAX=GREATEST LENGTH
NA=DATA NOT AVAILABLE

TABLE 4.4-14 LENGTH-FREQUENCY DISTRIBUTION OF CHANNEL CATFISH COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

					LENGTH INTERVALS (MM)										RANGE		
DATE	P	N	X	SD	20.0 49.9	50.0 79.9	80.0 109.9	110.0 129.9	140.0 169.9	170.0 199.9	200.0 229.9	230.0 259.9	260.0 289.9	290.0 999.9	MIN	MED	MAX
15 JUN 81	0	1	115.0	0.0	0	0	0	1	0	0	0	0	0	0	115.0	115.0	115.0
18 JUN 81	0	12	119.0	24.5	0	1	1	8	2	0	0	0	0	0	68.0	121.5	156.0
22 JUN 81	0	12	104.7	31.5	0	1	6	4	0	1	0	0	0	0	65.0	104.0	187.0
25 JUN 81	0	24	110.3	41.9	0	2	14	5	2	0	0	0	1	0	70.0	97.0	276.0
29 JUN 81	1	28	120.6	67.2	0	3	16	5	1	1	0	1	0	1	70.0	104.5	415.0
6 JUL 81	79	31	131.2	64.9	0	1	14	11	1	0	0	0	2	2	75.0	110.0	310.0
9 JUL 81	18	30	128.5	50.7	0	0	13	10	2	2	1	1	0	1	82.0	112.5	278.0
13 JUL 81	12	31	105.5	37.6	0	3	22	4	1	0	0	0	1	0	70.0	98.0	288.0
16 JUL 81	94	30	104.2	40.5	0	6	13	9	0	1	0	1	0	0	50.0	102.5	253.0
20 JUL 81	49	30	118.3	44.9	0	2	14	11	0	1	1	0	0	1	52.0	107.0	299.0
23 JUL 81	288	30	126.6	32.6	0	0	5	20	3	1	0	0	1	0	82.0	121.0	266.0
27 JUL 81	204	30	144.7	73.6	0	3	7	9	5	2	0	0	1	3	57.0	133.0	366.0
30 JUL 81	46	30	124.6	35.4	1	0	6	19	3	0	0	0	1	0	48.0	121.5	278.0
3 AUG 81	67	32	135.7	47.3	0	0	4	20	6	0	0	1	0	1	97.0	123.0	355.0
6 AUG 81	22	29	175.4	84.6	1	0	2	12	4	2	0	1	2	5	46.0	138.0	342.0
10 AUG 81	0	24	142.7	61.1	0	1	4	12	3	0	0	2	2	0	56.0	120.0	285.0
13 AUG 81	0	21	139.9	55.2	0	1	3	12	1	1	0	2	0	1	56.0	122.0	294.0
17 AUG 81	0	34	124.0	48.7	0	1	11	14	7	0	0	0	0	1	55.0	119.0	372.0
20 AUG 81	140	30	101.6	59.2	0	13	11	3	1	0	0	0	0	2	58.0	85.5	315.0
24 AUG 81	0	18	146.4	55.2	0	1	3	6	4	1	1	1	1	0	62.0	133.5	264.0
27 AUG 81	0	18	142.3	63.7	0	2	2	6	5	1	0	0	1	1	50.0	120.0	301.0
31 AUG 81	0	49	140.0	64.9	4	4	6	14	10	3	4	1	1	2	45.0	130.0	342.0
3 SEP 81	0	61	127.3	77.9	6	15	1	17	14	2	0	1	1	4	45.0	127.0	391.0
10 SEP 81	0	23	163.0	61.1	0	1	0	10	7	0	2	0	2	1	60.0	142.0	326.0
14 SEP 81	0	13	114.2	75.0	2	3	2	3	1	0	1	0	0	1	45.0	98.0	307.0
17 SEP 81	0	11	115.5	65.0	0	4	1	3	2	0	0	0	1	0	51.0	116.0	279.0
21 SEP 81	0	15	166.9	91.4	0	3	0	5	1	2	0	0	2	2	50.0	130.0	314.0
24 SEP 81	0	7	170.0	67.4	0	0	0	3	1	0	4	0	0	1	114.0	200.0	332.0
29 SEP 81	0	20	113.2	79.3	0	9	4	3	1	0	1	1	0	1	50.0	98.5	366.0
SUMMARY TOTALS	1010	724	130.1	61.8	14	80	185	259	88	31	15	13	20	31	45.0		415.0

P=NUMBER OF UNMEASURED ORGANISMS;
N=NUMBER OF LENGTHS; MIN=SHORTEST LENGTH
X=MEAN LENGTH; MED=MEDIAN LENGTH
SD=STANDARD DEVIATION; MAX=GREATEST LENGTH
NA=DATA NOT AVAILABLE

TABLE 4.4-15 LENGTH-FREQUENCY DISTRIBUTION OF FRESHWATER DRUM COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

DATE	P	N	X	SD	LENGTH INTERVALS (MM) 20.0-49.9	50.0-79.9	80.0-109.9	110.0-139.9	140.0-169.9	170.0-199.9	200.0-229.9	230.0-259.9	260.0-289.9	290.0-999.9	RANGE MIN	MED	MAX
15 JUN 81	0	1	81.0	0.0	0	0	1	0	0	0	0	0	0	0	81.0	81.0	81.0
18 JUN 81	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
22 JUN 81	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
25 JUN 81	0	4	51.0	10.9	2	2	0	0	0	0	0	0	0	0	40.0	49.0	66.0
29 JUN 81	0	7	124.4	92.3	0	5	0	0	0	0	0	1	1	0	50.0	76.0	268.0
6 JUL 81	0	2	71.0	12.7	0	1	1	0	0	0	0	0	0	0	62.0	71.0	80.0
9 JUL 81	0	4	66.3	27.0	1	2	1	0	0	0	0	0	0	0	46.0	57.0	105.0
13 JUL 81	0	6	55.7	8.3	1	5	0	0	0	0	0	0	0	0	45.0	54.5	70.0
16 JUL 81	78	30	69.9	27.4	0	27	2	0	0	0	1	0	0	0	53.0	62.5	205.0
20 JUL 81	0	27	75.4	37.5	0	21	4	0	0	0	0	1	0	0	9.0	68.0	246.0
23 JUL 81	0	23	80.6	30.2	0	12	10	0	0	0	1	0	0	0	56.0	78.0	210.0
27 JUL 81	0	12	85.6	24.0	0	8	2	1	1	0	0	0	0	0	66.0	77.0	147.0
30 JUL 81	0	4	93.5	14.4	0	1	3	0	0	0	0	0	0	0	72.0	100.0	102.0
3 AUG 81	0	19	90.7	24.3	0	4	14	0	0	1	0	0	0	0	57.0	87.0	180.0
6 AUG 81	0	11	88.4	22.5	0	3	7	0	1	0	0	0	0	0	60.0	90.0	143.0
10 AUG 81	0	14	104.0	54.2	0	6	5	1	0	0	1	1	0	0	62.0	89.5	235.0
13 AUG 81	0	10	77.4	11.7	0	6	4	0	0	0	0	0	0	0	66.0	71.0	101.0
17 AUG 81	0	11	81.5	15.7	0	5	5	1	0	0	0	0	0	0	56.0	80.0	110.0
20 AUG 81	0	45	128.3	27.5	0	5	23	9	0	3	1	1	0	3	68.0	103.0	462.0
24 AUG 81	0	26	92.5	36.8	0	9	14	0	0	2	1	0	0	0	57.0	81.5	205.0
27 AUG 81	0	26	80.2	27.3	0	17	7	1	0	1	0	0	0	0	57.0	74.5	193.0
31 AUG 81	0	5	93.6	39.4	0	1	3	0	1	0	0	0	0	0	60.0	83.0	162.0
3 SEP 81	0	9	101.1	33.2	0	1	6	1	0	1	0	0	0	0	77.0	92.0	186.0
10 SEP 81	0	10	99.9	29.0	0	2	5	2	0	1	0	0	0	0	69.0	98.0	170.0
14 SEP 81	0	5	107.0	74.8	0	3	1	0	0	0	0	1	0	0	66.0	71.0	240.0
17 SEP 81	0	14	110.6	72.5	0	6	3	3	0	0	1	0	0	1	53.0	91.0	322.0
21 SEP 81	0	36	71.0	17.4	0	24	10	2	0	0	0	0	0	0	52.0	64.0	116.0
24 SEP 81	0	24	81.8	34.2	0	15	7	0	1	0	1	0	0	0	50.0	74.0	200.0
29 SEP 81	102	31	87.0	30.0	3	8	16	3	0	1	0	0	0	0	42.0	87.0	197.0
SUMMARY TOTALS	180	416	89.0	44.9	7	199	154	24	4	10	7	5	1	4	9.0		467.0

P=NUMBER OF UNMEASURED ORGANISMS;
N=NUMBER OF LENGTHS; MIN=SHORTEST LENGTH
X=MEAN LENGTH; MED=MEDIAN LENGTH
SD=STANDARD DEVIATION; MAX=GREATEST LENGTH
NA=DATA NOT AVAILABLE

TABLE 4.4-16 LENGTH-FREQUENCY DISTRIBUTION OF WHITE CRAPPIE COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

					LENGTH INTERVALS (MM)										RANGE		
DATE	P	N	X	SD	20.0 49.9	50.0 79.9	80.0 109.9	110.0 139.9	140.0 169.9	170.0 199.9	200.0 229.9	230.0 259.9	260.0 289.9	290.0 999.9	MIN	MED	MAX
15 JUN 81	0	2	166.0	22.6	0	0	0	0	1	1	0	0	0	0	150.0	166.0	182.0
18 JUN 81	35	30	121.1	40.5	0	1	15	3	7	4	0	0	0	0	78.0	94.5	184.0
22 JUN 81	0	14	140.6	33.3	0	0	3	2	7	2	0	0	0	0	80.0	151.0	174.0
25 JUN 81	26	30	112.1	35.0	0	0	19	4	4	2	1	0	0	0	82.0	95.0	204.0
29 JUN 81	12	35	116.5	40.6	0	0	21	5	2	6	1	0	0	0	82.0	91.0	222.0
6 JUL 81	0	26	154.0	26.4	0	1	1	2	14	8	0	0	0	0	71.0	164.5	180.0
9 JUL 81	0	25	150.0	29.0	0	0	3	6	7	9	0	0	0	0	88.0	160.0	183.0
13 JUL 81	0	24	128.8	34.9	1	0	3	12	4	4	0	0	0	0	45.0	126.5	197.0
16 JUL 81	14	40	158.0	22.7	0	0	0	6	14	10	0	0	0	0	110.0	158.0	196.0
20 JUL 81	0	30	141.5	37.7	1	2	2	7	11	6	1	0	0	0	44.0	142.0	203.0
23 JUL 81	8	30	137.0	40.3	0	2	5	9	6	7	0	1	0	0	56.0	130.5	237.0
27 JUL 81	0	23	143.7	26.3	0	0	3	6	10	4	0	0	0	0	98.0	145.0	184.0
30 JUL 81	0	22	118.7	38.2	1	2	6	6	4	3	0	0	0	0	46.0	115.0	184.0
3 AUG 81	0	20	146.8	23.7	0	0	2	5	9	4	0	0	0	0	91.0	152.5	275.0
6 AUG 81	0	15	154.0	35.6	0	0	1	5	1	7	1	0	0	0	98.0	170.0	205.0
10 AUG 81	0	17	130.5	41.1	0	2	3	5	4	3	0	0	0	0	57.0	130.0	197.0
13 AUG 81	0	36	140.6	30.2	1	0	4	12	12	7	0	0	0	0	48.0	141.0	170.0
17 AUG 81	0	31	141.1	26.2	0	1	0	15	12	2	1	0	0	0	59.0	138.0	205.0
20 AUG 81	0	24	156.1	26.3	0	0	1	6	10	5	2	0	0	0	106.0	148.0	206.0
24 AUG 81	0	19	150.2	32.7	1	0	0	4	10	3	1	0	0	0	47.0	156.0	201.0
27 AUG 81	0	35	136.7	40.1	0	4	3	9	11	7	1	0	0	0	51.0	140.0	210.0
31 AUG 81	0	33	150.1	28.8	0	1	7	8	16	6	1	0	0	0	67.0	149.0	206.0
3 SEP 81	0	17	130.1	40.7	0	3	0	6	6	1	1	0	0	0	55.0	138.0	208.0
10 SEP 81	6	30	145.3	22.9	0	0	0	13	12	4	1	0	0	0	110.0	142.0	226.0
14 SEP 81	0	3	117.7	44.8	0	1	0	0	2	0	0	0	0	0	66.0	140.0	145.0
17 SEP 81	0	14	143.3	33.0	0	1	0	5	5	2	1	0	0	0	65.0	143.5	206.0
21 SEP 81	0	50	146.9	31.7	0	2	2	11	25	9	0	1	0	0	53.0	150.0	245.0
24 SEP 81	1	15	157.1	30.8	0	0	1	3	5	5	0	1	0	0	100.0	155.0	235.0
29 SEP 81	15	31	160.8	22.1	0	0	0	2	15	12	2	0	0	0	122.0	167.0	211.0
SUMMARY TOTALS	117	711	140.9	35.1	5	23	79	177	246	143	15	3	0	0	44.0		245.0

P=NUMBER OF UNMEASURED ORGANISMS;
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X=MEAN LENGTH; MED=MEDIAN LENGTH
SD=STANDARD DEVIATION; MAX=GREATEST LENGTH
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TABLE 4.4-17 INCIDENCE OF PHYSICAL ABNORMALITIES, DISEASE OR PARASITES OF FISH COLLECTED DURING IMPINGEMENT SAMPLING AT THE DRESDEN STATION, JUNE-SEPTEMBER 1981.

Species	Physical Abnormality	Disease or Parasite	Total Catch[a] Number Affected	Percent Affected
Gizzard shad	Skoliosis		1	<0.1
Northern pike		*Neascus* sp. (Blackspot)	4	6.8
Carp	Deformed back		1	<0.1
Golden shiner		*Neascus* sp.	1	2.4

(a) Total catch represents combined catch from all months.

TABLE 4.4-18 ESTIMATED NUMBER AND WEIGHT OF ALL FISH TAXA IMPINGED AT UNITS 2/3 INTAKE DURING INDIRECT OPEN CYCLE OPERATION, DRESDEN STATION, 15 JUNE - 30 SEPTEMBER 1981.

	Total				June		July		August		September	
Taxa	Number	%	Weight (kg)	%	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)	Number	Weight (kg)
CARP	108,589	48.1	702.313	29.0	2,765	12.205	90,191	496.620	15,187	184.224	446	10.264
GIZZARD SHAD	99,426	44.0	1,178.495	48.7	9,126	226.029	29,082	305.629	25,019	281.219	36,199	365.618
CHANNEL CATFISH	6,178	2.7	162.091	6.7	250	5.450	3,960	90.036	1,214	38.041	754	28.564
WHITE CRAPPIE	3,069	1.4	101.340	4.2	589	13.181	899	31.845	775	26.003	806	30.311
FRESHWATER DRUM	2,171	1.0	19.819	0.8	38	1.408	721	4.883	527	4.903	885	8.625
EMERALD SHINER	1,516	0.7	-	-	176	-	949	-	230	-	161	-
BLACK CRAPPIE	835	0.4	27.003	1.1	131	3.270	426	13.318	252	9.744	26	0.671
BLACK BULLHEAD	780	0.3	9.920	0.4	685	7.344	62	1.457	18	0.691	15	0.428
STONECAT	589	0.3	15.155	0.6	93	3.312	213	5.069	159	3.534	124	3.240
SHORTHEAD REDHORSE	498	0.2	126.102	5.2	6	0.048	70	23.750	266	66.904	146	35.400
CARPSUCKER SP.	292	0.1	3.790	0.2	13	0.307	0	-	31	0.190	248	3.293
BLUEGILL	222	0.1	5.800	0.2	86	2.662	23	0.698	27	0.647	86	1.793
NORTHERN PIKE	218	0.1	13.530	0.6	64	5.603	128	5.797	22	1.417	4	0.713
TROUT-PERCH	207	0.1	1.131	<0.1	29	0.189	109	0.585	31	0.151	38	0.206
GOLDEN SHINER	162	0.1	-	-	13	-	62	-	53	-	34	-
ORANGESPOTTED SUNFISH	145	0.1	0.930	<0.1	6	0.070	43	0.244	58	0.376	38	0.240
YELLOW BASS	83	<0.1	3.560	0.1	13	0.592	35	1.283	9	0.350	26	1.335
GREEN SUNFISH	77	<0.1	0.870	<0.1	32	0.400	19	0.326	22	0.106	4	0.038
RIVER CARPSUCKER	77	<0.1	19.692	0.8	3	0.042	0	-	40	11.201	34	8.449
BULLHEAD MINNOW	66	<0.1	-	-	0	-	35	-	27	-	4	-
STRIPED BASS	61	<0.1	0.248	<0.1	0	-	39	0.155	22	0.093	0	-
LARGEMOUTH BASS	59	<0.1	2.016	0.1	3	0.112	43	0.221	13	1.683	0	-
QUILLBACK	57	<0.1	8.545	0.4	13	0.435	27	5.010	13	2.294	4	0.806
SKIPJACK HERRING	49	<0.1	0.924	<0.1	0	-	4	0.039	0	-	45	0.885
CRAPPIE SP.	47	<0.1	-	-	0	-	43	-	4	-	0	-
BLUNTNOSE MINNOW	46	<0.1	-	-	6	-	27	-	13	-	0	-
SMALLMOUTH BASS	36	<0.1	0.475	<0.1	16	0.107	12	0.190	4	0.168	4	0.015
BOWFIN	31	<0.1	0.669	<0.1	19	0.371	12	0.298	0	-	0	-
GOLDEN REDHORSE	29	<0.1	3.819	0.2	0	-	16	0.732	13	3.087	0	-
ROCK BASS	26	<0.1	0.486	<0.1	10	0.022	8	0.120	4	0.044	4	0.300
RED SHINER	26	<0.1	-	-	0	-	4	-	18	-	4	-
SPOTFIN SHINER	25	<0.1	-	-	13	-	8	-	4	-	0	-
TADPOLE MADTOM	24	<0.1	0.117	<0.1	0	-	16	0.093	4	0.013	4	0.011
LONGNOSE GAR	19	<0.1	1.247	0.1	3	0.614	8	0.558	0	-	8	0.075
SILVER REDHORSE	16	<0.1	5.804	0.2	0	-	8	2.418	0	-	8	3.386
CREEK CHUB	12	<0.1	0.030	<0.1	0	-	4	-	4	-	4	0.030
SMALLMOUTH BUFFALO	10	<0.1	0.160	<0.1	10	0.160	0	-	0	-	0	-
REDHORSE SP.	10	<0.1	0.080	<0.1	10	0.080	0	-	0	-	0	-
GOLDFISH	9	<0.1	0.678	<0.1	0	-	0	-	9	0.678	0	-
SPOTTAIL SHINER	8	<0.1	-	-	0	-	8	-	0	-	0	-
YELLOW BULLHEAD	8	<0.1	0.053	<0.1	0	-	0	-	0	-	8	0.053
BROOK SILVERSIDE	8	<0.1	0.019	<0.1	0	-	0	-	0	-	8	0.019

TABLE 4.4-18 (CONT.)

Taxa	Total Number	%	Weight (kg)	%	June Number	Weight (kg)	July Number	Weight (kg)	August Number	Weight (kg)	September Number	Weight (kg)
THREADFIN SHAD	7	<0.1	0.124	<0.1	3	0.035	0	-	4	0.089	0	-
GRASS PICKEREL	7	<0.1	0.132	<0.1	3	0.019	0	-	0	-	4	0.113
CYPRINIDAE	7	<0.1	-	-	3	-	0	-	4	-	0	-
HORNYHEAD CHUB	7	<0.1	0.475	<0.1	3	0.208	4	0.267	0	-	0	-
PUMPKINSEED	7	<0.1	0.210	<0.1	3	0.074	4	0.136	0	-	0	-
SUCKERMOUTH MINNOW	6	<0.1	-	-	6	-	0	-	0	-	0	-
RAINBOW SMELT	4	<0.1	0.019	<0.1	0	-	0	-	0	-	4	0.019
CARP x GOLDFISH	4	<0.1	1.329	0.1	0	-	0	-	4	1.329	0	-
COMMON SHINER	4	<0.1	-	-	0	-	4	-	0	-	0	-
WHITE SUCKER	4	<0.1	0.035	<0.1	0	-	4	0.035	0	-	0	-
BIGMOUTH BUFFALO	4	<0.1	0.581	<0.1	0	-	0	-	0	-	4	0.581
SPOTTED SUCKER	4	<0.1	1.253	0.1	0	-	0	-	4	1.253	0	-
WHITE BASS	4	<0.1	0.023	<0.1	0	-	0	-	0	-	4	0.023
YELLOW PERCH	4	<0.1	0.058	<0.1	0	-	4	0.058	0	-	0	-
TOTAL	225,879		2,421.150		14,242	284.344	127,334	990.870	44,108	640.432	40,195	505.504

(a) Weight not taken.

TABLE 4.4-19 A COMPARISON OF ESTIMATED FISH IMPINGEMENT UNDER DIFFERENT OPERATING MODES AT UNITS 2/3 INTAKE, DRESDEN STATION, 1977-1981. (NUMBERS REPRESENT IMPINGEMENT FROM MID-JUNE THROUGH SEPTEMBER OF EACH YEAR)[a]

	1977 Variable Blowdown Scheme		1978 Variable Blowdown Scheme		1981 (Indirect Open Cycle)	
	Number	%	Number[b]	%	Number	%
Total	594,801	100	256,511	100	225,879	100
Gizzard shad	587,380	98.8	246,441	96.1	99,426	44.0
Skipjack herring	1,578	0.3	28	<0.1	49	<0.1
Carp	198	<0.1	202	0.1	108,589	48.1
Emerald shiner	843	0.1	1,524	0.6	1,516	0.7
Channel catfish	887	0.1	3,035	1.2	6,178	2.7
Bluegill	480	0.1	560	0.2	222	0.1
White crappie	627	0.1	771	0.3	3,069	1.4
Freshwater drum	1,027	0.2	2,021	0.8	2,171	1.0

(a) Impingement for the 15-30 June period each year was calculated from the total June estimate by direct proportion.
(b) Number represents estimated impingement for August and September only.