

**REPORT FOR
THE FISHERIES RESOURCES SURVEY
OFF THE PACIFIC COAST
IN
THE REPUBLIC OF COSTA RICA
VOLUME 1 APPENDIX**

MARCH 1989

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

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(JICA)**

国際協力事業団

20165

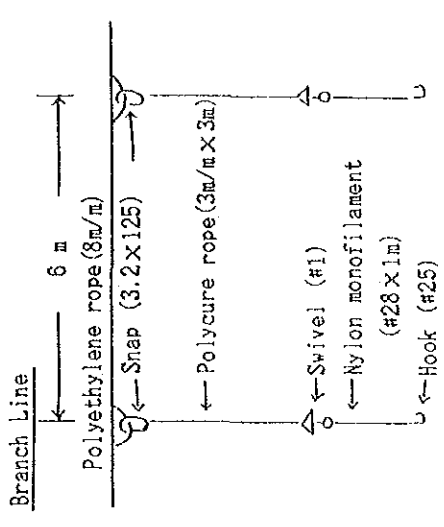
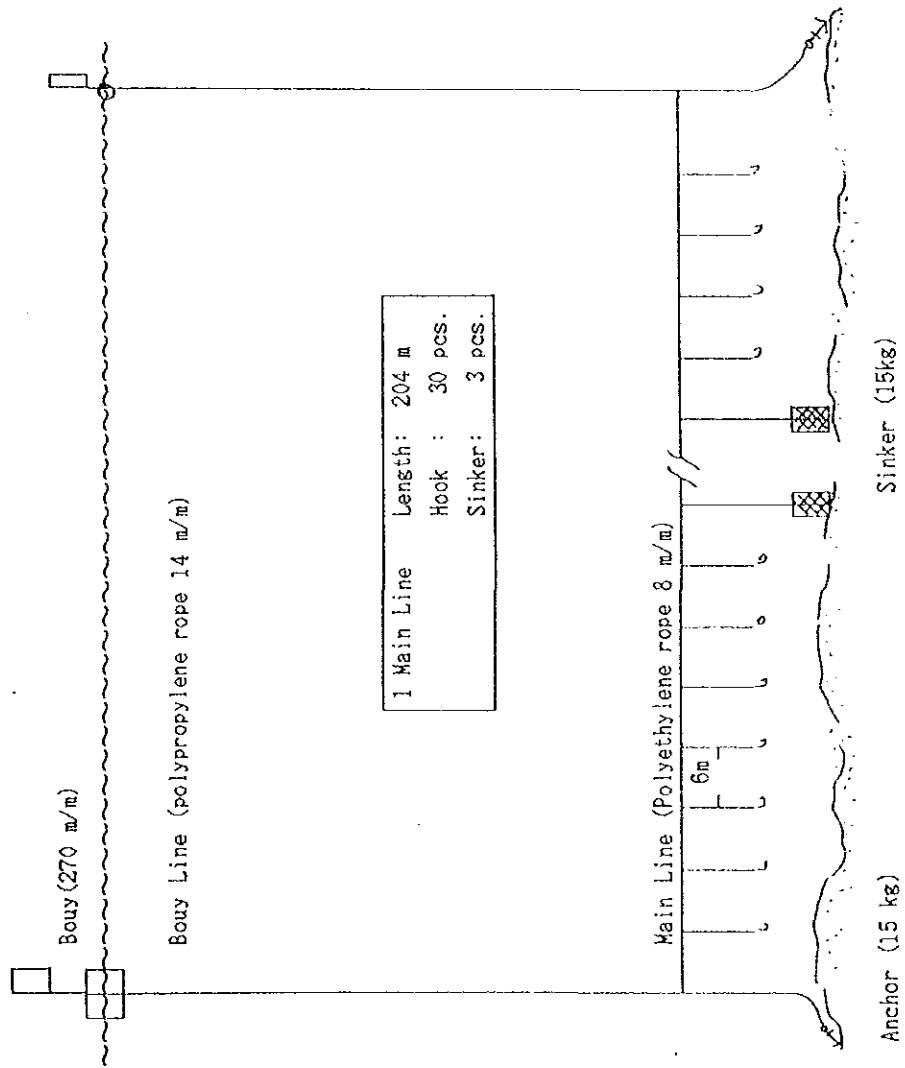
CONTENTS

	Page
Fisheries Resources Survey (Work I)	
Appendix	
Fig -1 Bottom Long Line (Sokohaenawa).....	1
Fig -2 " (Sokotatenawa).....	2
Fig -3 " (Shrimp Pot).....	3
Table-1 Specification of Reserch Vessel, Nisshinn Maru #201.....	4
Table-2 Survey Log (Oceanographic Observation)	5
Table-3 Size Composition by Species.....	21
Table-4 Recording catch Data by Nisshinn Maru #201 (1987-1988).....	42
Table-5a Wing Speed and No,of Tows in each Stratum by Single Trawl.....	117
Table-5b Wing Speed and No,of Tows in each Stratum by Double Trawl.....	122
Table-6 List of Dominant Species (Single Trawl Net).....	152
Table-7 List of Dominant Species (Double Trawl Net).....	153
Table-8 Catch Record of Day-Night Survey by Nisshinn Maru #201.....	154
Table-9 Recording Data Bottom Long Line, Leg No.5,1988.....	156
Table-10a Catch by Bottom Long Line (Sokotatenawa).....	165
Table-10b Catch by Bottom Long Line (Sokohaenawa).....	167
Fig -4a Major Fish Species Distribution Chart, Single Trawl (1st Round) ..	171
Fig -4b Major Fish Species Distribution Chart, Single Trawl (2nd Round) ..	186
Fig -4c Major Fish Species Distribution Chart, Single Trawl (3rd Round) ..	202
Fig -4d Major Fish Species Distribution Chart, Single Trawl (4th Round) ..	217
Fig -5a Major Fish Species Distribution Chart, Double Trawl (1st Round) ..	232
Fig -5b Major Fish Species Distribution Chart, Double Trawl (2nd Round) ..	248
Fig -5c Major Fish Species Distribution Chart, Double Trawl (3rd Round) ..	264
Fisheries Development Program (Work II)	
Table -1 Outline of Fishing Village.....	279
Table -2 Key Fishing Village.....	283
Table -3 Enterprises based at Puntarenas.....	310
Table -4 Fisheries Economy.....	314
Table -5 Fishermens' Cooperative.....	320
Table -6 Middlemen.....	328
Table -7 Retailer.....	334
Table -8 Manufacturing and Processing.....	338
Table -9 Wishes of Fisheries Households.....	340
Table -10 General Households.....	344

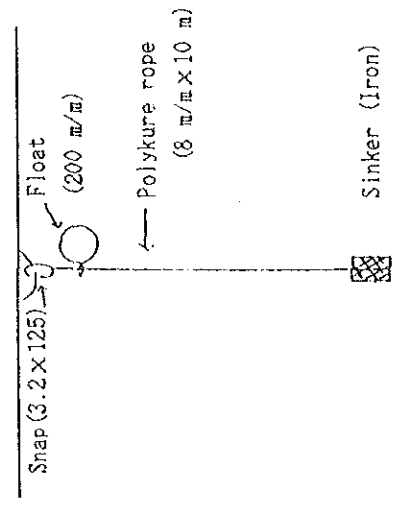
Fisheries Resources Survey (Work I)

Appendix Fig.-1 Bottom Long Line (Sokohaenawa)

Bottom Long Line (SOKOHAENAWA)

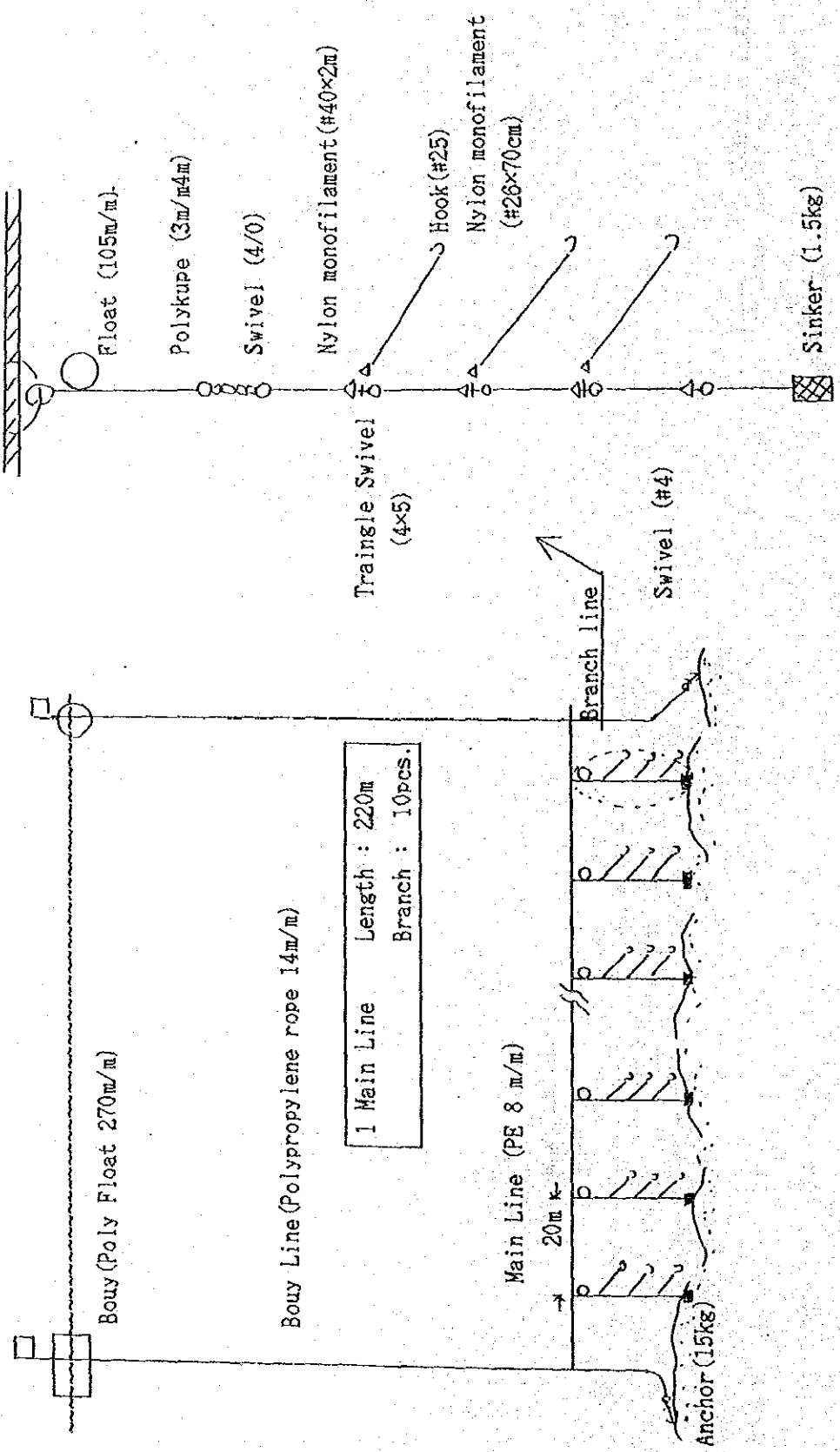


Sinker



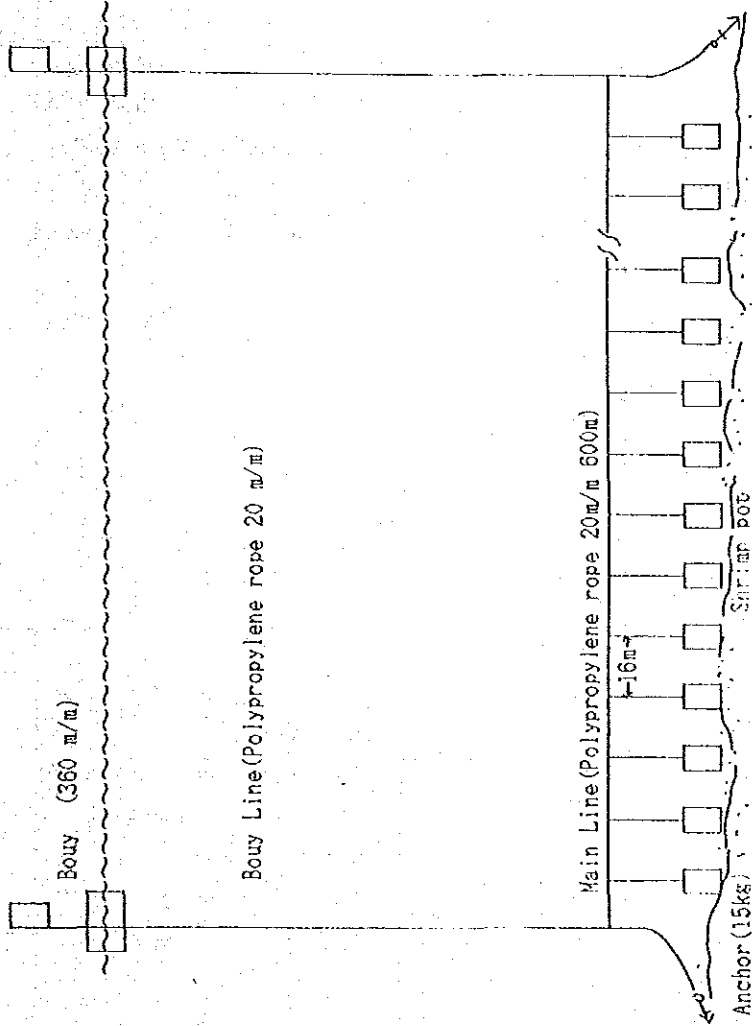
Appendix Fig.-2 Bottom Long Line (Sokotatenawa)

Bottom Long line (SOKOTATENAWA)

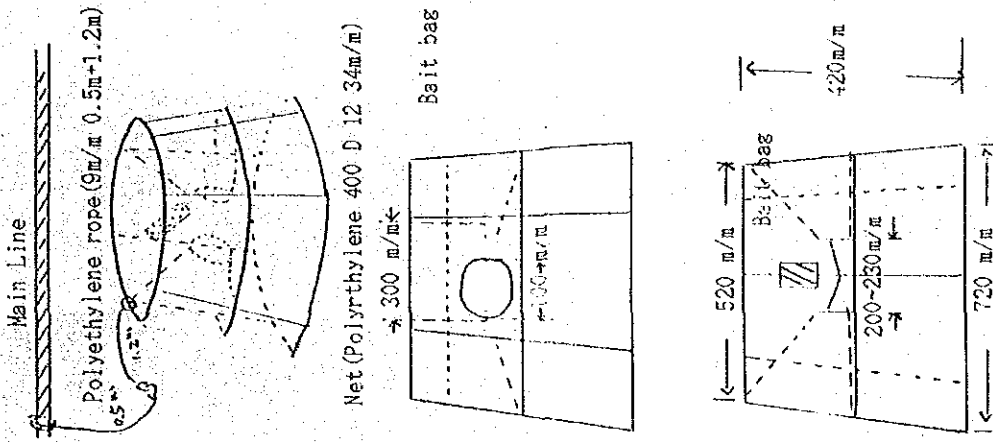


Appendix Fig.-3 Shrimp Pot.

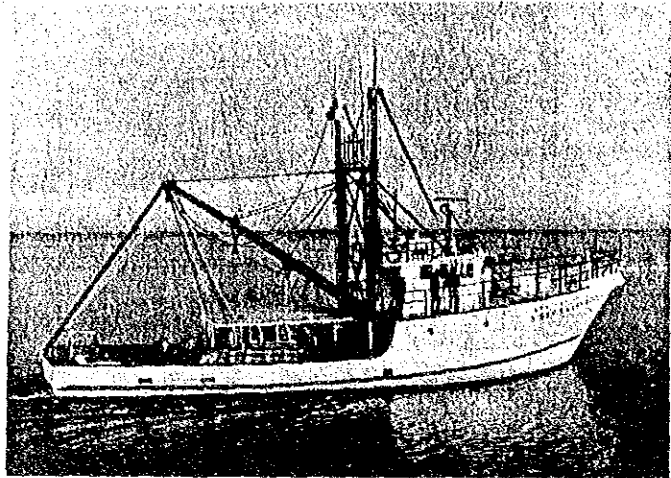
Shrimp Pot



Pot



Appendix Table-1 Specification of Research vessel ,Nisshinmaru # 201



Specifications

<p>Name of Research Vessel: Nisshinmaru No. 201</p> <p>Type of Vessel: Double Rigged Shrimp Trawler</p> <p>Gross tonnage: 98.71 tons</p> <p>Length: Loa 25.30 m</p> <p>Speed: 9.0 knots</p> <p>Capacity of Fish hold: 65 m³</p> <p>Capacity of Fuel Oil Tank: 110 m³</p> <p>Capacity of Fresh Water Tank: 12 m³</p>	<p>Environmental Sampling Gear</p> <p>XBT Recorder 1 (SIPPICAN)</p> <p>Submersible Data Logger Model 606 1</p> <p>Balance 3</p> <p>Measure for Specie Length 2</p>
<p>Main Engine: Diesel Engine 565 HP</p> <p>Aux. Engine: Diesel Engine 90 HP</p> <p style="padding-left: 40px;">Lister 3.5HP</p> <p>Generator: 220V</p> <p>Trawl Winch: 3.8 ton×60m/min.</p> <p style="padding-left: 40px;">Warp Length 18m/m×1500m×2</p> <p>Refrigerater: 0.4tons×2/day</p>	<p>Call Sign JG 3737</p> <p>Staff and Crew</p> <p>Japanese Surveyer 1</p> <p>Costa Rica Biologist 1</p> <p>Japanese Crew 4</p> <p>Costa Rica Crew 2</p> <p style="text-align: right;">Total 8</p>
<p>Navigation and Communication Equipment</p> <p>Satellite Navigation System RNSS 1</p> <p style="padding-left: 100px;">GPS-4000 1</p> <p>Magnet Compass and Autopilot 1 Set</p> <p>Radar 1</p> <p>Direction Finder 1</p> <p>Fish Finder 1 , Color Fish Finder 1</p> <p>SSB Radio A3J 50W A3II 12.5W</p> <p style="padding-left: 40px;">A3J 50W</p> <p>VHF 150 MHz</p>	

Appendix Table-2 Survey Log (Oceanographic Observation)

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature, 1987)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12
Date of Obser.	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 28	Oct. 29	Oct. 29	Oct. 29	Oct. 29
Time of Obser.	08-40	09-35	10-15	12-40	13-45	15-10	16-20	17-40	08-15	09-25	10-40	13-05
Position	Lat. (N)	09-30	09-30	09-30	09-40.5	09-49	09-50	09-50	10-00	08-15	10-00	10-10
	Long (W)	85-10	85-15	85-20	85-30.5	85-30	85-40	85-50	85-50	85-52	86-00	86-10
Weather	C	C	C	C	C	C	C	C	C	C	C	B
Mind Direction	W	W	W	S	S	S	SW	SW	H	H	H	H
Mind Force	1	1	1	2	2	2	2	2	2	2	4	6
Atmos. Pressure (mb)	1018	1018	1018	1016	1015	1015	1015	1016	1018	1019	1017	1016
Air Tem. (°C)	31.0	31.5	31.0	32.0	32.0	32.0	31.0	30.0	30.0	30.0	32.0	32.4
Color of sea	4	4	2	2	5	4	2	-	5	4	3	3
Sea Water Temp. (°C)												
Depth (m)	0	29.3	29.4	29.3	29.5	29.9	29.4	29.6	29.4	29.0	28.7	28.7
	10	28.6	28.4	28.8	28.8	29.0	28.9	28.9	29.2	28.8	28.8	28.7
	20	28.6	28.1	27.5	28.7	28.7	28.8	28.8	28.5	28.0	25.9	26.5
	30	27.0	26.5	24.3	26.8	26.5	27.2	25.2	24.2	23.7	22.5	24.7
	40	24.0	22.5	22.2	22.0	24.2	22.2	22.9	22.5	20.8	20.9	23.0
	50	21.0	19.0	21.2	20.1	20.3	19.5	20.5	21.5	19.2	18.8	21.0
	60	18.1	16.8	19.0	18.3	17.5	19.2	19.6	20.3	19.1	17.5	19.0
	70	17.9	16.1	17.5	17.6		19.0	18.3	18.2		16.9	17.8
	80	16.0	16.0	16.5	17.0		18.2	17.0	17.1		16.3	17.2
	90	15.3	15.9	16.2	16.8		16.8	16.4	16.0		15.9	16.3
	100	15.2	15.4	15.2	15.6			15.9	15.4		15.3	16.0
	110	15.0	15.3	15.0	15.2			15.2	14.5		15.0	15.3
	120	14.7	15.1	14.9	14.7			14.9	14.3		14.9	15.0
	130	14.6	15.0	14.7	14.6			14.7	14.2		14.8	14.6
	140	14.4	14.9	14.3	14.5			14.7	14.1		14.5	14.4
	150	14.0	14.8	14.2	14.4			14.5	14.0		14.5	14.1
	160	13.8	14.7	14.1	14.3			14.3	14.0		14.3	14.0
	170	13.4	14.5	14.0	14.2			14.0	13.7		14.2	13.9
	180	13.2	14.3	13.9	13.8			13.9	13.5		14.0	13.8
	190	13.1	14.0	13.8	13.7			13.6	13.3		13.9	13.7
	200		13.9	13.5	13.5			13.5	13.3		13.7	13.4
	220		13.7	13.3	13.3			13.3			13.4	13.2
	240			12.9	13.1			13.0			13.0	12.9
	260			12.8	13.0			12.6			12.8	12.5
	280			12.6	12.9			12.2			12.5	12.0
	300			12.2	12.9			11.9			12.2	11.7
	320			12.0	12.6			11.6			11.9	11.3
340			11.7	12.4			11.3				10.9	
360			11.4	11.3			10.9				10.7	
380			10.8	10.8			10.1				10.2	
400			10.2	10.0			9.8				9.8	
420			9.9	9.7			9.0				9.3	
440			9.0	9.3			8.6				8.7	
460				8.0			8.5				8.6	
480												
500												
550												
600												

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)

(Sea Water Temperature, 1987)

Station No.	13	14	15	16	17	18	19	20	21	22	23	
Date of Obser.	Dec. 28	Dec. 29	Dec. 29	Dec. 29	Dec. 29	Dec. 28	Dec. 28	Dec. 28	Dec. 28	Dec. 28	Dec. 28	
Time of Obser.	10-20	09-35	11-00	11-50	08-15	11-35	13-10	14-40	16-00	17-15	18-15	
Position	Lat. (N)	10-30	10-30	10-30	10-31	10-40	10-40	10-50	10-50	10-50	10-50	
	Long (W)	86-20	86-10	86-00	85-54	86-10	86-30	86-40	86-30	86-20	86-10	
Weather	B	B	B	B	B	B	B	B	B	B	B	
Wind Direction	RNE	RE	RE	RE	RE	R	RE	RE	RE	RE	RE	
Wind Force	3	6	5	4	6	5	6	6	6	5	4	
Atmos. Pressure (mb)	1018	1018	1017	1015	1018	1018	1017	1014	1016	1016	1016	
Air Tem. (°C)	31.0	27.6	29.8	31.0	28.5	30.0	29.5	31.5	32.0	30.5	29.0	
Color of sea	4	4	4	6	2	4	4	4	4	4		
Sea Water Temp. (°C)												
Depth (m)	0	27.9	27.8	26.8	26.7	27.7	27.8	27.3	27.9	27.8	28.1	28.5
	10	27.9	27.8	27.0	26.7	27.8	27.9	27.1	28.0	28.2	28.4	28.6
	20	24.8	24.7	26.7	25.0	25.6	23.0	21.0	23.0	25.3	27.4	27.2
	30	21.8	23.6	22.5	24.2	23.0	19.7	20.3	19.5	21.8	22.2	25.5
	40	19.8	20.5	20.6	22.7	20.2	18.7	19.3	18.7	20.5	20.6	22.2
	50	19.5	18.1	19.2	21.4	18.3	18.2	18.1	18.5	17.9	19.7	20.0
	60	17.4	16.9	18.4	19.2	16.9	17.3	17.1	18.0	17.0	18.3	19.0
	70	17.2	15.8	17.3	17.2	16.7	16.7	16.7	16.6	16.7	17.3	17.8
	80	17.0	15.2	16.5		16.2	16.2	16.0	15.9	16.1	16.2	17.2
	90	16.5	15.1	16.1		15.8	15.9	15.4	15.6	15.4	15.9	16.5
	100	16.3	14.9			15.2	15.5	14.9	15.2	15.2	15.5	15.8
	110	15.6	14.8			15.0	15.0	14.6	14.9	14.9	15.0	15.2
	120	15.1	14.5			14.9	14.8	14.3	14.5	14.7	14.8	14.9
	130	14.7	14.4			14.7	14.5	14.1	14.3	14.3	14.7	14.7
	140	14.6	14.3			14.6	14.2	13.9	14.2	14.0	14.5	
	150	14.5	14.1			14.5	14.1	13.7	13.9	13.9	14.4	
	160	14.2	13.9			14.3	13.9	13.6	13.8	13.9	14.3	
	170	14.0				14.0	13.8	13.4	13.7	13.8	14.2	
	180	13.8				13.9	13.6	13.3	13.4	13.4	14.1	
	190	13.7				13.8	13.3	13.1	13.4	13.3	13.9	
	200	13.6				13.5	13.2	12.9				
220	13.4					13.0	12.7					
240	12.9					13.0	12.5					
260	12.7					12.6	12.5					
280	12.2					12.3	12.0					
300	11.7					11.8	11.7					
320	11.3					11.5	11.3					
340	10.7					11.0	10.7					
360	10.3					10.0	10.0					
380	9.8					9.8	9.7					
400	9.4					9.3	9.3					
420	8.5					8.9	8.4					
440	8.0					8.0	7.9					
460												
480												
500												
550												
600												

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature, 1987)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12
Date of Obser.	Nov. 29	Nov. 29	Nov. 29	Nov. 29	Nov. 30	Nov. 30	Nov. 30	Nov. 30	Dec. 1	Dec. 1	Dec. 1	Dec. 1
Time of Obser.	15-45	18-50	21-10	23-40	01-05	05-30	13-00	23-30	02-35	10-50	13-05	15-30
Position	Lat. (N)	09-30	09-31	09-33	09-35	09-36	09-30	09-10	09-00.5	08-55	09-05	09-06
	Long (W)	85-30	86-00	86-20	86-40	87-00	87-20	87-15	87-51	87-30	87-00	86-40
Weather	C	C	C	C	C	C	C	C	C	C	C	C
Wind Direction	SSW	SSS	SW	SW	-	-	-	SW	SE	SSW	S	SW
Wind Force	2	2	2	3	-	-	-	1	2	3	5	5
Atmos. Pressure (mb)	1014	1016	1017	1016	1015	1015	1014.5	1015	1015	1018	1015.5	1015
Air Tem. (°C)	31.0	28.0	28.0	27.5	27.0	27.0	27.0	26.5	26.0	29.0	28.0	26.5
Color of sea	4									3		
Sea Water Temp. (°C)												
Depth (m)	0	29.0	29.0	28.8	28.7	28.0	28.2	27.8	27.4	27.3	28.1	28.5
	10	28.9	29.0	28.9	28.7	28.0	28.3	27.7	26.0	27.3	27.8	28.4
	20	28.0	28.9	24.0	24.0	20.0	20.0	20.0	17.3	19.0	21.8	22.1
	30	26.0	22.5	20.7	21.7	17.4	18.7	18.3	15.9	17.5	19.3	20.0
	40	23.0	20.7	19.7	19.8	15.5	17.5	16.8	15.0	15.5	16.5	18.0
	50	20.2	17.5	17.8	18.5	14.6	16.7	15.9	14.0		15.7	16.3
	60											
	70											
	80											
	90											
	100	15.7	14.7	15.1	15.2	13.6	15.0	13.9	13.3	13.6	14.2	14.3
	110											
	120											
	130											
	140											
	150	13.9	13.5	13.9	13.7	12.7	13.8	13.4	12.6	13.1	13.3	13.2
	160											
	170											
	180											
	190											
200	11.8	12.8	13.0	12.8	11.8	13.1	12.8	12.0	12.2	12.7	12.5	
220												
240												
260												
280												
300	8.9	10.7	11.1	10.4	9.5	11.8		10.6	10.5	10.9	11.1	
320												
340												
360												
380												
400	8.0	8.8	9.3	8.3	7.9	9.9		8.7			9.2	
420												
440												
460												
480												
500												
550												
600												

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature, 1987)

Station No.	13	14	15	16	17	18	19	20	21	22	23	
Date of Obser.	Oct. 30	Oct. 30	Oct. 30	Oct. 30	Oct. 30	Oct. 30	Oct. 31	Oct. 31	Oct. 31	Oct. 31	Oct. 31	
Time of Obser.	10-15	09-10	07-55	06-55	15-05	11-45	11-50	10-25	09-15	08-10	06-55	
Position	Lat. (N)	10-30	10-30	10-30	10-30	10-40	10-40	10-40	10-50	10-50	10-50	
	Long. (W)	86-20	86-10	86-00	85-52	86-10	86-40	86-40	86-30	86-20	86-00	
Weather	BC	BC	BC	BC	BC	BC	B	B	BC	BC	BC	
Wind Direction	R	R	N	N	N	N	N	N	N	N	N	
Wind Force	6	4	3	3	4	4	3	4	4	4	4	
Atmos. Pressure (mb)	1019	1019	1018	1017	1015	1018	1019	1019	1019	1019	1017	
Air Temp. (°C)	30.0	30.0	31.0	29.0	31.0	29.0	31.0	31.5	31.0	31.0	30.0	
Color of sea	3	3	3	4	3	4	4	4	4	4	3	
Sea Water Temp. (°C)												
Depth (m)	0	28.6	28.6	28.6	28.6	28.8	28.5	28.4	28.5	28.4	28.6	28.4
	10	28.7	28.7	28.7	28.6	28.7	28.5	28.4	28.4	20.6	28.7	28.5
	20	27.3	26.8	27.3	28.4	26.6	26.6	28.3	28.1	29.6	27.2	28.3
	30	24.0	25.9	25.0	25.2	23.5	23.8	25.0	24.2	24.9	24.3	26.6
	40	22.0	21.3	22.1	23.2	21.0	22.5	22.7	21.3	21.5	22.8	24.5
	50	19.5	19.6	19.9	21.3	19.6	19.7	19.5	19.7	19.6	19.7	22.0
	60	18.5	18.5	18.2	19.5	18.8	18.7	18.9	18.1	17.7	18.6	19.6
	70	17.3	17.0	17.2	17.8	17.8	17.7	17.8	17.0	17.0	17.8	18.4
	80	16.4	15.9	16.7		16.7	17.2	17.3	16.9	16.3	17.4	17.8
	90	16.0	15.8	16.0		15.3	16.9	16.8	16.5	16.0	16.5	17.4
	100	15.4	15.7			15.0	16.2	16.3	15.4	15.8	16.1	16.3
	110	15.2	15.3			14.9	15.7	15.6	15.0	15.3	15.8	15.2
	120	15.0	14.7			14.7	15.3	15.3	14.8	15.0	15.5	
	130	14.9	14.2			14.6	15.0	15.3	14.7	14.9	15.2	
	140	14.6	14.1			14.5	14.6	15.0	14.5	14.7	14.6	
	150	14.3	14.1			14.4	14.4	14.7	14.4	14.3	14.5	
	160	14.2				14.3	14.2	14.2	14.0	14.0	14.4	
	170	14.1				14.1	14.1	13.9	13.5	13.9	14.2	
	180	14.0				14.1	14.0	13.8	13.5	13.6	13.8	
	190	13.8				13.6	13.8	13.8	13.4	13.5		
	200	13.7				13.5	13.7	13.7		13.4		
220	13.3					13.4	13.6					
240	13.0					13.2	13.4					
260	12.8					12.8	13.1					
280	12.6					12.6	13.0					
300	12.4					12.3	12.7					
320	12.1					11.9	12.5					
340	11.9					11.6	12.1					
360	11.4					11.1	12.0					
380	10.3					10.9	11.9					
400	10.1					10.5	11.1					
420	9.8					10.3	10.7					
440	9.6					9.9	10.4					
460	9.3					9.4	9.7					
480												
500												
550												
600												

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature, 1937)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12	
Date of Obser.	Dec. 30	Dec. 27	Dec. 27	Dec. 27	Dec. 27	Dec. 27	Dec. 29	Dec. 29	Dec. 29	Dec. 28	Dec. 28	Dec. 28	
Time of Obser.	00-40	12-35	13-24	15-00	15-55	16-58	17-30	16-10	14-50	07-10	08-13	09-15	
Position	Lat. (N)	09-30	09-29.8	9-29.8	09-40	9-48.5	09-50	09-50	10-00	10-10	10-10	10-20	
	Long (W)	85-10	85-15	85-20	85-30	85-31	85-40	85-50	85-50	85-51.5	86-00	86-15	
Weather	B	B	B	B	B	B	B	B	B	B	B	B	
Wind Direction	E	S	S	S	W	W	ENE	ENE	ENE	N	NE	NE	
Wind Force	1	1	1	1	2	2	3	5	6	5	5	4	
Atmos. Pressure (mb)	1017	1016	1016	1015	1014	1015	1014	1013	1013	1017	1018	1019	
Air Tem. (°C)	28.5	35.0	33.0	35.0	35.0	31.0	31.0	30.5	33.0	30.0	32.0	31.0	
Color of sea		5	5	5	5		4	4	4	4	4	4	
Sea Water Temp. (°C)													
Depth (m)	0	28.8	29.5	30.2	29.3	29.5	29.4	28.8	28.9	27.8	28.6	27.6	27.7
	10	28.9	28.0	29.0	28.8	29.0	29.0	28.8	28.7	28.0	28.7	27.3	27.9
	20	28.3	28.3	28.3	28.3	28.8	26.0	27.9	27.0	26.4	26.0	24.6	24.6
	30	26.8	27.0	26.0	25.0	27.2	24.8	25.0	25.5	23.5	25.4	21.7	22.3
	40	22.5	24.8	23.7	21.0	24.3	22.3	23.0	23.5	21.6	22.4	20.3	20.5
	50	20.1	21.9	22.0	19.6	23.6	18.7	19.1	20.6	19.9	20.0	18.3	18.5
	60	17.5	19.6	19.7	18.3	20.2	17.3	17.6	18.7	17.0	18.7	17.3	18.2
	70	16.5	18.2	18.0	17.8		17.0	17.0	17.3		18.0	16.4	17.3
	80	15.6	17.5	17.5	17.0		16.5	16.4	16.5		16.5	15.9	16.4
	90	15.3	17.0	17.2	16.3		16.0	15.7	16.1		15.9	15.4	15.8
	100	15.2	16.4	16.4	16.1		15.5	15.3	15.9		15.6	15.1	15.3
	110	15.0	15.9	15.9	15.3			15.0	15.6		15.5	14.9	15.0
	120	14.7	15.5	15.4	15.1			14.7	15.2		15.2	14.7	14.9
	130	14.6	14.9	14.9	14.8			14.5	14.9		14.9	14.4	14.7
	140	14.4	14.7	14.8	14.5			14.4	14.8		14.7	14.1	14.4
	150	14.3	14.6	14.7	14.4			14.1	14.7		14.5	13.9	14.2
	160	14.0	14.5	14.6	14.3			14.0	14.5		14.4	13.9	14.2
	170	13.7	14.2	14.2	14.2			13.9	14.3		14.1	13.8	14.2
	180	13.5	14.0	14.0	14.1			13.8	14.1		13.9	13.7	14.1
	190	13.4	13.5	13.9	14.0			13.7	13.9		13.7	13.6	13.9
	200	13.3	13.4	13.8	13.9			13.6	13.8		13.4	13.5	13.7
220		13.0	13.5	13.6			13.1	13.8		13.3	13.2	13.1	
240		12.9	12.9	13.4			12.8	13.8		13.0	12.9	12.9	
260		12.7	12.6	13.3			12.7	13.0		12.6	12.5	12.5	
280		12.4	12.3	12.8			12.1			12.1	11.8	12.0	
300		11.7	11.6	12.5			11.9			11.4	11.5	11.4	
320			11.3	12.0			11.7			11.1	11.0	11.0	
340			10.7	11.5			10.9			10.4	10.5	10.4	
360			10.5	10.8			10.3			10.1	10.0	10.1	
380			10.1	10.5			9.8			9.9	9.6	9.7	
400			9.9	9.9			9.4				9.1	9.4	
420			9.0	8.7			8.8				8.4		
440			8.0	8.0			8.2				7.7		
460													
480													
500													
550													
600													

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature, 1987)

Station No.	13																			
Date of Obser.	Dec. 1																			
Time of Obser.	18-10																			
Position	Lat. (N)	09-05																		
	Long (W)	86-00																		
Weather	R																			
Wind Direction	SW																			
Wind Force	5																			
Atmos. Pressure (mb)	1016.5																			
Air Temp. (°C)	25.5																			
Color of sea																				
Sea Water Temp. (°C)																				
Depth (m)	0	28.4																		
	10	28.3																		
	20	26.0																		
	30	23.0																		
	40	21.4																		
	50	20.0																		
	60																			
	70																			
	80																			
	90																			
	100	15.0																		
	110																			
	120																			
	130																			
	140																			
	150	13.7																		
	160																			
	170																			
	180																			
	190																			
200	12.6																			
220																				
240																				
260																				
280																				
300	10.9																			
320																				
340																				
360																				
380																				
400	8.6																			
420																				
440																				
460																				
480																				
500																				
550																				
600																				

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 1 Log, 1988)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12	
Date of Obser.	Jun. 10	"	Jun. 11	"	"	"	"	"	"	"	"	"	
Time of Obser.	17-25	18-05	16-40	7-30	8-23	9-40	11-00	11-40	12-38	13-25	14-30	15-30	
Position	Lat. (N)	9-30	9-30	9-30	9-40	9-48	9-50	9-50	10-00	10-10	10-10	10-20	
	Long (W)	85-10	85-15	85-20	85-30	85-30	85-40	85-50	85-50	85-53	86-00	86-15	
Weather	C	C	C	B C	B C	C	C	B C	B C	B C	B C	B C	
Wind Direction	Calm	Calm	Calm	Calm	Calm	WNW	WNW	WNW	NW	WNW	WNW	WNW	
Wind Force	-	-	-	-	-	1	1	1	2	1	2	2	
Atmos. Pressure (mb)	1017	1017	1017	1017	1017	1017	1017	1017	1016	1016	1015	1014	
Air Tem. (C°)	28.5	28.5	28.3	29.4	29.5	30.5	31.5	31.7	32.0	29.0	30.0	31.0	
Color of sea	5			5	5	5	5	5	5	4	3	3	
Sea Water Temp. (C°)													
Depth (m)	0	28.3	28.6	29.3	28.4	28.4	28.4	28.5	28.8	29.6	29.0	28.8	29.0
	10	26.7	26.4	28.7	28.4	27.5	28.5	28.3	28.3	28.5	28.3	27.7	27.9
	20	24.0	24.3	26.0	25.7	24.2	26.6	25.3	25.2	25.7	27.8	27.6	27.2
	30	22.1	22.1	22.0	21.0	21.7	22.5	21.2	21.0	21.0	23.7	23.5	21.0
	40	21.0	20.3	20.1	19.7	20.5	19.5	19.1	19.1	18.9	20.8	19.0	18.8
	50	20.2	19.3	19.3	18.5	18.9	18.7	18.0	17.7	12.6	18.1	17.9	17.3
	60	18.0	17.5	17.6	17.4	18.8	18.3	17.3	16.9	17.4	17.0	16.9	16.5
	70	17.5	17.4	17.3	17.3		18.1	16.7	16.2	17.3	16.5	16.4	15.8
	80	17.1	16.0	16.4	16.5		17.3	16.0	16.0		16.0	15.6	15.3
	90	16.4	15.8	15.9	16.4		16.4	15.7	15.7		15.8	15.3	15.1
	100	15.9	15.5	15.6	16.3		16.0	15.5	15.3		15.2	14.8	14.6
	110	15.7	15.4	15.2	15.7			15.4	15.1		15.1	14.7	14.2
	120	15.6	14.9	14.9	15.3			15.1	15.0		15.0	14.4	14.1
	130	15.5	14.8	14.5	15.2			14.9	14.8		14.9	14.2	14.0
	140	15.5	14.7	14.3	15.0			14.8	14.7		14.8	14.1	13.9
	150	14.5	14.5	14.2	14.9			14.5	14.5		14.5	14.0	13.8
	160	14.4	14.4	14.1	14.7			14.2	14.4		14.1	14.0	13.7
	170	14.3	14.4	14.0	14.5			14.0	14.3		14.0	13.9	13.5
	180	14.1	14.4	14.0	14.3			13.9	14.2		14.0	13.7	13.4
	190		14.3	13.9	14.1			13.9	14.1		14.0	13.5	13.2
	200		14.2	13.8	14.0			13.8	13.9		13.8	12.9	13.1
220			13.6	14.0			13.3	13.9		13.4	12.3	13.1	
240			13.2	13.6			12.8	13.4		13.2	12.2	13.0	
260			12.8	13.2			12.7	13.1		13.0	12.0	12.8	
280			12.6	12.9			12.5	12.4		12.8	11.8	12.5	
300			12.3	12.7			12.3	12.1		12.5	11.5	11.9	
320			12.0	12.3			12.1			12.1	11.1	11.5	
340			11.8	12.0			11.8			12.0	11.0	11.0	
360			11.4	11.4			11.0			11.0	10.8	10.9	
380			11.1	11.2			10.9				10.3	10.7	
400			10.7	11.0			10.4				10.0	10.4	
450			9.5	9.5			9.4				9.4	9.6	
500							8.5				8.9	9.0	

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 1 Leg, 1988)

Station No.	13	14	15	16	17	18	19	20	21	22	23
Date of Obser.	Jun. 12	"	"	"	"	"	"	"	"	"	Jun. 13
Time of Obser.	9-45	8-15	5-45	6-32	18-00	11-00	12-30	14-24	15-30	16-55	17-25
Position	Lat. (N)	10-30	10-30	10-30	10-30	10-40	10-40	10-50	10-50	10-50	10-50
	Long (W)	86-20	86-10	86-00	85-53	86-10	86-30	86-40	86-30	86-20	86-10
Weather	B C	B C	B C	B C	B C	B C	B C	B C	B C	B C	C
Wind Direction	Calm	E	E	E	S	NE	ENE	NE	Calm	SE	SE
Wind Force	-	1	2	2	1	2	3	1	-	2	3
Atmos. Pressure (mb)	1017	1016	1015	1016	1015	1017	1016	1015	1013	1014	1016
Air Tem. (C°)	33.5	32.8	26.0	27.0	28.4	31.5	31.5	32.0	30.0	30.0	27.5
Color of sea	4	5	6	6	4	3	3	4	4	4	4
Sea Water Temp. (C°)											
Depth (m)	29.0	28.8	29.0	28.3	28.2	28.2	28.6	29.0	29.2	29.0	28.2
10	27.5	27.0	26.1	28.1	28.0	28.0	27.2	26.8	28.3	27.7	28.2
20	25.0	20.3	21.0	26.0	26.8	24.0	20.5	23.8	24.8	22.5	23.8
30	22.0	19.0	21.5	22.5	22.5	18.3	16.8	18.5	20.3	20.8	22.0
40	18.2	18.2	19.9	21.0	19.5	16.8	15.3	17.2	19.2	20.0	19.6
50	17.0	17.5	18.8	18.6	17.5	15.8	14.8	16.3	17.0	18.0	18.2
60	15.9	16.7	18.0	18.0	16.5	15.3	14.4	16.1	16.7	17.1	18.0
70	15.3	15.9	17.3	17.3	16.0	14.8	14.3	15.6	16.1	16.8	16.9
80	15.2	15.6	16.6		15.9	14.3	14.2	15.1	15.8	16.0	16.5
90	14.9	15.4	16.0		15.5	14.1	14.1	14.8	15.4	15.9	16.5
100	14.6	15.3			15.3	14.0	14.0	14.7	15.0	15.8	16.0
110	14.2	15.2			15.0	14.0	14.0	14.5	14.9	15.6	15.5
120	14.2	14.9			14.9	13.9	14.0	14.3	14.7	15.3	15.3
130	13.9	14.4			14.8	13.9	14.0	14.2	14.6	15.2	
140	13.7	14.3			14.7	13.8	13.8	14.2	14.5	14.7	
150	13.6	14.2			14.6	13.7	13.8	14.1	14.4	14.7	
160	13.5	14.1			14.2	13.6	13.8	14.0	14.3	14.6	
170	13.4	14.0			14.1	13.5	13.7	13.9	14.2	14.4	
180	13.3	13.9			14.0	13.3	13.7	13.7	13.9	14.2	
190	13.3	13.8			13.9	13.2	13.6	13.7	13.7		
200	13.3	13.7			13.5	13.1	13.5				
220	13.2					12.9	13.2				
240	13.0					12.6	12.7				
260	12.4					12.3	12.4				
280	12.2					12.0	12.0				
300	12.0					11.8	11.8				
320	11.6					11.5	11.3				
340	11.2					11.0	11.0				
360	10.8					10.7	10.3				
380	10.3					10.2	10.0				
400	10.0					10.0	9.7				
450	9.4					9.1	9.0				
500	9.0					8.5	8.5				

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 6 Leg, 1988)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12	
Date of Obser.	Sep. 1	"	"	"	"	"	"	"	"	"	"	Sep. 2	
Time of Obser.	8-30	9-10	9-45	11-40	12-40	13-45	14-55	16-15	17-30	18-20	19-30	7-35	
Position	Lat. (N)	9-30	9-30	9-30	9-40	9-48	9-50	9-50	10-00	10-10	10-10	10-20	
	Long (W)	85-10	85-15	85-20	85-30	85-30	85-40	85-50	85-50	85-52	86-00	86-10	
Weather	0	R	R	C	C	C	B-C	C	C	C	C	C	
Wind Direction	Calm	S W	S W	N W	S	S	S W	S W	S W	Calm	WSW	W	
Wind Force	-	2	2	1	1	1	2	1	1	-	3	3	
Atmos. Pressure (mb)	1017	1017	1017	1017	1016	1015	1015	1015	1016	1016	1016	1017	
Air Tem. (C°)	27.0	27.0	27.0	29.0	29.5	29.8	29.8	29.5	27.5	26.5	26.5	27.5	
Color of sea	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	-	-	5-6	
Sea Water Temp. (C°)													
Depth (m)	0	26.3	26.5	26.2	27.4	27.2	26.8	27.8	27.2	26.4	27.0	27.8	27.4
	10	24.9	25.3	25.8	25.8	25.3	25.0	26.7	24.9	24.2	24.3	24.2	23.5
	20	24.5	23.5	22.6	25.3	24.8	23.8	24.3	22.3	22.5	21.4	21.3	21.0
	30	22.0	20.1	19.8	23.3	22.5	22.0	19.6	20.9	21.6	20.9	19.1	19.3
	40	19.5	19.5	17.0	20.9	20.0	19.5	18.2	18.8	19.8	19.2	17.1	17.9
	50	17.0	17.5	17.0	19.4	16.3	16.6	17.6	17.8	18.7	18.2	16.3	17.2
	60	14.6	16.3	15.5	18.9	15.3	15.7	16.8	16.5	17.5	16.5	15.8	16.1
	70	14.4	15.5	14.8	17.2		15.0	16.2	15.3	15.8	16.0	15.0	15.7
	80	14.0	14.7	14.4	16.3		14.7	15.5	14.7		15.6	14.9	15.1
	90	13.7	14.3	14.3	15.5		14.4	15.1	14.5		15.0	14.4	14.9
	100	13.4	14.0	14.1	15.0		14.4	14.7	14.3		14.6	14.2	14.7
	110	13.3	13.9	13.9	14.7			14.3	14.0		14.0	14.0	14.2
	120	13.2	13.7	13.8	14.3			14.1	13.8		13.7	13.9	13.9
	130	13.0	13.5	13.7	14.0			13.9	13.6		13.4	13.8	13.8
	140	12.7	13.3	13.6	13.9			13.5	13.4		13.3	13.7	13.7
	150	12.3	13.2	13.4	13.9			13.4	13.2		13.2	13.5	13.6
	160	12.1	13.1	13.3	13.8			13.2	13.1		13.1	13.4	13.4
	170	12.1	13.0	13.1	13.8			12.9	12.9		12.8	13.1	13.2
	180	12.0	13.0	13.0	13.5			12.8	12.7		12.7	13.0	13.1
	190	11.5	12.9	12.9	13.3			12.7	12.4		12.5	12.9	13.1
	200	11.0	12.7	12.6	13.2			12.6	12.3		12.4	12.9	12.9
220		12.5	12.3	13.0			12.3	11.9		12.2	12.8	12.6	
240		12.1	12.1	12.7			12.0	11.7		11.8	12.5	12.3	
260		11.8	11.9	12.3			11.6	11.5		10.8	12.2	11.9	
280			11.6	12.0			11.4	11.2		10.7	11.5	11.4	
300			11.1	11.5			10.9	10.8		10.5	11.1	10.9	
320			10.8	10.8			10.6			9.7	10.8	10.5	
340			10.2	10.4			10.3			9.1	10.1	9.9	
360			10.2	10.1			9.9				9.9	9.5	
380			10.0	9.7			9.4				9.2	9.0	
400			9.7	9.3			9.2				9.0	8.9	
450			9.0	8.5			8.5				8.3	8.3	
500			8.3	8.0			8.0				7.8	7.8	

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 6 Log, 1938)

Station No.	13	14	15	16	17	18	19	20	21	22	23	
Date of Obser.	Sep. 2	"	"	"	"	"	"	"	"	"	Sep. 3	
Time of Obser.	10-21	09-00	20-25	21-20	18-46	12-08	14-02	15-15	16-24	17-30	9-02	
Position	Lat. (N)	10-30	10-30	10-30	10-32	10-40	10-40	10-50	10-50	10-50	10-50	
	Long (W)	86-20	86-10	86-00	85-52	86-10	86-30	86-40	86-30	86-20	86-10	
Weather	B C	C	R	C	C	B C	B C	B C	C	C	B C	
Wind Direction	W	W	SE	SE	SE	W	W	W	W	W	Calm	
Wind Force	3	3	3	3	3	3	3	3	3	3	-	
Atmos. Pressure (mb)	1018	1018	1018	1019	1017	1017	1016	1016	1016	1017	1018	
Air Tem. (C°)	29.0	29.0	26.5	26.0	27.0	29.8	29.0	29.0	29.0	27.5	28.0	
Color of sea	5-6	5-6	-	-	-	4	4	5-6	5-6	5-6	5-6	
Sea Water Temp. (C°)												
Depth (m)	0	27.8	27.6	26.4	26.8	28.2	27.8	27.9	27.8	28.0	28.4	28.0
	10	27.2	24.3	25.9	26.3	27.6	25.4	27.4	27.2	27.4	28.6	25.7
	20	22.6	22.3	22.9	23.8	24.2	21.8	22.5	22.9	22.7	23.5	22.4
	30	20.2	19.8	21.6	22.3	21.0	19.4	18.7	19.7	20.3	21.6	20.8
	40	18.9	18.8	19.7	20.7	19.5	18.5	17.4	18.1	19.0	19.5	19.6
	50	17.8	18.5	18.3	17.4	18.0	17.5	16.1	16.6	17.9	16.8	17.5
	60	16.3	17.0	17.6	15.5	16.9	16.3	15.7	16.2	16.5	15.7	16.6
	70	15.8	15.8	16.4		15.8	15.7	14.9	15.2	15.6	15.4	15.5
	80	14.8	15.0	15.0		15.2	15.2	14.8	14.9	15.2	15.1	15.0
	90	14.4	14.7	14.6		14.6	14.6	14.7	14.9	14.9	14.7	14.7
	100	14.3	14.3			14.2	14.4	14.5	14.4	14.5	14.2	14.2
	110	13.9	14.2			14.0	14.1	14.3	14.0	14.2	14.0	14.0
	120	13.8	14.1			13.9	14.1	14.1	13.9	13.8	13.9	
	130	13.7	13.7			13.8	13.9	13.9	13.7	13.7	13.8	
	140	13.4	13.6			13.6	13.8	13.8	13.5	13.6	13.7	
	150	13.4	13.3			13.4	13.7	13.7	13.5	13.5	13.6	
	160	13.2				13.3	13.6	13.5	13.2	13.4	13.5	
	170	13.1				13.1	13.3	13.4	13.1	13.2	13.4	
	180	12.9				13.0	13.2	13.4	13.0	13.1	13.3	
	190	12.8				12.7	13.1	13.3		13.0	13.3	
	200	12.7				12.5	13.0	13.1		13.0		
220	12.4					12.5	12.6					
240	12.0					12.0	12.1					
260	11.7					11.5	11.5					
280	11.2					11.0	11.0					
300	10.6					10.5	10.5					
320	10.6					10.1	10.2					
340	10.1					10.0	10.0					
360	9.9					9.8	9.7					
380	9.8					9.4	9.3					
400	9.3					9.2	9.1					
450	8.3					8.9	8.8					
500	7.9					8.0	8.0					

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 9 Leg. 1988)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12	
Date of Obser.	Oct. 26	"	"	"	"	"	Oct. 27	"	"	"	Oct. 29	"	
Time of Obser.	8-35	9-30	10-30	12-40	14-13	15-52	8-01	9-48	11-30	12-39	11-53	9-55	
Position	Lat. (N)	9-30	9-30	9-30	9-40	9-48	9-50	9-50	10-00	10-10	10-10	10-20	
	Long (W)	85-10	85-15	85-20	85-30	85-30	85-40	85-50	85-50	85-52	86-00	86-15	
Weather	0	0	C	C	C	C	B C	B C	B C	B C	B C	B C	
Wind Direction	WSW	WSW	WSW	W	W	W	W	NW	NW	W	S	ESE	
Wind Force	4	4	4	4	4	4	3	3	3	4	1	2	
Atmos. Pressure (mb)	1017	1017	1017	1015	1014	1014	1016	1017	1016	1015	1016	1017	
Air Tem. (C°)	26.8	26.8	28.5	28.5	28.0	28.0	28.0	30.8	31.0	31.0	29.5	29.5	
Color of sea	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	4-5	5-6	
Sea Water Temp. (C°)													
Depth (m)	0	26.0	26.4	26.6	26.5	25.7	25.4	26.2	26.4	26.8	27.5	28.2	27.8
	10	26.0	26.4	26.4	24.0	23.5	23.3	24.2	24.0	23.6	23.0	27.0	26.5
	20	23.4	25.0	24.3	22.0	21.7	22.0	21.0	22.0	22.4	21.0	23.1	21.8
	30	20.3	21.7	20.1	17.9	21.0	20.6	18.1	19.8	20.1	19.9	20.4	19.6
	40	18.5	20.2	17.9	17.0	19.6	18.3	17.0	18.3	18.6	18.0	17.8	17.7
	50	17.9	18.2	16.0	16.3	18.3	17.5	16.2	16.6	16.4	16.0	16.1	16.2
	60	17.1	16.2	15.5	15.0		16.4	15.3	15.0	15.4	15.1	15.3	15.4
	70	16.2	15.5	14.9	14.4		15.5	14.7	14.9		14.5	14.9	14.8
	80	15.2	14.8	14.8	14.2		15.1	14.5	14.6		14.4	14.5	14.4
	90	14.8	14.1	14.6	14.0		14.6	14.3	14.4		13.7	14.2	14.0
	100	14.4	14.0	14.2	13.8		14.0	14.0	14.3		13.5	14.0	13.9
	110	14.0	13.7	14.0	13.7			13.8	13.9		13.4	13.8	13.8
	120	13.8	13.6	13.4	13.5			13.7	13.7		13.3	13.7	13.7
	130	13.6	13.5	13.3	13.3			13.5	13.2		13.2	13.5	13.5
	140	13.5	13.4	13.2	13.2			13.4	13.0		13.1	13.3	13.4
	150	13.0	13.3	13.2	13.0			13.3	13.0		13.0	13.2	13.2
	160	12.9	13.1	13.1	12.8			13.1	12.8		12.9	13.1	13.1
	170	12.6	12.9	13.0	12.7			13.0	12.8		12.8	13.0	13.0
	180	12.6	12.8	12.9	12.7			12.9	12.7		12.6	12.9	12.9
	190		12.7	12.7	12.6			12.8	12.7		12.5	12.8	12.7
	200		12.5	12.6	12.6			12.7	12.6		12.5	12.7	12.6
	220		12.5	12.3	12.4			12.4	12.5		11.8	12.2	12.3
	240		12.5	12.0	12.1			12.0	12.3		11.6	11.9	12.0
	260		12.5	11.7	11.9			11.8	12.2		11.3	11.7	11.7
	280			11.2	11.7			11.5			11.1	11.4	11.3
	300			10.9	11.4			11.2			10.8	11.2	11.1
	320			10.6	11.0			10.8			10.5	11.0	10.8
	340			10.5	10.6			10.4			10.4	10.8	10.2
	360			9.9	10.3			10.2			10.3	10.2	9.9
	380			9.4	10.0			10.0			9.9	9.9	9.6
	400			9.2	9.7			9.7			9.6	9.8	9.4
	450			9.0	9.2			8.7				9.0	8.6
	500			8.6	8.7			8.2				8.3	8.0

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Sea Water Temperature No. 9 Log, 1988)

Station No.	13	14	15	16	17	18	19	20	21	22	23
Date of Obser.	Oct. 29	"	Oct. 27	"	Oct. 28	"	"	"	"	"	"
Time of Obser.	18-11	6-28	16-02	16-56	18-10	15-11	12-52	13-36	10-00	8-46	7-19
Position	Lat. (N)	10-30	10-30	10-30	10-30	10-40	10-40	10-50	10-50	10-50	10-50
	Long (W)	86-20	86-10	86-00	85-54	86-11	86-30	86-40	86-30	86-20	86-02
Weather	B C	B C	B C	B C	C	B C	B C	B C	B C	B C	B C
Wind Direction	SE	SE	W	W	NE	NE	NE	NE	NNE	N	NW
Wind Force	1	1	2	1	5	2	3	4	4	3	1
Atmos. Pressure (mb)	1017	1016	1014	1014	1014	1013	1015	1016	1017	1017	1016
Air Tem. (C°)	29.0	28.0	30.0	30.0	29.0	29.5	31.0	31.0	31.0	28.0	27.0
Color of sea	5-6	5-6	5-6	5-6		5-6	5-6	5-6	5-6	5-6	5-6
Sea Water Temp. (C°)											
Depth (m)	0	27.7	27.7	27.8	28.3	28.2	27.7	27.6	27.6	27.7	27.8
	10	27.0	25.3	27.2	24.5	27.1	26.8	26.0	27.4	24.0	27.0
	20	22.5	22.4	24.4	23.2	23.2	21.7	21.8	22.2	22.2	22.5
	30	20.2	21.0	22.3	21.0	20.3	20.4	20.0	21.0	20.4	20.3
	40	18.5	18.3	20.0	18.4	18.0	18.2	18.9	19.8	18.5	19.3
	50	17.1	16.4	17.2	16.8	16.4	17.1	18.2	18.5	17.4	17.6
	60	16.1	15.4	15.5	16.0	15.0	16.4	16.4	17.4	16.5	16.1
	70	15.2	14.6	15.0	15.0	14.6	15.4	15.3	17.0	16.2	15.2
	80	14.8	14.2	14.2		14.3	15.0	14.9	15.7	15.5	14.6
	90	14.3	13.9	14.0		14.2	14.6	14.5	15.0	14.9	14.2
	100	14.0	13.7			13.9	14.4	14.3	14.7	14.5	13.9
	110	13.8	13.4			13.8	14.0	13.9	14.5	14.2	13.7
	120	13.6	13.3			13.7	13.9	13.7	14.0	13.9	13.4
	130	13.5	13.2			13.5	13.8	13.6	13.8	13.7	13.3
	140	13.2	13.0			13.3	13.6	13.5	13.6	13.3	13.2
	150	13.1	12.8			13.2	13.4	13.2	13.3	13.2	13.0
	160	13.0	12.7			13.0	13.2	13.1	13.2	13.1	12.6
	170	12.9				12.9	13.1	13.1	13.1	13.0	12.5
	180	12.8				12.7	12.9	13.0	13.0	12.9	
	190	12.7				12.3	12.7	12.6		12.6	
	200	12.4				12.2	12.4	12.3		12.5	
220	12.0					12.1	12.0				
240	11.8					11.9	11.8				
260	11.6					11.6	11.5				
280	11.4					11.0	11.1				
300	11.0					10.8	10.8				
320	10.8					10.5	10.7				
340	10.4					10.2	10.3				
360	10.0					9.9	10.0				
380	9.7					9.6	9.7				
400	9.6					9.3	9.4				
450	8.7					8.8	8.4				
500	8.0					8.2	8.0				

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Salinity, No.9 Leg, 1988)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12	
Date of Obser.	Oct.26	"	"	"	"	"	Oct.27	"	"	"	Oct.28	"	
Time of Obser.	8-35	9-30	10-30	12-49	14-13	15-52	8-01	9-48	11-30	12-39	11-53	9-55	
Position	Lat. (N)	9-30	9-30	9-30	9-40	9-48	9-50	9-50	10-00	10-10	10-10	10-20	
	Long.(W)	85-10	85-15	85-20	85-30	85-30	85-40	85-50	85-50	85-52	86-00	86-15	
Weather	0	0	C	C	C	C	B C	B C	B C	B C	B C	B C	
Wind Direction	WSW	WSW	WSW	W	W	W	W	NW	NW	W	S	ESE	
Wind Force	4	4	4	4	4	4	3	3	3	4	1	2	
Atmos. Pressure (mb)	1017	1017	1017	1015	1014	1014	1016	1017	1016	1015	1016	1017	
Air Tem. (C°)	26.8	26.8	28.5	28.5	28.0	28.0	28.0	30.8	31.0	31.0	29.5	29.5	
Color of sea	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	4-5	5-6	
Salinity (ppt)													
Depth (m)	0	32.07	32.00	31.97	31.76	32.14	30.54	31.72	31.64	31.17	31.13	31.20	32.07
	10	32.23	32.04	31.96	33.07	33.60	33.22	33.11	33.50	33.59	33.72	32.70	32.10
	20	34.14	32.16	33.00	33.81	34.14	33.96	34.01	34.15	33.97	34.30	33.85	33.85
	30	34.48	34.32	34.13	34.68	34.19	34.16	34.54	34.50	34.06	34.51	34.17	34.40
	40		34.54	34.61	34.63	34.50	34.74	34.73	34.45	34.48	34.64	34.54	34.52
	50		34.60	34.57	34.74	34.43	34.68	34.79	34.71	34.75	34.71	34.72	34.69
	60		34.79	34.84	34.70		34.79	34.66	34.80	34.83	34.70	34.83	34.71
	70			34.88	34.85		34.87		34.84		34.79	34.81	34.81
	80								34.88			34.85	
	90											34.85	
	100												34.83
	110							34.96	34.92		34.85	34.87	34.85
	120												
	130												
	140												
	150												
	160												
	170												
	180												
190													
200													
220													
240													
260													
280													
300													
320													
340													
360													
380													
400													
450													
500													

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Salinity, No. 9 Leg, 1988)

Station No.	13	14	15	16	17	18	19	20	21	22	23	
Date of Obser.	Oct. 29	"	Oct. 27	"	Oct. 28	"	"	"	"	"	"	
Time of Obser.	8-11	6-28	16-02	16-56	18-10	15-11	12-52	11-36	10-00	8-46	7-19	
Position	Lat. (N)	10-30	10-30	10-30	10-30	10-40	10-40	10-50	10-50	10-50	10-50	
	Long (W)	86-20	86-10	86-00	85-54	86-11	86-30	86-40	86-30	86-20	86-10	86-02
Weather	B C	B C	B C	B C	C	B C	B C	B C	B C	B C	B C	
Wind Direction	SE	SE	W	W	NE	NE	NE	NE	NE	N	NW	
Wind Force	1	1	2	1	5	2	3	4	4	3	1	
Atmos. Pressure (mb)	1017	1016	1014	1014	1014	1013	1015	1016	1017	1017	1016	
Air Tem. (C°)	29.0	28.0	30.0	30.0	29.0	29.5	31.0	31.0	31.0	28.0	27.0	
Color of sea	5-6	5-6	5-6	5-6		5-6	5-6	5-6	5-6	5-6	5-6	
Salinity (ppt)												
Depth (m)	0	31.76	31.79	31.83	30.64	31.64	32.14	32.13	32.40	31.69	31.64	31.39
	10	32.65	33.07	32.32	33.29	32.02	32.25	32.37	32.39	33.22	32.32	32.95
	20	34.10	34.10	33.59	33.76	33.50	34.07	33.77	34.00	34.08	34.15	34.21
	30	34.20	34.24	34.19	34.21	34.34	34.29	34.19	34.26	34.23	34.38	34.23
	40	34.28	34.61	34.33	34.53	34.52	34.48	34.40	34.45	34.39	34.45	34.53
	50	34.70	34.61	34.65	34.67	34.65	34.44	34.55	34.54	34.63	34.54	34.72
	60	34.73	34.77	34.68	34.74	34.72	34.76	34.69	34.66	34.75	34.69	34.68
	70	34.80	34.79	34.79	34.85	34.79	34.70	34.65	34.56	34.85	34.77	34.81
	80	34.85	34.82	34.90	34.80		34.84	34.86	34.86		34.89	34.87
	90				34.81							
	100	34.83	34.83							34.86		
	110	34.83	34.85		34.86		35.00	34.90		34.79		34.82
	120											
	130											
	140											
	150											
	160											
	170											
	180											
	190											
200												
220												
240												
260												
280												
300												
320												
340												
360												
380												
400												
450												
500												

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Dissolved Oxygen, No. 9 Leg, 1988)

Station No.	1	2	3	4	5	6	7	8	9	10	11	12
Date of Obser.	Oct. 26	"	"	"	"	"	Oct. 27	"	"	"	Oct. 29	"
Time of Obser.	8-35	9-30	10-30	12-49	14-13	15-52	8-01	9-48	11-30	12-39	11-53	9-55
Position	Lat. (N)	9-30	9-30	9-30	9-40	9-48	9-50	9-50	10-00	10-10	10-10	10-20
	Long (W)	85-10	85-15	85-20	85-30	85-30	85-40	85-50	85-50	85-52	86-00	86-15
Weather	0	0	C	C	C	C	B C	B C	B C	B C	B C	B C
Wind Direction	WSW	WSW	WSW	W	W	W	W	NW	NW	W	S	RSSE
Wind Force	4	4	4	4	4	4	3	3	3	4	1	2
Atmos. Pressure (mb)	1017	1017	1017	1015	1014	1014	1016	1017	1016	1015	1016	1017
Air Tem. (C°)	26.8	26.8	28.5	28.5	28.0	28.0	28.0	30.8	31.0	31.0	29.5	29.5
Color of sea	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	4-5	5-6
Dissolved oxygen. (mg/l)												
Depth (m)	0	6.5	6.5	6.7	7.1	6.1	5.9	6.1	5.8	5.8	6.4	6.1
	10	6.7	6.3	6.7	6.0	5.3	5.5	5.8	4.5	5.0	4.8	6.5
	20	3.3	3.9	6.1	3.9	3.5	4.0	4.4	3.7	4.0	3.4	5.1
	30	2.2	2.9	4.3	3.0	3.3	3.1	2.9	2.7	3.5	2.0	3.1
	40		2.9	3.5	2.4	2.9	2.0	2.2	2.4	2.2	1.6	1.9
	50		2.1	2.3	1.9	2.4	1.7	1.9	1.7	1.4	1.3	1.5
	60		1.2	1.4	1.5		1.3	1.5	1.5	1.2	1.1	1.3
	70		1.0	1.3	1.0		1.1		1.3		1.0	1.3
	80								1.2			1.2
	90											
	100				0.5							0.5
	110				0.4			0.7	0.6		0.5	0.5
	120											0.6
	130											
	140											
	150											
	160											
	170											
	180											
	190											
	200											
	220											
	240											
	260											
	280											
	300											
	320											
	340											
	360											
	380											
	400											
	450											
	500											

SURVEY LOG (OCEANOGRAPHIC OBSERVATION)
(Dissolved Oxygen, No. 9 Leg, 1988)

Station No.	13	14	15	16	17	18	19	20	21	22	23
Date of Obser.	Oct. 29	"	Oct. 27	"	Oct. 28	"	"	"	"	"	"
Time of Obser.	8-11	6-28	16-02	16-56	18-10	15-11	12-52	11-36	10-00	8-46	7-19
Position	Lat. (N)	10-30	10-30	10-30	10-30	10-40	10-40	10-50	10-50	10-50	10-50
	Long (W)	86-20	86-10	86-00	85-54	86-11	86-30	86-40	86-30	86-20	86-10
Weather	B C	B C	B C	B C	C	B C	B C	B C	B C	B C	B C
Wind Direction	SE	SE	W	W	NE	NE	NE	NE	NE	N	NW
Wind Force	1	1	2	1	5	2	3	4	4	3	1
Atmos. Pressure (mb)	1017	1016	1014	1014	1014	1013	1015	1016	1017	1017	1016
Air Tem. (C°)	29.0	28.0	30.0	30.0	29.0	29.5	31.0	31.0	31.0	28.0	27.0
Color of sea	5-6	5-6	5-6	5-6		5-6	5-6	5-6	5-6	5-6	5-6
Dissolved Oxygen (mg/l)											
Depth (m)	0	6.0	6.0	6.1	6.3	6.3	6.2	6.1	6.0	6.1	6.2
	10	6.1	5.8	6.3	5.8	6.3	6.2	6.2	6.0	6.0	6.2
	20	4.4	3.3	4.8	3.8	5.7	3.6	4.4	3.7	3.3	3.9
	30	2.6	2.3	2.9	2.8	3.1	2.6	2.5	2.5	2.2	2.9
	40	2.1	1.8	2.1	2.0	2.5	2.0	2.1	2.0	1.9	2.4
	50	1.7	1.4	1.4	1.4	1.7	1.7	1.7	1.8	1.6	1.8
	60	1.5	1.4	1.2	1.2	1.6	1.5	1.6	1.5	1.4	1.7
	70	1.4	1.2	1.2	0.9	1.3	1.4	1.4	1.4	1.3	1.4
	80	1.2	1.1	1.1				1.2	1.1		1.1
	90										
	100	0.5	0.6							0.8	
	110	0.4	0.4			0.7	0.6	0.7		0.6	0.4
	120										
	130										
	140										
	150										
	160										
	170										
	180										
	190										
200											
220											
240											
260											
280											
300											
320											
340											
360											
380											
400											
450											
500											

Appendix Table-3

Size Composition by Species

Species : *Solenocera agassissi* (Fidel shrimp)

Date	Net No.	M/M	Length (cm)													No. of S.	T. Weight of S.
			5	6	7	8	9	10	11	12	13	14	15	16			
'87 11/17	57	B.L.				1	2	7	5	12	6	2	1		36	700(g)	
"	58	"			2	4	4	5	23	8	8	13	1		68	1,310	
"	59	"						3	13	14	16	14	1		61	1,480	
19	68	"				2	2	4	1	2					11	210	
"	69	"			1	2	3	5	1	4	1	1			18	240	
"	70	"						1	6	5	2				14	280	
12/ 4	79	"						4	4	2	3	3	1		17	400	
"	81	"							2	4	3	2	2		13	300	
24/ 7	94	"						4	11	1	2	3			17	280	
"	95	"						1	13	21	24	24	15	2	100		
"	96	"							1	12	2	13	3		31		
"	97	"							3	17	24	9	2	1	56	1,100	
21	126	"						15	35	35	11	4			100	1,350	
'88 1/ 7	131	"				4	9	22	11	2	2				50	650	
8	137	"			2	1	3	16	9	6					37	600	
"	138	"				5	9	5	7	4		1			48	450	
"	140	"					4	12	15	13					50	750	
"	142	"						2	9	17	16	5		1	50	820	
9	143	"						2	12	20	10	5	1		50	780	
"	145	"						4	14	15	11	3	3		50	800	
"	146	"						4	17	11	9	4			50	620	
"	147	"				2	13	34	23	13	8	3	4		100	1,400	
"	148	"							20	32	24	10	9	3	100	1,800	
"	149	"						3	24	32	20	19	9	2	100	1,900	
"	150	"							5	7	15	24	35	12	2	100	2,100
10	151	"						1	8	27	29	18	13	4	100	2,000	
"	154	"				1	18	30	29	13	7		2		100	1,500	
"	155	"		1	3	12	34	11	20	10	2	7			100	1,400	
"	156	"						13	32	28	15	8	2		98	1,500	
"	157	"				2	22	30	20	10	11	5			100	1,300	
11	158	"						5	14	20	24	26	11		100	1,900	
"	159	"				2	2	2	10	7	2	4	1		30	550	
"	160	"						1	9	7	11	9	5		42	820	
"	162	"						9	40	26	12	9	3		100	1,650	
"	163	"				1	5	23	27	28	9	5	1		99	1,800	
"	164	"			2	3	22	34	13	12	9	1			96	1,300	
"	165	"			1	1	4	28	21	13	2	1			71	900	
12	166	"				2	28	39	16	5	5				95	1,180	
"	170	"						8	33	33	17	5	3		99	1,650	
"	171	"					1	4	32	33	18	10	2		98	1,620	
17	195	"						1	3	7	11	11	5		38	800	
31	237	"					1	1	6	9	14	9	9	1	50	1,000	
"	238	"							7	25	19	10	2		63	1,400	
2/ 4	260	"						6	17	29	21	5	1		79	1,300	
"	262	"						1	7	11	10	10	9	2	50	1,030	
"	263	"							3	11	16	13	7		50	1,100	
10	269	"					1	11	27	9	2				50	600	
"	270	"					1	11	28	8	1	1			50	550	

Date	Net No.	M/H	Length (cm)													No. of S.	T. Weight Of S.	
			5	6	7	8	9	10	11	12	13	14	15	16				
2/11	272	B L				6	19	37	15	5							82	1,000 (g)
"	273	"				3	17	25	4	1							50	500
12	280	"					3	7	13	14	9	4					50	900
16	293	"				1	8	27	33	19	9	3					100	1,700
"	294	"						10	31	34	20	3	2				100	1,550
"	295	"					2	37	33	9	10	5	4				100	1,400
"	298	"						2	13	13	13	5					46	900
"	299	"			1	1	12	37	25	14	5	4	1				100	1,500
"	300	"			1		14	25	29	18	11	1	1				100	1,750
17	301	"			1	2	5	25	26	23	11	7					100	1,700
"	302	"			2	1	16	40	22	5	8	5	1				100	1,400
18	307	"						7	5	12	11	12	3				50	1,200
"	308	"						7	25	29	25	12	2				100	2,200
"	309	"				1	8	32	28	16	6	5	4				100	1,700
"	313	"					4	32	34	20	8	2					100	1,750
"	314	"					12	27	34	16	10	1					100	1,600
19	315	"					5	20	24	13	7	6	1				76	1,300
"	316	"				1	3	17	23	28	10	3	1				86	1,500
"	319	"					20	55	19	8	5						107	1,500
"	320	"				1	21	29	24	16	6	3					100	1,500
"	321	"			1	4	18	40	24	6	7						100	1,400
20	322	"		2		2	8	12	12	7	2	1					46	600
"	323	"					2	7	22	23	2	2					58	1,000
"	325	"					3	16	35	27	13	6					100	1,460
"	326	"					19	38	28	15							100	1,300
21	328	"		1	2	7	24	30	20	10	4	2					100	1,300
"	330	"				4	31	36	16	9	4						100	1,300
"	331	"				1	10	22	11	4	1	1					50	700
"	332	"		2		1	34	29	31	12	2						111	1,600
"	333	"			1	5	29	40	20	4	1						100	1,200
27	335	"					8	10	7								25	300
28	339	"			1	1	10	14	8	12	2						48	700
"	340	"				2	11	17	7	8	3						48	700
3/ 1	342	"					1	6	11	21	9	2					50	1,000
"	343	"				1	2	18	23	18	12	2					76	1,200
"	344	"					1	14	6	14	12	3					50	1,000
2	345	"				1	1	8	15	15	5	5					50	850
"	346	"					2	8	9	15	11	5					50	1,000
"	347	"						6	15	15	9	5					50	1,000

* M/H : Methods of Measurements

No. of S. : Number of Samples

T. Weight of S. Total Weight of Sample

BL: Body Length

CL: Carapace Length

ML: Mantle Length

TL: Total Length

Date	Not No.		M / H	Length (cm)												No. of S.	T. Weight of S.
				5	6	7	8	9	10	11	12	13	14	15	16		
'88 6/22	II 52	BL				1	8	12	19	10					50	650 (g)	
	7/4	87	"					3	9	21	12	4	1		50	1,000	
	7/14	103	"			6	15	17	11	1				50	500		
	7/16	104	"					1	6	22	12	8		1	50	1,050	
	7/19	118	"					5	7	18	11	8	1		50	1,000	
	7/27	135	"				1	14	15	17	5	1			53	1,000	
	7/28	138	"			2	8	6	10	18	6			1	50	900	
	"	139	"				6	17	12	12	2	1			50	800	
	7/29	142	"			4	11	15	11	9					50	700	
	"	144	"		2	6	15	11	8	5	3				50	600	
	"	145	"			3	4	18	12	12	1				50	700	
	7/30	146	"				1	11	21	9	1				43	700	
	"	147	"				1	7	13	18	9	2			50	750	
	"	149	"				1	4	17	23	5				50	750	
	"	150	"			2	11	22	18	8	3	1			65	1,000	
	"	151	"				4	9	11	15	9	2			50	800	
	7/31	154	"				1	12	10	10	13	4			50	1,000	
	"	155	"					9	15	11	8	7			50	1,050	
	"	156	"		1			9	9	17	12	2			50	1,000	
'88 8/1	160	"			1	3	4	9	10	18	1	4			50	800	
	"	161	"		4	19	9	2	8	5	4		2		53	450	
	"	162	"			1	1	1	9	18	15	2	3		50	1,000	
	"	163	"			3	8	7	7	13	7	3	1	1	50	780	
	8/2	164	"					3	15	11	4	2			35	700	
	8/3	173	"		2	19	22	2		3			1	1	50	400	
	"	174	"		2	6	14	5	10	3	8	1	1		50	500	
	"	175	"			1	5	3	8	9	8	7	7	2	50	1,000	
	8/4	176	"		1	14	17	3	7	4		3	1	1	50	500	
	"	177	"			12	17	3	11	3	2	2			50	500	
	9/9	224	"					1	5	11	18	8	5	2	50	1,050	
	9/10	228	"					1	5	12	11	12	8		1	50	1,000
	9/11	234	"					3	7	12	15	9	4			50	940
	9/25	282	"					1	1	14	22	6	5			50	900
	"	283	"			2	9	12	10	11	2	3	1			50	600
	9/26	289	"				1	3	4	10	10	6		1	35	600	
	9/28	304	"				6	4	12	15	7	3	3		50	700	
	9/29	309	"						4	17	21	14	7		63	1,300	

Species : *Penaeus brevirostris* (Pink shrimp)

Date	Net No.	H/W	Length (cm)											No. of S.	T. Weigh of S.		
			8	9	10	11	12	13	14	15	16	17	18			19	
'88 1/ 6	129	B L			1	10	9	13	12	5						50	900(g)
" 7	131	"				3	4	16	14	8	5					50	1,000
" "	132	"			5	12	11	15	10	7	5	1				66	1,350
" "	135	"		2	7	9	4	12	14	2						50	850
" "	136	"			2	4	2	3	3	3	3					20	430
8	137	"		1	10	20	16	7	19	5	6					84	1,600
" "	138	"		1	6	20	8	5	5	5						50	800
" "	139	"			3	12	19	23	13	5						100	2,000
" "	140	"			1	4	3	12	12	15	1					50	1,200
" "	141	"		1	4	13	11	9	5	5	2					50	920
" "	142	"			2	14	10	14	4	3	3					50	880
9	143	"			5	18	9	9	5	4						50	800
" "	144	"		2	6	9	12	10	6	3	1	1				50	900
" "	145	"		3	4	15	11	10	7							50	780
" "	146	"			1	5	14	13	14	2	1					50	1,000
" "	150	"						9	11	6	2					28	800
" "	151	"				2	1	2	3	5	3					16	410
10	152	"			2	7	8	8	4	4	3	1				32	700
" "	153	"				4	20	10	7	4	6	1				52	1,100
" "	154	"			2	18	4	7	3	3	1					38	630
" "	156	"						8	6	1	1					16	380
11	161	"			4	15	21	24	25	7	3	1				100	2,050
" "	163	"						2	4	3	1	1				11	300
" "	164	"				1	7	12	20	7						47	1,040
12	166	"			1	7	22	23	28	14	3	1	1			100	2,200
" "	167	"	1	1	9	28	10	20	9	2						100	1,900
" "	168	"	2	3	13	17	16	21	16	10	2					100	1,850
" "	169	"			7	29	24	22	15	3						100	1,900
" "	170	"			10	43	15	18	7	5	2					100	1,600
" "	171	"			1	15	13	29	18	16	7	1				100	2,200
13	172	"			4	20	20	22	23	6	3	1				100	2,050
" "	173	"			6	36	22	20	8	7	1					100	1,650
" "	175	"			12	27	18	26	14	3						100	1,700
" "	176	"		3	14	34	22	16	7	4						100	1,850
" "	177	"			6	37	19	18	11	5	3	1				100	1,750
14	178	"			1	8	18	39	24	6	3	1				100	2,000
2/15	289	"		3	4	21	20	25	13	3	1					90	1,600
" "	290	"			5	42	24	13	11	3		2				100	1,700
" "	291	"		2	2	19	20	3	3	1						50	700
16	296	"			5	36	22	10	14	12		1				100	1,800
" "	297	"			1	7	4	3	8	7						30	600
18	310	"			5	29	18	19	20	4	5					100	1,900
" "	311	"			4	22	27	11	21	10	5					100	1,900
" "	312	"				7	7	6	4	8	1					33	750
" "	313	"				3	11	6	5	5	5					35	780
19	317	"			2	11	21	19	23	19	4			1		100	2,300
" "	318	"			1	6	3	12	14	11	5					52	1,300
" "	319	"			2	8	17	21	25	18	9					100	2,300

Date	Net No.	M/M	Length (cm)													No. of S.	T. Weight of S.	
			8	9	10	11	12	13	14	15	16	17	18	19				
'88 2/20	323	B L			1	6	15	19	12	13	4	1					71	1,700 (g)
"	324	"			10	20	19	21	17	10	2				1	100	2,000	
"	325	"		1	1	14	16	28	20	15	4	1				100	2,200	
"	326	"				4	14	25	22	12	7	1				85	2,000	
"	327	"			9	17	24	28	13	7	2					100	1,800	
21	329	"			10	24	18	25	13	9	1					100	1,800	
"	331	"			2	9	10	16	17	12	1					67	1,500	
"	332	"			4	32	7	6	12	9	4					75	1,400	
27	334	"		1	5	2	4	5		2	2			1		22	400	
"	335	"			2	8	7	12	20	8	2	1				60	1,600	
"	336	"	1	5	7	4	9	3	2	3	1					35	550	
"	337	"		3	11	36	28	19	12	2						111	1,800	
28	338	"		5	14	28	11	13	15	12	2					100	1,800	
"	339	"			2	4	7	6	4							23	400	
"	340	"			2	14	5	4	3	3		1				32	600	
"	341	"		2	14	37	13	3	7	6	2	1				85	1,300	
'88 7/27	II 134	BL			5	8	11	12	1	3						50	1,000	
"	136	"			5	18	1	16	7		2	1				50	900	
7/28	137	"			8	8	16	8	7	2	1					50	1,000	
7/29	140	"		2	14	13	7	5	6	3						50	850	
"	142	"			4	10	13	7	11	3	1					49	1,100	
"	143	"			4	10	15	11	5	4	1					50	1,000	
"	145	"			4	16	6	10	6	6	1	1				50	1,000	
7/30	146	"				7	8	7	7	5	2					36	800	
8/4	181	"			1	3	6	15	9	7	7	2				50	1,200	
8/5	182	"			8	19	5	9	6	2	1					50	800	
"	183	"			2	5	10	10	12	8	2	3				52	1,200	
"	187	"				8	6	10	1	4	3					32	700	

Species : *Penseus Californiensis*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.	
			10	11	12	13	14	15	16	17	18	19	21	22			
'88 1/7	130	B L		2	5	9	6	3			1	2	2		1	31	850 (g)

Species : *Heterocarpus* sp.

date	Net No.	M/N	Length (cm)													No. of S.	T. Weight of S.	
			5	6	7	8	9	10	11	12	13	14	15	16				
'87 11/19	71	B L				3	41	45	13								102	830(g)
12/10	104	"				6	39	41	13	1							100	800
11	107	"			3	5	48	23	1								80	500
16	111	"			2	39	40	17	1								99	500
21	124	"					5	25	37	5	1						73	900
'88 2/ 9	267	"			3	15	51	28	3								100	600
3/ 2	348	"			1	17	59	18	3	2							100	600
3	349	"			1	15	53	28	3								100	650
5	353	"				6	27	14	3								50	320
'88 6/26	II 39	BL					15	25	8	2							50	420
6/28	52	"				2	19	22	6	1							50	450
7/6	97	"				4	20	25	1								50	400
9/20	254	"				7	27	16									50	350
9/24	277	"				1	20	25	4								50	500
9/26	289	"					3	26	16	5							50	600

Species : *Argentina aliciae*

Date	Net No.	M/N	Length (cm)													No. of S.	T. Weight of S.	
			5	6	7	8	9	10	11	12	13	14	15	16				
'87 11/17	55	F L							1	5	16	19	4				45	0.71(kg)
"	60	"									1	49	58	3			101	2.7
19	70	"									1	7	36	6			50	1.1
12/ 4	79	"							2	11	28	7	2				50	0.8
"	81	"								1	21	24	3	1			50	0.85
"	82	"									10	31	9				50	0.98
5	87	"									5	28	16	1			50	0.96
8	98	"								1		18	29	2			50	1.2
"	99	"									9	58	33				100	2.0
20	120	"									1	28	66	5			100	2.3
21	121	"										20	26	4			50	1.14
"	125	"										1	23	26			50	
25	218	"									1	19	28	2			50	1.3
'88 1/30	233	"								12	21	12	5				50	0.57
31	239	"							1	1	18	23	7				50	0.8
2/ 2	251	"								2	4	28	18				50	0.9
"	253	"									7	19	24				50	1.0
3	254	"									3	16	28	3			50	1.0
"	255	"								1		20	29				50	1.0
10	268	"									3	21	26				50	1.0
"	269	"										4	34	12			50	1.1
11	272	"									1	12	35	2			50	1.2
'88 6/26	II 38	FL										17	26	7			50	1.2
6/28	51	"									5	20	23	2			50	1.1
6/29	59	"								1	3	22	25				50	1.1
7/1	72	"									6	28	16				50	1.05

Date	Net No.	M/H	Length (cm)													No. of S.	T. Weight of S.
			5	6	7	8	9	10	11	12	13	14	15	16			
'88 7/3	81	FL									16	31	3			50	0.95 (kg)
7/4	86	"								8	23	17	2			50	0.8
7/5	93	"								4	23	21	2			50	0.9
7/14	103	"									1	9	38	4		52	1.1
9/8	219	"								1	15	27	7			50	1.0
"	221	"									6	30	20			56	1.2
9/26	291	"							26	20			1			47	0.5
"	292	"									17	28	5			50	0.95
9/29	309	"										21	25	4		50	0.9
"	310	"							2	2	15	22	6	3		50	0.7
9/30	313	"								2	23	20	5			50	0.9

Species : *Loligopsis diomedea*

date	Net No.	M/H	Length (cm)											No. of S.	T. Weight of S.		
			0	1	2	3	4	5	6	7	8	9	10			11	
'87 11/ 7	4	ML				4		18	25	5						42	0.5 (kg)
10	23	"			1	6	6	19	36	3						71	0.7
14	38	"				1	11	16	23	13						54	0.73
17	55	"						17	29	3						49	0.56
18	64	"						1	21	27	1					50	0.58
12/ 3	73	"			1	21	10	33	32	3						100	
"	74	"				29	17	30	20	4						100	0.73
"	118	"						5	30	37	28	5				100	1.1
'88 1/16	186	"				1	6	8	15	16	3	1				50	0.7
"	188	"						1	11	61	24	3				100	1.3
"	189	"						1	14	67	18					100	1.2
17	191	"						2	9	31	8					50	0.66
"	192	"						1	4	27	18					50	0.66
18	200	"				3	12	23	23	21	3					85	0.8
23	205	"							7	51	12					80	0.8
"	206	"				1	34	20	41	3	1					100	0.9
"	207	"				1	8	17	70	4						100	1.1
24	215	"							24	51	4	1				80	0.85
25	220	"				3	10	12	9	28	7					69	0.9
"	222	"				29	47	18	3	3						100	0.5
2/11	274	"						1	17	27	5					50	0.6
'88 6/13	5	ML							5	22	19	4				50	0.7
6/18	25	"						1	5	13	22	3				44	0.7
6/25	34	"				2	8	5	27	11	1					54	0.6
7/5	91	"						2	5	12	13					32	0.4
7/15	106	"							1	17	26	6				50	0.8
9/7	213	"							3	27	19	1				50	0.7
9/21	257	"							20	30						50	0.65
"	261	"						1	13	30	5	1				50	0.6
9/24	273	"							7	24	19					50	0.7
9/25	279	"							3	29	17	1				50	0.7
"	285	"						1	8	13	21	4				47	0.65
"	287	"						8	13	15	12	2				50	-
9/28	300	"						1	16	32	4					53	0.8

Species : *Peprilus medius*

Date	Net no.	M/H	Length (cm)													No. of S.	T. Weight of S.		
			6	7	8	9	10	11	12	13	14	15	16	17					
'87 11/14	38	FL					20	24	3	1					1	1		50	2.0 (kg)
16	43	"		2	1	4	38	15	2									62	2.2
17	55	"				1	23	21		1								46	1.6
12/ 4	79	"					8	20	8	7	4							47	2.3
'88 1/25	217	"					1	33	16									50	1.8
'88 6/13	4	FL			9	31	9	1										50	0.9
6/15	12	"				18	23	5	3	1								50	1.1
6/27	42	"				6	34	10										50	1.3
7/3	78	"				1	12	6	3									22	0.6
7/4	85	"			11	36	3											50	0.9
"	86	"			8	31	11											50	0.8
7/5	93	"			17	27	6											50	0.85
7/6	95	"			2	33	15											50	1.0
7/16	113	"		2	10	31	6	1										50	0.9
9/4	193	"			3	9	9	10	11	6								50	1.06
9/7	213	"			6	22	16	4	2									50	1.05
9/9	222	"			10	16	12	6	1	5								50	1.1
9/10	228	"			8	30	8	4										50	0.95
9/12	244	"					7	28	13									48	1.7
9/21	260	"				3	12	28	7									50	1.6
9/25	281	"				1	30	14	9	1								55	1.7
9/26	287	"				2	22	6										30	0.7
9/27	293	"			1	2	10	8	3									24	0.7
"	297	"			6	14	22	8										50	1.05
9/28	302	"			2	20	23	5										50	1.1
9/29	307	"			1		19	21	9									50	1.4
"	308	"				4	20	21	5									50	1.4

Species : *Peprilus snyderi*

Date	Net No.	M/H	Length (cm)												No. of S.	T. Weight of S.			
			9	10	11	12	13	14	15	16	17	18	19	20					
'87 11/11	24	FL			14	15	4	2										35	1.3 (kg)
14	38	"		3	14	22	12	1										52	2.2
17	56	"	1	3	32	11	2	2										52	1.8
19	60	"		4	22	19	5											50	1.82
12/ 4	79	"			11	20	17	5	1									54	2.6
"	81	"			5	19	14	9	3									50	1.9
5	86	"			5	65	26	4										100	3.5
"	87	"			2	26	20	2										50	1.75
9	101	"			2	19	14	5	1									41	2.3
'88 1/16	180	"				2	6	7	4									19	1.2
17	194	"				20	24	6										50	1.7
18	196	"				1	6	10	13	3	1			1				35	2.7
"	200	"					1	13	50	23	5	5	1	2				100	7.3
25	217	"				10	26	13	1									50	2.0
"	220	"							1		4	5	2	2	3			17	2.1
31	239	"	1	8	21	19	1											50	1.6
2/ 1	243	"		9	31	8	2											50	1.5
27	334	"				7	13	11	8	3	1							43	2.7

Species : *Peprilus snyderi*

Date	Net No.	M/H	Length (cm)													No. of S.	P. Weight of S.
			9	10	11	12	13	14	15	16	17	18	19	20			
'88 6/14	6	FL					1	1	9	3	5					19	1.8
"	7	"					6	24	18	1	1					50	3.6
6/16	20	"	6	32	12											50	1.1
6/25	36	"								14	15	18	3			50	6.2
6/27	42	"			3	7	11	23	5	1						50	2.8
"	44	"								3	8	14	16	9		50	7.0
"	46	"	11	10	10	9	38	17	4	1						100	4.7
"	47	"	1	11	24	7	3	4								50	1.6
7/3	78	"			3	17	24	6	2							52	2.6
7/4	85	"	17	23	7	3										50	1.1
"	86	"	8	23	14	2										47	0.9
7/5	91	"				1	2	7	4	2		1				17	1.1
"	93	"	5	31	14											50	1.0
7/6	95	"	8	50	32	10										100	2.6
7/15	107	"					1	2	9	2	7	9	4			34	3.9
7/16	113	"	19	20	8	3										50	1.1
7/31	156	"	21	20	7	2										50	1.1
9/4	193	"	1	4	3	13	20	7	2							50	2.1
9/7	213	"			1	15	7	10	12	3	1	1				50	2.7
9/9	222	"	7	5	3	2	8	10	7	8						50	2.7
"	226	"	22	20	6	2										50	1.0
9/10	228	"	22	19	7	1	1									50	1.1
9/11	234	"	1	18	15	11	5									50	1.4
9/12	243	"				2	1	6	5	1	4					19	1.4
"	244	"				1	5	7	9	4	2					28	1.9
9/21	259	"						1		1	1	5	4	1		13	1.9
"	260	"		1	8	17	14	2	4	3	1					50	2.4
"	262	"		1	12	22	12	1	1	1						50	2.0
9/24	275	"		4	15	17	6	2	2	4	1					50	2.2
"	281	"		2	13	16	12	4	2	1						50	1.9
"	282	"			16	27	6	1								50	1.7
9/25	285	"		4	13	25	3	1	3	1						50	1.7
9/26	286	"		3	26	17	4									50	1.6
"	292	"	1	12	26	10	1									50	1.3
9/27	293	"		5	20	14	5	2	2	2						50	1.9
"	295	"	4	20	13	10	6	2								55	1.7
"	296	"	5	13	16	11	3	2								50	1.5
9/28	300	"				2	21	20	5	2						50	3.6
"	304	"	8	23	14	5										50	0.9
"	307	"			1	3	4	6	3		2					19	1.2
"	308	"		1	2	4	5	2	5	1	1					21	1.2

Species : *Prionotus ruscarius*

Date	Net No.	M/H	Length (cm)												No. of S.	P. Weight of S.		
			30	31	32	33	34	35	36	37	38	39	40	41				
'88 1/26	22	FL					2	3	1									63.1(kg)

Species : *Citharichtys platophrys*

Date	Ret No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			3	4	5	6	7	8	9	10	11	12	13			14
'87 11/10	23	TL			1	2	2	4	26	11					50	0.6(kg)
12/19	119	"							1	11	32	6		50	0.7	
'88 2/13	287	"								9	34	7		50	0.7	
'88 6/13	II 8	TL					2	9	21	9	9			50	0.5	
7/1	70	"						2	17	21	9	1		50	0.5	
7/3	78	"				1	1	13	23	9	3			50	0.47	
9/12	244	"					1	6	16	15	11	1		50	0.5	
"	245	"					1	1	19	19	7	3		50	0.5	
9/27	296	"						3	14	18	9	5	1	50	0.6	
"	297	"						3	13	16	13	5		50	0.6	

Species : *Synodus evermanni*

Date	Ret No.	M/M	Length (cm)														No. of S.	T. Weight of S.
			7	8	9	10	11	12	13	14	15	16	17	18				
'88 1/25	221	FL	1	4	27	29	15	10	4							90	1.2(kg)	
2/11	274	"				5	11	17	11	4	2					50	1.1	
2/16	296	"		3	12	21	19	13	11	10	3	1				93	1.6	
'88 6/16	II 17	FL			1	1	17	10	10	4	5	2				50	0.9	
6/30	66	"					3	20	14	4	4	3	2			50	1.1	
7/5	91	"		1		1	11	21	8	5	5	2				54	1.1	
9/26	290	"				1	3	8	17	11	4	5	1			50	1.4	

Species : *Lutjanus argentiventris*

Date	Ret No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			30	32	34	36	38	40	42	44	46	48	50			52
'88 1/6	128	FL			1	5	5	7	1	2	3	2		1	27	33.0(kg)
1/7	133	"		2	1	2	2								7	5.5
"	134	"				2	1		1	2					6	6.5

Species : *Lutjanus guttatus*

Date	Ret No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			30	32	34	36	38	40	42	44	46	48	50			52
'88 1/6	128	FL		1	2	5	6	5	1						20	14.0(kg)
1/7	130	"				2	1	3	4	6	7				23	31.0
"	134	"					1	1	4		1				7	8.5

Species : *Calamus brachysomus*

Date	Ret No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			25	26	27	28	29	30	31	32	33	34	35			36
'87 11/8	9	FL		1	2	1	2			2	1	2		1	12	11.0(kg)
'88 1/26	223	"					1		3	1	3	2	1	12	23	160.0

Species : *Paralabrax loto*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.			
			28	30	32	34	36	38	40	42	44	46	48			50		
'87	11/10	23	TL			1		2		1		1				5	4.2(kg)	
'88	1/8	140	"	1	1		3			1	1					7	4.7	
	"	142	"	2	1	2		1					1	1		9	6.4	
	1/15	183	"						1	2	2		1			7	7.0	
'88	6/18	II 29	TL										2	1		2	6	9.2

add: 142net 26cm 1 pc . 183net 24cm 1 pc . 29net 20cm 1 pc.

Species : *Trichiurus nitens*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.		
			23	24	25	26	27	28	29	30	31	32	33			34	
'87	12/4	82	TL	3	3	12	17	7	3	3		3				51	- (kg)
'88	1/31	237	"			2	14	10	12	4	5	3				50	0.5
'88	7/2	II 76	TL				2	3	8	7	12	11	5	1		50	0.7
	7/3	81	"			2	6	10	12	9	6	2				47	0.5
	7/4	87	"		2	3	4	10	10	6	8	4	3			50	0.5
	7/14	103	"			1	2	6	12	13	6	7	2	1		50	0.6
	9/24	276	"		1	3	3	7	8	5	7	6	7	3		50	0.7
	9/25	283	"				3	2	8	8	8	5	6	6	2	50	0.85

add: 76net 35cm 1 pc . 283net 44cm 1 pc.

Species : *Serranus aequidens*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.		
			5	6	7	8	9	10	11	12	13	14	15			16	
'87	12/20	120	FL						6	23	30	28	16	6		109	2.9(kg)
'88	2/11	227	"							2	9	16	20	3		50	1.8
	2/13	288	"	1	4	38	7									50	0.3
'88	6/29	II 59	FL						3	7	14	19	7			50	2.0
	7/6	96	"					1	13	19	15					48	1.4
	9/26	288	"							2	16	18	14			50	2.2
	"	290	"						6	10	20	12	2			50	1.5
	9/29	311	"					2	1	14	28	11	6			62	1.7

Species : *Diplectrum eumelum*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.		
			8	9	10	11	12	13	14	15	16	17	18			19	
'87	11/14	38	FL				3	4	7	10	10	6	3	1	1	45	2.2(kg)
'88	1/8	141	"	2	3	4	10	8	21	27	14	3	5	1	2	100	4.4
'88	9/20	II 252	FL								2	5	8	9	2	29	2.2

add: 252net 20cm 2 pcs. 24cm 1 pc.

Species : *Diplectrum labarum*.

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			6	7	8	9	10	11	12	13	14	15	16			17
'88 2/15	289	FL	1		2	1	3	3	9	12	10	3	1		46	1.6(kg)
'88 6/18	II 25	FL				1			3	4	12	11	2		33	1.4
6/29	58	"						1	1	3	4	5	1	1	18	1.0
7/27	133	"	1	1	5	7	9	6	7	9	10	5	1	1	63	2.1

add: 58net 19cm 1 pc. 20cm 1 pc. 133net 20cm 1 pc.

Species : *Diplectrum euryplectrum*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.		
			7	8	9	10	11	12	13	14	15	16	17			18	
'88 7/28	II 137	FL									1	5	7	1	1	15	1.0(kg)
9/26	291	"			1	7	20	15	1	4	2					50	1.4

Species : *Eucinostomus gracilis*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			6	7	8	9	10	11	12	13	14	15	16			17
'88 1/23	205	FL			4	18	19	8	1						50	0.83(kg)
1/25	222	"			2	11	21	14	3	1					52	1.1
'88 6/25	II 34	FL					4	17	23	4	2				50	1.6

Species : *Selene peruviana*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			32	33	34	35	36	37	38	39	40	41	42			43
'87 11/8	6	FL					3	5	2	2		1			13	10.5(kg)
'88 1/24	209	"		1			3	2	2	2	2				12	9.0
"	210	"						5	14	13	12	4	3		51	41.6
'88 7/24	II 278	FL					4	17	15	11	5	1			53	48.0

Species : *Selene cerstedii*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.	
			25	26	27	28	29	30	31	32	33	34	35			36
'87 11/7	6	FL			1	1	3	3	2						10	5.1(kg)
12/3	73	"				3	4	9	1	1					18	9.3

Species : *Cynosion nanus*

Date	Net No.	M/M	Length (cm)											No. of S.	T. Weight of S.		
			8	9	10	11	12	13	14	15	16	17	18			20	
'87 12/5	86	FL					2	14	17	9	4				1	47	1.3(kg)
"	87	"					1	13	10	15	6	4	1		50	1.4	
'88 7/4	II 84	TL		3	35	32	10	3	3						86	1.1	
7/16	110	"		1	17	26	4			2				50	0.7		
8/3	170	"	1	4	21	13	3	3	3	2				50	0.7		

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.	
			8	9	10	11	12	13	14	15	16	17	18	20			
'88 9/5	199	TL			5	19	24	2								50	0.75(kg)
9/9	226	"			4	23	24	13	5	2						71	1.4
9/21	257	"				7	30	11	1	1						50	0.85
9/29	307	"			3	7	22	13	1							46	0.8
9/30	313	"				2	11	17	14	9	2	1	1			57	1.4

Species : *Etrumeus acuminatus*

Date	Net No.	M/M	Length (cm)													No. of S.	T. Weight of S.	
			16	17	18	19	20	21	22	23	24	25	26	27				
'88 1/24	209	FL				1	6	1									8	0.9(kg)
27	226	"					37	10									47	5.7

Species : *Bollmannia clamydes*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			5	6	7	8	9	10	11	12	13	14	15	16				
'87 12/9	101	TL						1	30	19							50	0.47(kg)
'88 1/30	233	"							21	26	3						50	0.5
'88 6/16	II 18	TL						5	23	22							50	0.5

Species : *Lepophidium stringnatistum*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			10	11	12	13	14	15	16	17	18	19	20	21				
'87 12/16	111	TL		2	4	9	8	6	9	6	2						46	0.6(kg)
'88 2/9	226	"		1	1	14	7	8	6	5	5	2	1				50	1.05

Species : *Physiculus rastrelliger*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			8	9	10	11	12	13	14	15	16	17	18	19				
'87 12/7	97	TL			2	3	5	14	9	1	1						35	0.8(kg)
'88 7/31	II 154	TL		1		8	9	10	11	7	4						50	0.95
9/11	239	"		1		2	12	3	9	1							28	0.5

Species : *Neobythites stelliferoides*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			10	11	12	13	14	15	16	17	18	19	20	21				
'88 1/31	237	TL			2	4	13	17	9	5							50	0.9(kg)
'88 6/15	II 14	TL		2	3	6	12	20	7								50	0.8
6/16	18	"		6	9	19	11	10	1								56	0.9
9/10	230	"			1	19	25	22	10		2						79	1.5
9/11	235	"				5	12	15	9	4	1						46	1.0

Species : *Orthopristis chalcus*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			19	20	21	22	23	24	25	26	27	28	29	30				
'88	1/24	211	FL		1	2	9	12	4	4	1				1		34	8.0(kg)

Species : *Sphyaena ensis*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			35	36	37	38	39	40	41	42	43	44	45	46				
'87	12/18	115	FL			1	3	2	4		1			1			12	4.7(kg)

Species : *Carangoides otrynter*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			35	36	37	38	39	40	41	42	43	44	45	46				
'88	1/26	223	FL				4	3	4	2							13	18.0(kg)

Species : *Pleuronectes sp. (munidae)*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			0	1	2	3	4	5	6	7	8	9	10	11				
'87	12/7	94	CL			8	36	6									50	0.6(kg)
'88	2/2	251	"			1	43	6									50	0.6
'88	6/15	11 14	CL			11	39										50	0.4
	7/3	83	"			1	46	3									50	0.5
	9/9	225	"			7	42	1									50	0.5
	9/11	236	"			1	40	9									50	0.65
	9/29	311	"				43	7									50	0.68
	9/30	315	"				45	5									50	0.57

Species : *(Camaron colindra)*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			2	3	4	5	6	7	8	9	10	11	12	13				
'88	9/4	11 194	BL					3	40	7							50	0.42(kg)

Species : *Porichthys nautopaedium*

Date	Net No.	M/M	Length (cm)												No. of S.	T. Weight of S.		
			5	6	7	8	9	10	11	12	13	14	15	16				
'88	6/29	11 26	TL			1	20	13	11	12	7	1	3				68	0.7
	9/25	280	"				2	3	2	7	7	2	3				26	0.4