

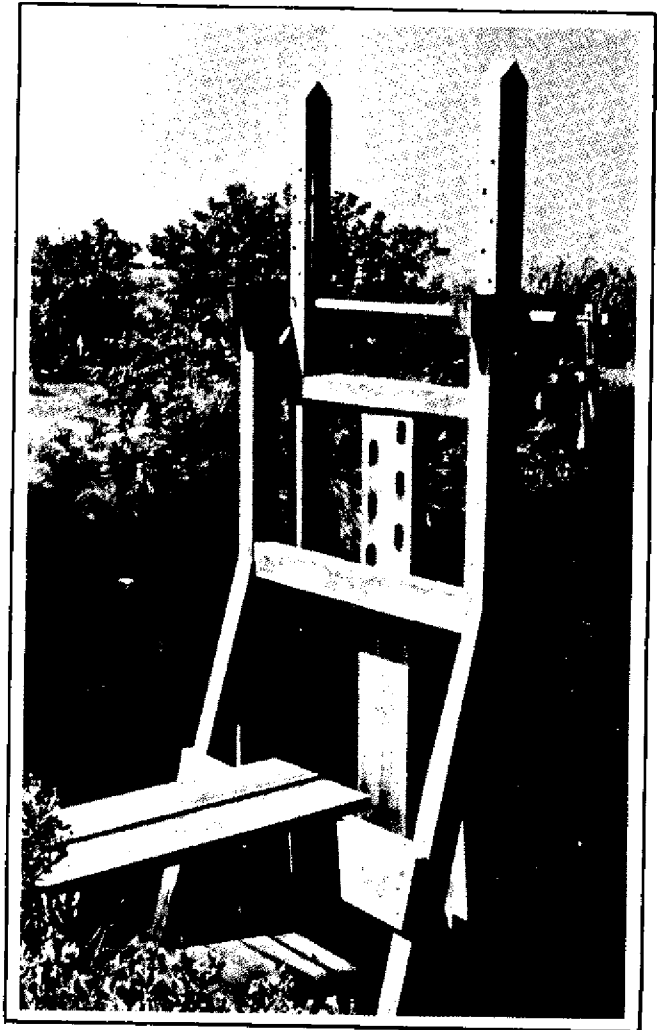
**South Carolina
Sea Grant Consortium**



**SOUTH CAROLINA
COASTAL WETLAND
IMPOUNDMENTS:
Ecological Characterization,
Management, Status,
and Use**

Volume III: Technical Appendix

Edited by
M. Richard DeVoe
Douglas S. Baughman



LOAN COPY ONLY

SOUTH CAROLINA COASTAL WETLAND IMPOUNDMENTS:
ECOLOGICAL CHARACTERIZATION, MANAGEMENT, STATUS AND USE

Volume III: Technical Appendix

Edited by
M. Richard DeVoe
Douglas S. Baughman

Project Investigator:	M. Richard DeVoe
Project Managers:	Douglas S. Baughman
	J. Michael Nussman

South Carolina Sea Grant Consortium
287 Meeting Street
Charleston, South Carolina 29401

This work is a result of research sponsored by NOAA National Sea Grant College Program Office, Department of Commerce, under Grant Nos. NA81AA-D-00093, NA83AA-D-00057, NA84AA-D-00058, and NA85AA-D-SG121, and the South Carolina Sea Grant Consortium. The U.S. Government is authorized to produce and distribute reprints for governmental purposes notwithstanding any copyright notation that may appear hereon.

DeVoe, M. R. and D. S. Baughman (Eds.). 1986. South Carolina Coastal Wetland Impoundments: Ecological Characterization, Management, Status, and Use. Vol. III: Technical Appendix. Publication No. SC-SG-TR-86-3. South Carolina Sea Grant Consortium, Charleston, S.C. 138 pp.

LIST OF CONTRIBUTORS

- H. Randy Beatty, Marine Resources Research Institute, S. C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- Bruce C. Coull, Belle W. Baruch Institute, University of South Carolina, Columbia, SC 29208
- John Mark Dean, Belle W. Baruch Institute, University of South Carolina, Columbia, SC, 29208
- Marc B. Epstein*, Tom Yawkey Wildlife Center, S. C. Wildlife and Marine Resources Department, Route 2, P. O. Box 181, Georgetown, SC 29440
- Robert L. Joyner, Tom Yawkey Wildlife Center, S. C. Wildlife and Marine Resources Department, Route 2, P. O. Box 181, Georgetown, SC 29440
- W. Joseph Kelley, Department of Biology, The Citadel, Charleston, SC 29409
- William D. Marshall*, Environmental Health Sciences, University of South Carolina, Columbia, SC 29208
- Robert Martore, S. C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- James P. May, Department of Chemistry and Geology, The Citadel, Charleston, SC 29409
- Jack C. McCovern*, S. C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- Henry N. McKellar, Jr., Environmental Health Sciences, University of South Carolina, Columbia, SC 29208
- Eugene J. Olmi, III*, Marine Resources Research Institute, S. C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- Richard Porcher, Department of Biology, The Citadel, Charleston, SC 29409
- William A. Roumillat, Marine Resources Research Institute, S. C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- Paul A. Sandifer, Marine Resources Division, S.C. Wildlife and Marine Resources Department, P. O. Box 12559, Charleston, SC 29412
- A. Keith Taniguchi, Belle W. Baruch Institute, University of South Carolina, Columbia, SC 29208

Mark E. Tompkins, Government and International Studies, University of
South Carolina, Columbia, SC 29208

Charles A. Wenner, Marine Resources Research Institute, S. C. Wildlife
and Marine Resources Department, P. O. Box 12559, Charleston, SC
29412

Elizabeth L. Wenner, Marine Resources Research Institute, S. C. Wildlife
and Marine Resources Department, P. O. Box 12559, Charleston, SC
29412

Jack M. Whetstone, Clemson/Sea Grant Marine Extension Program, P. O.
Drawer 1100, Georgetown, SC 29440

Paul B. Zielinski, Department of Civil Engineering, Clemson University,
Clemson, SC 29634

Richard C. Zingmark, Belle W. Baruch Institute, University of South
Carolina, Columbia, SC 29208

*Current Addresses:

Marc B. Epstein, Florida Game and Freshwater Fish Commission, 235 Mimosa
Rd., St. Augustine, FL 32086

Jack C. McGovern, Virginia Institute of Marine Science, Gloucester Point,
VA 23062

Eugene J. Olmi, III, Virginia Institute of Marine Science, Gloucester
Point, VA 23062

William D. Marshall, Governor's Office for Energy and the Environment,
Columbia, SC 29211

REVIEW AND ADVISORY GROUP

N. Richard DeVos, South Carolina Sea Grant Consortium

Douglas S. Baughman, South Carolina Sea Grant Consortium

Paul A. Sandifer, South Carolina Wildlife & Marine Resources Department

John M. Dean, University of South Carolina

Robert Van Dolah, South Carolina Wildlife & Marine Resources Department

Mark E. Tompkins, University of South Carolina

Jack H. Whetstone, Clemson/Sea Grant Marine Extension Program

J. Michael Nussman*, South Carolina Sea Grant Consortium

Anne R. Hill, South Carolina Sea Grant Consortium

Frances Tindall, Freelance Editor

*Current Address: Professional Staff, Senate Commerce Committee, 506
Dirksen Bldg., Washington, DC 20510

PREFACE

Coastal wetland impoundments, remnants of a once-flourishing rice culture industry, are the focus of a wetlands management controversy in the State of South Carolina. At one time, impoundments comprised approximately 29% of the State's 504,000 acres of tidal wetlands. Approximately 15% of these wetlands are currently impounded and are managed primarily for waterfowl habitat. Recent interest in reimponding formerly impounded wetlands for additional waterfowl habitat and aquaculture has raised a number of ecological, policy and management questions. The controversy has focused on the question of how the state should regulate and monitor activities proposed for wetland areas which had been or are now impounded.

The Coastal Wetland Impoundment Project (CWIP) was designed to generate the first comprehensive characterization of a coastal impoundment system in South Carolina. The purpose of this investigation was to develop an information base which could be used by policy-makers and regulatory agencies to address the complex questions surrounding this valuable state resource.

The CWIP, a multi-institutional effort, was conducted at the Tom Yawkey Wildlife Center, near Georgetown, S. C., from summer 1982 to spring 1985. Each element of this four-year effort was reviewed by a peer group of scientists in each area to maintain scientific quality. The results of the CWIP are presented in three volumes: Volume I - Executive Summary; Volume II - Technical Synthesis; and Volume III - Technical Appendix. Volume I provides a concise statement of the research findings, along with a summary of research, management, and policy recommendations. Volume II contains the detailed results of the CWIP and has been organized into nine sections. Volume III provides supplemental technical data and information which support the results presented in Volume II. As a whole, the three-volume synthesis represents the efforts of a variety of individuals involved in the CWIP during the last four years.

Due to the number of perspectives represented in the CWIP synthesis, the terms "coastal wetland impoundments", "impoundments", "former rice fields", "diked wetlands", "impounded wetlands" and "managed wetlands" have been used interchangeably.

Any opinions expressed within the chapters of Volume II are those of the individual authors and not necessarily those of the editors or the South Carolina Sea Grant Consortium.

ACKNOWLEDGEMENTS

In a large research project such as the CWIP the list of individuals that deserve acknowledgement can be very long. During the four years of this study, the assistance of many persons was critical to the success and completion of this project; we would like to thank each person for his/her assistance. Additionally, each chapter in Volume II acknowledges the individuals associated with the research task. The acknowledgements cited here are those of the editors and the South Carolina Sea Grant Consortium.

We would like to thank the Trustees of the Tom Yawkey Wildlife Center and the South Carolina Wildlife and Marine Resources Department for allowing the research to be conducted on the Cat Island Impoundments. Special thanks are extended to Mr. R. Joyner, Resident Biologist and Project Leader, Tom Yawkey Wildlife Center, for his cooperation throughout the four years of the study.

We are indebted to S. Olson, J. Kraeuter, L. Barclay, W. Kitchens, L. E. Turner and P. Hodson for critical review and comment on the scope and direction of the project. Additionally, a number of scientists assisted in reviewing the individual chapters in Volume II. Their efforts are greatly appreciated. Phil Wilkinson, G. Reeves and K. Williams are acknowledged for providing technical assistance on impoundment management.

Special thanks are due to Carole Olmi for her assistance in the synthesis and preparation of Volume II. Andrew Mount also assisted in the preparation of the three-volume document, while Anne Hill provided writing, editorial and production assistance. Their efforts are gratefully acknowledged.

We are especially appreciative of the efforts of Annette Wilson, who spent many hours and exhibited extreme patience in typing and word processing the document. Monica Mulvey and Pattie Christian are thanked for providing additional assistance with the typing effort. Thanks also to Wyatt Coon of the S. C. Wildlife and Marine Resources Department for his assistance with the computer system used for word processing. Kater Swanson and Lucy Hollingsworth are commended for the production of the numerous figures and graphs.

The editors acknowledge the assistance of Frances Tindall for copy editing the entire Volume II. Her expertise and experience were important to the completion of this document.

This project was funded by the National Sea Grant College Program and the South Carolina Sea Grant Consortium. We would like to thank Ms. Margaret A. Davidson, Consortium Executive Director, and Dr. David Duane, Sea Grant College Program Monitor, for their support and encouragement throughout the four years of the study.

TABLE OF CONTENTS

CONTRIBUTERS	iii
REVIEW AND ADVISORY GROUP	v
PREFACE	vi
ACKNOWLEDGEMENTS	vii
LIST OF FIGURES	ix
LIST OF TABLES	x
CHAPTER 5 - Sedimentology, Hydrogeology and Hydrology	3
CHAPTER 7 - Macrophyte Productivity	17
CHAPTER 11 - Microzooplankton Abundance	31
CHAPTER 12B- Benthic Macrofauna	57
CHAPTER 13A- Recruitment Patterns of Selected Decapod Crustaceans	75
CHAPTER 14 - Ichthyofauna	88
CHAPTER 15 - Use of Managed and Open Tidal Marsh by Waterbirds and Alligators	119

LIST OF FIGURES

<u>FIGURE</u>		<u>PAGE</u>
	CHAPTER 7	
7.1	Vascular plant cover for impoundment 1 (Part A)	18
7.2	Vascular plant cover for impoundment 1 (Part B)	19
7.3	Vascular plant cover for impoundment 2	20
7.4	Vascular plant cover for impoundment 3	21
7.5	Vascular plant cover for impoundment 4	22
7.6	Vascular plant cover for impoundment 5 (Part A)	23
7.7	Vascular plant cover for impoundment 5 (Part B)	24
7.8	Vascular plant cover for impoundment 6, the tidal impoundment (Part A)	25
7.9	Vascular plant cover for impoundment 6, the tidal impoundment (Part B)	26
7.10	Vascular plant cover for the open tidal marsh area (tidal marsh #2 on Fig. 7.1)	27

LIST OF TABLES

<u>TABLE</u>	<u>PAGE</u>
CHAPTER 5	
5.1 Sediment descriptions of long cores	3
5.2 Sand/silt/clay ratios of supplementary short cores	7
5.3 Depth to sand/shell layer beneath marsh sediments determined by steel probe	8
5.4 Salinity measurements of ground and surface waters	10
5.5 Chemical analyses for NH ₄ , NO ₂ -NO ₃ , and o-PO ₄ (ppm)	11
5.6 Piezometer locations for dike seepage study	12
5.7 Sediment descriptions of piezometer holes bored on dikes	13
5.8 Water level elevation in impoundments, dike piezometers, and Chainey Creek	14
CHAPTER 7	
7.1 Vascular plants species and code numbers used in vegetative cover maps	17
CHAPTER 11	
11.1 Summary of surface and bottom temperatures (°C) and salinities recorded at the time of zooplankton collections ...	31
11.2 Taxa and species identified in zooplankton samples	38
11.3 Summary of the GLM-SNK analyses of monthly microzooplankton standing crops according to sampling sites	40
11.4 Summary of the GLM-SNK analyses of monthly mesozooplankton standing crops according to sampling sites	46
CHAPTER 12	
12.1 Environmental data collected at each site for macrobenthos ...	57
12.2 Ranked abundance of macrobenthos collected at each site during the sampling period	62
12.3 Community structure values obtained by pooling data taken each sampling period from replicate quadrats.....	70
CHAPTER 13A	
13.1 Numbers of samples scheduled and collected at each station during the mesoplankton sampling program.....	75

<u>TABLE</u>	<u>PAGE</u>
13.2	Number of samples collected by month, and number of individuals and density of penaeids by month and species for all samples collected during years I and II 77
13.3	Dates, penaeid shrimp densities (N/100 m ³), and water temperatures and salinities of extensive mesoplankton samples collected during years I and II 78
13.4	Catches of penaeid shrimps from intensive samples in relation to species, station, and month 80
13.5	Densities of portunid megalope and crab stages of <u>C. <i>sapidus</i></u> and temperature and salinity readings from extensive samples . 82
13.6	Number of individuals collected and density of portunid megalope and crab stages of <u>C. <i>sapidus</i></u> in relation to station and month 84
13.7	Number of individuals and density of <u>Palaemonetes</u> and temperature and salinity reading from year I extensive samples 86
CHAPTER 14	
14.1	Catches of larval and juvenile fishes by station and year in phylogenetic order 88
14.2	Fishes collected by ichthyoplankton nets at all stations from January 1985 to January 1984 (year I) by month 91
14.3	Fishes collected by ichthyoplankton nets at all stations from January 1984 to January 1985 (year II) by month with minimum and maximum sizes 97
14.4A	Percent frequency and occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the Ladyfish, <u>Elops saurus</u> , by habitat ... 100
14.4B	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in Atlantic menhaden, <u>Brevoortia tyrannus</u> , from all stations 101
14.4C	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the bay anchovy, <u>Anchoa mitchilli</u> , by habitat 102

14.4D	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of food items in the sheepshead minnow, <u>Cyprinodon variegatus</u> for all stations	103
14.4E	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the mummichog, <u>Fundulus heteroclitus</u> , by habitat	104
14.4F	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in rainwater killifish, <u>Lucania parva</u> , by season	105
14.4G	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in mosquito fish, <u>Gambusia affinis</u> , by season	106
14.4H	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the sailfin molly, <u>Poecilia latipinna</u> , from all stations	107
14.4I	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the inland silverside, <u>Menidia beryllina</u> , by habitat	108
14.4J	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the silver perch, <u>Bairdiella chrysoura</u> , by habitat	109
14.4K	Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the weakfish, <u>Cynoscion regalis</u> , by habitat	110

<u>TABLE</u>	<u>PAGE</u>
14.4L Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the spot, <u>Leiostomus xanthurus</u> , by habitat ...	111
14.4M Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the Atlantic croaker, <u>Micropogonias undulatus</u> , by habitat	112
14.4N Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in striped mullet, <u>Mugil cephalus</u> , for all stations	113
14.4O Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the southern flounder, <u>Paralichthys lethostigma</u> , by habitat.....	114
14.5 Species of fishes collected by gear type and sampling site	115
CHAPTER 15	
15.1 Overall bird use-days by species and study site, 1983-1984	119
15.2 Total number of birds counted by season, samples, and site area, 1983-1984	123

SECTION III

PHYSICAL CHARACTERIZATION OF THE CAT ISLAND IMPOUNDMENTS

Appendix Table 5.1

Sediment descriptions of long cores. Core identification codes refer to pond number and quadrant (Fig. 5.2). Recovery refers to length of recovered sample (numerator) and total length cored (denominator).

No.	Location	Depth (cm)	Description
1	1-NW		(Recovery: 70/100)
		0-3	organics
		3-70	gray silt, clayey; var. fib. root zones
2	1-NE		(Recovery: 95/100)
		0-50	gray clay, silty; thin root zone
		50-95	brownish gray; as above
3	1-SE		(Recovery: 55/100)
		0-10	gray clay; firm
		10-20	tan silt
		20-40	gray clay
		40-55	brown clay
4	1-SW		(Recovery: 40/100)
		0-15	brown clay, root fibers
		15-40	gray silt, few roots
5	1-SW		(Recovery: 190/200)
		0-10	brown organic clay; pH=6; Sal=18 ppt.
		10-90	dk. gray silt; layers of brown organics
		90-100	no recovery
		100-200	gray silt
		100-200	textural analysis: sand-3%/silt-95%/clay-2%

Appendix Table 5.1 Continued

No.	Location	Depth (cm)	Description
6	2-NE		(Recovery: 60/100)
		0-10	dk gray to black organic silt
		10-20	gray silt, clayey; few organics
		20-45	same as 10-20
		45-60	brown fibrous silt
7	2-NE		(perimeter ditch; sample on canoe paddle blade)
		0-50	(approx.) dk. black organic muck; soupy textural analysis: silt-80.1%/clay-19.9% moisture content-82%
8	2-SC		(Recovery: 70/100)
		0-10	organic clay; fibrous
		10-20	gray silt; no roots
		20-30	brown fibrous sediment with permeability
		30-70	silt, clayey
9	3-SC		(Recovery: 65/160)
		0-10	brown organic silt; Sal=22 ppt.; pH=7
		10-65	dk gray silt; layers of brown organics
		65-160	no recovery
		160	hard sand
10	4-NW		(Recovery: 70/200)
		0-10	brown organic silt; pH=6.0
		10-55	dk gray clay
		55-70	brown organic clay
		70-200	no recovery

Appendix Table 5.1 Continued

No.	Location	Depth (cm)	Description
11	4-NE		(Recovery: 80/100)
		0-20	buff silt
		20-80	gray clay; sticky
		80-100	no recovery
12	4-C		(Recovery: 85/100)
		0-20	buff silt
		20-65	gray clay; sticky
		65-85	brown fibrous layer
		85-100	no recovery
13	4-SW		(Rec. 170/170)
		0-10	brown, organic silt
		10-50	dark gray clay
			textural analysis-Sand-0%/silt-38%/clay-62%
		50-90	brown, org. silt
		90-100	dark gray silt; firm
		100-130	dark gray silt; soft
		130-170	wood; pH=6
		170	sand; hard
14	4-SE		(Recovery: 65/100)
		0-10	brown silt; fibrous
		10-65	gray clay; sticky
15	5-NE		(Recovery: 60/100)
		0- 4	organic layer; roots
		4-20	buff silt, clayey; soft
		20-60	dk gray silt, clayey; little organics; sticky

Appendix Table 5.1 Continued

No.	Location	Depth (cm)	Description
16	5-SW		(Recovery: 280/300)
		0-40	gray-brown organic silt; soft
		40-80	gray silt; clayey; firm; pH=6.5; Sal=26 ppt.
		80-100	no recovery
		100-170	gray silt
		170-200	brown-gray silt; organic; soft; roots
		200-300	as above; pH=6.0
17	6-NE		(Recovery: 300/300)
		0-300	brownish gray silt; var. fibrous layers.

Appendix Table 5.2
 Sand/silt/clay ratios of supplementary short cores.
 (See Fig. 5.2 for location of sampling sites).

No.	Location	% sand	% silt	% clay
18	1-NW	5.4	54.3	40.3
19	1-NE	2.2	37.4	60.4
20	1-SE	0.0	30.1	69.9
21	1-SW	0.0	43.2	56.8
22	1-E	0.0	43.3	56.7
23	Marsh-1	0.0	48.0	52.0
24	Marsh-3	0.0	49.5	50.5
25	Creek-2A	67.2	6.0	26.8
26	Creek-2B	69.1	4.1	26.8
27	Creek-3	82.5	7.8	9.7
28	2-NE; 0-10 cm	1.6	86.5	11.9
	10-20 cm	1.8	22.4	75.8
29	2-NE	0.0	80.1	19.9
30	2-SC	1.1	20.3	78.5
31	2-E	0.0	50.7	49.3
32	4-NW	1.6	31.7	66.8
33	5-NE	0.0	18.5	81.5

Appendix Table 5.3

Depth to sand/shell layer beneath marsh sediments as determined by steel probe. Location number refers to pond number and portion of pond (NE = northeast, etc.).

Location	Depth		
	(m)	(ft)	
1-NC	2.3	7.5	
SC	3.4	11.0	
NW	3.7	12.0	
NE	3.7	12.0	
SW	2.9	9.5	
2-NE	>3.8	>12.5	
NE	2.4	8.0	
NC	3.4	11.0	
NC	>3.8	>12.5	
NC	2.7	9.0	(thin layer)
	>3.0	>10.0	
NW	2.7	9.0	(thin layer)
	>3.8	>12.5	
EC	>3.8	>12.5	
C	2.1	7.0	
SC	2.0	6.5	
3-NC	2.0	6.5	
SC	1.5	5.0	
4-NC	1.5	5.0	
NW	2.6	8.5	(thin layer)
	3.7	12.0	
NW	3.0	>10.0	
C	2.6	8.5	
NE	2.1	7.0	
NE	1.8	6.0	
EC	3.0	>10.0	

Appendix Table 5.3 Continued

Location	Depth	
	(m)	(ft)
4-NC	2.3	7.5
WC	2.3	7.5
5-NC	>3.8	>12.5
6-NE	>3.8	>12.5

Appendix Table 5.4

Salinity measurements of ground and surface waters.

LOCATION	8/16	8/25	11/04	12/09
6-NE-2.5m			8	12
1.0m			6	14
4-SW-2.5m	19	20	20	20
1.0m	22		19	20
surface	20	20	27	28
4-SE-2.5m	9	6	6	9
1.0m	9	10	5	9
surface	16	20	29	28
4-C-2.5m	23	16	16	20
1.0m	24	24	24	23
surface	19	20	29	28
4-NE-2.5m	20	20	18	18
1.0m	18	20	19	19
surface	16	20	28	28
4-NW-2.5m	20	18	19	19
1.0m	21	20	24	25
surface	18	19	29	28
Chainey Cr. (high tide)	18			
2-C-2.5m	17	4		
1.0m	18	8		
surface	20	18		
2-NE-2.5m	15	5		
1.0m	15	13		
surface	16	18		
2-NC-2.5m	15	4		
1.0m	16	17		
surface	16	20		

Appendix Table 5.5

Chemical analyses for NH_4 , NO_2 - NO_3 , and o-PO_4 (ppm).

Sampling locations are shown in Fig. 5.2. The numbers "3.0" and "1.5" refer to the 3m and 1.5m piezometers.

STA. NO.	NH_4			NO_2 - NO_3			o-PO_4		
	MAY 30	JUL 24	AUG 25	MAY 30	JUL 24	AUG 25	MAY 30	JUL 24	AUG 25
7SW3.0	----	4	1361	----	258	557	----	49	61
6NW3.0	----	90	1077	----	254	63	----	143	3
4SW3.0	----	38	3591	----	83	35	----	1	24
4SW1.5	----	25	3645	----	93	34	----	12	58
4SE3.0	----	67	3403	----	129	255	----	1130	955
4SE1.5	----	7	3763	----	69	830	----	283	49
4 C3.0	1599	2840	3344	32	447	286	3	5	6
4 C1.5	2523	1138	5727	33	46	61	-11	8	6
4NE3.0	----	405	3827	----	153	173	----	30	1
4NE1.5	----	401	3698	----	113	7136	----	53	25
4NW3.0	1396	0	3267	68	366	261	-1	108	498
4NW1.5	2460	1764	1358	563	426	279	30	1	12
2 C3.0		-1	1406		36	210		5	248
2 C1.5		-2	1267		96	114		-1	8
2NE3.0		---	3969		---	163		---	24
2NE1.5		22	3285		183	565		-5	2
2NC3.0		---	3704		---	283		---	14
2NC1.5		0	5338		73	1786		15	6
3/4DIKE		4047	3066		589	421		12	1
2 DIKE		7	3462		386	405		338	286
1/2DIKE		2	3420		163	248		1099	767

Appendix Table 5.6

Piezometer locations for dike seepage study.

Pond 1/2 dike: located 26 m west of Chainey Creek road; three wells- one in center of dike road, one 3 m north of corner and one 3.4 m south of center; 3.8 cm slotted PVC with screen.

Pond 2/Chainey Creek dike: located 161 m north of SE corner of pond 2; three wells- one in center of road, one 3 m west of center and one 3 m east of center; 3.8 cm slotted PVC with screen.

Pond 3/4 dike: located 32 m west of Chainey Creek road; three wells- one in center of road, one 3 m south of center and one 3 m north and 6 m east of center; 3.8 cm PVC pipe.

Pond 4/Chainey Creek dike: located 16 m north of SE corner of pond 4; three wells- one in center of road, one 3 m east of center and one 3 m west of center; 3.8 cm slotted PVC pipe with screen.

Appendix Table 5.7
Sediment descriptions of piezometer holes bored on
dikes. (Depths in cm).

Pond 4/Chainey Creek Dike; west side:

0 - 30	Loose gravel and unconsolidated soil
30 - 60	Clay
60	Water table
60 - 120	Loose, wet organic clay, black
120 - 240	Gray clay, wet, very fine, sticky

Pond 4/Chainey Creek Dike; east side:

0 - 90	Loose gravel and dry, unconsolidated soil
90 - 168	Wet soil at top; gray clay layer
168 - 174	Loose organic layer
174 - 240	Gray clay, wet, very fine

Pond 4/Chainey Creek Dike; center of road:

0 - 30	Sand and loose soil
30 - 120	Sticky gray clay
120 - 150	Organic clay layer, wet
150 - 180	Gray clay, wet
180 - 240	Same, but less moisture

Pond 4/5 Dike; south-central edge of pond 4:

0 - 30	Gravel
30 - 110	Clay, samples at 30, 73, 82 cm.
110 - 140	Organic layer, leaves and bark; samples at 110 and 119 cm.
140 - 240	Gray clay, damp, sample at 180 cm.

Appendix Table 5.8
 Water level elevations in impoundments,
 dike piezometers, and Chainey Creek (cm).

Station	Date						
	06/12	07/24	08/31	10/03	11/04	11/05	12/05
Pond 1	98	---	---	---	---	---	---
Pond 1/2 dike							
North Well	---	---	109	112	---	126	113
Center Well	---	---	100	105	---	118	124
South Well	---	---	98	101	---	116	114
Pond 2	84	84	---	101	---	117	---
Dike 2/Chainey							
West Well	---	93	87	102	---	117	116
East Well	---	111	100	107	---	111	112
Chainey Creek	12	12	---	55	109	85	67
Pond 3	88	---	---	---	---	---	---
Pond 3/4 Dike							
North Well	---	---	99	109	---	---	---
South Well	---	---	118	118	---	---	---
Pond 4	96	---	---	---	127	123	117
Dike 4/Chainey							
West Well	---	---	107	111	126	125	127
East Well	---	---	89	100	116	108	112
Chainey Creek	12	12	---	55	109	85	67

SECTION IV

PRIMARY PRODUCTIVITY AND SYSTEMS METABOLISM

Appendix Table 7.1

Vascular plant species and code numbers used in
Vegetative cover maps.

Code	Plant Species
Number	
1A	short <u>Spartina alterniflora</u>
1B	tall <u>S. alterniflora</u>
1C	medium <u>S. alterniflora</u>
2	<u>S. cynosuroides</u>
3	<u>Scirpus robustus</u>
4	<u>Salicornia europea</u>
5	<u>Distichlis spicata</u>
6	<u>Aster subulatus</u>
7	<u>Cyperus sp.</u>
8	<u>Ruppia maritima</u>
9	<u>Typha angustifolia</u>
10	<u>Spartina patens</u>
11	<u>Eleocharis parvula</u>
12	<u>Scirpus validus</u>
13	<u>Pluchea purpurescens</u>
14	unknown grass
15	<u>Typha latifolia</u>

Cat Island Impoundment # 1 A

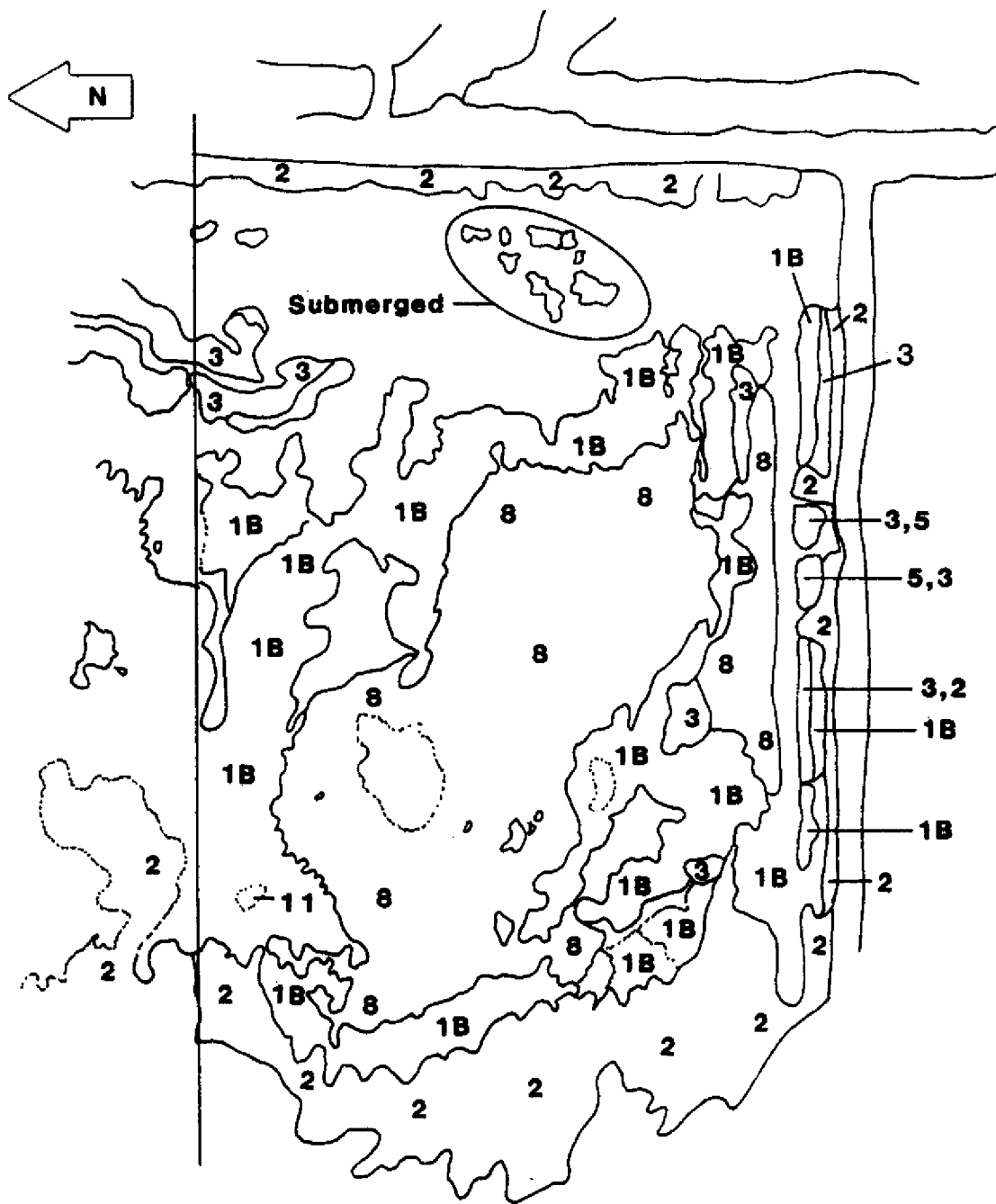


Figure 7.1 Vascular plant cover for impoundment 1 (Part A)

Cat Island Impoundment # 1

B

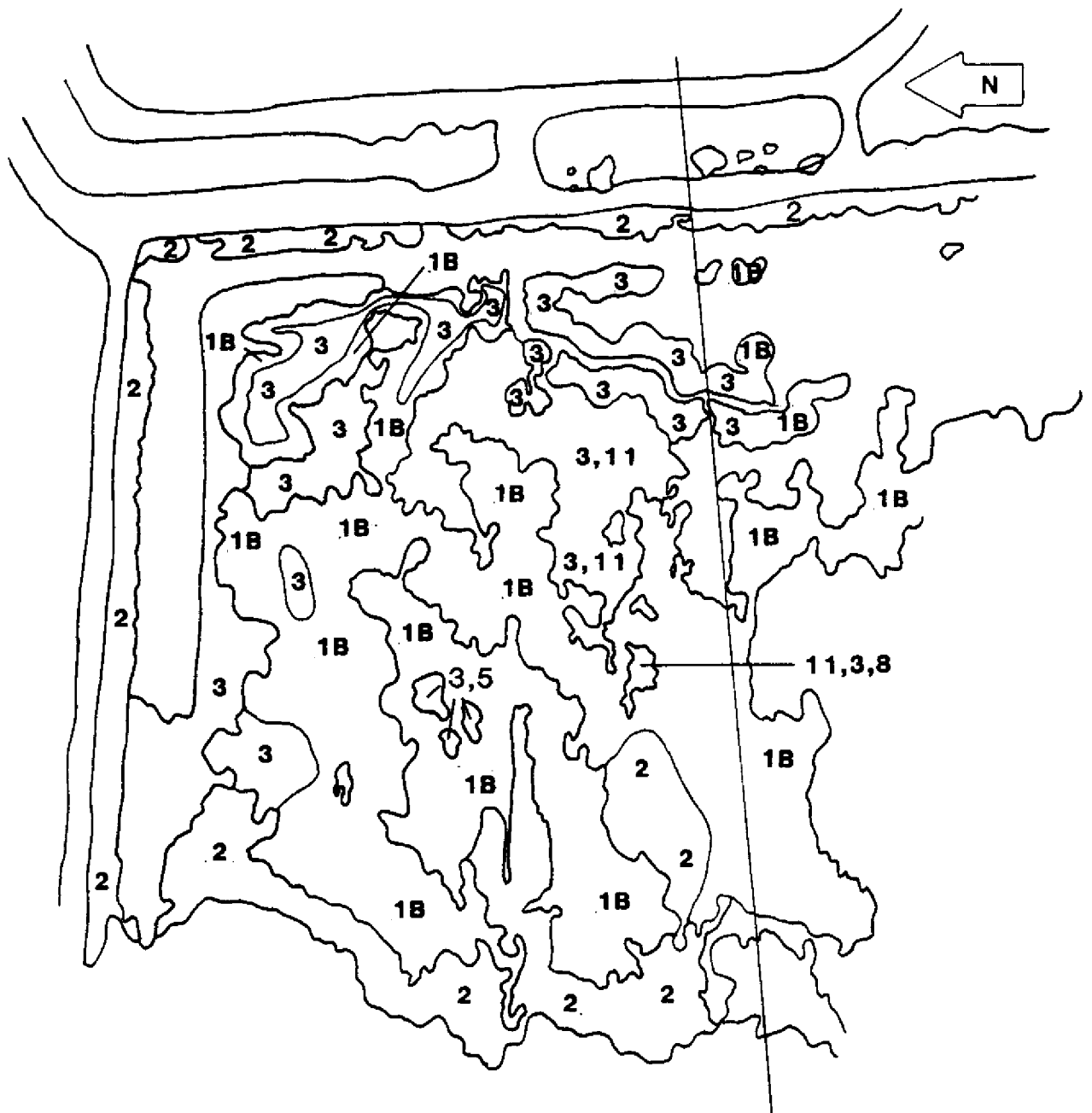


Figure 7.2 Vascular plant cover for impoundment 1 (Part B)

Cat Island Impoundment # 3

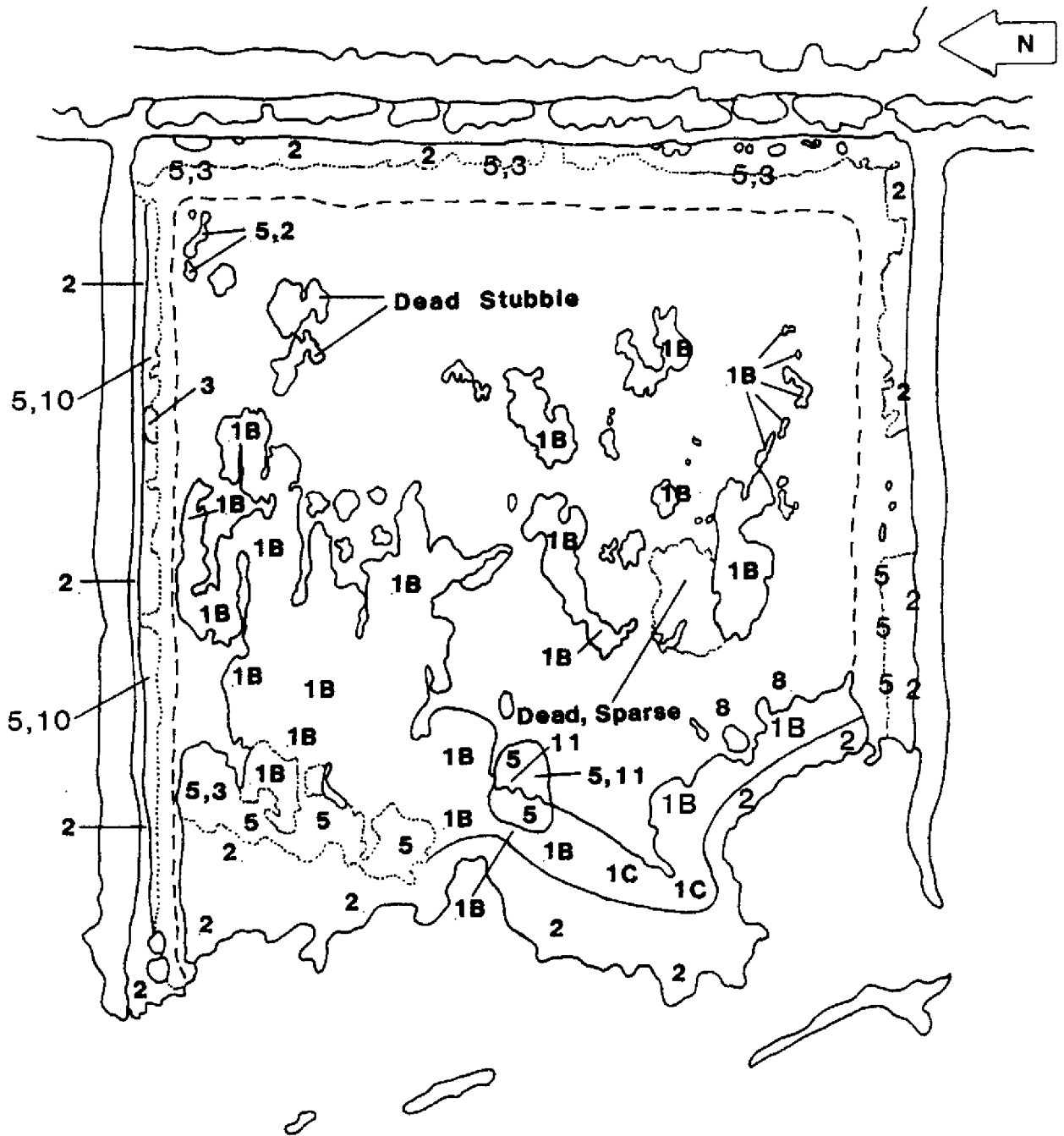


Figure 7.4 Vascular plant cover for impoundment 3

Cat Island Impoundment # 5 A

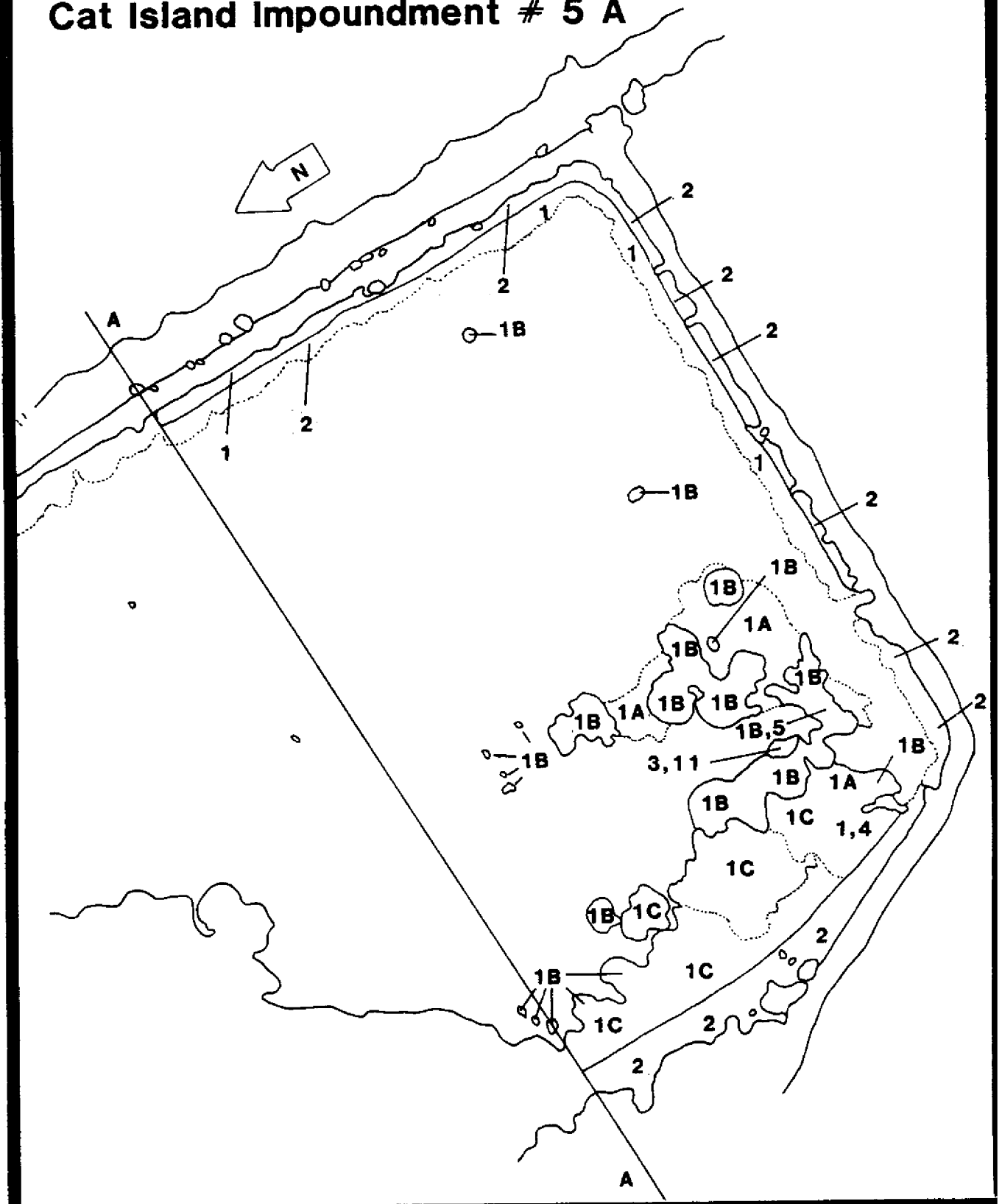


Figure 7.6 Vascular plant cover for impoundment 5 (Part A)

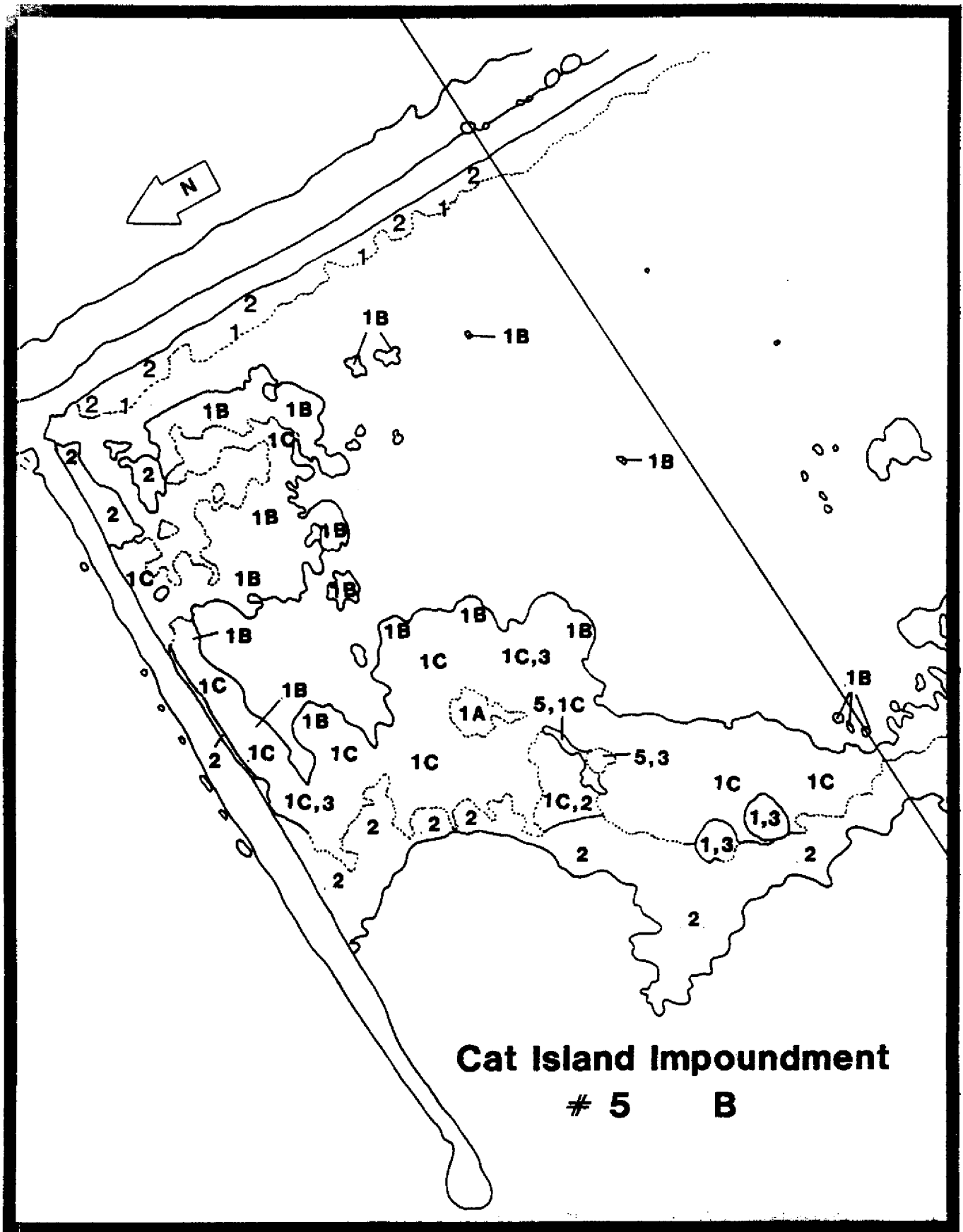


Figure 7.7 Vascular plant cover for impoundment 5 (Part B)

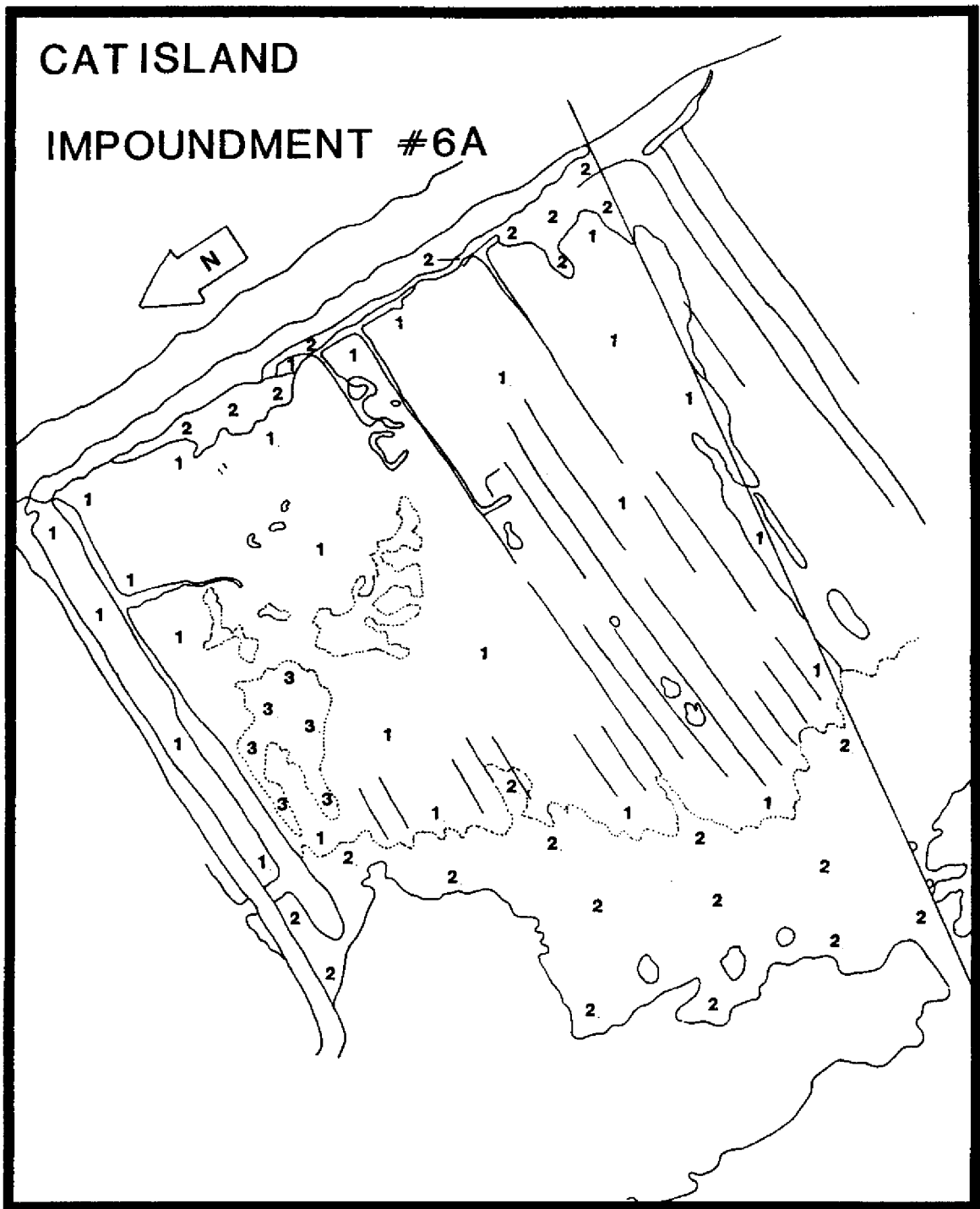


Figure 7.8 Vascular plant cover for impoundment 6, the tidal impoundment (Part A)

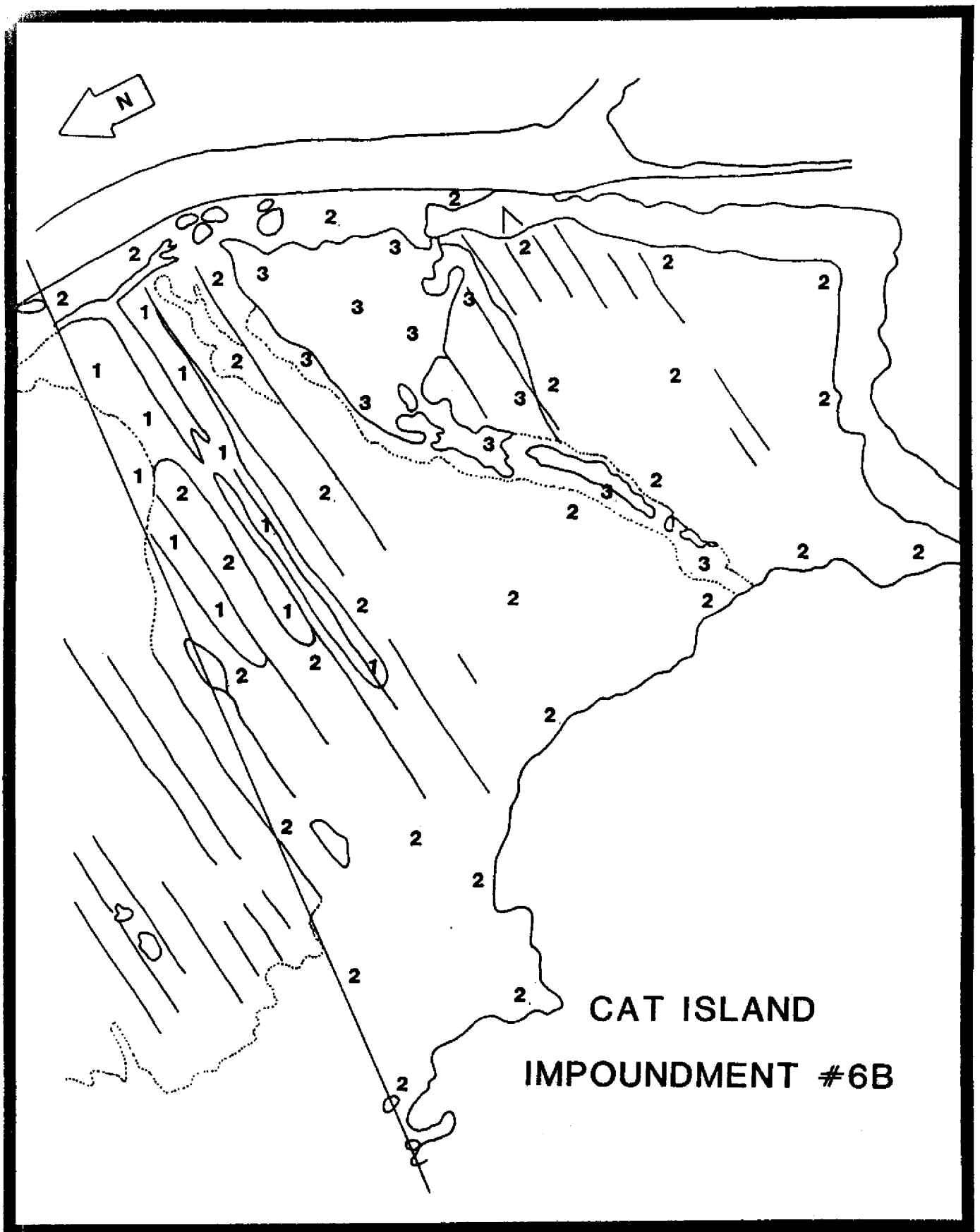


Figure 7.9 Vascular plant cover for impoundment 6, the tidal impoundment (Part B)



Figure 7.10 Vascular plant cover for the open tidal marsh area (tidal marsh #2 on Fig. 7.1)

SECTION V
PLANKTONIC COMMUNITY

Appendix Table 11.1

Summary of surface and bottom temperatures ($^{\circ}\text{C}$) and salinities (PPT) recorded at the time of microzooplankton and mesozooplankton collections.

5 October 1982

POND NUMBER	LEVEL	TEMP $^{\circ}\text{C}$	SALINITY ppt
1	Surface	28.1	24.7
1	Bottom	26.6	25.5
2	Surface	26.5	23.3
2	Bottom	27.5	20.4
3	Surface	28.0	23.9
3	Bottom	27.4	26.2
4	Surface	26.7	26.1
4	Bottom	26.7	26.4
5	Surface	27.5	24.5
5	Bottom	27.5	24.5
Creek	Surface	26.6	29.4
Creek	Bottom	26.6	28.1

13-14 January 1983

POND NUMBER	LEVEL	TEMP $^{\circ}\text{C}$	SALINITY ppt
1	Surface	8.7	14.4
1	Bottom	8.9	14.8
2	Surface	7.7	14.0
2	Bottom	7.7	14.0
3	Surface	9.5	12.5
3	Bottom	9.8	12.5
4	Surface	8.2	15.4

Appendix Table 11.1 Continued

13-14 January 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
4	Bottom	6.8	15.5
5	Surface	9.0	15.7
5	Bottom	9.0	15.7
Creek	Surface	8.5	16.3
Creek	Bottom	8.5	16.0

16-18 February 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	13.9	4.6
1	Bottom	13.9	4.6
2	Surface	12.6	7.7
2	Bottom	12.6	14.0
3	Surface	12.8	7.6
3	Bottom	12.8	7.6
4	Surface	13.1	6.5
4	Bottom	6.8	15.5
5	Surface	10.0	3.3
5	Bottom	9.4	4.9
Creek	Surface	9.1	5.9
Creek	Bottom	8.6	6.0

16-21 March 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	17.3	5.9
1	Bottom	13.6	4.7
2	Surface	19.2	4.5
2	Bottom	19.2	4.5

Appendix Table 11.1 Continued

16-21 March 1983			
POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
5	Surface	19.3	3.1
5	Bottom	19.3	3.1
Creek	Surface	15.7	2.1
Creek	Bottom	15.3	2.0
18-19 April 1983			
POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	14.0	4.4
1	Bottom	13.6	4.7
4	Surface	12.9	1.8
4	Bottom	13.2	2.9
Creek	Surface	11.7	0.7
Creek	Bottom	13.2	2.9
17-18 May 1983			
POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	17.9	17.4
1	Bottom	18.2	17.4
2	Surface	19.9	19.7
2	Bottom	19.6	19.6
3	Surface	21.7	21.9
3	Bottom	21.7	21.7
4	Surface	22.1	23.2
4	Bottom	22.0	23.5
5	Surface	22.6	23.5
5	Bottom	22.2	23.7

Appendix Table 11.1 Continued

Creek	Surface	21.3	27.3
Creek	Bottom	21.0	27.5

15-16 June 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	27.8	27.8
1	Bottom	26.2	27.8
2	Surface	28.3	28.0
2	Bottom	28.2	27.8
3	Surface	29.7	28.2
3	Bottom	29.7	27.8
4	Surface	29.3	27.8
4	Bottom	28.1	27.4
5	Surface	29.0	28.0
5	Bottom	26.4	27.8
Creek	Surface	26.4	28.0
Creek	Bottom	26.5	26.8

21-24 July 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	29.7	26.2
1	Bottom	29.9	21.9
2	Surface	29.9	25.3
2	Bottom	29.9	23.8
3	Surface	31.7	27.8
3	Bottom	31.3	27.7
4	Surface	37.7	28.1
4	Bottom	32.8	27.7
5	Surface	28.9	25.5
5	Bottom	28.7	25.7

Appendix Table 11.1 Continued

Creek	Surface	29.5	29.5
Creek	Bottom	21.5	29.5

16-17 August 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	23.3	20.8
1	Bottom	27.7	20.2
2	Surface	28.7	26.8
2	Bottom	27.2	27.1
3	Surface	26.4	22.7
3	Bottom	26.2	27.1
4	Surface	25.8	26.5
4	Bottom	26.0	26.5
5	Surface	25.8	24.4
5	Bottom	26.8	23.4
Creek	Surface	27.3	30.5
Creek	Bottom	27.4	22.0

17 September 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	26.4	18.2
1	Bottom	26.0	18.0
2	Surface	24.2	24.5
2	Bottom	27.2	28.3
3	Surface	29.0	20.3
3	Bottom	24.4	19.8
4	Surface	28.9	24.9
4	Bottom	25.2	24.2
5	Surface	25.9	21.4

Appendix Table 11.1 Continued

5	Bottom	24.2	21.4
Creek	Surface	24.6	24.7
Creek	Bottom	24.6	23.8

15 October 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	21.5	19.2
1	Bottom	21.6	19.0
2	Surface	20.6	28.3
2	Bottom	20.7	23.0
3	Surface	21.0	21.7
3	Bottom	21.0	19.8
4	Surface	20.9	25.3
4	Bottom	20.7	23.1
5	Surface	21.3	23.4
5	Bottom	20.9	23.5
Creek	Surface	23.0	26.1
Creek	Bottom	21.8	26.1

12 November 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	19.9	19.9
1	Bottom	15.6	15.7
2	Surface	16.6	26.5
2	Bottom	16.0	24.4
3	Surface	15.8	24.9
3	Bottom	15.8	23.5
4	Surface	16.1	25.8
4	Bottom	16.0	22.0

Appendix Table 11.1 Continued

5	Surface	14.5	24.8
5	Bottom	14.1	24.8
Creek	Surface	15.4	21.4
Creek	Bottom	15.5	21.5

16 December 1983

POND NUMBER	LEVEL	TEMP °C	SALINITY ppt
1	Surface	12.3	10.4
1	Bottom	12.3	10.1
4	Surface	9.7	19.3
4	Bottom	9.7	19.5
5	Surface	10.9	19.4
5	Bottom	10.9	19.3
Creek	Surface	10.9	14.8
Creek	Bottom	10.7	14.7

Appendix Table 11.2

Taxa and species identified in zooplankton samples.

Ciliata

Tintinnida

Hydroidea (hydromedusae, hydroid polyps)

Anthozoa (burrowing anemones)

Ctenophora

Turbellaria

Nemertina

Rotifera

Nematoda

Polychaeta (adults & larvae)

Oligochaeta (adults & larvae)

Gastropoda (veligers)

Bivalvia (larvae)

Cladocera

Ostracoda

Copepoda

Calanoida

Paracalanus spp.

Pseudodiaptomus coronatus

Eurytemora affinis

Centropages hamatus

Centropages furcatus

Labidocera aestiva

Acartia tonsa

Calanoida

Parvocalanus crassirostris

Unidentified calanoids

Unidentified nauplii

Appendix Table 11.2 Continued

Cyclopoida

Oithona colcarva

Oithona spp.

Tropocyclops spp.

Halicyclops spp.

Microcyclops spp.

Saphirella spp.

Cyclops spp.

Unidentified cyclopoids

Unidentified nauplii

Harpacticoida

Enterpina acutifrons

Tisbe spp.

Unidentified harpactioids

Unidentified nauplii

Cirripedia (barnacle nauplii & cyprids)

Stomatopoda

Mysidacea

Isopoda

Amphipoda

Decapoda

Palaemonetes spp.

Unidentified shrimp-like decapods

Pycnogonida

Arachnida

Insecta

Echinodermata (larvae)

Bryozoa (larvae)

Chaetognatha

Ascidiacea

Larvacea

Osteichthyes (eggs, larvae, juveniles)

Appendix Table 11.3

Summary of the GLM-SNK analyses of monthly microzooplankton (53 μm -mesh net) standing crops to sampling sites. The mean standing crop values (\bar{x} , numbers per liter) are for replicated net tows at each site. The letter A, B, & C indicate standing crop means that were significantly different at the 0.05 level of significance. * = fractional numbers of organisms present.

Copepod nauplii

	Grouping	\bar{x}	Sites		Grouping	\bar{x}	Site
Oct 82	A	57.6	5	June 83	A	342.1	3
	A	32.7	1		A	340.3	5
	A	26.4	4		A	191.6	2
	A	20.9	3		A	50.3	4
	A	13.9	2		A	22.4	1
	A	9.6	Creek		A	17.4	Creek
Jan 83	A	221.9	4	Jul 83	A	355.4	4
	B	156.3	1		B	133.2	3
	C	70.1	2		B	121.2	5
	C	13.0	Creek		B	90.0	1
	C	11.2	3		B	38.1	2
	C	10.2	5		B	9.3	Creek
Feb 83	A	246.1	4	Aug 83	A	591.2	3
	AB	163.6	2		A	502.4	1
	BC	79.7	1		A	368.6	2
	C	42.2	5		A	310.8	5
	C	13.3	Creek		A	185.4	4
	C	6.4	3		A	64.4	Creek
Mar 83	A	290.6	1	Sep 83	A	1118.2	3
	B	45.1	Creek		B	328.1	4
	B	40.1	5		B	296.4	1
	B	35.5	2		B	295.6	3
	not sampled		3		B	216.7	5
	not sampled		4		B	8.0	Creek
Apr 83	A	126.4	1	Oct 83	A	72.0	1
	B	47.9	Creek		A	38.8	3
	C	17.2	4		A	34.5	2
	not sampled		2		A	17.3	Creek
	not sampled		3		A	14.6	5
	not sampled		5		A	5.6	4
May 83	A	122.3	2	Nov 83	A	190.3	3
	A	117.4	3		A	172.4	4
	A	91.4	1		A	149.7	5
	A	74.6	4		A	100.3	1
	A	63.3	Creek		A	88.9	2
	A	55.5	5		A	10.4	Creek

Appendix Table 11.3 Continued

Copepod nauplii (continued)

				* = fractional numbers percent			
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Dec 83	A	85.9	59				
	A	62.7	4				
	A	13.4	1				
	A	8.7	Creek				
	not sampled		2				
	not sampled		3				
<u>Acartia tonsa</u>							
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	A	6.4	5	Jun 83	A	25.9	5
	A	3.3	1		B	6.3	3
	A	0.8	Creek		B	3.1	2
	A	0.6	2		B	0.7	Creek
	A	0.5	4		B	0.3	4
	A	0.3	3		B	0.0*	1
Jan 83	A	2.3	1	Jul 83	A	86.7	4
	B	0.7	Creek		B	21.0	1
	B	0.3	5		B	11.9	3
	B	0.3	3		B	5.2	5
	B	0.1	4		B	1.7	2
	B	0.0*	2		B	1.1	Creek
Feb 83	A	0.2	2	Aug 83	A	55.3	5
	A	0.1	3		A	49.6	3
	A	0.0	1		AB	20.7	4
	A	0.0	4		B	8.6	1
	A	0.0	5		B	6.2	Creek
	A	0.0	Creek		B	5.1	2
Mar 83	A	6.4	5	Sept 83	A	7.1	1
	A	0.2	Creek		A	4.3	2
	A	0.2	2		A	3.6	4
	A	0.2	1		A	2.9	5
	not sampled		3		A	0.8	Creek
	not sampled		4		A	0.3	3
Apr 83	A	0.6	4	Oct 83	A	35.1	4
	A	0.4	1		A	28.1	1
	A	0.0	Creek		A	19.6	1
	not sampled		2		A	19.2	5
	not sampled		3		A	3.4	Creek
	not sampled		5		A	1.7	3
May 83	A	31.8	5	Nov 83	A	59.8	5
	B	7.9	4		A	26.8	3
	B	6.8	2		A	22.9	2
	B	2.1	1		A	21.6	4
	B	1.7	Creek		A	11.5	1
	B	1.0	3		A	2.1	Creek

Appendix Table 11.3 Continued

Grouping	\bar{x}	Site	Grouping	\bar{x}	Site		
			Dec 83	A	40.4	5	
				A	22.7	4	
				A	3.4	1	
				A	1.5	Creek	
				not sampled		2	
				not sampled		3	
Rotifers							
Grouping	\bar{x}	Site	Grouping	\bar{x}	Site		
Oct 82	A	18.1	3	June 83	A	477.3	2
	A	14.5	5		A	135.4	1
	A	0.3	1		A	40.1	3
	A	0.3	4		A	5.7	Creek
	A	0.1	2		A	4.9	5
	A	0.0	Creek		A	2.6	4
Jan 83	A	4.4	2	Jul 83	A	260.6	5
	A	3.8	3		B	113.7	2
	A	2.0	1		C	21.3	3
	A	1.3	Creek		C	20.3	4
	A	0.9	4		C	5.8	1
	A	0.5	5		C	2.6	Creek
Feb 83	A	14.9	2	Aug 83	A	4884.1	5
	A	11.6	4		B	103.8	4
	A	6.7	1		B	83.5	1
	A	6.7	5		B	22.8	Creek
	A	4.0	Creek		B	7.6	2
	A	1.4	3				
Mar 83	A	183.6	1	Sep 83	A	1833.2	3
	A	89.2	5		A	1423.4	4
	A	3.9	2		B	428.1	5
	A	1.9	Creek		B	150.1	1
	not sampled				B	75.7	2
	not sampled				B	4.4	Creek
				Oct 83	A	13.3	3
Apr 83	A	1026.74	4		B	0.3	Creek
	B	104.0	Creek		B	0.2	4
	B	8.6	1		B	0.1	2
	not sampled		2		B	0.0*	5
	not sampled		3		B	0.0	1
	not sampled		5	Nov 83	Rotifers absent		
May 83	A	7.2	3	Dec 83	A	0.0	Creek
	A	6.7	1		A	0.0	4
	B	2.3	2		A	0.0	5
	B	1.8	4		A	0.0	1
	B	0.5	5		not sampled		2
	B	0.0	Creek		not sampled		3

Appendix Table 11.3 Continued

Barnacle nauplii				* = fractional numbers present			
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	A	5.2	Creek	Jul 83	A	4.0	Creek
	B	0.4	3		A	3.4	5
	B	0.3	1		A	1.3	2
	B	0.3	5		A	1.1	3
	B	0.2	2		A	0.7	4
	B	0.0*	4		A	0.2	1
Jan 83	A	3.6	3	Aug 83	A	3.7	Creek
	A	2.2	2		B	0.0*	1
	A	1.8	1		B	0.0*	2
	A	1.8	5		B	0.0*	4
	A	1.7	Creek		B	0.0*	5
	A	0.1	4		B	0.0*	3
Feb 83	A	1.3	5	Sep 83	A	0.1	Creek
	A	1.1	2		A	0.0*	1
	A	0.8	1		A	0.0*	2
	A	0.4	Creek		A	0.0*	4
	A	0.3	4		A	0.0*	5
	A	0.3	3		A	0.0*	3
Mar 83	A	4.8	Creek	Oct 83	A	0.4	Creek
	AB	2.1	2		A	0.3	2
	AB	1.6	5		A	0.1	5
	B	0.6	1		A	0.1	1
	not sampled		3		A	0.0*	4
	not sampled		4		A	0.0*	3
Apr 83	A	3.9	4	Nov 83	A	3.0	Creek
	B	0.0	1		A	2.3	2
	B	0.0	Creek		B	0.5	3
	not sampled		2		B	0.2	5
	not sampled		3		B	0.1	4
	not sampled		5		B	0.0	1
May 83	A	68.5	Creek	Dec 83	A	0.8	Creek
	B	20.5	5		A	0.4	5
	C	3.7	2		A	0.2	4
	C	2.4	1		A	0.0	1
	C	2.1	4		not sampled		2
	C	1.8	3		not sampled		3
Jun 83	A	1.1	Creek				
	B	0.1	4				
	B	0.0*	2				
	B	0.0*	1				
	B	0.0*	5				
	B	0.0*	3				

Appendix Table 11.3 Continued

Tintinnids				* = fractional numbers present			
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	Tintinnids absent			Sep 83	A	7.7	5
Jan 83	A	0.6	Creek		B	1.1	1
	B	0.1	1		B	0.8	Creek
	B	0.0*	2		B	0.8	3
	B	0.0*	4		B	0.8	2
	B	0.0*	5		B	0.0	4
	B	0.0*	3		Oct 83	A	2.3
Feb 83	Tintinnids absent				A	0.0	1
Mar 83	Tintinnids absent			Nov 83	Tintinnids absent		
Apr 83	Tintinnids absent			Dec 83	A	1.9	Creek
May 83	Tintinnids absent				B	0.2	1
					B	0.0	4
					B	0.0	5
					not sampled		2
					not sampled		3
Jun 83	A	5.9	1				
	A	2.6	5				
	A	0.0*	3				
	A	0.0*	4				
	A	0.0*	2				
	A	0.0*	Creek				
Jul 83	A	1595.8	5				
	B	66.9	2				
	B	12.4	3				
	B	3.8	Creek				
	B	0.6	4				
Aug 83	A	203.8	5				
	B	31.6	Creek				
	B	15.7	4				
	B	1.5	3				
	B	0.4	2				
	B	0.3	1				

Appendix Table 11.3 Continued

Polychaete larvae							
Grouping			\bar{x}	Site	Grouping		
Grouping			\bar{x}	Site	Grouping		
Oct 82	A	9.2	Creek	Jul 83	A	380.7	5
	A	7.0	5		A	41.3	3
	A	1.1	3		A	29.1	Creek
	A	0.7	4		A	28.6	4
	A	0.5	2		A	5.3	2
	A	0.2	1		A	2.1	1
Jan 83	A	30.0	5	Aug 83	A	97.3	3
	A	23.7	3		A	37.5	5
	A	5.4	1		A	31.5	Creek
	A	4.0	Creek		A	8.0	2
	A	2.7	2		A	5.3	1
	A	0.3	4		A	4.4	4
Feb 83	A	55.3	5	Sep 83	A	34.3	5
	B	11.1	3		A	30.8	Creek
	C	3.7	1		A	18.7	3
	C	3.2	2		A	7.3	2
	C	0.3	4		A	1.8	4
	C	0.2	Creek		A	1.5	1
Mar 83	A	11.6	1	Oct 83	A	17.6	3
	B	0.9	5		A	11.1	2
	B	0.4	Creek		A	10.7	Creek
	B	0.4	2		A	9.7	5
	not sampled		3		A	6.6	1
	not sampled		4		A	1.0	4
Apr 83	A	0.8	1	Nov 83	A	178.5	2
	A	0.5	Creek		A	174.8	5
	A	0.0	4		B	63.7	3
	not sampled		2		B	37.1	4
	not sampled		3		B	33.6	1
	not sampled		5		B	3.8	Creek
May 83	A	2.0	2	Dec 83	A	567.3	5
	A	1.4	Creek		B	55.0	1
	A	1.1	4		B	51.2	4
	A	0.9	3		B	11.8	Creek
	A	0.6	1		not sampled		2
	A	0.5	5		not sampled		3
Jun 83	A	7.3	Creek				
	A	4.4	3				
	A	3.7	4				
	A	2.8	2				
	A	0.6	5				
	A	0.6	1				

Appendix Table 11.4

Summary of the GLM-SNK analyses of monthly mesozooplankton (153 μm -mesh net) standing crops according to sampling sites.

The mean standing crop values (\bar{x}) are for replicated net tows at each site. The letters A-F indicate standing crop means that were significantly different at the 0.05 level of significance.

* = fractional numbers of organisms present.

Acartia tonsa

Grouping		\bar{x}	Site	Grouping		\bar{x}	Site
Oct 82	A	4.3	1	Jun 83	A	5.5	3
	A	3.9	5		A	4.6	5
	A	1.2	4		A	0.5	Creek
	A	0.7	Creek		A	0.3	2
	A	0.6	2		A	0.2	4
	A	0.4	3		A	0.1	1
Jan 83	A	5.7	1	Jul 83	A	63.0	4
	A	0.7	3		B	12.9	1
	A	0.3	Creek		B	9.0	5
	A	0.3	4		B	5.3	3
	A	0.2	5		B	0.8	2
	A	0.1	2		B	0.7	Creek
Feb 83	A	0.1	2	Aug 83	A	30.8	3
	A	0.0*	3		B	16.0	5
	A	0.0*	4		C	10.7	4
	A	0.0*	5		D	5.2	1
	A	0.0*	Creek		D	3.4	Creek
	A	0.0*	1		E	1.0	2
Mar 83	A	0.3	1	Sep 83	A	5.4	1
	A	0.2	5		B	2.7	5
	A	0.2	2		BC	2.0	2
	A	0.1	Creek		CD	0.9	4
	not sampled		3		D	0.3	Creek
	not sampled		4		D	0.0*	3
Apr 83	A	0.2	4	Oct 83	A	35.3	4
	B	0.0*	1		B	18.9	2
	B	0.0*	Creek		B	18.2	1
	not sampled		2		B	11.1	5
	not sampled		3		B	3.7	3
	not sampled		5		B	1.1	Creek
May 83	A	20.5	5	Nov 83	A	10.7	4
	B	5.7	4		A	10.1	5
	BC	3.5	2		A	9.0	3
	BC	3.0	3		A	7.0	1
	BC	1.6	1		A	5.2	2
	C	0.8	Creek		B	0.7	Creek

Appendix Table 11.4 Continued

		Grouping	\bar{x}	Site			
	Dec 83	A	32.7	4			
		A	20.1	5			
		A	7.9	1			
		A	0.7	Creek			
		not sampled		2			
		not sampled		3			
Total Copepods							
Grouping	\bar{x}	Site	Grouping	\bar{x}	Site		
Oct 82	A	4.9	5	May 83	A	21.2	5
	A	4.4	1		B	6.6	4
	A	2.1	Creek		BC	3.7	2
	A	1.4	4		BC	3.5	3
	A	0.8	2		BC	2.9	Creek
	A	0.5	3		C	1.9	1
Jan 83	A	5.9	1	Jun 83	A	5.9	3
	A	0.7	3		A	5.0	5
	A	0.4	4		A	0.9	Creek
	A	0.4	Creek		A	0.5	4
	A	0.3	5		A	0.4	2
	A	0.1	2		A	0.2	1
Feb 83	A	0.5	1	Jul 83	A	63.5	4
	A	0.5	4		B	13.2	1
	A	0.5	5		B	10.7	5
	A	0.4	Creek		B	5.9	3
	A	0.4	2		B	1.3	2
	A	0.3	3		B	0.8	Creek
Mar 83	A	22.4	Creek	Aug 83	A	50.5	5
	A	9.6	2		B	33.6	3
	A	7.5	1		C	19.6	4
	A	2.5	5		D	9.3	Creek
	not sampled		3		E	5.5	1
	not sampled		4		F	1.4	2
Apr 83	A	5.2	1	Sep 83	A	7.8	4
	AE	2.5	4		B	5.8	1
	B	0.5	Creek		B	4.8	5
	not sampled		2		C	2.3	2
	not sampled		3		D	0.5	Creek
	not sampled		5		D	0.1	3

Appendix Table 11.4 Continued

	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 83	A	35.4	4	Dec 83	A	32.9	4
	B	19.0	2		A	31.4	5
	B	18.3	1		A	7.9	1
	B	11.2	5		A	0.7	Creek
	B	3.8	3		not sampled		2
	B	3.2	Creek		not sampled		3
Nov 83	A	10.7	4				
	A	10.1	5				
	A	9.0	3				
	A	7.0	1				
	AB	5.2	2				
	B	1.1	Creek				
<u>Eurytemora affinis</u>							
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	A	0.0*	5	Apr 83	A	2.4	1
	A	0.0*	4		B	0.8	4
	A	0.0*	2		B	0.4	Creek
	A	0.0*	3		not sampled		2
	A	0.0*	1		not sampled		3
	A	0.0*	Creek		not sampled		5
Jan 83	A	0.2	1	May 83	A	0.1	2
	A	0.1	4		A	0.0*	1
	A	0.0*	3		A	0.0*	4
	A	0.0*	Creek		A	0.0	3
	A	0.0*	2		A	0.0	5
	A	0.0*	5		A	0.0	Creek
Feb 83	A	0.4	4	Jun 83	A	0.0*	5
	A	0.4	Creek		A	0.0*	1
	A	0.2	2		A	0.0*	Creek
	A	0.1	1		A	0.0*	2
	A	0.1	5		A	0.0*	4
	A	0.1	3		A	0.0	3
Mar 83	A	21.9	Creek	Jul 83	absent		
	A	6.9	1	Aug 83	absent		
	A	4.2	2	Sep 83	absent		
	A	0.8	5	Oct 83	absent		
	not sampled		3	Nov 83	absent		
	not sampled		4	Dec 83	A	0.0*	Creek
					A	0.0*	4
					A	0.0*	5
					A	0.0*	1
					not sampled		2
					not sampled		3

Appendix Table 11.4 Continued

Rotifers							
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
	Oct 82	absent					
	Jan 83	absent					
Feb 83	A	0.0*	5	Jul 83	A	0.0*	5
	A	0.0*	3		A	0.0*	1
	A	0.0*	1		A	0.0*	3
	A	0.0*	4		A	0.0*	4
	A	0.0*	Creek		A	0.0*	2
	A	0.0*	2		A	0.0	Creek
Mar 83	A	2.6	5	Aug 83	A	0.0*	3
	A	0.0*	2		A	0.0	1
	A	0.0*	Creek		A	0.0	2
	A	0.0*	1		A	0.0	4
	not sampled		3		A	0.0	5
	not sampled		4		A	0.0	Creek
Apr 83	A	0.0*	1	Sep 83	A	0.0*	1
	B	0.0*	4		A	0.0*	3
	B	0.0*	Creek		A	0.0*	2
	not sampled		2		A	0.0*	5
	not sampled		3		A	0.0	4
	not sampled		5		A	0.0	Creek
May 83	A	0.0*	3	Oct 83	absent		
	A	0.0	1	Nov 83	absent		
	A	0.0	2	Dec 83	absent		
	A	0.0	4				
	A	0.0	5				
	A	0.0	Creek				
Jun 83	absent						
Barnacle cyprids							
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	A	5.1	Creek	Feb 83	A	0.4	2
	B	0.6	5		A	0.2	5
	B	0.3	3		A	0.2	3
	B	0.2	1		A	0.1	4
	B	0.1	2		A	0.0*	Creek
	B	0.1	4		A	0.0*	1
Jan 83	A	0.4	3	Mar 83	A	0.7	2
	A	0.3	Creek		A	0.5	1
	B	0.1	2		A	0.2	5
	B	0.1	5		A	0.2	Creek
	B	0.1	4		not sampled		3
	B	0.0*	1		not sampled		4

Appendix Table 11.4 Continued

Barnacle cyprids

Grouping			\bar{x}	Site	Grouping			\bar{x}	Site
Apr 83	A		0.7	4	Sep 83	A		0.1	5
	B		0.0*	1		A		0.0*	4
	B		0.0	Creek		A		0.0*	1
			not sampled	2		A		0.0*	Creek
			not sampled	3		A		0.0*	3
		not sampled	5	A		0.0*	2		
May 83	A		5.3	Creek	Oct 83	A		0.5	Creek
	B		4.2	5		B		0.0*	5
	C		2.8	2		B		0.0*	2
	D		1.0	3		B		0.0*	3
	D		0.9	4		B		0.0	1
Jun 83	D		0.7	1	B		0.0	4	
	A		1.5	3	Nov 83	A		2.5	Creek
	AB		1.1	4		B		0.0*	2
	BC		0.5	1		B		0.0*	3
	C		0.3	5		B		0.0*	1
C		0.3	Creek	B			0.0*	4	
		0.2	2	B		0.0*	5		
Jul 83	A		1.3	5	Dec 83	A		0.2	Creek
	A		0.6	5		A		0.2	4
	A		0.5	2		A		0.1	5
	A		0.5	3		A		0.0*	1
	A		0.0*	1				not sampled	2
	A		0.0*	4				not sampled	3
Aug 83	A		1.4	Creek					
	B		0.1	3					
	B		0.0*	4					
	B		0.0*	2					
	B		0.0*	1					
	B		0.0*	5					

Carideans

Grouping			\bar{x}	Site	Grouping			\bar{x}	Site
Oct 82	absent				Feb 83	A		0.0*	3
Jan 83	A		0.0*	3		A		0.0*	4
	A		0.0	1		A		0.0*	2
	A		0.0	2		A		0.0	1
	A		0.0	4		A		0.0	5
	A		0.0	5	A		0.0	Creek	
A		0.0	Creek	Mar 83	absent				

Appendix Table 11.4 Continued

Carideans

Grouping			\bar{x}	Site	Grouping			\bar{x}	Site
Apr 83	A		0.0*	4	Sep 83	A	0.1	2	
	A		0.0	1		A	0.0*	1	
	A		0.0	Creek		A	0.0*	3	
	not sampled			2		A	0.0*	Creek	
	not sampled			3		A	0.0	4	
			5	A	0.0	5			
May 83	absent								
Jun 83	A		0.0*	2	Oct 83	A	0.2	4	
	A		0.0*	4		A	0.0*	Creek	
	A		0.0*	1		A	0.0*	2	
	A		0.0	3		A	0.0*	1	
	A		0.0	5		A	0.0*	5	
			Creek	A	0.0*	3			
Jul 83	A		0.5	1	Nov 83	A	0.0*	1	
	B		0.3	4		A	0.0*	3	
	C		0.1	2		A	0.0	2	
	C		0.0*	3		A	0.0	4	
	C		0.0*	Creek		A	0.0	5	
Aug 83	A		0.4	2	A	0.0	Creek		
	A		0.1	5					
	A		0.1	4					
	A		0.1	1	Dec 83				
	A		0.0*	3					
	A		0.0	Creek					

Brachyurans

Grouping			\bar{x}	Site	Grouping			\bar{x}	Site
Oct 82	A		0.1	5	May 83	A	1.5	5	
	A		0.1	2		B	0.9	4	
	A		0.0*	1		B	0.8	Creek	
	A		0.0*	Creek		B	0.8	3	
	A		0.0*	3		C	0.0*	1	
			4	C	0.0*	2			
Jan 83	absent								
Feb 83	absent								
Mar 83	absent								
Apr 83	absent								

Appendix Table 11.4 Continued

Brachyurans								
		Grouping	\bar{x}	Site				
		Grouping	\bar{x}	Site	Grouping	\bar{x}	Site	
Jun 83	A	1.5		Creek	Sep 83	A	0.0*	4
	B	0.7		5		A	0.0*	1
	B	0.6		3		A	0.0*	2
	B	0.3		4		A	0.0*	5
	B	0.0*		2		A	0.0*	Creek
	B	0.0*		1		A	0.0*	3
Jul 83	A	2.6		5	Oct 83	A	0.0*	Creek
	A	2.0		3		A	0.0*	1
	A	0.8		2		A	0.0*	2
	A	0.3		Creek		A	0.0*	4
	A	0.3		4		A	0.0*	5
	A	0.2		1		A	0.0*	3
Aug 83	A	0.4		Creek	Nov 83	A	0.0*	Creek
	A	0.3		5		A	0.0*	1
	A	0.1		1		A	0.0*	2
	A	0.1		4		A	0.0*	4
	A	0.0*		2		A	0.0*	5
	A	0.0		3		A	0.0*	3
					Dec 83	absent		
Insects								
		Grouping	\bar{x}	Site				
		Grouping	\bar{x}	Site	Grouping	\bar{x}	Site	
Oct 82	A	0.0*		1	Mar 83	A	0.7	2
	A	0.0*		2		B	0.0*	1
	B	0.0*		4		B	0.0*	5
	B	0.0*		3		B	0.0*	Creek
	B	0.0*		Creek			not sampled	3
	B	0.0*		5			not sampled	4
Jan 83	A	0.0*		5	Apr 83	A	0.1	4
	A	0.0*		2		A	0.0*	1
	A	0.0*		1		A	0.0	Creek
	A	0.0		3			not sampled	2
	A	0.0		4			not sampled	3
	A	0.0		Creek			not sampled	5
Feb 83	A	0.0*		5	May 83	A	0.0*	4
	A	0.0*		3		A	0.0*	1
	A	0.0*		1		A	0.0	2
	A	0.0*		2		A	0.0	3
	A	0.0*		4		A	0.0	5
	A	0.0		Creek		A	0.0	Creek

Appendix Table 11.4 Continued

Insects

	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Jun 83	A	0.0*	2	Oct 83	absent		
	AB	0.0*	1	Noc 83	absent		
	BC	0.0*	4				
	C	0.0	3				
	C	0.0	5				
	C	0.0	Creek				
Jul 83	A	0.0*	Creek	Dec 83	A	0.1	1
	B	0.0*	1		A	0.0	4
	C	0.0*	2		A	0.0	5
	C	0.0*	4		A	0.0	Creek
	C	0.0*	5		not sampled		2
	C	0.0*	3		not sampled	0.0	3
Aug 83	absent						
Sep 83	A	0.0*	Creek				
	B	0.0*	3				
	B	0.0	1				
	B	0.0	2				
	B	0.0	4				
	B	0.0	5				

Hydromedusae

	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site
Oct 82	A	6.8	2	Mar 83	A	0.0*	2
	B	0.2	3		A	0.0	1
	B	0.2	1		A	0.0	5
	B	0.0*	Creek		A	0.0	Creek
	B	0.0*	4		not sampled		3
	B	0.0*	5		not sampled		4
Jan 83	A	0.0*	4	Apr 83	absent		
	A	0.0*	5				
	B	0.0*	2				
	B	0.0*	3				
	B	0.0*	1				
	B	0.0*	Creek				
Feb 83	A	0.0*	4	May 83	A	0.1	4
	A	0.0*	2		A	0.1	Creek
	A	0.0*	3		A	0.1	5
	A	0.0	1		A	0.0*	3
	A	0.0	5		A	0.0*	2
	A	0.0	Creek		A	0.0*	1

Appendix Table 11.4 Continued

Hydromedusae

Hydromedusae				Hydromedusae				
	Grouping	\bar{x}	Site		Grouping	\bar{x}	Site	
Jun 83	A	0.2	4	Oct 83	A	0.0*	3	
	B	0.2	Creek		B	0.0*	Creek	
	C	0.0*	3		B	0.0	1	
	D	0.0*	1		B	0.0	2	
	D	0.0*	2		B	0.0	4	
	D	0.0	5		B	0.0	5	
Jul 83	A	0.1	2	Nov 83	absent			
	AB	0.0*	5					
	B	0.0*	Creek					
	B	0.0*	3					
	B	0.0*	1					
	B	0.0*	4					
Aug 83	A	0.3	2	Dec 83	A	0.0*	Creek	
	B	0.1	Creek		A	0.0*	4	
	B	0.0*	5		A	0.0*	5	
	B	0.0*	1		A	0.0*	1	
	B	0.0*	3		not sampled		2	
	B	0.0	4		not sampled	3		
Sep 83	A	0.0*	1					
	A	0.0*	2					
	A	0.0*	3					
	A	0.0*	Creek					
	A	0.0*	4					
	A	0.0*	5					

SECTION VI

BENTHIC COMMUNITY

Appendix Table 12.1 Environmental data collected at each site sampled for macrobenthos.

STATA CODE	COLLECTION NUMBER	MONTH	DAY	STATION DEPTH (CM)	TEMPERATURE	SALINITY
11	8300001	1	4	200	0	2
33	8300002	1	4	200	0	2
33	8300003	1	4	200	0	2
33	8300004	1	4	200	0	2
33	8300005	1	4	200	0	2
33	8300006	1	4	200	0	2
33	8300007	1	4	200	0	2
33	8300008	1	4	100	0	2
33	8300009	1	4	100	0	2
33	8300010	1	4	2	0	2
33	8300011	1	4	1	0	2
33	8300012	1	4	1	0	2
33	8300013	1	4	1	0	2
33	8300014	1	4	1	0	2
33	8300015	1	4	1	0	2
33	8300016	1	4	1	0	2
33	8300017	1	4	1	0	2
33	8300018	1	4	1	0	2
33	8300019	1	4	1	0	2
33	8300020	1	4	1	0	2
33	8300021	1	4	1	0	2
33	8300022	1	4	1	0	2
33	8300023	1	4	1	0	2
33	8300024	1	4	1	0	2
33	8300025	1	4	1	0	2
33	8300026	1	4	1	0	2
33	8300027	1	4	1	0	2
33	8300028	1	4	1	0	2
33	8300029	1	4	1	0	2
33	8300030	1	4	1	0	2
33	8300031	1	4	1	0	2
33	8300032	1	4	1	0	2
33	8300033	1	4	1	0	2
33	8300034	1	4	1	0	2
33	8300035	1	4	1	0	2
33	8300036	1	4	1	0	2
33	8300037	1	4	1	0	2
33	8300038	1	4	1	0	2
33	8300039	1	4	1	0	2
33	8300040	1	4	1	0	2
33	8300041	1	4	1	0	2
33	8300042	1	4	1	0	2
33	8300043	1	4	1	0	2
33	8300044	1	4	1	0	2
33	8300045	1	4	1	0	2
33	8300046	1	4	1	0	2
33	8300047	1	4	1	0	2
33	8300048	1	4	1	0	2
33	8300049	1	4	1	0	2
33	8300050	1	4	1	0	2
33	8300051	1	4	1	0	2
33	8300052	1	4	1	0	2
33	8300053	1	4	1	0	2
33	8300054	1	4	1	0	2
33	8300055	1	4	1	0	2
33	8300056	1	4	1	0	2
33	8300057	1	4	1	0	2
33	8300058	1	4	1	0	2
33	8300059	1	4	1	0	2
33	8300060	1	4	1	0	2
33	8300061	1	4	1	0	2
33	8300062	1	4	1	0	2
33	8300063	1	4	1	0	2
33	8300064	1	4	1	0	2
33	8300065	1	4	1	0	2
33	8300066	1	4	1	0	2
33	8300067	1	4	1	0	2
33	8300068	1	4	1	0	2
33	8300069	1	4	1	0	2
33	8300070	1	4	1	0	2
33	8300071	1	4	1	0	2
33	8300072	1	4	1	0	2
33	8300073	1	4	1	0	2
33	8300074	1	4	1	0	2
33	8300075	1	4	1	0	2
33	8300076	1	4	1	0	2
33	8300077	1	4	1	0	2
33	8300078	1	4	1	0	2
33	8300079	1	4	1	0	2
33	8300080	1	4	1	0	2
33	8300081	1	4	1	0	2
33	8300082	1	4	1	0	2
33	8300083	1	4	1	0	2
33	8300084	1	4	1	0	2
33	8300085	1	4	1	0	2
33	8300086	1	4	1	0	2
33	8300087	1	4	1	0	2
33	8300088	1	4	1	0	2
33	8300089	1	4	1	0	2
33	8300090	1	4	1	0	2
33	8300091	1	4	1	0	2
33	8300092	1	4	1	0	2
33	8300093	1	4	1	0	2
33	8300094	1	4	1	0	2
33	8300095	1	4	1	0	2
33	8300096	1	4	1	0	2
33	8300097	1	4	1	0	2
33	8300098	1	4	1	0	2
33	8300099	1	4	1	0	2
33	8300100	1	4	1	0	2

Appendix Table 12.1 Continued

STRA TA CODE	COLLECTION NUMBER	MONTH	DAY	STATION DEPTH (CM)	TEMPERATURE	SALINITY
1043	0113	11	11	100	11.00	77.77
12A3	0114	11	11	100	11.00	77.77
22A3	0115	11	11	100	11.00	77.77
2A4	0116	11	11	100	11.00	77.77
2A4	0117	11	11	100	11.00	77.77
2B3	0118	11	11	100	11.00	77.77
2B3	0119	11	11	100	11.00	77.77
2B3	0120	11	11	100	11.00	77.77
2B3	0121	11	11	100	11.00	77.77
2B3	0122	11	11	100	11.00	77.77
2B3	0123	11	11	100	11.00	77.77
2B3	0124	11	11	100	11.00	77.77
2B3	0125	11	11	100	11.00	77.77
2B3	0126	11	11	100	11.00	77.77
2B3	0127	11	11	100	11.00	77.77
2B3	0128	11	11	100	11.00	77.77
2B3	0129	11	11	100	11.00	77.77
2B3	0130	11	11	100	11.00	77.77
2B3	0131	11	11	100	11.00	77.77
2B3	0132	11	11	100	11.00	77.77
2B3	0133	11	11	100	11.00	77.77
2B3	0134	11	11	100	11.00	77.77
2B3	0135	11	11	100	11.00	77.77
2B3	0136	11	11	100	11.00	77.77
2B3	0137	11	11	100	11.00	77.77
2B3	0138	11	11	100	11.00	77.77
2B3	0139	11	11	100	11.00	77.77
2B3	0140	11	11	100	11.00	77.77
2B3	0141	11	11	100	11.00	77.77
2B3	0142	11	11	100	11.00	77.77
2B3	0143	11	11	100	11.00	77.77
2B3	0144	11	11	100	11.00	77.77
2B3	0145	11	11	100	11.00	77.77
2B3	0146	11	11	100	11.00	77.77
2B3	0147	11	11	100	11.00	77.77
2B3	0148	11	11	100	11.00	77.77
2B3	0149	11	11	100	11.00	77.77
2B3	0150	11	11	100	11.00	77.77
2B3	0151	11	11	100	11.00	77.77
2B3	0152	11	11	100	11.00	77.77
2B3	0153	11	11	100	11.00	77.77
2B3	0154	11	11	100	11.00	77.77
2B3	0155	11	11	100	11.00	77.77
2B3	0156	11	11	100	11.00	77.77
2B3	0157	11	11	100	11.00	77.77
2B3	0158	11	11	100	11.00	77.77
2B3	0159	11	11	100	11.00	77.77
2B3	0160	11	11	100	11.00	77.77
2B3	0161	11	11	100	11.00	77.77
2B3	0162	11	11	100	11.00	77.77
2B3	0163	11	11	100	11.00	77.77
2B3	0164	11	11	100	11.00	77.77
2B3	0165	11	11	100	11.00	77.77
2B3	0166	11	11	100	11.00	77.77
2B3	0167	11	11	100	11.00	77.77
2B3	0168	11	11	100	11.00	77.77
2B3	0169	11	11	100	11.00	77.77
2B3	0170	11	11	100	11.00	77.77
2B3	0171	11	11	100	11.00	77.77
2B3	0172	11	11	100	11.00	77.77
2B3	0173	11	11	100	11.00	77.77
2B3	0174	11	11	100	11.00	77.77
2B3	0175	11	11	100	11.00	77.77
2B3	0176	11	11	100	11.00	77.77
2B3	0177	11	11	100	11.00	77.77
2B3	0178	11	11	100	11.00	77.77
2B3	0179	11	11	100	11.00	77.77
2B3	0180	11	11	100	11.00	77.77
2B3	0181	11	11	100	11.00	77.77
2B3	0182	11	11	100	11.00	77.77
2B3	0183	11	11	100	11.00	77.77
2B3	0184	11	11	100	11.00	77.77
2B3	0185	11	11	100	11.00	77.77
2B3	0186	11	11	100	11.00	77.77
2B3	0187	11	11	100	11.00	77.77
2B3	0188	11	11	100	11.00	77.77
2B3	0189	11	11	100	11.00	77.77
2B3	0190	11	11	100	11.00	77.77
2B3	0191	11	11	100	11.00	77.77
2B3	0192	11	11	100	11.00	77.77
2B3	0193	11	11	100	11.00	77.77
2B3	0194	11	11	100	11.00	77.77
2B3	0195	11	11	100	11.00	77.77
2B3	0196	11	11	100	11.00	77.77
2B3	0197	11	11	100	11.00	77.77
2B3	0198	11	11	100	11.00	77.77
2B3	0199	11	11	100	11.00	77.77
2B3	0200	11	11	100	11.00	77.77

Appendix Table 12.1 Continued

STRA TA CODE	COLLECTION NUMBER	MONTH	DAY	STATION DEPTH (CM)	TEMPERATURE	SALINITY
23	840175	1	6	00	25.7	35.0
00	840177	1	6	00	25.7	35.0
00	840178	1	6	00	25.7	35.0
00	840179	1	6	00	25.7	35.0
00	840181	1	6	00	25.7	35.0
00	840182	1	6	00	25.7	35.0
00	840183	1	6	00	25.7	35.0
00	840185	1	6	00	25.7	35.0
00	840186	1	6	00	25.7	35.0
00	840187	1	6	00	25.7	35.0
00	840188	1	6	00	25.7	35.0
00	840189	1	6	00	25.7	35.0
00	840190	1	6	00	25.7	35.0
00	840191	1	6	00	25.7	35.0
00	840192	1	6	00	25.7	35.0
00	840205	1	6	00	25.7	35.0
00	840206	1	6	00	25.7	35.0
00	840207	1	6	00	25.7	35.0
00	840208	1	6	00	25.7	35.0
00	840209	1	6	00	25.7	35.0
00	840210	1	6	00	25.7	35.0
00	840211	1	6	00	25.7	35.0
00	840212	1	6	00	25.7	35.0
00	840213	1	6	00	25.7	35.0
00	840214	1	6	00	25.7	35.0
00	840215	1	6	00	25.7	35.0
00	840216	1	6	00	25.7	35.0
00	840217	1	6	00	25.7	35.0
00	840218	1	6	00	25.7	35.0
00	840219	1	6	00	25.7	35.0
00	840220	1	6	00	25.7	35.0
00	840221	1	6	00	25.7	35.0
00	840222	1	6	00	25.7	35.0
00	840223	1	6	00	25.7	35.0
00	840224	1	6	00	25.7	35.0
00	840225	1	6	00	25.7	35.0
00	840226	1	6	00	25.7	35.0
00	840227	1	6	00	25.7	35.0
00	840228	1	6	00	25.7	35.0
00	840229	1	6	00	25.7	35.0
00	840230	1	6	00	25.7	35.0
00	840231	1	6	00	25.7	35.0
00	840232	1	6	00	25.7	35.0
00	840233	1	6	00	25.7	35.0
00	840234	1	6	00	25.7	35.0
00	840235	1	6	00	25.7	35.0
00	840236	1	6	00	25.7	35.0
00	840237	1	6	00	25.7	35.0
00	840238	1	6	00	25.7	35.0
00	840239	1	6	00	25.7	35.0
00	840240	1	6	00	25.7	35.0
00	840241	1	6	00	25.7	35.0
00	840242	1	6	00	25.7	35.0
00	840243	1	6	00	25.7	35.0
00	840244	1	6	00	25.7	35.0
00	840245	1	6	00	25.7	35.0
00	840246	1	6	00	25.7	35.0
00	840247	1	6	00	25.7	35.0
00	840248	1	6	00	25.7	35.0
00	840249	1	6	00	25.7	35.0
00	840250	1	6	00	25.7	35.0
00	840251	1	6	00	25.7	35.0
00	840252	1	6	00	25.7	35.0
00	840253	1	6	00	25.7	35.0
00	840254	1	6	00	25.7	35.0
00	840255	1	6	00	25.7	35.0
00	840256	1	6	00	25.7	35.0
00	840257	1	6	00	25.7	35.0
00	840258	1	6	00	25.7	35.0
00	840259	1	6	00	25.7	35.0
00	840260	1	6	00	25.7	35.0
00	840261	1	6	00	25.7	35.0
00	840262	1	6	00	25.7	35.0
00	840263	1	6	00	25.7	35.0
00	840264	1	6	00	25.7	35.0
00	840265	1	6	00	25.7	35.0
00	840266	1	6	00	25.7	35.0
00	840267	1	6	00	25.7	35.0
00	840268	1	6	00	25.7	35.0
00	840269	1	6	00	25.7	35.0
00	840270	1	6	00	25.7	35.0
00	840271	1	6	00	25.7	35.0
00	840272	1	6	00	25.7	35.0
00	840273	1	6	00	25.7	35.0
00	840274	1	6	00	25.7	35.0
00	840275	1	6	00	25.7	35.0
00	840276	1	6	00	25.7	35.0
00	840277	1	6	00	25.7	35.0
00	840278	1	6	00	25.7	35.0
00	840279	1	6	00	25.7	35.0
00	840280	1	6	00	25.7	35.0
00	840281	1	6	00	25.7	35.0
00	840282	1	6	00	25.7	35.0
00	840283	1	6	00	25.7	35.0
00	840284	1	6	00	25.7	35.0
00	840285	1	6	00	25.7	35.0
00	840286	1	6	00	25.7	35.0
00	840287	1	6	00	25.7	35.0
00	840288	1	6	00	25.7	35.0
00	840289	1	6	00	25.7	35.0
00	840290	1	6	00	25.7	35.0
00	840291	1	6	00	25.7	35.0
00	840292	1	6	00	25.7	35.0
00	840293	1	6	00	25.7	35.0
00	840294	1	6	00	25.7	35.0
00	840295	1	6	00	25.7	35.0
00	840296	1	6	00	25.7	35.0
00	840297	1	6	00	25.7	35.0
00	840298	1	6	00	25.7	35.0
00	840299	1	6	00	25.7	35.0
00	840300	1	6	00	25.7	35.0

Appendix Table 12.1 Continued

STATA CODE	COLLECTION NUMBER	MONTH	DAY	STATION DEPTH (CM)	TEMPERATURE	SALINITY
185	40250	7	00	00	73	80
185	40251	7	00	00	73	80
185	40252	7	00	00	73	80
185	40253	7	00	00	73	80
185	40254	7	00	00	73	80
185	40255	7	00	00	73	80
185	40256	7	00	00	73	80
185	40257	7	00	00	73	80
185	40258	7	00	00	73	80
185	40259	7	00	00	73	80
185	40260	7	00	00	73	80
185	40261	7	00	00	73	80
185	40262	7	00	00	73	80
185	40263	7	00	00	73	80
185	40264	7	00	00	73	80
185	40265	7	00	00	73	80
185	40266	7	00	00	73	80
185	40267	7	00	00	73	80
185	40268	7	00	00	73	80
185	40269	7	00	00	73	80
185	40270	7	00	00	73	80
185	40271	7	00	00	73	80
185	40272	7	00	00	73	80
185	40273	7	00	00	73	80
185	40274	7	00	00	73	80
185	40275	7	00	00	73	80
185	40276	7	00	00	73	80
185	40277	7	00	00	73	80
185	40278	7	00	00	73	80
185	40279	7	00	00	73	80
185	40280	7	00	00	73	80
185	40281	7	00	00	73	80
185	40282	7	00	00	73	80
185	40283	7	00	00	73	80
185	40284	7	00	00	73	80
185	40285	7	00	00	73	80
185	40286	7	00	00	73	80
185	40287	7	00	00	73	80
185	40288	7	00	00	73	80
185	40289	7	00	00	73	80
185	40290	7	00	00	73	80
185	40291	7	00	00	73	80
185	40292	7	00	00	73	80
185	40293	7	00	00	73	80
185	40294	7	00	00	73	80
185	40295	7	00	00	73	80
185	40296	7	00	00	73	80
185	40297	7	00	00	73	80
185	40298	7	00	00	73	80
185	40299	7	00	00	73	80
185	40300	7	00	00	73	80

Appendix Table 12.2 Ranked abundance of macrobenthos collected at each site during the sampling period. Asterisk (*) indicates questionable identification and (P) signifies presence of unquantifiable taxon.

RANK	SPECIES	SITE 1R						
		W183	W184	SP84	SU83	SU84	FA83	
1	HYDROBIIDAE	821		1	47	56	12	
2	LITTORINIDAE MONROENSIS	465			21		15	
3	LITTORINIDAE A	200						
4	LITTORINIDAE B	175						
5	HYDROBIIDAE D	175			3	23	1	
6	HYDROBIIDAE C	175			19	24	6	
7	OLIGOCHELETIDAE	2			29	1		
8	NEREIS SUCCINEA	1			49			
9	HOBSONIA FLORIDA	1			26			
10	CAPITELLIDAE		1		2	5	6	
11	HYDROBIIDAE MARTINI	6			2	6	3	
12	STENONEMATIDAE *					1		
13	COENAGRIONIDAE *	11						
14	EPHYDRIDAE	6			3	1	1	
15	PALAEOLULIDAE SP.				1			
16	LIBELLULIDAE C							
17	HYDROBIIDAE BENEDICTI	2						
18	STREPTOPEIDAE							
19	CAPITELLIDAE PUGIO				1	1		
20	PALAEONELLES B							
21	HYDROPHILIDAE			1				
22	HALLIPLIDAE				1			
23	MYTILIDAE							
24	ONCHOPUS JACKSONI				1		1	
25	LITTORINIDAE SP. A				1			
26	POLYCHAETA FLORIDA *			1				
27	HOBSONIA FLORIDA *							
28	MIRIIDAE				1			
29	NEREIDAE							

Appendix Table 12.2 Continued

RANK	SPECIES	SITE 1 Sp						
		WI83	WI84	SP84	SU83	SU84	FA83	
0	AMPHIBIOLA	607						
1	AMPHIBIOLA	351	2	41	139	181	40	
2	AMPHIBIOLA	324			207	182	157	
3	AMPHIBIOLA	324			22	1	12	
4	AMPHIBIOLA	324			31	2	12	
5	AMPHIBIOLA	324			94	24	24	
6	AMPHIBIOLA	324			54	22	24	
7	AMPHIBIOLA	324			8		16	
8	AMPHIBIOLA	324	1	1	8		16	
9	AMPHIBIOLA	324			3		16	
10	AMPHIBIOLA	324			4		16	
11	AMPHIBIOLA	324			4		16	
12	AMPHIBIOLA	324			4		16	
13	AMPHIBIOLA	324			4		16	
14	AMPHIBIOLA	324			4		16	
15	AMPHIBIOLA	324			4		16	
16	AMPHIBIOLA	324			4		16	
17	AMPHIBIOLA	324			4		16	
18	AMPHIBIOLA	324			4		16	
19	AMPHIBIOLA	324			4		16	
20	AMPHIBIOLA	324			4		16	
21	AMPHIBIOLA	324			4		16	
22	AMPHIBIOLA	324			4		16	
23	AMPHIBIOLA	324			4		16	
24	AMPHIBIOLA	324			4		16	
25	AMPHIBIOLA	324			4		16	
26	AMPHIBIOLA	324			4		16	
27	AMPHIBIOLA	324			4		16	
28	AMPHIBIOLA	324			4		16	
29	AMPHIBIOLA	324			4		16	
30	AMPHIBIOLA	324			4		16	
31	AMPHIBIOLA	324			4		16	
32	AMPHIBIOLA	324			4		16	
33	AMPHIBIOLA	324			4		16	
34	AMPHIBIOLA	324			4		16	
35	AMPHIBIOLA	324			4		16	
36	AMPHIBIOLA	324			4		16	
37	AMPHIBIOLA	324			4		16	
38	AMPHIBIOLA	324			4		16	
39	AMPHIBIOLA	324			4		16	
40	AMPHIBIOLA	324			4		16	
41	AMPHIBIOLA	324			4		16	
42	AMPHIBIOLA	324			4		16	
43	AMPHIBIOLA	324			4		16	
44	AMPHIBIOLA	324			4		16	
45	AMPHIBIOLA	324			4		16	
46	AMPHIBIOLA	324			4		16	
47	AMPHIBIOLA	324			4		16	
48	AMPHIBIOLA	324			4		16	
49	AMPHIBIOLA	324			4		16	
50	AMPHIBIOLA	324			4		16	
51	AMPHIBIOLA	324			4		16	
52	AMPHIBIOLA	324			4		16	
53	AMPHIBIOLA	324			4		16	
54	AMPHIBIOLA	324			4		16	
55	AMPHIBIOLA	324			4		16	
56	AMPHIBIOLA	324			4		16	
57	AMPHIBIOLA	324			4		16	
58	AMPHIBIOLA	324			4		16	
59	AMPHIBIOLA	324			4		16	
60	AMPHIBIOLA	324			4		16	
61	AMPHIBIOLA	324			4		16	
62	AMPHIBIOLA	324			4		16	
63	AMPHIBIOLA	324			4		16	
64	AMPHIBIOLA	324			4		16	
65	AMPHIBIOLA	324			4		16	
66	AMPHIBIOLA	324			4		16	
67	AMPHIBIOLA	324			4		16	
68	AMPHIBIOLA	324			4		16	
69	AMPHIBIOLA	324			4		16	
70	AMPHIBIOLA	324			4		16	
71	AMPHIBIOLA	324			4		16	
72	AMPHIBIOLA	324			4		16	
73	AMPHIBIOLA	324			4		16	
74	AMPHIBIOLA	324			4		16	
75	AMPHIBIOLA	324			4		16	
76	AMPHIBIOLA	324			4		16	
77	AMPHIBIOLA	324			4		16	
78	AMPHIBIOLA	324			4		16	
79	AMPHIBIOLA	324			4		16	
80	AMPHIBIOLA	324			4		16	
81	AMPHIBIOLA	324			4		16	
82	AMPHIBIOLA	324			4		16	
83	AMPHIBIOLA	324			4		16	
84	AMPHIBIOLA	324			4		16	
85	AMPHIBIOLA	324			4		16	
86	AMPHIBIOLA	324			4		16	
87	AMPHIBIOLA	324			4		16	
88	AMPHIBIOLA	324			4		16	
89	AMPHIBIOLA	324			4		16	
90	AMPHIBIOLA	324			4		16	
91	AMPHIBIOLA	324			4		16	
92	AMPHIBIOLA	324			4		16	
93	AMPHIBIOLA	324			4		16	
94	AMPHIBIOLA	324			4		16	
95	AMPHIBIOLA	324			4		16	
96	AMPHIBIOLA	324			4		16	
97	AMPHIBIOLA	324			4		16	
98	AMPHIBIOLA	324			4		16	
99	AMPHIBIOLA	324			4		16	
100	AMPHIBIOLA	324			4		16	

Appendix Table 12.2 Continued

RANK	SPECIES	SITE ID						
		W183	W184	SP84	SUS3	SUS4	FAB3	
1:0	CHIRONOMIDAE	9		252				
2:0	STREBLOSPIRO BENEDICTI	107	4	68		1	5	
3:0	HOBSONIA FLORIDA	17		39				
4:0	OLIGOCHEATA						2	
5:0	NEMATODA	20	1	2		5	1	
6:0	PALAEEMONETES PUGIO	2						
7:0	CAPITELLA CAPITATA	2		3				
8:0	CUCULYDIDAE	1						
9:0	MYSTICOPUS ALMYRA							
10:0	COLLEMBOLA							
11:0	ARGULUS SP.						1	
12:0	MACOMA BALTHICA						1	
13:0	MACOMA SP.						1	
14:0	HYORORIIDIDAE	1						
15:0	LITTORINIDINAE	1						
16:0	STENONINEREIS MARTINI			1				
17:0	MESIONIDAE						1	

Appendix Table 12.2 Continued

RANK	SPECIES	SITE 2R					
		WI83	WI84	SP84	SU83	SU84	FA83
1	OLIGCHAETA	147				1	
2	HYDREYS	246			190		
3	NETELES	107			127	7	3
4	CHITONOMPIDAE	15			6		
5	STREBLOSPIO FLORIDA			72			
6	HYDROBIA DAE A	43	4		36	5	
7	HYDROBIA DAE B	51			1		
8	CALIGELLA CAPITATA	1		1	1		
9	MOLGULLANETES PUGIO	12		4	3	10	
10	PALAEOMONETES A	10		4	3	2	
11	HYDROPHILITES SP			3	2	2	
12	PALAEOMONETES CULVERTI			3	2	2	1
13	LAEONELLEIDAE	1		1	4	6	
14	STENOMYNEREIS MARTINI	3			4		
15	HYDROBIIIDAE	2			4		
16	HYDROBIIIDAE C	2			4		
17	HYDROBIIIDAE D						
18	AMPHARETIDAE						
19	PALAEOMONETES PUGIO *				2		
20	PALAEOMONETES VULGARIS				1		
21	CALIGELLA SAPIDUS	1			1		
22	NETELES SP. SP.			1			
23	HYDROBIIIDAE						
24	HYDROBIIIDAE						
25	HYDROBIIIDAE						
26	HYDROBIIIDAE						
27	HYDROBIIIDAE						
28	HYDROBIIIDAE						
29	HYDROBIIIDAE						
30	HYDROBIIIDAE						
31	HYDROBIIIDAE						
32	HYDROBIIIDAE						
33	HYDROBIIIDAE						
34	HYDROBIIIDAE						
35	HYDROBIIIDAE						
36	HYDROBIIIDAE						
37	HYDROBIIIDAE						
38	HYDROBIIIDAE						
39	HYDROBIIIDAE						
40	HYDROBIIIDAE						
41	HYDROBIIIDAE						
42	HYDROBIIIDAE						
43	HYDROBIIIDAE						
44	HYDROBIIIDAE						
45	HYDROBIIIDAE						
46	HYDROBIIIDAE						
47	HYDROBIIIDAE						
48	HYDROBIIIDAE						
49	HYDROBIIIDAE						
50	HYDROBIIIDAE						
51	HYDROBIIIDAE						
52	HYDROBIIIDAE						
53	HYDROBIIIDAE						
54	HYDROBIIIDAE						
55	HYDROBIIIDAE						
56	HYDROBIIIDAE						
57	HYDROBIIIDAE						
58	HYDROBIIIDAE						
59	HYDROBIIIDAE						
60	HYDROBIIIDAE						
61	HYDROBIIIDAE						
62	HYDROBIIIDAE						
63	HYDROBIIIDAE						
64	HYDROBIIIDAE						
65	HYDROBIIIDAE						
66	HYDROBIIIDAE						
67	HYDROBIIIDAE						
68	HYDROBIIIDAE						
69	HYDROBIIIDAE						
70	HYDROBIIIDAE						
71	HYDROBIIIDAE						
72	HYDROBIIIDAE						
73	HYDROBIIIDAE						
74	HYDROBIIIDAE						
75	HYDROBIIIDAE						
76	HYDROBIIIDAE						
77	HYDROBIIIDAE						
78	HYDROBIIIDAE						
79	HYDROBIIIDAE						
80	HYDROBIIIDAE						
81	HYDROBIIIDAE						
82	HYDROBIIIDAE						
83	HYDROBIIIDAE						
84	HYDROBIIIDAE						
85	HYDROBIIIDAE						
86	HYDROBIIIDAE						
87	HYDROBIIIDAE						
88	HYDROBIIIDAE						
89	HYDROBIIIDAE						
90	HYDROBIIIDAE						
91	HYDROBIIIDAE						
92	HYDROBIIIDAE						
93	HYDROBIIIDAE						
94	HYDROBIIIDAE						
95	HYDROBIIIDAE						
96	HYDROBIIIDAE						
97	HYDROBIIIDAE						
98	HYDROBIIIDAE						
99	HYDROBIIIDAE						
100	HYDROBIIIDAE						

Appendix Table 12.2 Continued

		SITE 2S					
RANK	SPECIES	WI83	WI84	SP84	SU83	SU84	FA83
1:0	OLIGOCHAETA	1819	96	1479	3254	2257	498
2:0	HYDROBIIA CAPITATA	1995			489	31	49
3:0	LITTORELLINOS MONROENSIS	292	35	130	616	1	39
4:0	CHIRONOMIIDAE	293		7	428	1	193
5:0	CHIRONOMIINERE A MARTINI	190	4	3	285	4	23
6:0	SIEBONIA FLORIDA	110	10	22	62	37	269
7:0	HYDROBIIIDAE A	349		95	72	106	116
8:0	HYDROBIIIDAE B	110			68		9
9:0	HYDROBIIIDAE D	110			68	10	4
10:0	HYDROBIIIDAE BENEDICTI	18	2	1	9		4
11:0	HYDROBIIIDAE C	162					7
12:0	PLAEMONEA PUGIO	4					
13:0	TABANIDAE	4		1			
14:0	ULCA SP	1					
15:0	LIBELLULIDAE	3					
16:0	LYEROPHONIDAE	1					
17:0	HYDROPHYLIDAE B	3					
18:0	HYDROPHYLIDAE	1					
19:0	DOLYCHOPODAE	3					
20:0	ECENAGRIDAE	1					
21:0	TIPULIDAE	3					
22:0	MEGALOPTERIDAE	1					
23:0	MEGALOPTERIDAE SUCCINEA						
24:0	MEGALOPTERIDAE CULVERI						
25:0	MEGALOPTERIDAE SP						
26:0	MEGALOPTERIDAE MURONATUS						
27:0	MEGALOPTERIDAE MUCRONATUS						
28:0	MEGALOPTERIDAE MUCRONATUS						
29:0	MEGALOPTERIDAE MUCRONATUS						
30:0	MEGALOPTERIDAE MUCRONATUS						
31:0	MEGALOPTERIDAE MUCRONATUS						
32:0	MEGALOPTERIDAE MUCRONATUS						
33:0	MEGALOPTERIDAE MUCRONATUS						
34:0	MEGALOPTERIDAE MUCRONATUS						
35:0	MEGALOPTERIDAE MUCRONATUS						
36:0	MEGALOPTERIDAE MUCRONATUS						
37:0	MEGALOPTERIDAE MUCRONATUS						
38:0	MEGALOPTERIDAE MUCRONATUS						
39:0	MEGALOPTERIDAE MUCRONATUS						
40:0	MEGALOPTERIDAE MUCRONATUS						
41:0	MEGALOPTERIDAE MUCRONATUS						
42:0	MEGALOPTERIDAE MUCRONATUS						
43:0	MEGALOPTERIDAE MUCRONATUS						
44:0	MEGALOPTERIDAE MUCRONATUS						
45:0	MEGALOPTERIDAE MUCRONATUS						
46:0	MEGALOPTERIDAE MUCRONATUS						
47:0	MEGALOPTERIDAE MUCRONATUS						
48:0	MEGALOPTERIDAE MUCRONATUS						
49:0	MEGALOPTERIDAE MUCRONATUS						
50:0	MEGALOPTERIDAE MUCRONATUS						

Appendix Table 12.2 Continued

RANK	SPECIES	SITE 2D						FAB3
		W183	W184	SP84	SU83	SU84		
1	ALANUS IMPROVISUS							
2	STREBLOSPIC BENEDICTI							P
3	CAPITATELLA CAPITATA	54	19	1		118		
4	MYSTIDACEAE	127				179		4
5	CHERONOMIDAE			6		19		
6	MYSTICOPUS SUCINEA	5						
7	STEMONINERIS MARIINI	1				1		
8	PALAEONERIS PUGIO			3				2
9	PERALAEONERIS FLORIDA							
10	HOLYCOCHMAETA	2						2
11	OLYCOCHMAETA	1		1				
12	MEREMIS TENA							
13	XACOMA TENA							
14	MEREMIS TENA							
15	MEREMIS TENA							
16	MEREMIS TENA							
17	MEREMIS TENA							
18	MEREMIS TENA							
19	MEREMIS TENA							
20	MEREMIS TENA							
21	MEREMIS TENA							
22	MEREMIS TENA							
23	MEREMIS TENA							
24	MEREMIS TENA							
25	MEREMIS TENA							
26	MEREMIS TENA							
27	MEREMIS TENA							
28	MEREMIS TENA							
29	MEREMIS TENA							
30	MEREMIS TENA							
31	MEREMIS TENA							
32	MEREMIS TENA							
33	MEREMIS TENA							
34	MEREMIS TENA							
35	MEREMIS TENA							
36	MEREMIS TENA							
37	MEREMIS TENA							
38	MEREMIS TENA							
39	MEREMIS TENA							
40	MEREMIS TENA							
41	MEREMIS TENA							
42	MEREMIS TENA							
43	MEREMIS TENA							
44	MEREMIS TENA							
45	MEREMIS TENA							
46	MEREMIS TENA							
47	MEREMIS TENA							
48	MEREMIS TENA							
49	MEREMIS TENA							
50	MEREMIS TENA							
51	MEREMIS TENA							
52	MEREMIS TENA							
53	MEREMIS TENA							
54	MEREMIS TENA							
55	MEREMIS TENA							
56	MEREMIS TENA							
57	MEREMIS TENA							
58	MEREMIS TENA							
59	MEREMIS TENA							
60	MEREMIS TENA							
61	MEREMIS TENA							
62	MEREMIS TENA							
63	MEREMIS TENA							
64	MEREMIS TENA							
65	MEREMIS TENA							
66	MEREMIS TENA							
67	MEREMIS TENA							
68	MEREMIS TENA							
69	MEREMIS TENA							
70	MEREMIS TENA							
71	MEREMIS TENA							
72	MEREMIS TENA							
73	MEREMIS TENA							
74	MEREMIS TENA							
75	MEREMIS TENA							
76	MEREMIS TENA							
77	MEREMIS TENA							
78	MEREMIS TENA							
79	MEREMIS TENA							
80	MEREMIS TENA							
81	MEREMIS TENA							
82	MEREMIS TENA							
83	MEREMIS TENA							
84	MEREMIS TENA							
85	MEREMIS TENA							
86	MEREMIS TENA							
87	MEREMIS TENA							
88	MEREMIS TENA							
89	MEREMIS TENA							
90	MEREMIS TENA							
91	MEREMIS TENA							
92	MEREMIS TENA							
93	MEREMIS TENA							
94	MEREMIS TENA							
95	MEREMIS TENA							
96	MEREMIS TENA							
97	MEREMIS TENA							
98	MEREMIS TENA							
99	MEREMIS TENA							
100	MEREMIS TENA							

Appendix Table 12.2 Continued

RANK	SPECIES	SITE JC						
		W183	W184	SP84	SU83	SU84	FA83	
00	BALANUS IMPROVISUS							
12	BALANUS SP. ARBORESCENS	20		P				P
23	MEMBRANIPORA VIRGINICA	352	21	P				
45	CRASSOPHILUM LACUSTRE	134	22	P				
56	STYLOGERES A. CULVERI	17		79			75	
67	LEONERIS SUCGINEA			50			58	
78	CAPITATA			66			114	
89	MEMERTIA NYTTIDA	1		57			26	
90	MEMERTIA NYTTIDA FILIFORMIS	16					11	
101	MEMERTIA NYTTIDA FLORIDA	24		18			3	
112	MURISONIA SP.			23			13	
113	MURISONIA SP.	15					1	
114	MURISONIA SP.						6	
115	MURISONIA SP.						11	
116	MURISONIA SP.			2				
117	MURISONIA SP.	8						
118	MURISONIA SP.	3						
119	MURISONIA SP.	1						
120	MURISONIA SP.	3					8	
121	MURISONIA SP.	5					4	
122	MURISONIA SP.	4						
123	MURISONIA SP.	4						
124	MURISONIA SP.	5						
125	MURISONIA SP.	3						
126	MURISONIA SP.	5						
127	MURISONIA SP.	3						
128	MURISONIA SP.	1						
129	MURISONIA SP.	1						
130	MURISONIA SP.	1						
131	MURISONIA SP.	1						
132	MURISONIA SP.	2						
133	MURISONIA SP.	1						
134	MURISONIA SP.	1						
135	MURISONIA SP.	1						
136	MURISONIA SP.	1						
137	MURISONIA SP.	1						
138	MURISONIA SP.	1						
139	MURISONIA SP.	1						
140	MURISONIA SP.	1						
141	MURISONIA SP.	1						
142	MURISONIA SP.	1						
143	MURISONIA SP.	1						
144	MURISONIA SP.	1						
145	MURISONIA SP.	1						
146	MURISONIA SP.	1						
147	MURISONIA SP.	1						
148	MURISONIA SP.	1						
149	MURISONIA SP.	1						
150	MURISONIA SP.	1						
151	MURISONIA SP.	1						
152	MURISONIA SP.	1						
153	MURISONIA SP.	1						
154	MURISONIA SP.	1						
155	MURISONIA SP.	1						
156	MURISONIA SP.	1						
157	MURISONIA SP.	1						
158	MURISONIA SP.	1						
159	MURISONIA SP.	1						
160	MURISONIA SP.	1						
161	MURISONIA SP.	1						
162	MURISONIA SP.	1						
163	MURISONIA SP.	1						
164	MURISONIA SP.	1						
165	MURISONIA SP.	1						
166	MURISONIA SP.	1						
167	MURISONIA SP.	1						
168	MURISONIA SP.	1						
169	MURISONIA SP.	1						
170	MURISONIA SP.	1						
171	MURISONIA SP.	1						
172	MURISONIA SP.	1						
173	MURISONIA SP.	1						
174	MURISONIA SP.	1						
175	MURISONIA SP.	1						
176	MURISONIA SP.	1						
177	MURISONIA SP.	1						
178	MURISONIA SP.	1						
179	MURISONIA SP.	1						
180	MURISONIA SP.	1						
181	MURISONIA SP.	1						
182	MURISONIA SP.	1						
183	MURISONIA SP.	1						
184	MURISONIA SP.	1						
185	MURISONIA SP.	1						
186	MURISONIA SP.	1						
187	MURISONIA SP.	1						
188	MURISONIA SP.	1						
189	MURISONIA SP.	1						
190	MURISONIA SP.	1						
191	MURISONIA SP.	1						
192	MURISONIA SP.	1						
193	MURISONIA SP.	1						
194	MURISONIA SP.	1						
195	MURISONIA SP.	1						
196	MURISONIA SP.	1						
197	MURISONIA SP.	1						
198	MURISONIA SP.	1						
199	MURISONIA SP.	1						
200	MURISONIA SP.	1						

Appendix Table 12.2 Continued.

RANK	SPECIES	SITE 3M					FA83
		W183	SP84	SUB3	SUB4	SUB5	
1	OLIGOCHEMIA BENEDICTI	239	843	1299	474	944	
2	STREPTOCHEMIA BENEDICTI	279	63	199	224	164	
3	MERETISUKIA SP.	169	79	170	223	153	
4	HYDROBII DAEPALUSTRIS	66	39	120	154	234	
5	GORCHESIA UHLERI	68	11	120	22	226	
6	MARSSIPPOGONIDAE	29	14	20	7	145	
7	CERATIELLA CAPITATA	70	16	20	7	226	
8	UCALIPIDAE	41	8	11	7	145	
9	HYDROBII DAEPALUSTRIS	41	19	11	7	145	
10	EPHYDRIDAE	32		22	21	45	
11	UCALIPIDAE	32		22	21	45	
12	UCALIPIDAE	32		22	21	45	
13	UCALIPIDAE	32		22	21	45	
14	UCALIPIDAE	32		22	21	45	
15	UCALIPIDAE	32		22	21	45	
16	UCALIPIDAE	32		22	21	45	
17	UCALIPIDAE	32		22	21	45	
18	UCALIPIDAE	32		22	21	45	
19	UCALIPIDAE	32		22	21	45	
20	UCALIPIDAE	32		22	21	45	
21	UCALIPIDAE	32		22	21	45	
22	UCALIPIDAE	32		22	21	45	
23	UCALIPIDAE	32		22	21	45	
24	UCALIPIDAE	32		22	21	45	
25	UCALIPIDAE	32		22	21	45	
26	UCALIPIDAE	32		22	21	45	
27	UCALIPIDAE	32		22	21	45	
28	UCALIPIDAE	32		22	21	45	
29	UCALIPIDAE	32		22	21	45	
30	UCALIPIDAE	32		22	21	45	
31	UCALIPIDAE	32		22	21	45	
32	UCALIPIDAE	32		22	21	45	
33	UCALIPIDAE	32		22	21	45	
34	UCALIPIDAE	32		22	21	45	
35	UCALIPIDAE	32		22	21	45	
36	UCALIPIDAE	32		22	21	45	
37	UCALIPIDAE	32		22	21	45	
38	UCALIPIDAE	32		22	21	45	
39	UCALIPIDAE	32		22	21	45	
40	UCALIPIDAE	32		22	21	45	
41	UCALIPIDAE	32		22	21	45	
42	UCALIPIDAE	32		22	21	45	
43	UCALIPIDAE	32		22	21	45	
44	UCALIPIDAE	32		22	21	45	
45	UCALIPIDAE	32		22	21	45	
46	UCALIPIDAE	32		22	21	45	
47	UCALIPIDAE	32		22	21	45	
48	UCALIPIDAE	32		22	21	45	
49	UCALIPIDAE	32		22	21	45	
50	UCALIPIDAE	32		22	21	45	
51	UCALIPIDAE	32		22	21	45	
52	UCALIPIDAE	32		22	21	45	
53	UCALIPIDAE	32		22	21	45	
54	UCALIPIDAE	32		22	21	45	
55	UCALIPIDAE	32		22	21	45	
56	UCALIPIDAE	32		22	21	45	
57	UCALIPIDAE	32		22	21	45	
58	UCALIPIDAE	32		22	21	45	
59	UCALIPIDAE	32		22	21	45	
60	UCALIPIDAE	32		22	21	45	
61	UCALIPIDAE	32		22	21	45	
62	UCALIPIDAE	32		22	21	45	
63	UCALIPIDAE	32		22	21	45	
64	UCALIPIDAE	32		22	21	45	
65	UCALIPIDAE	32		22	21	45	
66	UCALIPIDAE	32		22	21	45	
67	UCALIPIDAE	32		22	21	45	
68	UCALIPIDAE	32		22	21	45	
69	UCALIPIDAE	32		22	21	45	
70	UCALIPIDAE	32		22	21	45	
71	UCALIPIDAE	32		22	21	45	
72	UCALIPIDAE	32		22	21	45	
73	UCALIPIDAE	32		22	21	45	
74	UCALIPIDAE	32		22	21	45	
75	UCALIPIDAE	32		22	21	45	
76	UCALIPIDAE	32		22	21	45	
77	UCALIPIDAE	32		22	21	45	
78	UCALIPIDAE	32		22	21	45	
79	UCALIPIDAE	32		22	21	45	
80	UCALIPIDAE	32		22	21	45	
81	UCALIPIDAE	32		22	21	45	
82	UCALIPIDAE	32		22	21	45	
83	UCALIPIDAE	32		22	21	45	
84	UCALIPIDAE	32		22	21	45	
85	UCALIPIDAE	32		22	21	45	
86	UCALIPIDAE	32		22	21	45	
87	UCALIPIDAE	32		22	21	45	
88	UCALIPIDAE	32		22	21	45	
89	UCALIPIDAE	32		22	21	45	
90	UCALIPIDAE	32		22	21	45	
91	UCALIPIDAE	32		22	21	45	
92	UCALIPIDAE	32		22	21	45	
93	UCALIPIDAE	32		22	21	45	
94	UCALIPIDAE	32		22	21	45	
95	UCALIPIDAE	32		22	21	45	
96	UCALIPIDAE	32		22	21	45	
97	UCALIPIDAE	32		22	21	45	
98	UCALIPIDAE	32		22	21	45	
99	UCALIPIDAE	32		22	21	45	
100	UCALIPIDAE	32		22	21	45	

Appendix Table 12.3

Community structure values [number of individuals, number of species, species diversity (H'), evenness (S') and species richness (SR)] obtained by pooling data taken each sampling period from replicate quadrats.

STRATA	SEASON	NO. INDIV.	NO. SPECIES	H'	J'	SR
1R	WI(1)	806	9	1.55	0.49	1.19
	SU(1)	122	9	2.22	0.70	1.67
	FA	30	4	1.76	0.88	0.88
	WI(2)	26	6	1.87	0.72	1.53
	SP	5	5	2.32	1.00	2.49
	SU(2)	46	5	1.32	0.57	1.04
2R	WI(1)	215	13	2.20	0.59	2.23
	SU(1)	189	12	1.65	0.46	2.10
	FA	4	2	0.81	0.81	0.72
	WI(2)	59	6	1.32	0.51	1.23
	SP	14	6	2.32	0.89	1.89
	SU(2)	31	6	2.31	0.89	1.46
1Sp	WI(1)	757	12	1.95	0.54	1.66
	SU(1)	209	12	2.23	0.62	2.06
	FA	177	14	2.46	0.65	2.51
	WI(2)	20	2	0.29	0.29	0.33
	SP	6	4	1.79	0.89	1.67
	SU(2)	98	10	1.81	0.54	1.96
2S	WI(1)	931	11	2.18	0.63	1.46
	SU(1)	1700	15	2.40	0.61	1.88
	FA	467	12	1.86	0.52	1.79
	WI(2)	531	7	1.46	0.52	0.96
	SP	252	6	1.47	0.57	0.90
	SU(2)	198	11	2.01	0.58	1.89
1D	WI(1)	128	5	0.81	0.35	0.82
	SU(1)	2	2	1.00	1.00	1.44
	FA	8	4	1.55	0.77	1.44
	WI(2)	57	4	1.20	0.60	0.74
	SP	73	4	0.46	0.23	0.70
	SU(2)	6	2	0.65	0.65	0.56
2D	WI(1)	193	6	1.23	0.47	0.95
	SU(1)	0	0	--	--	--
	FA	9	4	1.84	0.92	1.37
	WI(2)	202	4	0.17	0.08	0.57
	SP	4	2	0.81	0.81	0.72
	SU(2)	204	6	1.21	0.47	0.94

Appendix Table 12.3 Continued

STRATA	SEASON	NO. INDIV.	NO. SPECIES	H'	J'	SR
3C	WI(1)	519	27	1.80	0.38	4.16
	SU(1)	278	13	2.48	0.67	2.13
	FA	160	17	2.52	0.62	3.15
	WI(2)	266	13	1.25	0.34	2.15
	SP	952	17	1.13	0.28	2.33
	SU(2)	266	16	2.75	0.69	2.69
3M	WI(1)	846	25	3.04	0.65	3.56
	SU(1)	328	20	2.87	0.66	3.28
	FA	267	22	2.34	0.52	3.76
	WI(2)	474	11	1.35	0.39	1.62
	SP	297	12	2.77	0.77	1.93
	SU(2)	146	17	3.24	0.79	3.21

SECTION VII

NEKTONIC COMMUNITY

Appendix Table 13.1

Numbers of samples scheduled (S) and collected (C) at each station during the macroplankton sampling program.

YEAR I	INTENSIVE & EXTENSIVE SAMPLES											
	GH01		GH02		SC01		I200		I400		TOTAL	
	S	C	S	C	S	C	S	C	S	C	S	C
JAN 83	2	2	2	2			2	2			6	6
FEB	15	15	15	15	12	12	15	13	12	10	69	65
MAR	16	15	16	15	12	11	16	13	12	10	72	64
APR	15	15	15	15	12	12	15	12	12	9	69	63
MAY	16	15	16	15	12	12	16	15	12	11	72	68
JUN	15	15	15	15	12	12	15	13	12	9	69	64
JUL	15	15	15	15	12	12	15	14	12	10	69	66
AUG	16	16	16	16	12	12	16	1	12	1	72	46
SEP	15	13	15	15	12	12	15	3	12	0	69	45
OCT	15	15	15	15	12	12	15	7	12	0	69	49
NOV	15	15	15	15	12	12	15	9	12	0	69	51
DEC	16	16	16	16	12	12	16	7	12	6	72	57
JAN 84	14	13	14	13	12	11	14	10	12	8	66	55
TOTAL	185	182	185	182	144	142	185	119	144	74	843	699
<u>YEAR II</u>												
FEB	2	2	2	2			2	2			6	6
MAR	2	2	2	2			2	2			6	6
APR	2	2	2	2			2	2			6	6
MAY	3	3	3	3			3	3			9	9
JUN	2	2	2	2			2	2			6	6
JUL	2	2	2	2			2	2			6	6
AUG	2	2	2	2			2	2			6	6
SEP	2	2	2	2			2	2			6	6
OCT	2	2	2	2			2	2			6	6
NOV	2	2	2	2			2	0			6	4
DEC	1	1	1	1			1	0			3	2
TOTAL	22	22	22	22			22	19			66	63

Appendix Table 13.1 Continued

	CH01		CH02		SPECIAL SAMPLES				TOTAL			
					SC01	I200	I400					
Draindown (May 83)						9	9	9	8	18	17	
Reflow (May 83)						2	2	2	2	4	4	
Water level reduction (Oct 83)						3	3	3	3	6	6	
Water level reduction (NOV 83)						3	3	3	3	6	6	
TOTAL	9	9				17	17	17	16	43	42	
All Samples	216	213	207	204	144	142	224	155	161	90	952	804

Appendix Table 13.2

Number of samples collected by month, and number of individuals and density of penaeids by month and species for all samples (Extensive, Intensive and Event) collected during Years I and II.

Month	Number of Samples	<i>P. aztecus</i>		<i>P. duorarum</i>		<i>P. setiferus</i>		<i>T. constrictus</i>		<i>P. sp.</i>		TOTAL	
		N	N/100 m ³	N	N/100 m ³	N	N/100 m ³	N	N/100 m ³	N	N/100 m ³	N	N/100 m ³
JAN	6	0		0		0		0		0		0	
FEB	65	0		0		0		0		0		0	
MAR	64	0		0		0		0		0		0	
APR	63	0		0		0		0		0		0	
MAY	89	305	9.07	23	0.71	0		0		33	1.01	361	10.79
JUN	64	12	0.39	20	0.65	46	1.50	33	1.08	8	0.26	119	3.88
JUL	66	10	0.33	184	6.05	968	31.81	43	1.41	9	0.30	1214	39.90
AUG	46	2	0.09	388	17.00	119	5.21	36	1.58	1	0.04	546	23.92
SEP	45	0		448	21.45	54	2.39	79	3.78	0		581	27.82
OCT	55	1	0.03	563	18.85	12	0.40	37	1.24	0		613	20.52
NOV	57	1	0.04	131	5.43	9	0.17	11	0.46	0		152	6.10
DEC	57	40	1.48	11	0.41	7	0.26	0		0		58	2.15
JAN	55	0		0		0		0		0		0	
FEB	6	1	0.27	0		0		0		0		1	0.27
MAR	6	0		0		0		0		0		0	
APR	6	37	11.40	0		0		0		0		37	11.40
MAY	9	49	20.33	0		0		0		0		49	20.33
JUN	6	0		1	0.56	0		0		0		1	0.56
JUL	6	0		108	35.39	0		0		0		108	35.39
AUG	15	1	0.46	225	42.24	0		7	1.31	0			
SEP	6	0		66	24.80	0		41	15.41	0		107	40.21
OCT	6	0		18	5.06	0		4	1.12	0		22	6.18
NOV	4	0		2	0.84	0		0		0		2	0.84
DEC	2	0		0		0		0		0		0	
YEAR I TOTAL	732	371	1.14	1768	5.46	1215	3.75	239	0.74	51	0.16	3644	11.25
YEAR II TOTAL	72	88	2.75	420	13.14	0		52	1.63	0		560	17.25
TWO-YEAR TOTAL	804	459	1.29	2188	6.15	1275	3.41	291	0.82	51	0.14	4204	11.81

Appendix Table 13.3

Dates, penaeid shrimp densities (N/100 m³), and water temperatures and salinities of Extensive macroplankton samples collected during Years I and II (19 Jan 83 - 5 Dec 84).

Date	<u>Penaeus</u> <u>setoensis</u>	<u>Penaeus</u> <u>duorarum</u>	<u>Penaeus</u> <u>setiferus</u>	<u>Trachypenaeus</u> <u>constrictus</u>	<u>Penaeus</u> <u>sp.</u>	All Penaeids	Temp. (°C)	Salinity (ppt)
YEAR I								
19 JAN 83	0	0	0	0	0	0	6.4	4.0
27	0	0	0	0	0	0	8.6	9.5
1 FEB	0	0	0	0	0	0	14.8	15.0
10	0	0	0	0	0	0	9.7	10.0
15	0	0	0	0	0	0	9.5	6.3
23	0	0	0	0	0	0	11.7	0.0
1 MAR	0	0	0	0	0	0	10.7	3.0
9	0	0	0	0	0	0	15.6	0.5
15	0	0	0	0	0	0	17.5	2.7
23	0	0	0	0	0	0	14.0	3.0
29	0	0	0	0	0	0	18.1	0.8
6 APR	0	0	0	0	0	0	17.0	1.5
12	0	0	0	0	0	0	18.1	1.4
19	0	0	0	0	0	0	14.4	0.5
28	0	0	0	0	0	0	17.9	1.1
7 MAY	17.03	0	0	0	27.86	44.89	23.4	3.0
12	22.63	0	0	0	12.73	35.36	23.8	12.8
17	17.30	4.12	0	0	2.47	23.89	22.3	19.5
24	6.26	0.89	0	0	0	7.15	24.2	21.5
30	5.40	1.80	0	0	0	7.20	26.6	25.5
8 JUN	0	0	0	0	0	0	25.0	20.5
15	1.20	0.40	0	0.68	0	2.28	27.2	25.4
22	0.82	0.82	8.99	0	0	10.63	26.8	24.2
28	0	3.48	6.97	0	0.70	11.15	28.9	21.9
6 JUL	0	5.58	507.18	0	0	512.76	27.8	15.1
12	0	15.09	5.66	5.66	1.33	27.74	30.6	22.3
19	0	59.50	104.80	0	0	164.30	30.4	25.3
27	0	15.42	60.27	1.40	0	77.09	29.4	27.1
2 AUG	3.07	35.28	24.54	0	0	62.89	31.6	26.3
9	0	34.82	17.41	5.80	0	58.03	30.8	26.4
16	0	28.33	6.89	0.77	0	35.99	27.0	29.3
25	0	19.58	8.97	3.26	0	31.81	29.2	24.9
30	0	72.16	0.93	1.85	0	74.94	31.1	25.6
7 SEP	0	62.41	9.93	0	0	72.34	32.4	28.4
12	0	58.10	3.71	1.24	0	63.05	30.5	28.2
20	0	7.72	0	0	0	7.72	26.0	25.4
26	0	13.93	0	2.46	0	16.39	23.4	26.9
5 OCT	0	20.06	2.08	4.84	0	26.98	25.7	27.7
11	0	49.37	0	2.51	0	51.88	22.9	30.9
20	0	24.61	0	0	0	24.61	21.4	29.6
27	0	243.58	0.95	0	0	244.53	17.2	29.5
3 NOV	0	12.02	1.00	0	0	13.02	18.0	31.0
8	0	7.13	0	0.71	0	7.84	17.1	31.9
16	0	2.68	0	0	0	2.68	16.0	24.9
21	0	1.65	0	0	0	1.65	16.6	23.9
2 DEC	6.48	1.29	0	0	0	7.77	12.2	22.3
5	0	0.91	0	0	0	0.91	17.0	24.5
13	6.73	0	1.68	0	0	8.41	15.4	18.0
19	0	0	3.18	0	0	3.18	12.0	9.4
31	0	0	0	0	0	0	4.0	3.0
4 JAN 84	0	0	0	0	0	0	6.6	6.0
9	0	0	0	0	0	0	8.6	6.3
18	0	0	0	0	0	0	9.0	12.1
TOTAL	1.34	13.83	15.56	0.61	0.53	31.87		

Appendix Table 13.3 Continued

Date	<u>Panaeus</u> <u>aztecus</u>	<u>Panaeus</u> <u>duorum</u>	<u>Panaeus</u> <u>setiferus</u>	<u>Trachypanaeus</u> <u>constrictus</u>	<u>Panaeus</u> <u>sp.</u>	All Panaeids	Temp. (°C)	Salini (ppt)
YEAR II								
1 FEB	0	0	0	0	0	0	7.9	0.9
16	0.52	0	0	0	0	0.52	14.8	13.7
2 MAR	0	0	0	0	0	0	10.1	1.1
19	0	0	0	0	0	0	20.6	1.2
3 APR	20.81	0	0	0	0	20.81	16.0	2.0
16	1.28	0	0	0	0	1.28	20.6	1.6
1 MAY	30.57	0	0	0	0	30.57	22.7	2.0
16	4.91	0	0	0	0	4.91	22.1	1.8
31	20.39	0	0	0	0	20.39	21.5	19.9
13 JUN	0	0	0	0	0	0	26.8	21.1
28	0	1.27	0	0	0	1.27	27.2	23.7
12 JUL	0	2.09	0	0	0	2.09	27.1	26.1
30	0	65.06	0	0	0	65.06	28.4	24.6
13 AUG	0.68	38.25	0	0	0	38.93	29.4	14.5
27	0	26.16	0	10.17	0	36.33	27.2	29.1
18 SEP	0	36.92	0	0	0	36.92	21.3	21.9
25	0	13.23	0	30.12	0	43.35	26.3	26.7
10 OCT	0	6.41	0	0	0	6.41	21.8	26.6
24	0	3.79	0	2.17	0	5.96	25.8	29.0
8 NOV	0	1.77	0	0	0	1.77	14.1	27.4
27	0	0	0	0	0	0	15.3	29.7
5 DEC	0	0	0	0	0	0	12.3	24.7
YEAR II	3.06	9.34	0	1.81	0	14.21		

Appendix Table 13.4

Catches of penaeid shrimps from intensive samples in relation to species, station, and month (N = number of individuals; N/100 m³ = number of individuals per 100 m³ of water filtered; Number of samples: CHO1 = 141, CHO2 = 141, SCO1 = 142, I200 = 82, I400 = 68).

	<u>Penaeus astecus</u>									
	N	CHO1 N/100 m ³	N	CHO2 N/100 m ³	N	SCO1 N/100 m ³	N	I200 N/100 m ³	N	I400 N/100 m ³
FEB	0		0		0		0		0	
MAR	0		0		0		0		0	
APR	0		0		0		0		0	
MAY	26	5.97	22	6.28	47	7.13	88	31.79	40	17.32
JUN	0		0		1	0.14	8	1.10	2	1.61
JUL	0		0		1	0.19	8	1.08	1	0.40
AUG	0		0		0		0		0	
SEP	0		0		0		0		0	
OCT	0		0		1	0.14	0		0	
NOV	0		0		1	0.14	0		0	
DEC	7	1.19	12	2.18	17	1.60	0		0	
JAN	0		0		0		0		0	
TOTAL	33	0.44	34	0.51	68	0.76	104	4.67	43	4.29

All Creek Stations
N/Station 45.0 N/100 m³ 0.58

All Impoundment Stations
N/Station 73.5 N/100 m³ 4.52

	<u>Penaeus duorarum</u>									
	N	CHO1 N/100 m ³	N	CHO2 N/100 m ³	N	SCO1 N/100 m ³	N	I200 N/100 m ³	N	I400 N/100 m ³
FEB	0		0		0		0		0	
MAR	0		0		0		0		0	
APR	0		0		0		0		0	
MAY	2	0.46	3	0.86	2	0.30	3	1.08	5	2.16
JUN	4	0.65	3	0.54	4	0.41	3	0.41	0	
JUL	32	4.72	16	3.32	22	4.28	15	2.03	3	1.21
AUG	40	7.29	58	11.28	111	15.20	15	32.40	2	12.27
SEP	87	16.71	96	21.61	190	23.95	2	17.54	0	
OCT	81	12.56	41	7.05	97	13.26	7	2.72	0	
NOV	43	7.00	25	4.57	49	6.73	0		0	
DEC	0		3	0.55	7	0.66	0		0	
JAN	0		0		0		0		0	
TOTAL	289	3.81	245	3.66	482	5.39	45	2.02	10	1.00

All Creek Stations
N/Station 338.7 N/100 m³ 4.37

All Impoundment Stations
N/Station 27.5 N/100 m³ 1.69

Appendix Table 13.4 Continued

	<u>Panaeus satiferus</u>									
	N	CH01 N/100 m ³	N	CH02 N/100 m ³	N	SC01 N/100 m ³	N	I200 N/100 m ³	N	I400 N/100 m ³
FEB	0		0		0		0		0	
MAR	0		0		0		0		0	
APR	0		0		0		0		0	
MAY	0		0		0		0		0	
JUN	4	0.65	1	0.18	18	2.52	1	0.14	1	0.81
JUL	17	2.51	19	3.94	21	4.09	46	6.21	25	10.09
AUG	8	1.46	11	2.14	46	6.30	16	34.56	1	6.14
SEP	7	1.34	13	2.93	31	3.91	0		0	
OCT	1	0.16	1	0.17	1	0.14	5	1.94	0	
NOV	0		1	0.18	2	0.27	1	1.02	0	
DEC	1	0.09	0		1	0.09	0		0	
JAN	0		0		0		0		0	
TOTAL	38	0.50	46	0.69	120	1.34	69	3.10	27	2.69

All Creek Stations
N/Station N/100 m³
68.0 0.88

All Impoundment Stations
N/Station N/100 m³
48.0 2.95

	<u>Trachypenaeus constrictus</u>									
	N	CH01 N/100 m ³	N	CH02 N/100 m ³	N	SC01 N/100 m ³	N	I200 N/100 m ³	N	I400 N/100 m ³
FEB	0		0		0		0		0	
MAR	0		0		0		0		0	
APR	0		0		0		0		0	
MAY	0		0		0		0		0	
JUN	1	0.17	2	0.36	13	1.82	1	0.14	16	12.91
JUL	7	1.03	8	1.66	5	0.97	7	0.95	14	5.65
AUG	5	0.91	7	1.36	10	1.37	5	10.80	2	12.27
SEP	16	3.07	18	4.05	41	5.17	0		0	
OCT	2	0.31	8	1.38	10	1.37	14	5.44	0	
NOV	1	0.16	3	0.55	6	0.82	0		0	
DEC	0		0		0		0		0	
JAN	0		0		0		0		0	
TOTAL	32	0.42	46	0.69	85	0.95	27	1.21	32	3.19

All Creek Stations
N/Station N/100 m³
54.3 0.70

All Impoundment Stations
N/Station N/100 m³
29.5 1.82

Appendix Table 13.5

Densities (N/100 m³) of portunid megalopae and crab stages of *C. sapidus* and temperature and salinity readings from Extensive samples. Stations CH01, CH02 and I200 are included in density estimates. Temperature and salinity readings are from station CH02. Numbers in () are numbers of individuals used in density calculations.

	Megalopae		Crab stages		Temp. (°C)	Sal (ppt).
	N	N/100 m	N	N/100 m		
19 Jan	0		0		6.4	4.0
27	0		0		8.6	9.5
1 Feb	2	1.36	13(12)	8.17	14.8	15.0
10	0		10(5)	3.88	9.7	10.0
15	0		1	0.71	9.5	6.3
23	0		1	0.70	11.7	0.0
1 Mar	0		1	0.55	10.7	3.0
9	0		3	2.06	15.6	0.5
15	0		2(1)	0.89	17.5	2.7
23	0		2	1.68	14.0	3.0
29	0		1	0.88	18.1	0.8
6 Apr	0		0		17.0	1.5
12	0		0		18.1	1.4
19	0		0		14.4	0.5
28	0		0		17.9	1.1
7 May	1	1.55	3(1)	1.55	23.4	3.0
12	1	1.41	11	15.56	23.8	12.8
17	53	43.66	16	13.18	22.3	19.5
24	28	25.02	0		24.2	21.5
30	17	15.30	3	2.70	26.6	25.5
8 Jun	0		2	3.60	25.0	20.5
15	0		0		27.2	25.4
22	7	5.72	0		26.8	24.2
28	6	4.18	9	6.27	28.9	21.9
6 Jul	2	1.60	8	6.38	27.8	15.1
12	0		0		30.6	22.3
19	141	125.2	0		30.4	25.3
27	14	9.81	18	12.61	29.2	27.1
2 Aug	25	38.34	3	4.60	31.6	26.3
9	25	24.18	9	8.70	30.8	26.4
16	59	45.18	2	1.53	27.0	29.3
25	59	48.12	8	6.52	29.2	24.9
30	56	51.80	11	10.18	31.1	25.6
7 Sep	14	19.86	3	4.26	32.4	28.4
12	77	95.18	15	18.54	30.5	28.2
20	9	7.72	11	9.43	26.0	25.4
26	207	169.67	3	2.46	23.4	26.9
5 Oct	71	49.10	9	6.22	25.7	27.7
11	130	108.89	3	2.51	22.9	30.9
20	15	16.78	2	2.24	21.4	29.6
27	114	108.47	0		17.2	29.5
3 Nov	40	40.08	1	1.00	18.0	31.0
8	333	237.35	1	0.71	17.1	31.9
16	171	229.2	2	2.68	16.0	24.9

Appendix Table 13.5 Continued

	Megalopae		Crab stages		Temp. ($^{\circ}$ C)	Sal (ppt).
	N	N/100 m	N	N/100 m		
21	92	75.78	1	0.82	16.6	23.9
2 Dec	44	29.77	3	1.94	12.2	22.3
5	5	4.57	0		17.0	24.5
13	31	52.19	25(3)	5.05	15.4	18.0
19	4	3.51	2	1.75	12.0	9.4
31	0		0		4.0	3.0
4 Jan	0		0		6.6	6.0
9	0		1	1.09	8.6	6.3
18	0		4	1.85	9.0	12.1

Appendix Table 13.6

Number of individuals collected (N) and density (N/100 m³) of portunid megalopae (2A) and crab stages of C. sapidus (2B) in relation to station and month from Intensive samples.

A. Portunid Megalopae

	CH01		CH02		SC01		I200		I400	
FEB	0		0		0		0		0	
MAR	0		0		0		0		0	
APR	0		0		0		0		0	
MAY	2	0.46	1	0.29	7	1.06	30(25)	9.03	3	1.30
JUN	0		0		1	0.14	0		0	
JUL	0		1	0.21	1	0.19	1	0.14	1	0.40
AUG	13	2.37	14	2.72	23	3.15	16	34.56	1	6.14
SEP	33	6.34	132	29.71	91	11.48	5	43.86	0	
OCT	106	16.43	124	21.33	92	12.58	28	10.87	0	
NOV	101	16.45	92	16.83	130	17.86	4	4.09	0	
DEC	66	11.20	17	3.09	42	3.96	0		0	
JAN	0		0		0		0		0	
TOTAL	321	4.23	381	5.68	387	4.33	84(79)	3.51	5	0.50

All Creek Stations

N/Station N/100 m³
 362.7 4.69

All Impoundment Stations

N/Station N/100 m³
 44.5 2.58

Appendix Table 13.6 Continued

B. Crab Stages

	CH01		CH02		SC01		I200		I400	
FEB	1	0.11	3	0.38	8	0.92	0		6(0)	--
MAR	5	0.55	4	0.49	4	0.53	5(0)	--	1(0)	--
APR	0		0		1	0.19	0		0	
MAY	5	1.15	4	1.14	3	0.46	25(24)	8.67	10(9)	3.90
JUN	1	0.16	1	0.18	1	0.14	14	1.92	3	2.40
JUL	0		0		1	0.19	6	0.81	2	0.81
AUG	3	0.55	3	0.58	8	1.10	9	19.44	0	
SEP	7	1.34	7	1.58	10	1.26	1	8.77	0	
OCT	4	0.62	5	0.86	3	0.41	15	5.83	0	
NOV	4	0.65	3	0.55	1	0.14	0		0	
DEC	2	0.34	10	1.82	3	0.28	1	2.53	3	5.80
JAN	0		0		0		0		0	
TOTAL	32	0.42	40	0.60	43	0.48	76(70)	3.11	25(17)	1.70

All Creek Stations

<u>N/Station</u>	<u>N/100 m³</u>
38.3	0.50

All Impoundment Stations

<u>N/Station</u>	<u>N/100 m³</u>
50.5	2.68

Appendix Table 13.7

Number of individuals (N) and density (N/100 m³) of Palaemonetes and temperature and salinity readings from Year I Extensive Samples. (NV = no volume calculated; NS = no sample taken).

	CHO1		CHO2		I200		Temp. (°C)	Salinity (ppt)
	N	N/100 m ³	N	N/100 m ³	N	N/100 m ³		
19 Jan	3	NV	9	NV	3	NV	6.4	4.0
27	17	52.31	2	4.18	48	NV	8.6	9.5
1 Feb	1126	1414.57	230	342.26	1454	NV	14.8	15.0
10	183	290.48	287	436.17	749	NV	9.7	10.0
15	211	281.33	94	144.39	4	NV	9.5	6.3
23	6	7.70	5	7.70	26	NV	11.7	0.0
1 Mar	21	20.83	6	7.47	7	NV	10.7	3.0
9	78	98.24	71	107.25	14	NV	15.6	0.5
15	29	42.90	11	24.89	738	NV	17.5	2.7
23	152	227.89	28	60.22	5	80.65	14.0	3.0
29	113	165.69	34	77.10	96	8000.00	18.1	0.8
6 Apr	33	62.74	18	36.73	0		17.0	1.5
12	9	12.15	11	22.04	136	13600.00	18.1	1.4
19	31	68.89	171	511.98	13	1300.00	14.4	0.5
28	4	14.60	1	3.24	0		17.9	1.1
7 May	116	316.08	71	254.48	572	NV	23.4	3.0
12	86	189.85	46	219.05	2936	66,727.27	23.8	12.8
17	16	57.14	3	18.29	4090	5311.69	22.3	19.5
24	23	51.45	35	66.54	443	3034.25	24.2	21.5
30	245	392.00	0		17898	88,603.96	26.6	25.5
8 Jun	109	372.01	149	610.66	13041	724,500.00	25.0	20.5
15	13	22.30	4	9.03	965	657.36	27.2	25.4
22	10	17.39	62	110.52	232	2666.67	26.8	24.2
28	184	343.93	101	209.54	2232	5339.71	28.9	21.9
6 Jul	101	258.97	43	88.48	1204	3185.19	27.8	15.1
12	0		18	68.97	69	224.76	30.6	22.3
19	69	115.38	73	138.26	NS		30.4	25.3
27	104	172.19	12	41.24	204	383.46	29.4	27.1
2 Aug	6	15.83	16	58.61	NS		31.6	26.3
9	0		7	33.18	437	943.84	30.8	26.4
16	19	28.83	28	43.28	NS		27.0	29.3
25	73	97.86	31	64.58	NS		29.2	24.9
30	12	22.43	23	42.12	NS		31.1	25.6
7 Sep	1	2.66	2	7.63	45	671.64	32.4	28.4
12	151	381.31	93	225.18	NS		30.5	28.2
20	20	38.61	18	40.54	5	24.51	26.0	25.4
26	13	19.82	11	19.50	NS		23.4	26.9
5 Oct	1	2.09	0		520	947.18	25.7	27.7
11	0		9	16.07	NS		22.9	30.9
20	0		8	18.65	NS		21.4	29.6
27	8	16.03	9	18.11	3	54.55	17.2	29.5
4 Nov	3	5.75	1	2.68	22	213.59	18.0	31.0
8	5	8.25	25	37.65	13	97.74	17.1	31.9
16	9	18.15	16	68.38	28	1750.00	16.0	24.9
21	1	1.86	3	5.05	6	72.29	16.6	23.9

Appendix Table 13.7 Continued

	CHO1		CHO2		N	I200 N/100 m ³	Temp. (°C)	Salinity (ppt)
	N	N/100 m ³	N	N/100 m ³				
2 Dec	21	27.38	28	39.38	45	681.82	12.2	22.3
5	6	11.09	11	21.19	41	1205.88	17.0	24.5
13	9	27.78	8	29.63	54	NV	15.4	18.0
19	53	80.06	106	221.29	6	50.83	12.0	9.4
31	0		0		14	129.61	4.0	3.0
4 Jan	148	233.07	69	123.21	8	58.82	6.6	6.0
9	117	248.41	57	154.05	71	922.08	8.6	6.3
18	120	176.21	172	225.13	2235	3108.48	9.0	12.1
TOTAL	3885 (3888)	134.27	2337 (2346)	96.59	57,043 (53,378)	6562.00		

Appendix Table 14.1 Catches of larval and juvenile fishes by station and year arranged in phylogenetic order.
 CCS = Chainey Creek surface; CCB = Chainey Creek bottom; MFC = marsh feeder creek;
 IMP = water control structure at a given impoundment.

	JANUARY 1983 - JANUARY 1984				FEBRUARY - DECEMBER 1984				TOTAL	
	CCS	CCB	MFC	IMP2	IMP3	IMP4	CCS	CCB		IMP2
<u>Elopidae</u>										
<u>Elops saurus</u>	14	5	20	4	-	1	-	-	-	5
<u>Megalops atlanticus</u>	1	1	-	663	-	853	4	3	86	1648
<u>Anguilliformes</u>	1	-	-	26	-	-	-	-	-	31
<u>Anguillidae</u>										
<u>Anguilla rostrata</u>	7	5	2	7	-	-	-	2	3	26
<u>Ophichthidae</u>										
<u>Myrophis punctatus</u>	26	12	7	44	-	16	3	1	2	111
<u>Clupeidae</u>										
<u>Brevoortia tyrannus</u>	468	551	207	92	-	2	239	134	8	1701
<u>Dorosoma petenense</u>	3	3	-	-	-	-	-	-	-	6
<u>Engraulidae</u>										
<u>Anchoa hepsetus</u>	109	143	194	99	-	89	2	1	2	639
<u>Anchoa mitchilli</u>	3	2	-	1	1	-	-	-	-	7
	443	506	395	726	-	123	118	137	55	2503
<u>Ictaluridae</u>										
<u>Ictalus catus</u>	-	-	-	1	-	-	-	-	-	1
<u>Batrachoididae</u>										
<u>Opsanus tau</u>	1	-	-	-	-	-	-	-	-	1
<u>Cyprinodontidae</u>										
<u>Cyprinodon variegatus</u>	5	3	6	130	7	21	1	-	3	176
<u>Fundulus sp.</u>	19	10	30	21	-	34	-	-	2	117
<u>Fundulus confluentus</u>	-	-	-	2	-	-	-	-	-	2
<u>Fundulus heteroclitus</u>	2	-	6	73	5	134	-	-	26	246
<u>Lucania parva</u>	1	4	2	123	3	10	-	1	7	151
<u>Poeciliidae</u>										
<u>Gambusia affinis</u>	3	4	2	37	2	98	-	-	1	147
<u>Poecilia latipinna</u>	-	-	-	37	-	151	-	-	-	188
<u>Atherinidae</u>										
<u>Menidia menidia</u>	7	1	6	4	-	53	-	-	-	72
<u>Menidia beryllina</u>	-	5	-	5	1	-	-	-	-	11
	7	12	26	408	23	149	-	1	49	675
<u>Syngnathidae</u>										
<u>Syngnathus sp.</u>	-	1	-	2	-	-	-	-	-	3
<u>Syngnathus fuscus</u>	1	2	-	2	-	4	-	-	-	9
<u>Syngnathus louisianae</u>	1	2	7	5	1	3	1	1	1	19
<u>Syngnathus scovelli</u>	5	7	4	8	-	-	-	-	-	24

Appendix Table 14.1 Continued

	JANUARY 1983			JANUARY 1984			FEBRUARY - DECEMBER 1984			TOTAL
	CCS	CC3	MEC	IMP2	IMP3	IMP4	CCS	CC3	IMP2	
<u>Trilidae</u>										
<u>Prionotus</u> sp.	-	-	-	-	-	-	1	-	-	1
<u>Prionotus carolinus</u>	1	-	-	-	-	-	-	-	-	1
<u>Prionotus scitulus</u>	-	-	1	-	-	-	-	-	-	1
<u>Prionotus tribulus</u>	1	-	-	-	-	-	-	-	-	1
<u>Serranidae</u>										
<u>Mycteroperca microlepis</u>	-	-	-	-	-	-	1	-	-	1
<u>Centrarchidae</u>										
<u>Lepomis gulosus</u>	-	-	-	-	-	-	-	-	1	1
<u>Carangidae</u>										
<u>Caranx hippos</u>	1	-	-	1	-	1	-	-	-	3
<u>Lutjanidae</u>										
<u>Lutjanus griseus</u>	-	1	1	-	-	-	-	-	-	2
<u>Gerreidae</u>										
<u>Gerreidae Type I</u>	50	33	37	30	-	1	4	6	5	166
<u>Gerreidae Type II</u>	-	-	1	6	-	-	-	-	-	7
<u>Haemulidae</u>										
<u>Orthopristis chrysopterus</u>	2	-	-	-	-	-	-	-	-	2
<u>Sparidae</u>										
<u>Archosargus probatocephalus</u>	2	-	-	-	-	-	-	-	-	2
<u>Diplodus holbrooki</u>	1	-	-	-	-	-	-	-	-	1
<u>Lagodon rhomboides</u>	1104	555	824	220	23	3	34	23	129	2729
<u>Sciaenidae</u>										
<u>Bairdiella chrysoura</u>	8	20	29	36	-	25	2	-	-	131
<u>Cynoscion nebulosus</u>	62	78	71	93	-	8	46	22	29	363
<u>Cynoscion regalis</u>	12	12	18	2	-	-	-	-	2	46
<u>Leiostomus xanthurus</u>	101	67	98	74	-	106	33	21	195	695
<u>Menticirrhus</u> sp.	10167	7093	9638	796	14	20	657	479	588	29452
<u>Microponogonias undulatus</u>	9	7	10	14	-	12	-	-	-	57
<u>Pogonias cromis</u>	1150	1238	667	505	7	355	99	92	41	4154
<u>Sciaenops ocellatus</u>	3	3	15	8	-	5	-	-	-	34
<u>Stellifer lanceolatus</u>	23	29	85	-	-	-	2	2	-	141
<u>Ephippidae</u>										
<u>Gaetodipterus faber</u>	1	-	1	1	-	-	-	-	-	3
<u>Mugilidae</u>										
<u>Mugil cephalus</u>	137	82	70	331	6	325	2	3	2142	3098
<u>Mugil curema</u>	-	-	-	-	-	3	-	-	-	3

Appendix Table 14.1 Continued

	JANUARY 1983 - JANUARY 1984				FEBRUARY - DECEMBER 1984				TOTAL	
	CCS	CCB	MFC	IMP2	IMP3	IMP4	CCS	CCB		IMP2
Blenniidae										
<u>Hypsoblennius sp.</u>	1	1	1	-	-	1	-	-	-	4
Eleotridae										
<u>Dormitator maculatus</u>	-	2	1	3	-	3	-	1	1	3
<u>Eleotris pisonis</u>	-	-	1	-	-	-	-	-	-	1
Gobiidae										
<u>Evorthodus lyricus</u>	27	21	17	21	-	3	-	-	11	100
<u>Gobionellus sp.</u>	-	1	-	-	-	-	-	2	2	5
<u>Gobionellus boleosoma</u>	116	93	109	42	1	6	13	14	12	406
<u>Gobionellus basiratus</u>	9	7	10	14	-	12	-	3	2	57
<u>Gobionellus shufeldti</u>	16	5	5	4	-	3	1	-	2	38
<u>Gobiosoma sp.</u>	10	21	4	3	-	1	-	-	-	39
<u>Gobiosoma bosci</u>	437	356	438	284	3	74	102	66	94	1854
<u>Gobiosoma ginsburgi</u>	33	11	7	7	-	2	-	-	-	60
<u>Microgobius sp.</u>	1	-	-	-	-	-	-	-	-	1
<u>Microgobius thalassinus</u>	57	44	113	14	-	-	1	3	3	235
Bothidae										
<u>Citharichthys spilopterus</u>	8	11	3	-	-	-	3	-	-	25
<u>Etropus crossotus</u>	-	1	1	-	-	-	-	-	-	2
<u>Paralichthys albigutta</u>	2	2	-	-	-	-	-	-	-	4
<u>Paralichthys dentatus</u>	31	32	28	3	-	-	5	3	-	102
<u>Paralichthys lethostigma</u>	36	38	21	1	-	-	5	7	2	110
Soleidae										
<u>Trinectes maculatus</u>	5	10	5	1	-	3	-	1	-	26
Cynoglossidae										
<u>Symphurus civitatum</u>	-	-	-	-	-	-	1	-	-	1
<u>Symphurus plagiosa</u>	61	32	35	6	-	1	29	31	19	260
Balistidae										
<u>Stephanolepis hispidus</u>	2	-	2	2	-	1	-	-	-	7
Tetraodontidae										
<u>Sphaeroides sp.</u>	1	-	-	-	-	-	-	-	-	1

Appendix Table 14.2 Fishes collected by ichthyoplankton nets at all stations from January 1983 to January 1984 (Year I) by month
 mean (\bar{x} SL) and range of their standard lengths in mm.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan
<u>Leiostomus</u>													
<u>xanthurus</u>													
total N	423	16633	8667	1755	187	16	1						35
\bar{x} SL	15	16	18	20	30	51	12						13
range SL	12-19	13-47	12-25	12-40	8-80	43-76							10-15
total N	133	1233	528	128	1193	4			9	224	54	388	
\bar{x} SL	12	14	16	16	16	24			5	9	12	13	
range SL	9-20	9-46	11-33	10-32	7-59	20-27			4-7	7-14	8-18	10-23	
<u>Microgogonias</u>													
<u>undulatus</u>													
total N	49	1828	803	10	15								15
\bar{x} SL	13	14	14	16	18								13
range SL	12-15	11-19	12-17	14-17	12-24						12-13	12-13	11-14
total N	8	27	1	2	433	467	555	630	123	28	3	22	
\bar{x} SL	27	24-32	27	9	31	38	15	17	20	25	19	35	
range SL				8-12	15-50	10-47	10-30	8-44	9-41	10-43	16-20	20-46	
total N	3	10	3	2	18	531	224	334	429	38	7	5	
\bar{x} SL	10	8-12	8-11	8-10	9	8	8	8	7	8	27	22	
range SL						3-14	4-17	3-28	3-25	3-16	22-36	22	
total N	4	32	473	738	104								
\bar{x} SL	25-43	22-31	21-29	24-35	28	43	20	3					
range SL					19-40	21-52	16-27	17-20					
total N	347	45	6	6	398	2	2						135
\bar{x} SL	22	20	21	28	28	36	70						30
range SL	18-24	19-26	15-25	20-22	21-42	32-40	44-95						23-23
total N	1	1	45	45	210	263	100	13	2				4
\bar{x} SL	9	9	8	8	8	6	6	7	8				23
range SL			4-12	4-16	4-16	4-15	4-10	3-15	4-12				23-23
total N	7	30	141	1	242	142	22	1	3				34
\bar{x} SL	26	28	40	35	42	35	17	32	13				39
range SL	24-28	19-33	36-43		10-70	10-50	7-47		7-16				25-25
total N			103	65	144	31	1						1
\bar{x} SL			7	13	5	6	5						5
range SL			4-11	4-57	3-10								3-10
<u>Cynoscion</u>													
<u>regalis</u>													

Appendix Table 14.2 Continued

<u>Gobioneilus</u>	total N	8	18	12	5	8	34	100	54	37	21	70
<u>boleosoma</u>	\bar{x} SL	11	10	9	10	9	9	7	7	8	11	11
	range SL	10-12	9-11	9-11	10-10	8-10	7-22	5-8	6-22	7-10	7-21	7-30
<u>Bairdiella</u>	total N	18	177	52	19							
<u>chryseura</u>	\bar{x} SL	7	10	29	8							
	range SL	4-14	3-24	18-50	4-12							
<u>Microgobius</u>	total N	1	5	2	52	156	12					
<u>thalassinus</u>	\bar{x} SL	14	10	11	8	7	9					
	range SL	8-13	10-11	5-13	3-13	5-14						
<u>Fundulus</u>	total N	13	22	18	55	2	4					
<u>heteroclitus</u>	\bar{x} SL	40	25	26	25	61	33					
	range SL	19-61	14-54	15-47	13-36	57-65	23-42					
<u>Poecilia</u>	total N	1	2	58	3	4						
<u>latipinna</u>	\bar{x} SL	30	30	22	22	33						
	range SL	28-31	28-31	25-36	16-30	25-42						
<u>Symphurus</u>	total N	3	10		3	43						
<u>plagiusa</u>	\bar{x} SL	34	31		12	10						
	range SL	25-46	28-34		11-13	8-15						
<u>Cyprinodon</u>	total N	1	117	6	8	2	6					
<u>variegatus</u>	\bar{x} SL	34	32	28	29	19	21					
	range SL	25-46	26-30		25-32	13-28						
<u>Cerreidae type 1</u>	total N				2	1	1					
	\bar{x} SL				11	11	16					
	range SL				10-12							
<u>Gambusia</u>	total N	1	12	13	9	5	11					
<u>affinis</u>	\bar{x} SL	18	17	18	16	16	17					
	range SL		11-22	10-24	8-22	9-22	8-31					
<u>Lucania</u>	total N		29	69	1	21	1					
<u>parva</u>	\bar{x} SL		25	24	26	26	8					
	range SL		18-31	21-30	21-32							
<u>Sciaenops</u>	total N		1									
<u>ocellatus</u>	\bar{x} SL		46									
	range SL											
<u>Sciaenidae</u>	total N		36	26		38						
	\bar{x} SL		3	4		4						
	range SL		3-4	3-4		3-5						
<u>Fundulus sp.</u>	total N		102	8		1						
	\bar{x} SL		6	5		7						
	range SL		1-10	2-7								

Appendix Table 14.2 Continued

<u>Myrophis punctatus</u>	total N 2 68 65-71	19 55 43-67	13 50 43-62	9 45 43-48	57 54 43-68	1 72	2 95 78-112	1 103	1 108
<u>Paralichthys lethostigma</u>	total N 1 12	31 12 9-14	43 12 12-13	4 21 18-25	1 26				
<u>Paralichthys dentatus</u>	total N 1 12	40 14 12-15	47 14 12-16	5 23 19-29	1 25				
Gobiidae	total N 7 11 8-13	14 5 3-9		15 4 3-6	33 5 3-8	17 5 2-7	3 5 3-7		
Atherinidae	total N 24 5 3-7	2 4 4-4		43 5 3-8	2 5 3-5				
<u>Gobiosoma ginsburgi</u>	total N 8 9 8-11					42 10 5-11	10 10 8-11*		
<u>Gobionellus hastatus</u>	total N 1 13	36 12 8-16		2 7 7-7	2 8 7-9	1 7	5 11 9-12	3 20 10-40	
<u>Menticirrhus sp.</u>	total N 10 5 4-7	40 6 5-7				1 3			
<u>Cynoscion nebulosus</u>	total N 1 3	18 5 4-8		23 4 2-10					
<u>Gobiosoma sp.</u>	total N 4 4 3-6					7 2			
<u>Pogonias cromis</u>	total N 33 6 5-7	1 3							
<u>Cobionellus shufeldti</u>	total N 3 10 9-11	10 10 6-32				7 9 8-9			1 2 16 13-19
<u>Megalops atlanticus</u>	total N 3 19 17-20	15 18 16-20				4 14 12-19	2 20 18-22	4 19 16-20	

Appendix Table 14.2 Continued

<u>Cobionellus</u> sp.	total N X SL range SL		2	4	
<u>Dorosoma</u> <u>potanense</u>	total N X SL range SL	5 45 42-50			1 61
<u>Elopidae</u>	total N X SL range SL		3		
<u>Paralichthys</u> <u>albigutta</u>	total N X SL range SL	1 11 10-12			3 11
<u>Hypsobiennius</u> sp.	total N X SL range SL		1 4	1 5	1 9
<u>Caranx</u> <u>hippos</u>	total N X SL range SL		3 22 20-25		
<u>Chaetodipterus</u> <u>faber</u>	total N X SL range SL			1 6	1 6
<u>Cyprinodontidae</u>	total N X SL range SL		3		
<u>Eleotridae</u>	total N X SL range SL		2	1	
<u>Mugil</u> <u>curama</u>	total N X SL range SL		3 30 27-32		1 2
<u>Syngnathus</u> sp.	total N X SL range SL				2 2 2-2
<u>Blenniidae</u>	total N X SL range SL				
<u>Etronus</u> <u>clausotus</u>	total N X SL range SL			1 10	1 10

Appendix Table 14.2 Continued

<u>Fundulus</u> <u>confluentus</u>	total N x̄ SL range SL	1 1 26	1 1 26	
<u>Lutjanus</u> <u>griseus</u>	total N x̄ SL range SL	1 1 17	1 1 17	1 1 13
<u>Orthopristia</u> <u>chrysoptera</u>	total N x̄ SL range SL	1 1 10	1 1 9	
<u>Sparidae</u>	total N x̄ SL range SL	2		
<u>Anguilliformes</u>	total N x̄ SL range SL			1
<u>Archosargus</u> <u>probatocephalus</u>	total N x̄ SL range SL			1 90
<u>Diplodus</u> <u>holbrooki</u>	total N x̄ SL range SL	1 1 10		
<u>Ictalurus</u> <u>catus</u>	total N x̄ SL range SL	1 1 72		
<u>Opsanus</u> <u>tau</u>	total N x̄ SL range SL		1 1 18	
<u>Prionotus</u> <u>carolinus</u>	total N x̄ SL range SL	1 1 7		
<u>Prionotus</u> <u>acitulus</u>	total N x̄ SL range SL	1 1 6		
<u>Prionotus</u> <u>tribulus</u>	total N x̄ SL range SL			1 12
<u>Sphaeroides</u> sp.	total N x̄ SL range SL			1 1

Appendix Table 14.2 Continued

<u>Electris</u>	total N	1
<u>Pisania</u>	\bar{x} SL	13
	range SL	
<u>Evorthodus</u>	total N	1
<u>lyricus</u>	\bar{x} SL	7
	range SL	

Appendix Table 14.3 Fishes collected by ichthyoplankton nets at all stations from February to December 1984 (Year II) by month with minimum and maximum sizes; SL = standard length mm.

	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<u>Mugil cephalus</u>	total N range SL	849 25-31	1297 20-37	1 20							
<u>Leiostomus xanthurus</u>	total N range SL	561 12-20	900 12-23	251 12-29	11 20-43	1 36					
<u>Brevoortia tyrannus</u>	total N range SL	1 30	359 17-28	19 21-30	2 28-30						
<u>Anchoa mitchilli</u>	total N range SL	1 30		7 15-22		67 9-30	155 9-38	76 14-34	3 16-25		1 31
<u>Gobiosoma bosci</u>	total N range SL			192 7-10	6 6-9	11 5-10	33 8-25	76 5-23	2 7-8		
<u>Cynoscion regalis</u>	total N range SL			245 4-19	1 23		3 5-9				
<u>Microponogonias undulatus</u>	total N range SL	41 12-20	39 12-22	9 11-25				2 6-9	99 6-11	27 7-25	15 9-17
<u>Legodon rhomboides</u>	total N range SL	75 11-17	109 10-15	2 13-14							
<u>Beirardiella chrysoira</u>	total N range SL			96 4-9		1 10					
<u>Elops saurus</u>	total N range SL			16 20-29	22 25-26	47 19-25	5 22-27		2 25-30		
<u>Symphurus plagiosa</u>	total N range SL	1 21		1 24		28 9-9	22 8-17	10 7-31	2 11-43		
<u>Menidia beryllina</u>	total N range SL	39 20-46	8 19-39			2 35-36		1 8			
<u>Gobionellus boleosoma</u>	total N range SL	8 9-10	8 8-10	4 7-11		10 6-14		1 8	6 8-8	3 8-11	
<u>Fundulus heteroclitus</u>	total N range SL	24 29-47	2 14-24								
<u>Dormitator maculatus</u>	total N range SL			3 8-9	2 8-9	2 26-28					
<u>Gerreidae Type I</u>	total N range SL					7 9-10	1 11	1 10	4 11-11	2 11-11	

Appendix Table 14.3 Continued

	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<u>Paralichthys</u> total N	7	4	2								
<u>lethostigma</u> range SL	11-12	11-12	22-22								
Sciaenidae total N				13							
range SL											
Gobiidae total N			1	10							
range SL				7-7							
<u>Lucenia</u> total N	2	5	1								
<u>parva</u> range SL	16-24	19-22	18								
<u>Paralichthys</u> total N	7	12-22									1
<u>dentatus</u> range SL											12
<u>Microgobius</u> total N						4	1	1	1		
<u>thalassinus</u> range SL						9-11	10	10	11		
<u>Myrophis</u> total N	2	1	3								
<u>punctatus</u> range SL	45-94	98	45-49								
<u>Anguilla</u> total N		4	1								
<u>rostrata</u> range SL		50-55	47								
<u>Cobionellus</u> total N			4	1							
<u>hastatus</u> range SL			12-16	12							
Engraulidae total N				1		2	1			1	
range SL				11		6-6	7			8	
<u>Cobionellus</u> total N		1	1								
<u>shufeldti</u> range SL		9	9			3					
<u>Cyprinodon</u> total N	1			3							
<u>variegatus</u> range SL	22			15-27							
Sciaenops total N							1	2	1		
<u>ocellatus</u> range SL							5	5-5	7		
<u>Evorthodus</u> total N			1	2				1			
<u>lyricus</u> range SL			9	8-8				8			
<u>Citharichthys</u> total N			3								
<u>spilopterus</u> range SL			10-10								
<u>Fundulus</u> sp. total N				2			1				
range SL				6-6			6				

Appendix Table 14.3 Continued

	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<u>Megalops atlanticus</u>					2	1					
total N					2	1					
range SL					19-21	14					
<u>Syngnathus louisianae</u>						1		1			
total N						1		1			
range SL						56		57			
<u>Cynoscion nebulosus</u>				2							
total N				2							
range SL				5-6							
<u>Trinectes maculatus</u>	1			1							
total N	1			1							
range SL	24			34							
<u>Gambusia affinis</u>				1							
total N				1							
range SL				12							
<u>Gobionellus sp.</u>				1							
total N				1							
range SL											
<u>Lepomis gulosus</u>				1							
total N				1							
range SL				43							
<u>Atherinidae</u>											
total N											
range SL											1
<u>Microgobius sp.</u>							1				
total N							1				
range SL											
<u>Mycteroperca microlepis</u>				1							
total N				1							
range SL				15							
<u>Prionotus sp.</u>				1							
total N				1							
range SL											
<u>Symphurus civitatum</u>											1
total N											1
range SL											10
<u>Syngnathus fuscus</u>				1							
total N				1							
range SL				35							

Appendix Table 14.4A

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the ladyfish Elops saurus, by habitat.

Taxon food item	Impoundment			F	IRI	Creek			V	IRI
	N	V	F			N	F	N		
Crustacea										
Decapoda										
<u>Palaeomonetes pugio</u>	44	52	100	79	7618	100	100	100	100	2000
<u>Panesus duorarum</u>	43	45	60	79	7014	60	88	52	8452	
Amphipoda	1	7	40	5	39	40	12	47	2365	
<u>Gammarus</u> spp.	2	+	-	2	4	-	-	-	-	-
Pisces										
<u>Fundulus heteroclitus</u>	20	28	-	45	2232	-	-	-	-	-
<u>Gambusia affinis</u>	3	5	76	10	76					
<u>Lucania parva</u>	11	5	204	13	204					
<u>Menidia beryllina</u>	1	1	4	3	4					
<u>Poecilia latipinna</u>	2	4	47	8	47					
unidentified	2	9	89	8	89					
Annelida	1	6	31	5	31					
Polychaeta										
<u>Heris succinea</u>	31	20	210	4	210					
Insecta										
Hemiptera	2	+	24	10	24					
Mollusca										
Gastropoda										
Hydrobiidae	1	+	1	2	1					
Number of stomachs examined	56									22
Examined stomachs with food	48									15

Appendix Table 14.4B

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in Atlantic menhaden, Brevoortia tyrannus, from all stations.

Taxon food items	F	N	V	IRI
Algae				
Chrysophyta				
Bacillariophyceae	100	33	6	3925
Chaetocerus sp.				
<u>Bacillaria</u> sp.				
Cyanophyta	100	33	31	6425
Chroococceae				
Oscillatoriaceae				
<u>Agmenellum</u> sp.				
Detritus	100	33	62	9550

Number of stomachs examined	67
Examined stomachs with food	67

Appendix Table 14.4C

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the bay anchovy, Anchoa mitchilli, by habitat.

Taxon food item	Impoundment			Creek		
	F	N	V	F	N	V
Crustacea						
Copepoda	100.00	52.12	46.71	9882.66	90.00	50.00
Calanoida						14,000.00
Decapoda	71.43	47.81	51.32	7137.00	1.25	10.00
<u>Palaemonetes</u> spp.	4.76	0.04	0.66	3.33	-	-
<u>Palaemonetes</u> larvae	66.67	3.80	10.53	955.15	1.25	10.00
Grapsidae zoea	61.90	43.97	40.13	5205.79	-	-
Ostracoda						
Isopoda	-	-	-	-	6.25	20.00
<u>Casaidinidea lumifrons</u>	-	-	-	-	1.25	10.00
Mollusca						
Gastropoda	-	-	-	-	1.25	10.00
Detritus	14.29	0.08	1.97	29.29		
Number of stomachs examined		22				12
Examined stomachs with food		21				12

Appendix Table 14.4D

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of food items in the sheephead minnow, Cyprinodon variegatus, for all stations.

Taxon food items	F	N	V	IRI
Algae				
Chrysophyta				
<u>Bacillaria</u> sp.	100	93	98	19,100
<u>Pleurosigma</u> sp.				
<u>Nitzschia</u> sp.				
Crustacea				
Copepoda				
Calanoida	3	7	2	29

Number of stomachs examined 63
 Examined stomachs with food 63

Appendix Table 14.4E Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the mummichog, Fundulus heteroclitus, by habitat.

Taxon food item	Impoundment			Creek				
	F	N	V	IRI	F	N	V	IRI
Crustacea								
Copepoda	2	0	0	1	9	14	0	125
Calanoida								
Decapoda	31	3	16	586	55	19	47	3615
<u>Palaemonetes pugio</u>	28	3	16	523	55	19	47	3615
<u>Palaemonetes</u> larvae	3	0	0	1	-	-	-	-
Amphipoda								
<u>Gammarus</u> sp.	-	-	-	-	18	8	4	228
Mysidacea	-	-	-	-	9	5	3	74
Protozoa								
Foraminifera	17	20	0	343	18	19	1	354
Nematoda	3	8	0	22	9	3	0	27
Annelida								
Polychaeta	11	2	7	99	18	8	10	335
<u>Capitella capitata</u>	6	1	0	7	9	5	1	54
<u>Nereis succinea</u>	6	1	7	42	9	3	10	113
Mollusca								
Gastropoda								
Hydrobiidae	3	0	0	1	-	-	-	-
Insecta	42	61	12	3036	18	19	3	395
Hemiptera	31	15	5	600	9	11	2	116
Chironomid larvae	33	46	7	1774	9	8	1	81
Pisces								
Mugil cephalus	-	-	-	-	9	3	31	303
Algae								
Chlorophyta	3	0	0	1	-	-	-	-
Detritus	50	5	64	3470	9	3	1	230

Number of stomachs examined 64
Examined stomachs with food 55

34
33

Appendix Table 14.4F

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in rainwater killifish, Lucania parva, by season.

Taxon food item	FALL 1983			WINTER 1984			SPRING 1984					
	F	N	V	IRI	F	N	V	IRI	F	N	V	IRI
Crustacea												
Ostracoda	100	78	50	12778	-	-	-	-	50	31	13	2164
Copepoda												
Calanoida	-	-	-	-	50	67	33	5000	-	-	-	-
Decapoda												
<u>Palaemonetes</u> eggs	-	-	-	-	-	-	-	-	13	8	13	252
Protozoa												
Foraminifera	-	-	-	-	-	-	-	-	25	8	6	349
Insecta												
Chironomid larvae	-	-	-	-	-	-	-	-	75	54	69	9195
Algae												
Chlorophyta	67	14	35	3292	-	-	-	-	-	-	-	-
Cyanophyta	-	-	-	-	50	33	67	5000	-	-	-	-
Detritus	44	8	15	1015	-	-	-	-	-	-	-	-
Number of stomachs examined												
Examined stomachs with food												
						18						16
						10						16

Appendix Table 14.4G

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in mosquito fish, Gambusia affinis, by season.

Taxon food item	FALL 1983			WINTER 1984			SPRING 1984			IRI
	F	N	V	F	N	V	F	N	V	
Crustacea										
Copepoda										
Harpacticoida	17	11	11	-	-	-	-	-	-	-
Ostracoda	17	11	11	-	-	-	-	-	-	-
Decapoda										
Palaeomonetes sp.	-	-	-	-	-	-	22	9	36	1001
Insecta	17	22	22	50	67	60	78	91	64	12051
Hemiptera	17	22	22	25	33	35	28	21	19	1101
Calicidae	-	-	-	25	33	25	-	-	-	-
Chironomid larvae	-	-	-	-	-	-	78	71	45	8969
Algae										
Cyanophyta	83	50	44	50	33	40	-	-	-	-
Number of stomachs examined			19		16					18
Examined stomachs with food			12		2					18

Appendix Table 14.4H

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the sailfin molly, Poecilia latipinna, from all stations.

Taxon food items	F	N	V	IRI
Algae				
Chrysophyta				
Bacillariophyceae	100	50	50	10,000
Bacillaria sp.				
<u>Thalassiothrix</u> sp.				
<u>Pleurosigma</u> sp.				
<u>Chaetoceros</u> sp.				
Detritus	100	50	50	10,000
Number of stomachs examined	57			
Examined stomachs with food	57			

Appendix Table 14.41

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the inland silverside, Menidia beryllina, by habitat.

Taxon food item	Impoundment			Creek			IRI	
	F	N	V	F	N	V		
Crustacea								
Copepoda	92	92	46	12725	60	56	9129	
Calanoida								
Cyclopoida								
Decapoda	41	7	9	675	-	-	-	
Palaemonetes larvae	31	2	4	174	-	-	-	
Grapsidae zoea	26	5	5	277	-	-	-	
Isopoda								
<u>Cassidinidea lumifrons</u>	5	0	0	2	-	-	-	
Mysidacea	13	0	3	41	-	-	-	
Amphipoda								
<u>Corophium lacustre</u>	-	-	-	-	13	17	245	
Cirripedia	-	-	-	-	7	3	24	
Protozoa								
Foraminifera	3	0	0	1	-	-	-	
Mollusca								
Gastropoda								
Hydrobiidae	3	0	0	1	-	-	-	
Insecta	21	0	40	819	20	19	407	
Hemiptera	18	0	39	702	20	19	407	
Chironomid larvae	3	0	1	2	-	-	-	
Algae								
Chlorophyta	5	0	1	4	7	2	13	
Cyanophyta	-	-	-	-	7	2	12	
Detritus	8	0	1	10	7	2	12	
Number of stomachs examined							64	34
Examined stomachs with food							56	30

Appendix Table 14.4J

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the silver perch, Bairdiella chrysoura, by habitat.

Taxon food item	Impoundment			Creek				
	F	N	V	IRI	F	N	V	IRI
Crustacea								
Copepoda	39	56	3	2333	-	-	-	-
Calanoida								
Cyclopoida								
Decapoda	64	41	59	6438	50	45	14	2956
<u>Palaemonetes pugio</u>	43	1	54	2341	50	9	13	1096
<u>Palaemonetes</u> larvae	43	40	5	1993	-	-	-	-
<u>Sesarma sp.</u>	4	0	0	1	-	-	-	-
<u>Sesarma zoea</u>	4	0	0	1	50	36	1	1861
Mysidacea	11	3	2	45	-	-	-	-
Amphipoda								
<u>Gammarus palustris</u>	-	-	-	-	50	45	1	2315
Insecta								
Hemiptera	11	0	0	5	-	-	-	-
Pisces	7	0	35	250	50	9	85	4728
<u>Fundulus heteroclitus</u>	7	0	35	250	-	-	-	-
unidentified	-	-	-	-	50	9	85	4728
Annelida								
Polychaeta	7	0	0	2	-	-	-	-
Detritus	21	0	0	14	-	-	-	-
Number of stomachs examined		37				14		
Examined stomachs with food		28				2		

Appendix Table 14.4K

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the weakfish, Cynoscion regalis, by habitat.

Taxon food item	Impoundment			Creek			IRI	V	IRI
	F	N	V	F	N	V			
Crustacea									
Decapoda	82	91	65	94	94	67	12769	67	15169
<u>Palaeomonetes</u> spp.	68	4	57	94	94	67	4148		15169
<u>Palaeomonetes</u> larvae	54	51	7	-	-	-	3132	-	-
<u>Grapsidae</u> zoea	32	36	0	-	-	-	1153	-	-
Copepoda	25	6	0	-	-	-	146	-	-
Calanoida									
Isopoda									
<u>Cassidinidea lumifrons</u>	7	1	1	-	-	-	14	-	-
Mysidacea	11	0	0	-	-	-	4	-	-
Pisces	14	1	34	11	6	33	497	33	438
<u>Menidia beryllina</u>	7	0	14	-	-	-	105	-	-
Unidentified	7	0	20	11	6	33	144	33	438
Insecta									
Hemiptera	21	1	0	-	-	-	35	-	-
Number of stomachs examined		28							23
Examined stomachs with food		28							18

Appendix Table 14.4L

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the spot, Leiostomus xanthurus, by habitat.

Taxon food item	Impoundment				Creek			
	F	N	V	IRI	F	N	V	IRI
Protozoa								
Foraminifera	43	89	39	5455	--	--	--	--
Crustacea								
Copepoda	74	8	6	1064	42	46	3	2051
Calanoida								
Cyclopoida								
Harpacticoida								
Decapoda	10	0	1	9	19	1	19	384
<u>Palaemonetes</u> spp.	10	0	1	10	13	0	13	173
<u>Grapsidae</u>	--	--	--	--	6	0	6	41
Ostracoda	7	0	0	2	16	8	1	137
Amphipoda	2	<0	0	0	42	6	21	1145
<u>Gammarus palustris</u>	2	<0	0	0	19	3	10	244
<u>Corophium lacustre</u>	--	--	--	--	23	3	11	332
Isopoda								
<u>Cassidinidea lumifrons</u>	--	--	--	--	3	0	1	4
Cirripedia								
Cypris larva	2	0	0	0	23	20	4	548
Cumacea	--	--	--	--	23	2	1	61
Tanaidacea	--	--	--	--	16	1	1	34
Annelida								
Polychaeta	17	0	1	25	52	2	45	2409
<u>Capitella capitata</u>	15	0	1	22	32	1	17	589
<u>Nereis succinea</u>	2	0	1	0	19	1	28	550
Nematoda	29	0	1	32	195	11	1	231
Mollusca								
Gastropoda								
Hydrobiidae	2	0	1	2	--	--	--	--
Pelecypoda (siphons)								
Insecta	48	2	50	2476	16	2	1	50
Hemiptera	15	1	22	332	--	--	--	--
Chironomid larvae	33	1	28	968	13	1	1	18
Pisces - unidentified	--	--	--	--	3	0	0	1
Detritus	10	0	1	9	19	0	1	31

Number of stomachs examined 63

33

Examined stomachs with food 62

31

Appendix Table 14.4M

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the Atlantic croaker, Micropononias undulatus, by habitat.

Taxon food item	Impoundment			Creek			IRI
	F	N	V	F	N	V	
Protozoa							
Foraminifera	6	1	0	5	1	0	4
Crustacea							
Copepoda	36	18	1	668	-	-	-
Calanoida							
Cyclopoida							
Harpacticoida							
Decapoda	52	28	46	3802	26	10	61
<u>Palaeomonetes pugio</u>	18	3	45	835	-	-	-
<u>Palaeomonetes spp.</u>					26	10	61
<u>Palaeomonetes larvae</u>	47	25	1	1231	-	-	-
<u>Grapsidae zoea</u>	3	0	0	1	-	-	-
Mysidacea	6	0	0	4	26	13	14
Amphipoda					36	16	2
<u>Corophium lacustre</u>					29	12	1
<u>Gammarus pelustris</u>					3	4	0
Cumeacea					3	1	0
Annelida							
Polychaeta	48	24	47	3447	29	21	8
<u>Capitella capitata</u>	39	18	16	1303	29	18	1
<u>Nereis succinea</u>	10	7	31	363	6	2	6
Mollusca							
Pelecypoda (siphons)					23	21	1
Pisces	6	1	0	10	13	5	14
<u>Gambusia affinis</u>	6	1	0	10	-	-	-
<u>Poecilia latipinna</u>					13	5	14
Insecta	39	26	6	1281	6	4	0
Hemiptera	18	10	2	205	-	-	-
Chironomid larvae	35	17	4	736	6	4	0
Detritus	12	1	0	14	13	6	0
Number of stomachs examined		63					36
Examined stomachs with food		62					31

Appendix Table 14.4N

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in striped mullet, Mugil cephalus, for all stations.

Taxon	F	N	V	IRI
Protozoa				
Foraminifera	4	1	1	9
Algae				
Chrysoophyta				
Bacillariophyceae	100	34	38	7133
<u>Bacillaria</u> sp.				
<u>Nitzschia</u> sp.				
<u>Thalassia</u> sp.				
<u>Pleurosigma</u> sp.				
<u>Chaetoceros</u> sp.				
Cyanophyta				
Chroococceae	94	32	22	5076
Detritus	100	34	38	7133
Number of stomachs examined				86
Examined stomachs with food				86

Appendix Table 14.40

Percent frequency of occurrence (F), percent number (N), percent volume (V), and index of relative importance (IRI) of dietary items in the southern flounder, Paralichthys lethostigma, by habitat.

Taxon food item	Impoundment			Creek		
	F	N	V	F	N	V
Crustacea						
Decapod						
<u>Palaemonetes pugio</u>	58	76	48	94	91	85
<u>Palaemonetes vulgaris</u>	58	76	48	78	59	55
<u>Palaemonetes</u> spp.	-	-	-	11	3	6
				39	29	24
	67	24	52	25	9	15
Fishes						
<u>Cyprinodon variegatus</u>	8	3	9	96	-	-
<u>Fundulus heteroclitus</u>	-	-	-	13	5	11
<u>Leiostomus xanthurus</u>	17	6	11	286	-	-
unidentified	42	15	32	1949	5	4
Number of stomachs examined		36			21	
Examined stomachs with food		24			16	

Appendix Table 14.5

Species of fishes collected by gear type and sampling site. + = present; blank = absent.

FAMILY	SPECIES	IMPOUNDMENT					CREEK			Lg Gill	Rotenone
		Seines	Cast net	Trawls	Cast net	Sm Gill	Cast net	Sm Gill	Rotenone		
Lepisosteidae	<u>Lepisosteus osseus</u>	+								+	
Elopidae	<u>Elops saurus</u>	+		+						+	
Anguillidae	<u>Megalops atlanticus</u>										
Ophichthidae	<u>Anguilla rostrata</u>	+								+	
Clupeidae	<u>Myrophis punctatus</u>										+
	<u>Brevoortia tyrannus</u>	+								+	
	<u>Dorosoma cepedianum</u>										+
	<u>Dorosoma petenense</u>	+								+	
	<u>Opisthonema oglinum</u>	+								+	
Engraulidae	<u>Anchoa hepsetus</u>										
	<u>Anchoa mitchilli</u>	+								+	
Ictaluridae	<u>Ictalurus catus</u>										+
Ariidae	<u>Ariopsis felis</u>	+									
Batrachoididae	<u>Opsanus tau</u>										+
Gobiocidae	<u>Gobiesox strumosus</u>										+
Ophidiidae	<u>Ophidion marginatum</u>										+
Belontiidae	<u>Strongylura marina</u>										+
Cyprinodontidae	<u>Cyprinodon variegatus</u>	+									+
	<u>Fundulus confluentus</u>	+									+
	<u>Fundulus heteroclitus</u>	+									+
	<u>Fundulus luciae</u>	+									+
	<u>Fundulus majalis</u>										+
	<u>Lucania parva</u>										+
Poeciliidae	<u>Gambusia affinis</u>	+									+
Atherinidae	<u>Poecilia latipinna</u>	+									+
	<u>Menidia beryllina</u>	+									+
	<u>Menidia menidia</u>	+									+
Syngnathidae	<u>Syngnathus fuscus</u>										+
	<u>Syngnathus louisianae</u>	+									+
	<u>Syngnathus scovelli</u>	+									+
Centropomidae	<u>Centropomus undecimalis</u>	+									+
Percichthyidae	<u>Morone americana</u>	+									+
	<u>Morone saxatilis</u>	+									+
Centrarchidae	<u>Lepomis gulosus</u>	+									+
	<u>Lepomis macrochirus</u>	+									+
Fomatomidae	<u>Pomatomus saltatrix</u>										+
Carangidae	<u>Caranx hippos</u>										+
Lutjanidae	<u>Lutjanus griseus</u>										+
Gerreidae	<u>Diapterus auratus</u>	+									+
	<u>Eucinostomus argenteus</u>										+
	<u>Eucinostomus sp.</u>	+									+
Sparidae	<u>Archosargus probatocephalus</u>	+									+
	<u>Lagodon rhomboides</u>	+									+

Appendix Table 14.5 Continued

FAMILY	SPECIES	IMPOUNDMENT			CREEK			
		Seines	Cast net	Trawls	Cast net	Sm Gill	Lg Gill	Rotenone
Sciaenidae	<u>Baidiella chrysoira</u>	+	+	+	+	+	+	+
	<u>Cynoscion nebulosus</u>	+						+
	<u>Cynoscion regalis</u>	+	+	+	+	+		+
	<u>Leiostomus xanthurus</u>	+	+	+	+	+		+
	<u>Microgogonias undulatus</u>	+	+	+	+	+		+
	<u>Pogonias cromis</u>	+						+
	<u>Sciaenops ocellatus</u>	+		+	+		+	+
	<u>Chaetodipterus faber</u>	+		+	+			+
	<u>Mugil cephalus</u>	+	+	+	+	+		+
	<u>Mugil curema</u>	+		+	+			+
	<u>Sphyræna guachancho</u>					+		+
	<u>Chasmodes bosquianus</u>							+
	<u>Hypleurochilus geminatus</u>							+
	<u>Hypsoblennius bentzi</u>							+
Eleotridae	<u>Hypsoblennius ionthus</u>	+						+
	<u>Dermatator maculatus</u>	+						+
	<u>Evothodus lyricus</u>	+						+
	<u>Gobionellus boleosoma</u>	+						+
	<u>Gobionellus hastatus</u>	+						+
	<u>Gobionellus shufeldti</u>	+						+
	<u>Gobiosoma bosci</u>	+						+
	<u>Gobiosoma ginsburgi</u>	+						+
	<u>Microgobius thalassinus</u>	+						+
	<u>Prionotus tribulus</u>	+						+
	<u>Citharichthys macrops</u>							+
	<u>Citharichthys spilopterus</u>	+						+
	<u>Etropus crossotus</u>	+						+
	<u>Paralichthys dentatus</u>	+						+
Soleidae	<u>Paralichthys lethostigma</u>	+						+
	<u>Trinectes maculatus</u>	+						+
	<u>Symphurus plegius</u>	+						+
	<u>Monacanthus hispidus</u>	+						+
Cynoglossidae								
Ballistidae								

SECTION VIII

WILDLIFE COMMUNITY

Appendix Table 15.1

Overall bird use-days by species and study site, 1983-84.

BIRD GROUP	STUDY SITE								Totals
	1	2	3	4	5	TI	OM	CF	
SURFACE									
<u>DIVERS</u>	(38) ¹	(66)	(28)	(47)	(33)	(2)	(38)	(87)	
PBG ³ (400) ²	365	680	244	558	341	6	115	1379	3688
DCC (186)	250	474	51	52	248	8	448	1155	2686
ANHI (205)	26	102	50	84	94	6	48	1197	1607
Totals (791)	641	1256	345	694	683	20	611	3731	7981
use-days/ha	82	263	98	169	109	2	45	271	1039
AERIAL									
<u>DIVERS</u>	(33)	(51)	(48)	(48)	(47)	(12)	(61)	(86)	
RBG (203)	24	87	86	80	200	10	186	1028	1701
LGUL (226)	72	142	294	146	244	5	224	536	1663
CAST (146)	44	42	88	50	98	0	68	898	1288
GULL ⁴ (109)	38	44	30	182	115	18	142	604	1173
KING (331)	137	134	103	213	44	38	166	266	1101
ROYL (82)	20	14	102	52	54	0	22	301	565
HERG (40)	4	10	8	12	54	0	4	150	242
FORS (50)	2	38	28	10	25	18	46	26	193
SKIM (30)	8	8	18	10	12	3	64	62	185
BONE (12)	0	22	0	18	3	5	5	37	90
LTRN (23)	0	10	2	0	4	0	8	64	88
COMT (8)	5	0	5	0	8	0	0	16	34
BPEL (11)	0	25	0	8	0	0	7	4	44
GBT (2)	0	0	0	0	0	0	3	3	6
Totals (1253)	354	576	764	781	861	97	945	3995	8373
use-days/ha	45	121	217	190	137	12	70	290	1082

Appendix Table 15.1 Continued

BIRD GROUP	1	2	3	4	5	TI	OM	CF	
<u>WADERS</u>	(78)	(89)	(67)	(78)	(81)	(49)	(94)	(91)	
WIBS (232)	188	2168	331	340	310	418	2019	1886	7660
GEGT (656)	315	911	1214	512	493	138	1207	2494	7284
GBH (689)	667	1332	489	372	629	154	607	2537	6787
LBH (347)	251	1129	474	517	241	19	77	2728	5436
SNOW (391)	231	911	271	314	243	200	1476	1672	5318
TRIC (418)	161	488	314	464	242	88	302	846	2905
BCNH (131)	40	50	96	56	46	19	84	856	1247
GIBS (27)	0	100	0	88	24	34	4	826	1076
LBIT (186)	106	142	78	56	216	56	62	266	982
WSTK (22)	10	11	2	0	32	0	55	88	198
GREN (45)	5	20	34	3	24	17	45	36	184
YCNH (14)	0	0	0	0	38	0	18	17	73
CATL (4)	0	2	4	0	0	0	0	4	10
SBIL (1)	0	0	4	0	0	0	0	0	4
ABIT (1)	2	0	0	0	0	0	0	0	2
Totals (3164)	1976	7264	3311	2722	2538	1143	5956	14256	39166
use-days/ha	282	1526	473	389	362	163	439	1036	4760
<u>RAPTORS</u>	(17)	(5)	(6)	(8)	(14)	(16)	(24)	(44)	
OSPY (143)	31	9	16	14	20	8	66	287	451
NOHA (103)	54	3	20	28	34	99	107	16	361
BLDE (33)	4	8	10	23	19	0	5	78	147
RTH (18)	30	8	0	1	4	22	0	13	78
KEST (11)	5	7	0	0	4	3	0	8	27
PFAL (1)	0	0	0	0	0	0	0	4	4
Totals (309)	124	35	46	66	81	132	178	406	1068
use-days/ha	16	7	13	16	13	17	13	30	125

Appendix Table 15.1 Continued

BIRD										
Group		1	2	3	4	5	TI	OM	CF	
<u>STOREBIRDS</u>										
		(39)	(45)	(51)	(43)	(40)	(17)	(24)	(36)	
PEEP ⁵	(185)	557	488	1529	2295	15761	374	2409	45531	68944
DOWI ⁶	(182)	892	1222	3988	3663	7814	249	468	40820	59116
DUNL	(125)	268	741	2362	3096	6695	0	233	35812	49207
YLG?	(170)	618	566	496	1333	6045	62	82	21437	30639
SPPL	(70)	0	7	360	1153	2044	57	160	8206	11987
YLG?	(239)	423	800	389	549	800	58	204	5148	8371
LG ⁷	(95)	490	418	993	630	614	55	74	3818	7092
BBPL	(106)	0	56	82	225	400	0	61	966	1790
BNST	(45)	6	35	24	52	82	0	6	834	1039
AVOT	(10)	0	0	0	0	24	0	0	772	796
WLET	(40)	0	0	4	233	350	0	57	27	671
SPOT	(34)	76	36	65	58	16	0	4	211	466
KILD	(37)	0	72	58	172	108	0	0	44	454
SNPE	(39)	129	140	34	50	0	18	0	32	403
SOLS	(9)	5	0	0	0	16	0	2	174	197
MGOD	(3)	0	0	0	0	46	0	0	0	46
STLT	(6)	0	0	2	12	0	0	0	32	46
WPLV	(1)	0	0	0	0	0	0	2	0	2
Totals (1381)		3464	4581	10386	13521	40815	873	3762	163864	241266
use-days/ha		445	945	2946	3295	6519	111	277	11909	26447
<u>RAILS⁸</u>										
		(36)	(14)	(16)	(24)	(18)	(2)	(2)	(35)	
GALL	(228)	393	154	138	188	217	0	6	1033	2183
SORA	(22)	111	6	4	6	58	0	0	0	185
VIRG	(2)	0	0	0	0	24	0	0	0	24
YELO	(1)	5	0	0	0	0	0	0	0	5
Totals (253)		509	160	142	194	353	0	6	1033	2397
use-days/ha		65	34	40	47	31	0	0.4	75	292

Appendix Table 15.1 Continued

BIRD									
GROUP	1	2	3	4	5	TI	OM	CF	
<u>WATERFOWL</u>	(39)	(52)	(28)	(34)	(35)	(4)	(21)	(54)	
GWT (234)	1956	5963	2490	6980	8072	406	62	39860	65789
BWT (151)	1548	1035	54	137	450	0	28	20462	23714
WIDG (97)	110	560	18	1920	0	35	8	8512	11163
HMER (172)	49	1666	938	850	361	1	569	1172	5606
COOT (94)	96	41	0	5	19	0	24	4766	4951
STOV (49)	8	10	0	204	258	0	2	1218	1700
MOTD (88)	105	194	46	76	92	23	16	713	1265
GADW (49)	0	0	0	10	70	0	0	890	970
PINT (41)	0	9	0	0	0	0	0	902	911
BLAK (21)	0	42	0	0	42	0	15	102	201
MALD (17)	12	8	0	2	0	0	5	58	85
CGE (6)	0	0	0	0	26	0	0	9	35
WOOD (9)	0	12	0	2	0	0	0	13	27
BUFF (4)	14	0	0	0	7	0	0	0	21
RBME (3)	0	0	4	3	0	0	0	4	11
LSCP (2)	0	0	0	0	0	0	0	4	4
CANB (1)	0	0	0	0	0	0	0	3	3
RND (2)	0	0	0	0	0	0	0	2	2
Totals (1040)	3898	9540	3550	10189	9397	465	729	78690	116458
use-days/ha	501	2001	1007	2483	1501	59	54	5719	13325

¹ Frequency of occurrence by site (number of sightings/site sample).

² Number of times species was observed during the study.

³ See Table 15.1 for species code.

⁴ Immature and unidentified gulls (Laurs sp.).

⁵ Includes least sandpiper, semipalmated sandpiper, western sandpiper and white-rumped sandpiper.

⁶ Includes short- and long-billed dowitchers.

⁷ Unidentified yellowlegs (Tringa sp.)

⁸ See Fig. 15.7 for clapper tails. American coots are included with waterfowl group.

⁹ TI=Tidal Impoundment, OM=Open Marsh, CF=Cooperfield.

Appendix Table 15.2 Total number of birds counted by season, samples and site area, 1983-84.

Study ² Site	FALL ¹		WINTER		SPRING		SUMMER	
	birds	per N perN/ha	birds	per N perN/ha	birds	per N perN/ha	birds	per N perN/ha
No. 1	522	23.7	1097	28.9	515	14.3	214	5.1
No. 2	1244	24.7	3540	90.8	968	26.2	311	8.0
No. 3	543	24.7	2780	73.2	1147	28.0	796	19.0
No. 4	399	20.0	4905	129.1	2317	56.5	394	7.7
No. 5	283	13.5	4580	134.7	7554	229.0	426	9.1
TI	195	3.6	218	2.9	283	4.4	241	2.7
OM	723	13.4	1427	19.3	1501	23.5	1801	20.5
CF	3823	70.5	27008	365.0	67494	1054.6	2177	24.7
TOTALS								
Birds		7732		45555		81779		6360
Birds/N		28.7		111.4		215.2		13.1

¹ Represents one Field season, 1983.

² TI= Tidal Impoundment, OM= Open Marsh, CF= Cooperfield

