

**AGENCY FOR AGRICULTURAL RESEARCH AND DEVELOPMENT  
RESEARCH INSTITUTE FOR MARINE FISHERIES**



**JAVA SEA PELAGIC FISHERY  
ASSESSMENT PROJECT  
(ALA/INS/87/17)**

**LENGTH COMPOSITION OF THE MAIN PELAGIC SPECIES**

**CAUGHT BY THE SEINERS OF THE JAVA SEA**

**1993**

**By**

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## METHODOLOGY

As part of Operation I of the project a sampling procedure was put into place at Pekalongan, Tegal and Juwana harbours. Details of this procedure have been described by Boely *et al.*, (1990) and Potier and Sadhotomo (1991). This sampling aims to know the repartition of the catch by species and fishing ground and the size composition of the main species as well.

In order to clarify the text, let us redefine the technical terms as follow:

- Sampling frame = The list of monthly landings (boats)
- Sub sampling frame = The list of daily landings.
- Sampling unit = Fishing boat.
- Sub sample = one or two baskets of fish (i.e. 25 kgs in weight).
- Stratum = fishing ground. The fishing grounds defined by the project are shown in annex I.

The scheme can be described as the stepwise below:

(a) If the number of the boats landed as listed in the sub-sampling frame is more than five, so two samples are taken from different fishing grounds. First sample is the boat number one (the first boat in the list of arrival) and the second sample will be a boat coming from another fishing ground (could be number 2, 3, 4, etc). Otherwise, the second sample is the boat number five, if all the fishing boats come from the same area. If the number of boats landed is less than five only one sample is taken.

(b) One or two sub-samples (i.e. one or two basket of fish) will be taken from one or two fish holds containing fresh fish.

(c) Sorting by species and measurements are done for the main and recognized species in the sub-sample. If the number of individuals in a species is more than 50, measurements will be done only on the first 50 fish counted, otherwise for all fishes.

Due to the procedure that not all fish in the sub-sample are measured, the frequency is needed to be adjusted by multiplying with a raising factor which is defined as ratio number of fish measured (i.e. 50 tails) and number's in the sub-sample. Let  $f_{ij}$  is the number of fishes measured by size interval  $I$ th and sub-sample  $J$ th, and the frequency in the sample can be written as:  $F_{ij} = f_{ij} \cdot N_s / n_s$ , where  $n_s$  and  $N_s$  are respectively the number of fishes measured and in the (sub) sample. So monthly length composition of catch by fishing ground can be expressed as summation of  $F_{ij}$  (fig. 1).

All data are recorded on the working sheet as shown in Annex II, taken every month and computerized at the office. List of abbreviations in tables 1-72 are presented in the Annexes I and II.

## RESULTS

For 1993, length composition of the main species by fishing zone, month and fleet are presented in the tables 1-72. As consequence of the method applied, the number of fish in the samples would be equal to the summation of the frequencies (denoted as  $N$ ). Length structure of catch by fishing zone should be calculated using catch data and length weight relationship for each species. These informations are presented else where (Potier *et al.*, 1994 ; Suwarso 1993) as well as results of the length composition analysis. In this document we present the result of the compilation of samplings and the length measurements only.

## BIBLIOGRAPHY

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FIGURE I

METHODE OF CALCULATION OF THE MONTHLY SPECIES DISTRIBUTION PER SIZE IN ONE FISHING GROUND

FL	Sp.1	Sp.2	Sp.3
10	n1		
11	n2		
12	n3		
13	n4		
14	n5		
length Z	nz		
N fish measured	N		
X fish counted	X		

Basic sheet

If  $X > 50$

If  $X < 50$

FL	Sp.1	Sp.2	Sp.3
10	$n1 \cdot X/N$		
11	$n2 \cdot X/N$		
12			
13			
Length Z	$nz \cdot X/N$		
N measured			
X counted			

FL	Sp1	Sp2	Sp3
10	$n1_i$		
11	$n2_i$		
12	$n3_i$		
13	$n4_i$		
14	$n5_i$		
Length Z	$Z_i$		

J=Number of samples in the fishing ground

Final sheet

# **DECAPTERUS RUSSELLI**

*Decapterus russelli*

JANUARY '1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0												5								
9.5																				
10.0										2										
10.5										2										
11.0										2	21									
11.5											26									
12.0											33									
12.5											41									
13.0			4								113	2	1						22	
13.5		34	14							1	184	4	7						11	
14.0		50	37		3					1	271	6	14						27	
14.5		57	28		11	1	2			1	253	15	25	1	5				43	
15.0	17	53	58		19	5	10		16	8	355	12	25		5				16	
15.5	29	38	42		32	25	11		64	7	496	28	24	1	5				27	
16.0	28	92	104		50	35	15		79	6	610	53	22		35				43	
16.5	38	74	144		40	43	12		64	6	649	35	18		10				22	
17.0	21	111	132		47	26	9		37	4	465	40	9		5				27	
17.5	10	68	41		28	11	15		5		306	28	1		30				22	
18.0	7	44	16		11	10	16				95	19	1		45				27	
18.5	10	37	6		2	15	2		5	1	59	9	3		65				11	
19.0	10	9	3		1	17	1				55	10	4		54					
19.5	3	22	13		10	27	3		1		44	9	3		20					
20.0	7	34	3		14	31	4		1		19	20	1		1					
20.5		22	3		9	27	5		1		30	9								
21.0	3	11			16	4	1			1	4	5			6					
21.5		3			1	4														
22.0		6										4								
22.5		9			1										1					
23.0		3				4														
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	54	207	156	262	131	103		56		42	926	90	147	3	61			55		
Ns	185	779	647	296	285	109		272		42	4137	305	158	3	285			297		
n	2	4	3	11	4	9		2		2	17	2	7	1	2			1		

FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5													7							
9.0																				
9.5													10							
10.0																				
10.5																				
11.0																				
11.5																				
12.0													5							
12.5												3	25							
13.0		3										6	76	36				1		
13.5		3	9									21	98	53				1		
14.0		9	7					3		5	18	183	88	2			2			
14.5		33	1	21		1		25		10	15	188	120	3	1		5			
15.0		46	20	23	2	3		50		26	21	228	108	2	4		9			
15.5		56	27	38	8	1		96		63	24	372	141	7	6		5			
16.0		69	49	26	2	16		107		57	15	540	106	16	6		8			
16.5		109	70	30	4	36		143		47	18	570	128	10	2		6			
17.0		128	53	31	3	35		87		26	12	409	110	11	2		4			
17.5		111	25	14	1	34		11		10	9	260	82	4			3			
18.0		93	6	11	5	21		34				171	21	1			1			
18.5		64	5	2	3	5				5	6	92	5				1			
19.0		25	5	5	1	6					6	51	4				2			
19.5		9	8	1	1	4				10		30	7	2	3		1			
20.0		2	1	3		11		3		5	3	6	4	4	6					
20.5		3	3	1	1	5		8		5	3	6	12				1			
21.0		5	3	4	2	3		3					6				2			
21.5		3											12				1			
22.0				1																
22.5								3									6			
23.0																	1			
23.5																	1			
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		261	157	126	33	157		102		52	60	680	330	62	43	47				
Ns		770	293	210	33	179		573		271	179	3338	1031	63	47	47				
n		5	3	7	4	13		2		1	1	11	5	4	5	1				

MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0											4									
12.5											11	8								
13.0				2							41	17		8						
13.5		3					1	7			58	35	26	10						
14.0		4	9	5				21			45	76	27	11	1					
14.5		6	36	9	1			41			33	98	45	39	2					
15.0		4	27	42	7			93			45	179	124	58	6					
15.5		7	40	77	20	25		65			18	203	160	43	5	12				
16.0		5	95	111	51	66		186			31	350	174	35	1	13				
16.5		13	95	206	47	91		215			12	409	189	25	5	70				
17.0		25	101	203	30	83		192			10	265	158	31		40				
17.5		29	61	139	19	63		108			18	210	140	8		37				
18.0		31	36	86	18	28		56			8	151	56	17		21				
18.5		25	25	41	10	15		10				47	51	2		23				
19.0		11	14	33	1	17		1				55	49	8		55				
19.5		8	11	22		25		8				35	25	25		18				
20.0		13	3	36	1	18		7				53	4	25		31				
20.5		9	7	24	3	2						20		17		15				
21.0		2	3	18	6	5						10		21		8				
21.5		2		17	6							4				6				
22.0		2		8	1							4								
22.5				1	3							4								
23.0					1															
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		125	275	522	147	217	1	243			109	622	398	145	20	94				
Ns		199	561	1078	223	439	1	1003			336	2233	1227	385	20	350				
n		4	6	11	4	6	1	12			2	10	9	3	1	2				



APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				5
11.0																				3
11.5																				2
12.0																				13
12.5																				21
13.0				1																15
13.5				1																5
14.0				3																6
14.5				6	7															14
15.0				13	36	1														11
15.5				20	70	7														14
16.0				48	107	17														12
16.5				64	182	36	1													14
17.0				97	216	71		6												6
17.5				95	222	84	1	4												3
18.0				94	152	97	1	9												
18.5				97	97	36		8												5
19.0				17	38	11		5												2
19.5				12	27	12														2
20.0				1	20	8														
20.5					13	4														
21.0					14	14		1												
21.5					16	1														
22.0					12	6														
22.5					5	1														
23.0					10															
23.5					7															
24.0					5															
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				278	561	327	3	33						206	746	267	119	31	6	116
Ns				564	1176	405	3	33						342	3023	1359	495	31	6	152
n				7	33	12	1	4						7	16	5	3	1	1	2

MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5												3								
9.0												3								
9.5												7								
10.0																				
10.5												3								
11.0																				
11.5							4													
12.0		1					8			2	4							6		
12.5							17			1	62							31		
13.0		1					17			2	76							53		
13.5							58			2	69		2	12				41		
14.0							67			7	38	5	9	6				16		
14.5			1	1			76			15	51	67	13	25				6		
15.0		2		1			61			18	63	164	5	71				3		
15.5		10	5	3			36			11	52	253	43	65						
16.0		14	18	18	3		54			6	108	289	107	103						
16.5		18	19	17	29		66			19	77	312	135	79						
17.0		62	31	53	62		101			26	127	249	117	55						
17.5		57	45	59	67		91			26	153	209	120	47						
18.0		56	53	66	99		152			25	156	103	48	51						
18.5		25	28	49	116		145			18	105	58	10	29						
19.0		25	3	26	56		75			10	55	65	7	41						
19.5		9		19	11		49			3	15	31	2	54						
20.0		6		10	15		48			2	20	24	9	22						
20.5		7	6	16	11		4			2	6	8	7	10						
21.0		7		11	6		18			3	8	5	3							
21.5		4		6	14		5			2	1		3							
22.0					2									16						
22.5					2					1				5						
23.0					2		5			2										
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		147	102	281	204		253			203	450	402	230	189				50		
Ns		304	210	354	495		1155			204	1263	1841	641	690				157		
n		4	2	8	4		5			8	8	7	5	4				1		

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5												6								
7.0												1	6							
7.5	4											8	16					7		
8.0	20										2	79	2					4		
8.5	20										22	119	18							
9.0	24				11			4			35	78	10					2		
9.5	22				15						130	50	2							
10.0	26				13			15			255	40								
10.5	33				2			4			192	21								
11.0	20	9									159	5							24	
11.5	16	27									70	14							18	
12.0	7	27						4			6		20						17	
12.5	2	32						19			5		19						29	
13.0		27						47			5	8	41						27	
13.5		14						53			5	8	41						23	
14.0		5						61			6	24	18						9	
14.5				2				48				15	5						4	
15.0				1				80	6			18			4				22	
15.5		14		1				101	13			15	5		4				33	
16.0	2	5		2	5			72	13			18	14	13	18				26	
16.5		5		8	5			162	26			4	10	28	12				34	
17.0		6		12	37			209	43			52	14	30	46				44	
17.5				19	42			205	40			46	44	49	125				56	
18.0		1		27	64			305	69			52	30	43	136				102	
18.5		2		35	98			316	79			54	20	40	85				88	
19.0		27		24	104			176	79			30	15	26	62				90	
19.5		23		14	66			161	70			24	14	4	63				79	
20.0		9		11	50			111	37			12	6	13	43				15	
20.5		5		11	38			21	27			36	7	4	28				24	
21.0				11	50			11				36	10		23				12	
21.5				3	25			13	3			18	3		8				6	
22.0				3	12			3				12								
22.5				3	8									2	13					
23.0					6									5						
23.5																				
24.0					2															
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	103	55		150	331			528	102			217	240	147	71	163			227	
Ns	196	235		185	653			2202	505			893	907	396	265	659			793	
n	2	2		7	6			10	2			5	5	3	2	3			4	

JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0													1							
6.5													3	7						
7.0													7	19						
7.5													7	27						
8.0													15	39						
8.5													29	36						
9.0			6	23									29	33						
9.5			27	53							6	19	65	48						
10.0			49	78							60	39	40	42						
10.5	4		83	78				10			96	39	64	48						
11.0	17		173	99				61			223	74	85	57						
11.5	62		251	128				104			182	87	63	28						
12.0	67		228	97				172			100	91	24	39					24	
12.5	38		170	40				321			47	90	8	15					24	
13.0	15		90	39				420			29	50	6	7					24	
13.5			43	25				394			14	5	3							
14.0			22	16				206			9	1	2						5	
14.5				101				160			7		3						33	
15.0				101				150				2							43	
15.5				86				134				10	1	4					24	
16.0				62	3			110			8	7	5	14	2				10	
16.5			5	16	6			80				3	4	41	12					
17.0			6	24	18			8			4		9	44	20					
17.5			8	15	34			68			4		31	71	43				5	
18.0			27	37	100			113			4	1	33	177	48				24	
18.5			52	138	110			102			11		62	138	61				14	
19.0			66	227	105			94			4		24	108	56				10	
19.5			67	261	77			70					21	56	49				10	
20.0			46	213	89			18				1	12	43	43					
20.5			17	120	50			16						25	21					
21.0			7	74	40			12						1	32	8			5	
21.5				27	22									3	32	4				
22.0				40	16			8					6	12	30					
22.5				23	6			12							1	9				
23.0				6	5										4	2				
23.5				12											2					
24.0				3																
24.5				3	1															
25.0					1															
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	74		467	812	392			365			321	305	384	372	185				53	
Ns	202		1443	2266	684			2845			812	518	665	1249	406				253	
n	3		9	18	9			7			14	12	9	8	4				1	

AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0														6						
6.5																				
7.0													8							
7.5													34							
8.0													76	6						
8.5			3								19		55	14						
9.0			46	3							26		56							
9.5			104	5	1						6		43	12						
10.0			168	19							10	11	47	10						
10.5			172	49							10	36	45	9						
11.0			150	70							55	47	16	16						
11.5			126	76							127	61	37	56						
12.0			94	137	7						147	126	90	165						
12.5			130	142	14		4				91	124	105	170						
13.0			203	299	27			8	21		82	130	108	165						
13.5			309	319	22		14	40	115		54	102	95	80						
14.0			220	220	15		25	55	115		46	79	137	66						
14.5			114	56	12		40	79	156		14	38	74	51						
15.0			46	9	17		16	63	31		9	34	55	31						
15.5			23		4		2	79	21		6	13	55	29						
16.0			15					24	21		3	26	38	33						
16.5			19	13					21		17	29	17	26						
17.0			22	13				16			2	33	10	13						
17.5			7	42				8	10			21	28	42						
18.0			6	36	1							16	21	79						
18.5	3		17	89	25			8				1	25	69						
19.0	2		19	95	50			16	10			3	20	58						
19.5	3		4	152	79			16				1	21	48						
20.0	2		15	104	68							4	8	26						
20.5	2		17	53	49							11	10	10						
21.0				27	28								11	21						
21.5			6	17	10								2	15						
22.0			2	6	4						6			12						
22.5			2	9	4									5						
23.0				9																
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	12		885	594	220		59	52	50		444	437	515	316						
Ns	12		2062	2068	437		100	412	521		730	944	1347	1343						
n	1		22	14	6		2	1	1		15	9	12	8						



OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																		4		
9.0												1	7	4			5			
9.5							30	5					31	15			8			
10.0				13			23					6	21	38			13			
10.5			17	12			60						71	18	3		16			
11.0			51	35			80	7	2				95	59	19		72			
11.5			267	68	4		111	8	2		4	11	227	121	57	145	1			
12.0			446	215	6		188	18	10		6	54	296	202	73	195	4			
12.5		3	376	423	31		479	45	13		12	73	216	289	140	250	9			
13.0		6	324	687	93		557	43	15		15	115	191	163	154	162	11			
13.5		13	173	807	165		659	59	12		10	70	143	97	51	76	5			
14.0		8	219	509	159		318	65	6		2	80	96	48	29	67	5			
14.5		6	52	261	90		81	240	6		6	52	148	27	7	46	3			
15.0		3	21	89	75		13	323	10		3	55	109	22	12	45	1			
15.5		1	22	54	72		13	338	8		4	21	106	5	9	10				
16.0		2	18	29	42		16	171	6		7	22	137	6	6	4				
16.5				5	34			83	4		1	14	83	6	5	4				
17.0				11	18			26	2		3	4	47		5					
17.5				8	5			21			3	5	24		3					
18.0				14	1				2		2	1		3	4					
18.5		1					1				2	6		11	6					
19.0		1			5						1		35	24	12					
19.5				8			2					4	33	24	18					
20.0				5			1				1		35	19	13					
20.5				8	10		1				1	1		19	5					
21.0				5	6			5			1			22	16					
21.5				10										3	9					
22.0				3								2			5					
22.5				5							1			6	6					
23.0															3					
23.5															3					
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		43	154	409	339		659	257	50		85	231	334	407	218	473	39			
Ns		45	1984	3287	817		2632	1457	96		85	599	2151	1251	670	1124	39			
n		3	3	8	11		16	5	1		6	7	7	10	6	10	1			





DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0															2					
7.5											2	8			3					
8.0											11	14			3					
8.5												11								
9.0											12									
9.5											31									
10.0											16	8								
10.5											16	12	12	5						
11.0											20	54	25	5						
11.5					2						16	99	42	5						
12.0				2	2						21	149	86	13						
12.5				2							27	142	75	71						
13.0				18							13	185	67	147						
13.5				41	7						10	166	70	104						
14.0				85	13			1			31	284	34	107						
14.5				90	14			1			40	277	25	97						
15.0				103	12	4		2			74	387	11	70						
15.5				102	7	6		3			96	293	7	71						
16.0				62	2	7		3			83	228	9	38						
16.5				29	2	17		2			34	195	2	43						
17.0				7		8		1			9	113	1	45						
17.5				12		8					15	72		16						
18.0				7		4					10	50	2	36						
18.5						2						56		11						
19.0				2							4	52		11						
19.5				2							4	75		8						
20.0				16							16	88		11						
20.5				16							20	52		14						
21.0				6								34		22						
21.5				24								10		3						
22.0				4																
22.5												7		6						
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				439	53	56		13			196	673	154	322						
Ns				633	63	56		13			633	3122	468	969						
n				13	3	5		1			4	13	4	13						

# **DECAPTERUS MACROSOMA**

*Decapterus macrostoma*

JANUARY '93

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5	2																			
14.0												1								
14.5													10							
15.0	2			1	7	2		12					22		9					
15.5	12			5	22	6		40				3	1	97		5				
16.0	26			10	61	32		64				2	4	159	5	7				
16.5	41			34	63	65		35				6	4	172	12	21				
17.0	40	1	3	100	71	174		9					7	174	11	35				
17.5	7		3	161	62	220		13				1	4	116	5	35				
18.0				142	47	130		6					2	41	1	9				
18.5				77	27	76		6				1		14		9			1	
19.0	2		1	22	3	48		1				1		2		2				
19.5		1		5	2	19		2						1						
20.0				4	1	6						2		7						
20.5				4		4														
21.0						2														
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	77	2	7	481	163	318		79				17	22	314	28	57				
Ns	133	2	7	567	366	786		188				17	22	814	33	132				
n	2	1	3	19	6	9		2				5	1	10	1	1				

FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0														1						
13.5									1											
14.0	1																			
14.5		5																		
15.0		4	5	3			8	1						18						
15.5	1	2	5	3			18				4			13						
16.0		2	1			7	16	3			1	2	12	25	2					
16.5	3	7	20	16	16		51	7				5	57	50	4					
17.0	4	12	35	21	58		23	5				6	89	85	13					
17.5	11	8	56	42	108		4	4			3	5	103	71	3					
18.0	3	11	60	36	157		4	1			1	1	72	46	1					
18.5	1	10	26	47	173		4						40	14	1					
19.0		6	2	39	113						2	2	15	10						
19.5		1	9	7	44				1			2	8							
20.0		3	7	4	22							1	1	2						
20.5			2	3	7							2								
21.0		1			2							4			3					
21.5												3			11					
22.0												3			24					
22.5												2			11					
23.0															21					
23.5															13					
24.0															37					
24.5															45					
25.0															16					
25.5															8					
26.0																				
26.5																				
27.0																				
27.5																				
Nm		24	72	193	106	478		77	23		11	38	121	115	90					
Ns		24	72	227	222	708		129	23		11	38	397	335	213					
n		4	3	9	4	17		2	1		3	4	4	4	2					

MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0		4																	4	
14.5		4												2					4	
15.0		21						1						10						
15.5		50		1		3		2					5	8						
16.0		39		4		5		1					2	21	2	5				
16.5		39	3	7	2	5		3					8	32	8	28				
17.0		18	4	25	7	96	1	5					8	48	13	29				
17.5		1	30	80	24	178	2	7				1	5	70	9	35				
18.0		5	48	123	76	256	3	4				2	5	53	12	34				
18.5		2	50	93	132	251		5					9	20	2	41				
19.0		2	26	23	103	147		5				1	2	10		37				
19.5		3	18	23	34	69		1				1		6		21				
20.0		2	4	17	10	53						2	1	2		8				
20.5		1	2	8		15		1				3				4				
21.0		1	1	6		42						3								
21.5		2		2		4														
22.0		1				15														
22.5						4														
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		66	88	344	180	308	6	35				13	45	125	46	69				
Ns		193	185	411	389	1143	6	35				13	45	281	46	250				
n		2	6	11	4	6	1	4				2	4	3	1	2				

APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0								7												
11.5								33												
12.0								108												
12.5								123												
13.0								88			3									
13.5								82			3							1		
14.0								72			1									
14.5		1						91												
15.0								78				1								
15.5								42						1						
16.0								41			4			4						
16.5			5					31			3	1	3	9						
17.0			17	4		2		32				3	5	10						
17.5			18	26		7		27				6	17	18						
18.0			31	56		19		27				3	13	23		1				
18.5		1	37	131	2	29		18				4	5	6						
19.0		1	29	107	5	26						1	2	2						
19.5			15	77	2	17							4	1						
20.0			6	19	1	14							4	1						
20.5			3	6	1	8							6							
21.0				1									2							
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		3	161	242	11	85		265			14	19	66	67		1		1		
Ns		3	161	429	11	121		900			14	19	65	71		1		1		
n		3	9	10	1	4		6			1	3	5	3		1		1		

MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5								7				2								
12.0								15										3		
12.5								41										1		
13.0								91												
13.5								102			24									
14.0								94			38	2								
14.5								89			59	10							2	
15.0								50			59	7	1							
15.5		1						71			33	4	1						1	
16.0								67			12				3				3	
16.5								41			1	4	2		9				2	
17.0					2			72			1	2	2	7	15				1	
17.5				1	10			40					5	4	30					
18.0				5	18			31					9	5	32					
18.5			2	29	28			24					5	5	35					
19.0		1		36	17			16				4	9	4	16					
19.5			1	41	3			6				6	1	2	7					
20.0		1		1	2			4					2	2	2					
20.5				3	2															
21.0				1											2					
21.5				1																
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		3	3	73	82			248			72	38	37	29	108				13	
Ns		3	3	117	82			859			226	42	37	29	151				13	
n		2	1	8	4			5			5	2	4	3	3				1	

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5															3					
7.0															3			10		
7.5													34		2			5		
8.0												1	11		2					
8.5												2	23					5		
9.0												5	11					5		
9.5												2	45					5		
10.0											1	2	34							
10.5												1	57					5		
11.0					2						1		159					5		
11.5					3			8			3		182					10		
12.0					1			4			5		57					32		
12.5								8			2		34					102		
13.0								42										81		
13.5								95										41		
14.0								140	3									23		
14.5								164	3									31		
15.0								155	10								1	24		
15.5								185	10								2	19		
16.0								135	26								4	35		
16.5					1			157	29			2		1	2			31		
17.0								171	29			5	1	4	4			23		
17.5								141	26			3	4	2	8			16		
18.0				1	6			186	19			4	3	1	2			21		
18.5					18			183	6			6			1			47		
19.0				2	19			121	6					1				45		
19.5					21			35						4				7		
20.0					12			28						1	4			4		
20.5					2			8							3					
21.0					3							3								
21.5												2								
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				3	66			509	52		12	38	65	14	41			193		
Ns				3	89			1966	167		12	38	655	14	41			635		
n				3	4			10	1		2	4	2	1	4			4		



JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0													10							
7.5				2									13	2						
8.0				8									38	1						
8.5				11									30	32						
9.0				15									57	50						
9.5				3									69	51						
10.0				2									56	84						
10.5			7	4									79	204						
11.0			26	41	3						1		150	234						
11.5			4	251	25						2		223	240						
12.0			202	421	29								205	272					8	
12.5			393	668	31			17			4		325	166					8	
13.0			614	905	22			43			13		313	143					6	
13.5			668	887	26			72			7	1	356	89					3	
14.0			909	559	5			147			2		144	31					14	
14.5			648	349				231				1	103	9					22	
15.0			398	113				201					18	1					20	
15.5			85	92				228			1		8						3	
16.0			68	99				189				1	9							
16.5			44	116				116				2								
17.0			30	66				151			5		3							
17.5				32				128			1		3	3						
18.0				1	2			51					6	11						
18.5				8	1			41					8	6						
19.0				4	6									6						
19.5				6	9			16						3					3	
20.0				6	9			49						2					3	
20.5					3									4					8	
21.0			9					11						1					11	
21.5								11						1					11	
22.0																			6	
22.5																				
23.0																				
23.5																			3	
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			473	459	92			319			36	5	406	273					46	
Ns			4149	4668	170			1703			36	5	2226	1647					129	
n			10	14	6			7			4	3	7	7					1	

AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0													10							
7.5													8							
8.0													41							
8.5													53							
9.0													44							
9.5													83	14						
10.0			54										94	43						
10.5			238	29									122	102						
11.0			391	104	8								221	191						
11.5			796	286	27								401	278						
12.0			1108	267	32								407	406						
12.5			1336	584	36								417	371						
13.0			1396	738	51		26						384	312						
13.5			1411	609	93		75					1	334	208						
14.0			1306	246	106		203	1					327	96						
14.5			917	251	186		343	1					298	193						
15.0			707	303	135		252		5				495	117						
15.5			441	266	165		135	3	19				473	62						
16.0			460	240	143		54	5	37				428	85						
16.5			192	44	87		95	8	43				143	85						
17.0			109	28	62		81	16	21				51	10						
17.5			45		60		42	9	5				28	4						
18.0			24		38			8	8				37	12						
18.5			15		8			4					22	1						
19.0			22		8			3					12	2						
19.5			4					7					12	1						
20.0			2					3					6							
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			1132	627	271		102	51	52		1		759	351						
Ns			####	3994	1242		1305	67	139		1		4952	2593						
n			22	14	6		2	1	1		1		13	8						

SEPTEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0													2	2						
9.5			2		1								13	9						
10.0			4		7							1	11	8						
10.5			34		4		6						49	8						
11.0			83		1								45	10				2		
11.5			79				9	4				2	90	6			9	2		
12.0			143		8		10	8				1	119	6			9	1		
12.5			215		9			11				14	259	4				2		
13.0			252		17		48	10			1	52	441	2			1	5		
13.5			334		79		118	36			3	102	536	7			10	11		
14.0			426		94		292	73			1	110	647	7			9	8	2	
14.5			665	4	167		715	145			2	73	563	7			37	12	4	
15.0			796	3	160		1138	184			6	94	588	9			36	11		
15.5			725	14	143		1389	162			1	47	343	7			18	4		
16.0			453	16	116		1050	119				3	88	1			35	7		
16.5			209	8	42		743	96				8	31	6			92	11		
17.0			27	4	15		561	82					3	3			123	3		
17.5			32	2	2		318	37						4			121	6		
18.0							126	20						3			9			
18.5			10				9	7				1		1						
19.0								6				2	3	3						
19.5								13			1	1		2						
20.0								1										1		
20.5								3												
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			852	51	208		756	339			15	108	617	113			88	86	6	
Ns			4489	51	864		6532	1017			15	511	3831	118			510	86	6	
n			18	1	5		15	7			1	5	12	3			2	5	1	

OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0			1																	
8.5																				
9.0			1														6			
9.5			7				5													
10.0			6				11						10	6			25			
10.5			9				12						9	16			29			
11.0			7				35	5					1	43	6		70			
11.5			5	14			45						23	55	28		103			
12.0			9	45			96	49			1		49	62	46		126			
12.5			9	48	3		130	118			1		52	47	47		230			
13.0			20	93	16		122	183	5				68	45	88		168			
13.5			12	109	34		126	189			4		70	63	126		354			
14.0			6	132	40		244	188	16		8	3	71	77	149		507	1		
14.5	1	23	171	60			434	197			2	19	121	78	97		639	3		
15.0	2	41	224	67			751	218	16		2	18	88	124	198		547	1		
15.5	4	42	299	217			975	203	32		3	23	59	139	202		448	1		
16.0	2	30	287	380			1033	129	11		2	18	54	63	130		187	1		
16.5	2	11	281	406			767	34	5		1	3	34	44	112		76			
17.0	1		170	286			454	23	21			1	32	13	13		25			
17.5			30	100			207	23	54				4	7	3		7			
18.0			18	33			107	26	54			1	2	11	7		5			
18.5				8			60	24	32				2		8		2			
19.0			4					5	11					9	12					
19.5									16					5	14					
20.0															3					
20.5					2										3					
21.0				5																
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		12	136	401	506		872	257	51		24	82	189	420	307		523	7		
Ns		12	240	1930	1652		5612	1615	273		24	87	748	907	1295		3554	7		
n		1	3	8	12		17	5	1		3	6	7	10	6		10	1		

NOVEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5											1				3					
10.0												2			6					
10.5												3	2							
11.0												5	9	5	7			7		
11.5											2	6	4	10	23			22		
12.0								6			3	7	4	20	22			38		
12.5				4	14			18			2	7	11	36	50			45		
13.0				23	7			18			3	6	24	43	85			46		
13.5				78	55			85			2	6	15	147	111			39		
14.0				152	55			99			3	6	21	264	127			46		
14.5				320	149			94			1	11	13	244	233			76		
15.0				440	291			139				15	22	413	476			128		
15.5				736	579			190			2	17	28	566	650			169		
16.0				1342	1283			228			3	17	26	667	593			105		
16.5				1516	1737			279			1	19	30	523	398			54		
17.0				1468	1876			273			1	11	19	180	129			44		
17.5				711	922			199				9	6	107	61			7		
18.0				342	249			89				3	4	30	25			7		
18.5				40	33			55				2	2		21					
19.0				19	4							3			22					
19.5					3							1	2	24	26					
20.0															4					
20.5				15	3										18					
21.0				8																
21.5					3															
22.0					3															
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				1225	1091			258				24	156	113	626	540		114		
Ns				7214	7267			1773				24	156	243	3278	3092		834		
n				24	22			5				3	13	2	13	10		3		

DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5													1							
10.0													1							
10.5																				
11.0																				
11.5																				
12.0														1	1					
12.5													4	9						
13.0											2	2		15						
13.5						2					1	2		28		4				
14.0			28	2	13		5					2	1	77		22				
14.5			49	15	41		10					10	37	174		30				
15.0			217	15	67		15					11	55	293		35				
15.5			524	26	210		25					2	117	403		65				
16.0			710	39	250		20					13	209	530		52				
16.5			1097	92	463		50					14	161	633		43				
17.0			1223	141	449		55					13	70	393		13				
17.5			913	111	246		50					8	34	205		4				
18.0			395	66	159		20					2	34	28						
18.5			134	10	74		5						5	5						
19.0			13		17								2	2						
19.5			8	4									2							
20.0			14		28								1	4						
20.5					6									4						
21.0																				
21.5																				
22.0														4						
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			718	203	474		51				3	81	173	754		62				
Na			5324	522	2025		257				3	81	733	2808		268				
n			15	4	10		1				1	8	5	15		1				

# **RASTRELLIGER KANAGURTA**

Rastrelliger kanagurta

JANUARY '1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0											22									
7.5											82									
8.0											65									
8.5											44									
9.0											44									
9.5	1										2									
10.0											2									
10.5											5									
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5											2									
14.0																				
14.5											5									
15.0											5									
15.5												3								
16.0												1								
16.5											11	2								
17.0				1	3						22	4	3	7	2					
17.5	2	2		1	4	3					12	20	8	27	9	2				
18.0		4	10	44	12	19		18			5	69	53	66	21	7		1		
18.5	1	18	31	206	21	44		59			5	107	64	92	31	4		3		
19.0	4	25	72	438	18	97		46			5	74	62	64	24	2		5		
19.5	4	19	42	491	17	116		45				34	19	20	9	2		1		
20.0	1	8	26	234	13	55		3				11	7	2						
20.5	1	1	4	45	14	17						5	2		2					4
21.0	2		1	13	7	3							1							6
21.5	1			12	6	4							2							6
22.0					7	2							1							2
22.5				4																
23.0				1																
23.5																				
24.0				2																
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	17	77	140	767	122	218		56			72	311	92	245	57	17		10		
Ns	17	77	186	1493	123	360		172			339	330	221	278	98	17		10		
n	2	4	3	20	6	10		2			2	17	3	10	2	1		1		



FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5												1								
13.0		1										3	5							
13.5		1										6	2							
14.0											1	4								
14.5											1	4		1		2				
15.0											1			9		4				
15.5												1	2	5		2				
16.0												2	4	4		7				
16.5				18				1				2	7	2		16				
17.0				35				1				1	6			12				
17.5		7		47	1				1			5	5	2	3	14				
18.0		10	3	91	4	15		1				25	12	3	7	23				
18.5		59	9	102	21	39		1		3		60	28	4	10	12				
19.0		91	10	80	45	98		1		1	2	84	27	13	27	16				
19.5		112	30	92	52	171				1		93	23	10	24	13				
20.0		87	10	36	29	170		1				33	12	3	14	9				
20.5		27	1	4	7	84				1		8	3		8	8				
21.0		16	1			28						5			7	3				
21.5		5				46						2			10	3				
22.0		2			1	27									5					
22.5		1				5									1	1				
23.0															1	2				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		258	63	223	119	487		6		7	5	339	136	58	118	103				
Ns		419	65	506	161	683		6		7	5	339	136	59	118	144				
n		5	3	9	4	17		2		1	1	11	5	4	6	3				

MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0												1								
7.5													1							
8.0												5	1							
8.5												5	2							
9.0				1								17								
9.5												36	1							
10.0												47								
10.5									1			38	2							
11.0												22	1							
11.5												20								
12.0												5								
12.5																				
13.0																				
13.5																				
14.0																				
14.5																				
15.0								1				2								
15.5								1					2							
16.0								1				2	4		1					
16.5				1				3				6	4	2	2					
17.0		2										6	5		4	2				
17.5		9										6	7	2	9	9				
18.0		5	5	6	3			3				16	11	11	23	13				
18.5		2	17	30	17	7		13				13	47	77	43	33	6			
19.0		22	54	54	25	29	1	15				7	63	103	20	37	20			
19.5		47	77	84	44	67	3	15				6	78	125	12	20	16			
20.0		27	65	61	25	35	1	18				4	40	61	4	7	8			
20.5		16	19	26	12	14		11				1	18	15	1		4			
21.0		3	2	9		16		4					2	4	2	7				
21.5		2	2	4		1		3					1	7	2	2				
22.0					2	3		1							2					
22.5															2					
23.0															1					
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		120	220	282	145	131	5	70				189	292	333	123	59	54			
Ns		136	242	276	127	173	5	70				261	285	417	123	129	54			
n		4	6	11	4	6	1	25				6	10	9	4	1	2			

APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5													1							
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0										7										
11.5							1		3	10										
12.0	1								3	6										
12.5	6								3	12	8								1	
13.0	6								3	30	14								1	
13.5	10		1						3	42	27									
14.0	7	2	2	1					2	49	41								8	
14.5	9	1	3						9	28	42								25	
15.0	4		4						10	33	52								8	
15.5	1		6						2	25	54								10	
16.0	1								2	14	16								7	
16.5										4	8								5	
17.0			1						1	19	6									
17.5									1	39	10	1							11	
18.0		4	1						1	35	43	2							49	
18.5		5	1	8	1				2	35	125	10	10		1				77	
19.0	1	98	30	29	2	3			4	15	223	27	22	1	6				96	
19.5		216	165	61	7	11			6	6	195	35	62	4	8				43	
20.0		209	222	100	12	18			4	3	137	14	45	4	7				19	
20.5		108	170	79	10	32			4	5	18	7	25	4	4					
21.0		13	52	31	5	33			2	1		3	37	8	7					
21.5		10	7	9	1	40						3	28	8	1					
22.0			9	9		21			1			2	6		1					
22.5			1	3		21								1						
23.0				1		9														
23.5				1																
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	46	382	475	282	38	86		76		334	635	105	147	30	35			158		
Ns	46	664	625	331	38	188		66		420	1020	105	235	30	35			358		
n	1	8	109	12	1	4		6		12	17	5	3	1	1			3		

MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0											16									
7.5											18									
8.0											28									
8.5											14									
9.0											5	1								
9.5											3	2								
10.0																				
10.5											2									
11.0											2				5					
11.5															3					
12.0								2			3									
12.5								4			4									
13.0											4	2								
13.5								3			5	2			2					
14.0								4			4	5			5			2		
14.5								2			12	4			10			6		
15.0								3			28	3			3			9		
15.5	1							1			27	9	4		10			9		
16.0	3										36	13	2		8			4		
16.5	9				1						52	18		1				5		
17.0	6										38	17		1	3			3		
17.5	3	3									19	6	1	2	13			2		
18.0	1										22	21	6	5	2			1		
18.5		2	5								27	14	36	26	18					
19.0		35	19	18	2						30	53	80	54	47			4		
19.5		88	33	82	15						17	61	111	65	76			3		
20.0		131	41	214	28						4	38	37	66	49					
20.5		94	16	283	35						12	27	11	38	33					
21.0		33	8	171	19						4	9	6	31	32					
21.5		15	4	105	13							8	1	12	8					
22.0		10	3	85	11							2	1	15	1					
22.5		3	1	11	8									16						
23.0					1									8						
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	23	205	102	388	123			12			437	267	234	187	179			48		
Ns	23	413	131	969	134			18			435	314	296	339	328			48		
n	2	4	2	8	4			2			16	9	7	5	4			2		

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0														2						
6.5																				
7.0													2							
7.5												5	2							
8.0												12	4							
8.5											4	32	8							
9.0	13										24	88	4	2	4					
9.5	18										21	105	8		2					
10.0	43				1						49	104	10		7					
10.5	85			1	4						79	138	6		4					
11.0	98				1						88	72	7		2					
11.5	96				5						145	52	7							
12.0	88	13			6						167	45	15							
12.5	61	21			8						101	25	26							
13.0	19	23			8						89	13	17							
13.5	28	8			7			1			84	6	7							
14.0		2						2			74	8								
14.5								1			45	17	2					1		
15.0	4	2						3			40	9						1		
15.5								4			15				6			7		
16.0											5	6			6			23		
16.5				1				1			5	5			6			25		
17.0								2			1	2		2	22			13		
17.5		1									2	26			19			10		
18.0	13										7	12		9	20			4		
18.5	6	2						1				32	1	20	24					
19.0	1			4	3			1	2		1	37	49	61	57					
19.5	2	1		33	17			7	3			16	54	69	77					
20.0	21	10		91	64			2	4			18	21	61	76					
20.5	18	13		115	117			2	1			3	11	60	63					
21.0	8	8		99	109			1	3			9	6	9	23					
21.5	1	2		60	68			4	5			3	6	2	8					
22.0				44	31				1			1	1	2	2					
22.5				15	17									2						
23.0				5	8															
23.5					1															
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	155	58		312	313			32	19		460	294	158	109	227			68		
Ns	624	104		489	477			34	19		1044	900	274	300	429			84		
n	3	2		6	6			5	1		8	5	3	2	4			2		

JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0													2							
6.5													1	2						
7.0													4	6						
7.5				16									6	10						
8.0				65									9	7	10	3				
8.5				70									9	5	14					
9.0				45							6	18	12	13						
9.5				33								23	15	13						
10.0			1	5							9	14	22	6						
10.5			2	3							12		27	2						
11.0			2	24							27	5	79	23						
11.5			3	59							14	9	113	15	10					
12.0			3	97	1						7	23	79	15						
12.5			21	119	2			1			54	30	61	20	13					
13.0	3		24	120	2			1			42	58	41	30	7					
13.5			50	88				15			52	131	106	16	7					
14.0	10		61	48				17			147	98	123	18				2		
14.5	38		85	57				19			250	191	97	4				1		
15.0	134		69	42	1			19			286	185	77	2						
15.5	190		52	38				10			252	229	49							
16.0	214		29	22				5			192	176	40							
16.5	98		20	17							132	88	26		1					
17.0	19		9	17							49	41	6							
17.5	1		1	22							54	18	6							
18.0								1			42	14	17	2				1		
18.5				3							70	39	6	5	9			2		
19.0				3	11			7			18	18	23	44	28			3		
19.5	1		4	33	41			15			13	9	32	81	95			2		
20.0			7	105	116			20			9	12	17	97	110			3		
20.5			20	179	204			21			20	8	9	90	74			3		
21.0			19	176	167			15			20	2	14	42	27			2		
21.5			11	125	85			12			9		10	30	23					
22.0				37	34			8					3	4	1			1		
22.5			1	14	13								1	1						
23.0				4	10			2						2						
23.5				2	4															
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	198		369	810	436			163			735	511	481	331	182			21		
Ns	709		496	1686	692			189			1767	1457	1132	614	408			18		
n	4		10	18	9			7			17	12	9	8	4			1		

AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0														1						
7.5										6		10								
8.0										15	2	9	1							
8.5										31	9	11	3							
9.0										23	10	30								
9.5			13	6						36	11	25	3							
10.0			21	7						23	18	42	8							
10.5			56	66						24	23	26	16							
11.0			190	104						58	29	100	34							
11.5			305	125	3					46	23	138	42							
12.0			337	135	11					53	9	120	46							
12.5			384	83	22					47	4	132	48							
13.0			410	85	29					41	22	83	36							
13.5			401	65	25					17	25	114	47							
14.0			295	31	28		1			26	12	92	32							
14.5	3		203	63	32		7	1		24	5	40	17							
15.0	3		129	91	39		7			65	15	12	33							
15.5	7		67	95	15		2	5		106	11	29	44							
16.0			47	70	17		4	3		98	33	28	28							
16.5	7		97	82	19		17	1		69	40	26	26							
17.0			116	111	6		37	1		60	57	28	23							
17.5			90	53	2		29	1		65	49	15	10							
18.0	3		39	17			16	1		46	33	8	3							
18.5			20	9	2		3			21	37	4	3							
19.0			4		3					17	31	1	3							
19.5			1	3	2			1		17	20	4	7							
20.0	24		3	37	4			1		7	11	7	9							
20.5	49		10	57	19						4	7	8							
21.0	49		18	79	25			1		2		2	10							
21.5	21		20	42	23			1			1	2	5							
22.0	10		17	5	15		1	2		1		2	5							
22.5			7	1	3			2				4								
23.0			3	2																
23.5													1							
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	51		1101	677	218		84	28	9		619	412	496	362						
Ns	177		3301	1523	344		107	28	9		1043	543	1151	553						
n	1		22	14	6		2	1	1		15	9	13	8						

SEPTEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5											3									
9.0											5			2						
9.5											2			2						
10.0																			4	
10.5											3	8	6	2					22	
11.0								1			4	15	15	2					31	
11.5			10					24			3	15	50						35	2
12.0			35					16			7	25	91	12					51	1
12.5			119					31			26	25	109	8					29	
13.0			116		1			26			28	27	141	36					88	1
13.5			239		7		5	34			25	12	136	14					70	3
14.0			332	4	21		10	14			36	17	149	18				1	72	4
14.5			359	8	40		39	29			37	26	75	9			6		53	4
15.0			308	6	41		44	34			24	33	63	6			4		76	6
15.5		2	269	2	48		80	36			18	23	18	7			4		73	5
16.0		2	210	1	47		106	44			20	13	35	5			4		67	10
16.5			131	1	38		134	29			32	9	11	5			6		35	6
17.0		3	36		30		208	4			44	11	12	8			14		12	2
17.5		12	20		32		174	9			46	7	3	6			15		20	
18.0		20	17		30		163	14			36	5		7			28		18	
18.5		28		5	51		63	4			19	2	2	5			16		13	
19.0		18	15	13	31		35	2			11	2					7		12	
19.5		2	13	8	29		13	4			4	2					1		7	
20.0			9	2	11		4				7	1								
20.5					26						5									
21.0					17						2									
21.5					7															
22.0					5															
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		52	784	50	257		603	123			320	224	484	102			83	315	44	
Ns		87	2238	50	513		1077	355			447	278	915	153			108	788	44	
n		1	18	1	5		15	6			8	6	12	3			2	6	1	



OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5			3																	
10.0			3																	
10.5			5							1	2	1								
11.0			3																	
11.5							2				4									
12.0			4				2				4			2			1			
12.5			1				3			2	1	3	2	2			4			
13.0			11	1						4	5	7	5	4			12			
13.5			11	3			10	1		17	16	17	39	3			11	8		
14.0		2	35	7			18	1		27	25	31	50	4			23	8		
14.5		7	49	12			44			40	39	35	120	14			38	95		
15.0		14	44	22	7		109			37	35	43	255	30			69	119		
15.5		26	27	29	10		164	4		22	71	26	478	56			47	95		
16.0		14	62	56	26		231	5		25	52	32	305	104			48	71		
16.5		25	49	68	34		293	5		22	51	32	157	150			40	32		
17.0		34	42	100	96		252	4		27	33	17	67	110			15			
17.5		15	10	74	167		110	8		27	38	18	56	133			9			
18.0		13	15	56	194		62	9		26	30	24	26	92			5	8		
18.5		22	10	24	172		32			14	22	25	14	75			1			
19.0		13		8	83		11	2		5	7	16		14			1			
19.5		4	5	8	45		8	3		3	9	8	4	12			2			
20.0		3		9	9		1	1		4	2			1						
20.5		1		2	4		2										2			
21.0				3			2	1												
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		131	114	265	458		653	44		303	262	276	376	283			264	55		
Ns		194	387	483	846		1354	44		304	445	338	1583	805			330	436		
n		3	3	8	12		17	5		10	8	7	10	6			10	1		

NOVEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0											4									
8.5											2				2					
9.0											3	1			2					
9.5																				
10.0																				
10.5															4					
11.0															4					
11.5											1				5					
12.0											1	1			13					
12.5											5	4			9					
13.0											7	6		1	4					
13.5											8	16		1	11					
14.0				1							5	9			12					
14.5											2	12		1	20				1	
15.0				6							9	16	1	5	38				3	
15.5				5			1				36	43	22	12	57				8	
16.0				17	12		1				61	103	14	38	60				7	
16.5				54	64		5				53	138	38	53	114				2	
17.0				115	130		20				37	120	40	69	88				2	
17.5				218	204		48				28	87	35	60	55				3	
18.0				236	251		53				15	51	32	40	13				2	
18.5				176	154		47				10	36	5	25	17				1	
19.0				70	85		18				5	23	3	22	8					
19.5				39	60		6				3	30	3	4					1	
20.0				33	17		7					21		3						
20.5				18	8						1	16			1					
21.0				4	5							9			2					
21.5				1	2							5								
22.0					2							1								
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				708	624		182				259	558	81	334	337				29	
Ns				992	995		206				296	747	191	333	536				31	
n				24	22		5				8	16	2	13	10				3	

DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0												1								
8.5												1								
9.0																				
9.5												1								
10.0																				
10.5																				
11.0																				
11.5												1								
12.0																				
12.5														1						
13.0															1					
13.5												1	2							
14.0												2	2							
14.5												1	4							
15.0												1	5		2					
15.5													15	2	4					
16.0													23	4	8					
16.5					2							5	34	16	24		1			
17.0				6	6	1						8	57	29	78		2			
17.5				26	7	5		1				27	58	59	158		2			
18.0				83	22	22		2				15	62	55	122		7			
18.5				109	43	46		1				4	47	35	82		6			
19.0				94	18	94		4				8	40	21	56		3			
19.5				41	5	79		6				10	27	10	17		4			
20.0				19	3	37		7				4	7	4	7					
20.5				11	1	15		1				1	8	1	1		1			
21.0				2		5							6	1						
21.5													1							
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				358	107	292		22				87	403	180	502		26			
Ns				390	107	304		22				87	403	236	561		26			
n				16	4	10		1				4	13	5	15		1			

**AMBLYGASTER SIRM**

*Amblygaster sirm*

JANUARY '1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0														8	4					
14.5						48								4						
15.0				2		61								37	4	10				
15.5	4				12	111		1					6	142	37	24				
16.0	4			158	77	168		4	4	3			25	223	61	24			1	
16.5	35			487	184	340		11	35	2	2		73	322	109	48			1	
17.0	54			787	284	464		9	54	2	2		102	291	87	62			2	
17.5	61			764	240	451		6	61			1	95	216	111	57				
18.0	48			625	174	357			48				50	85	80	29				
18.5	18			243	84	214			18				7	27	23	19				
19.0				101	36	66								14	12	14				
19.5	4			30	18	20			4			1		3	6	10				
20.0	2			9	4				2					3						
20.5					2															
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	55			811	236	452		31		7	6	69	379	113	62				4	
Ns	231			3206	1114	2301		31		7	6	357	1375	533	296				4	
n	2			20	6	10		1		2	3	2	10	2	1				1	

FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5						9														
14.0						1							1		2					
14.5						3							8	18	5	13				
15.0					8	12		12					1	10	44	14	57			
15.5				38	48	23		20					6	18	98	74	64			
16.0			4	50	75	92		10					15	41	216	132	100			
16.5			13	168	74	265		15					11	62	145	196	123			
17.0		1	20	321	129	553		22					4	37	89	223	144			
17.5		2	25	323	66	568		15					6	30	180	195	97			
18.0			39	261	40	645		7		1			2	22	130	98	53			
18.5			30	84	23	382		10					1	8	80	58	19			
19.0			7	41	1	158		2		1				4	19	27	17			
19.5			1	20		127		5						1		20	11			
20.0						75		2								13	9			
20.5						31		2								2	9			
21.0								5								2	3			
21.5																	3			
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		3	103	336	154	709		52		2		46	130	176	325	175				
Ns		3	140	1305	465	2943		128		2		47	241	1019	1062	723				
n		1	2	9	3	17		1		1		6	4	3	6	3				

MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0																				
14.5		3																		
15.0		8		4	3							1								
15.5		9	1	33	2	1						2	5			1				
16.0		10	6	53	41	3		4			9	3	5	3						
16.5		7	6	116	64	16		14				3	18	3	2	1				
17.0		2	18	158	84	34	23	17				9	41	14	3	3				
17.5		4	51	127	48	35	46	20				14	47	20		4				
18.0		4	61	125	24	33	54	30				18	22	17		3				
18.5		5	43	75	20	43	34	34				4	14	1		10				
19.0		1	25	33	12	22		7				4	5	5		6				
19.5		1		8	5	13		2						5		2				
20.0				2		5								4		1				
20.5				4										1						
21.0				1	2															
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		50	104	331	146	148	55	85				3	58	112	73	5	31			
Ns		54	211	739	306	206	157	128				9	58	157	73	5	31			
n		4	4	9	3	6	1	3				1	4	4	4	1	1			

APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0																				
14.5									28					6						
15.0									22											
15.5				1		5		28				2	12	2	12	13				
16.0				29	1	9		33					49	4	48	13				
16.5			2	91	4	39		39				1	52	7	30	51				
17.0			10	185	5	65		50				3	36	42	48	51				
17.5			29	146	4	92		33				3	20	66	71	38				
18.0			59	142	4	69		28				11	6	44	77	30				
18.5			57	93	3	63		17				5		43	30	43				
19.0			40	19		43						3	2	14	36					
19.5			14			17							9	3	6					
20.0			2			14														
20.5			1			6														
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			157	389	21	139		50				28	77	109	60	56				
Ns			213	707	21	421		278				28	192	226	357	238				
n			6	11	1	4		1				2	2	3	1	1				



MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0																				4
14.5											1									8
15.0											1			2	1					24
15.5														2	2					20
16.0														5	1					8
16.5				1										7	7					32
17.0				7	1								1	6	11					52
17.5				6	2								3	1	11					28
18.0				10	2								2	1	7					12
18.5		1		6	4								4	1	12					16
19.0				3	2									1	6	6				4
19.5					1									3	2	5				
20.0														1	1	1				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		1		33	12						2		15	34	64					52
Ns		1		33	12						2		15	34	64					207
n		1		3	1						1		3	2	2					1

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0												1								
7.5																				
8.0												5								
8.5												8								
9.0												10								
9.5											5	2	3							
10.0											11	4	8							
10.5											8	2	5							
11.0											5	3								
11.5											1	4								
12.0											2	3								
12.5											1	7								
13.0												4								
13.5												7								
14.0												3								
14.5												4								
15.0												1								
15.5																			1	
16.0																			2	
16.5																			8	
17.0					7														2	
17.5					13															
18.0					20								1	1	6					
18.5					15									5	2					
19.0				5	9									6						
19.5				37	10									7						
20.0				30										2						
20.5				33																
21.0				7																
21.5				5																
22.0				2																
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				51	51						33	68	17	21	12				13	
Ns				119	75						33	68	17	21	12				13	
n				1	2						5	4	2	1	1				1	

JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				5
9.0																				13
9.5																				28
10.0					1															23
10.5					5							5	6	7	18					
11.0				14	16							26	40	9	43					
11.5	1			31	27							61	82	54	39					
12.0	4			127	34							115	131	77	47					
12.5	46			200	70							199	191	84	38					
13.0	72			252	84							386	228	139	23					
13.5	135			257	144							351	165	108	12					
14.0	161			225	120							260	110	80	11					
14.5	82			150	44							174	32	49	2					
15.0	36			58	7				1			101	18	8						
15.5	10			12								41	2							
16.0	5			10								16			1	12				
16.5	1			4		3										18				
17.0				3		8			3							37				
17.5				2	4				5			1			4	14				
18.0				2	3	8			3						7	14				
18.5				2	2				1						1	16				
19.0				3	2	4									3	2				
19.5				7	1	1														
20.0				7																
20.5				1																
21.0				1																
21.5				1																
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	182		345	226	30				13			594	385	233	178	57				
Ns	552		1368	562	30				13			1736	1005	617	317	112				
n	4		9	7	6				2			14	11	9	6	1				

AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0											2									
8.5											1									
9.0											1	1								
9.5			3																	
10.0			4								2									
10.5			3	12							11									
11.0			3	8							56									
11.5			4	49							104	2	8							
12.0			6	41							139	16	8	4						
12.5			14	54	2						196	51	62	14						
13.0			22	40	13						173	97	144	13						
13.5			61	80	88						185	60	140	23						
14.0			162	129	97						121	35	94	28						
14.5			193	212	80						43	23	44	23						
15.0			184	155	43						16	7	17	24						
15.5			100	73	54		5				5	1	3	18						
16.0			50	24	25		2							2						
16.5			18	26	3									1						
17.0			2		2								2	1						
17.5			4		24								3							
18.0			7		25								1							
18.5			11		19															
19.0			10		7															
19.5			4		7															
20.0			3																	
20.5			1																	
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm			519	272	195		7				464	156	129	139						
Ns			870	902	490		7				1054	292	524	150						
n			18	8	5		1				15	8	5	5						

SEPTEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5												16							1	
10.0												16							1	
10.5													2						1	
11.0												22	4	13					5	1
11.5								3				54	20	25					8	1
12.0			9									3	38	28	13				4	
12.5			32		2							8	12	15	25					2
13.0			33		9		7	3				6	3	13	31				8	
13.5			42		17		6	5				10	2	5	6				31	
14.0		2	13	3	4			4				44	44	5	24				47	3
14.5		6	18	9	7		6	3				109	141	11	68				168	8
15.0		11	47	15	14		9	3				186	225	11	101				287	14
15.5		19	109	14	93		12	24				162	313	13	159				150	8
16.0		15	170	8	117		11	41				47	158	12	62				177	5
16.5		6	163	1	111		17	47				13	51	2					9	1
17.0			23	1	90		2	36				6	21						15	
17.5					8			3					5						12	
18.0																			64	
18.5																			76	
19.0																			58	
19.5																			41	
20.0																			35	
20.5																			23	
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		50	291	51	141		46	71			158	209	128	117				242	43	
Ns		59	660	51	472		71	172			595	1121	142	520				1219	44	
n		1	11	1	4		3	2			7	5	8	2				6	1	

OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5								1			4			1						
11.0								5			12	22								
11.5								9			8	22	1	1				2		
12.0		8						13			23	68	25	3			1			
12.5		31	2		5			9			50	154	33	7			7			
13.0		16	4		14			1	6		42	174	41	9	4		13			
13.5		31	6	2	40			7			30	166	49	31	9		15			
14.0		48	5	5	54			15			21	80	41	30	10		17			
14.5		17		12	37			25			33	76	27	15	16		13	4		
15.0		40		21	101			23			53	134	22	57	29		6	5		
15.5		97		15	88			24			50	323	30	63	19		5	1		
16.0		170		10	223			24			31	352	49	112	44		5	1		
16.5		165		19	375			20			11	263	46	95	52		6			
17.0		109		16	514			16			6	79	37	45	21					
17.5		70		3	352			9			5	30	26	9	11		1			
18.0		16		2	93			3				31	19	7	10					
18.5				1	19			1				9	13	7	2					
19.0					11								4	7						
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		116	17	101	451			121	43			193	363	289	142	178		91	13	
Ns		817	17	106	1924			169	44			380	1984	463	499	227		91	14	
n		3	2	5	11			13	1			7	8	7	6	6		3	1	

NOVEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				1
12.0				2			1													1
12.5				3			1				15	2								4
13.0					6						1	21			27	2				
13.5				1							3	29	6	61	11					
14.0				2	7						33	46	10	91	17					
14.5				15	13		3				29	51	10	107	46				7	
15.0				59	44		6				58	39	13	148	43				25	
15.5				105	113		12				57	92	7	111	62				34	
16.0				129	174		19				82	192	45	199	81				52	
16.5				176	208		31				108	178	40	241	91				34	
17.0				204	342		43				46	140	30	209	99				24	
17.5				201	354		48				24	51	16	167	35					
18.0				153	237		28				15	14	10	37	7					
18.5				54	65		20					2	3							
19.0				15	16		2						3							
19.5				1	5															
20.0					1															
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				663	709		107				129	365	65	468	269				54	
Ns				1123	1584		215				471	857	193	1400	494				181	
n				23	18		5				5	15	2	13	10				3	

DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5				4	4															2
13.0																				12
13.5				4							28	6	2	26						
14.0				8	5	4					42	30	3	64						
14.5				19	5	18					64	75	34	123				3		
15.0				37	9	26					57	112	108	223				8		
15.5				68	48	67		7			78	118	65	262				5		
16.0				139	42	158		10			43	124	71	318				6		
16.5				177	97	223		23			51	123	155	370				5		
17.0				247	129	302		33			21	88	113	343				7		
17.5				267	130	283		42			21	68	136	374				5		
18.0				207	121	190		33			21	35	33	166				6		
18.5				95	64	103		16			7	4	38	33						
19.0				21	12	11							5	2						
19.5				9									11	7						
20.0				2										2						
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				694	203	493		50			63	353	218	676				45		
Ns				1305	666	1385		163			434	785	774	2326				45		
n				16	4	10		1			2	12	5	15				1		



**SARDINELLA GIBBOSA**

*Sardinella gibbosa*

JANUARY '93

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0											2									
10.5											9									
11.0											22									
11.5											26	1								
12.0												2						1		
12.5															1			3		
13.0				1							49	15		1				3		
13.5			6	5				1			73	32		12						
14.0	8		15	12	3	4					98	68		41		1				
14.5	33	2	19	46	1	5		3			43	49	2	66						
15.0	49	1	14	47	4	7		5			31	22		57		1				
15.5	38		1	64	7	8		16			12	13	1	18					1	
16.0	14		5	26	6	1		14						2						
16.5			3	2				5												
17.0												2							1	
17.5												2								
18.0																			1	
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	52	3	51	203	23	25		44			68	168	3	159		3		7		
Ns	142	3	60	204	23	25		44			365	206	3	198		3		7		
n	1	2	2	13	3	6		1			2	12	2	7		1		1		

FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5						3						3					1			
13.0		3				24						12			17					
13.5		5				95						30	1	1	69					
14.0		5	2	4	3	167					3	31	5	14	167			6		
14.5		4	1	19	13	181					2	26	3	19	160			3		
15.0		1	2	30	31	106					1	31		5	155			6		
15.5		2	2	53	43	26					1	8	4	5	21			5		
16.0				26	16	11						2	4	7				6		
16.5				1	2									4	1			3		
17.0														1				1		
17.5																		1		
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		20	7	86	100	242					7	143	17	56	105	32				
Ns		20	7	133	109	614					7	143	17	56	589	32				
n		4	2	6	4	7					1	8	2	2	4	2				

MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	i	ii	iii	iv	v	vi	vii	viii	ix	x
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0				1																
10.5																				
11.0																				
11.5																				
12.0			2	1				4												
12.5		3	1	5				9												
13.0		4	1	29				10												
13.5		9	3	31	1															
14.0		7	23	21	2															
14.5		11	56	18	25		8	1												
15.0		12	60	8	57		10													
15.5		10	20	3	87	1	15													
16.0		3	8		52	1	4													
16.5						1														
17.0					3															
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		54	57	70	108	3	37	24					164	231	245	123	37			
Ns		59	173	116	226	3	37	24					739	296	714	199	37			
n		3	3	4	4	1	1	1					5	9	6	3	1			

APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5											1									
7.0											4									
7.5											3									
8.0											4									
8.5											8									
9.0											3									
9.5											4	26								
10.0											10	16								
10.5											8	4							2	
11.0											22	63								
11.5											87	153							8	
12.0	10		2								308	291							8	
12.5	40										640	241	4						35	
13.0	10		9	10				7			911	239	12	11					27	
13.5	191		108	33		2		15			691	230	39	24		1			19	
14.0	141		94	72		2		32			438	154	55	2	2	5			6	
14.5	111		123	223	39	17		37			157	39	69	13	3	13			4	
15.0	10		90	193	94	28		33			60	19	27	14	8	9				
15.5			80	220	99	26		17			52	25	7	8	10	3				
16.0	10		48	111	55	16		8			10		1		2					
16.5			22	6	6	2									1					
17.0			7																	
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	52		194	284	53	53		58			619	328	67	45	26	31			61	
Ns	524		584	868	292	92		149			3419	1500	213	72	26	31			108	
n	1		8	11	1	1		4			11	8	4	1	1	1			2	

MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5	19																			
11.0	44																			
11.5	64																			
12.0	162																			
12.5	221	5																		
13.0	136	5																		
13.5	78	7	3	4																
14.0	19	4	16	5	2															
14.5		5	44	10	8															
15.0		3	52	14	12															
15.5		2	68	7	20															
16.0		1	43	1	9															
16.5			4																	
17.0																				
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	101	32	89	41	51							989	203	116	94	78			156	
Ns	743	32	230	41	51							5653	624	116	391	121			647	
n	2	2	2	3	1							18	5	6	3	2			3	

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5												2								
10.0												3								
10.5												5								
11.0	12											16								
11.5	12											105	23							
12.0	66											163	54	2	4					
12.5	123	4										166	43	6	7					
13.0	126	8			1			1				245	96	10	24					
13.5	153	13			5							189	56	11	39					
14.0	195	17			30							102	45	8	80					
14.5	162	17		2	42			1				42	32	4	56					
15.0	72	9			34			1				12	9	1	67					
15.5	3	4			19							3	2	1	38					
16.0				5	13									3	7					
16.5				5	1			1												
17.0				44																
17.5				44																
18.0				11																
18.5																				
19.0																				
19.5					2															
20.0					2															
20.5					2															
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	153	55		51	103			3	1		382	112		46	138					
Ns	921	72		117	146			3	1		1052	360		46	322					
n	3	2		1	2			1	1		8	2		1	3					

JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0													2							
10.5												3	6							
11.0												18	10		1					
11.5												49	2	1	18					
12.0												132	38	1	32					
12.5					19							264	147	19	21	3				
13.0	13				72							548	305	23	8	9				
13.5	183		2		186			1				618	343	11	11	4				
14.0	363		1		239			2				478	382	15	3	5				
14.5	393		4	1	208			7				266	247	50	5	2				
15.0	185		6		123			3				165	105	38	1					
15.5	73		7		42			2				72	28	28						
16.0	33		1		9			1				22	23	26						
16.5	23		1									12	5	11						
17.0	3											6	3	4						
17.5												5	3							
18.0																				
18.5													3							
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	207		20	1	261			16				814	511	96	76	23				
Ns	1270		22	1	898			16				2797	1653	224	101	23				
n	4		1	1	8			1				17	12	3	2	1				



AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0											1	4								
7.5												8								
8.0																				
8.5																				
9.0											6									
9.5											58									
10.0											41									
10.5											36	7								
11.0											81	27								
11.5											158	16								
12.0											225	56								
12.5											511	117								
13.0			2								1018	435	2							
13.5			4		7		2				1164	561	5							
14.0	1		4		35		6				773	495	7							
14.5			4		61		3				378	388	3							
15.0					50						180	227	3							
15.5					60						42	120								
16.0					27						12	5								
16.5					15															
17.0					1															
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	1		14		102		10				800	491	20							
Ns	1		14		257		11				4685	2464	20							
n	1		2		2		1				15	9	1							

SEPTEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0												1								
9.5												1								
10.0												3	1							
10.5												1								
11.0			1										1							
11.5			1		1			1			10		1							
12.0											52	78								
12.5			3								54	133		2				1		
13.0			10		1						199	147		6				5	9	
13.5			25		4						369	123						12	61	
14.0		1	19		18						581	90						24	89	
14.5		5	8		14						621	30						24	71	
15.0		14	2		12						407	24						14	28	
15.5		19			2						194	3						10		
16.0		9									27	1						2		
16.5		1									14							2		
17.0																				
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		49	67		52			1			435	119	3	8				93	55	
Ns		49	69		52			1			2527	635	3	8				94	259	
n		1	5		3			1			8	4	1	1				4	1	

OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5													1							
9.0													1							
9.5													1	1						
10.0																				
10.5													2	1						
11.0												16	1	1						
11.5												9		1					1	
12.0				1			1					64		1	1	1			1	
12.5							1					207	5							
13.0					4							381	41			8				
13.5		10		2	36		2					712	121		17				1	
14.0		27		8	90							920	235	1	33				1	
14.5		42		17	158		3					846	174	1	52				3	
15.0		41		19	184		7					539	147		58				2	
15.5		24		15	169		9					129	59		32				1	
16.0		9		2	48		4		1			77	24		9				1	
16.5		5		2	18		2						6		1				1	
17.0					8															
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		103		60	418		29		1			560	230	1	7	194			15	
Ns		157		66	714		29		1			3901	818	1	7	238			15	
n		2		4	12		4		1			10	6	1	3	5			1	

NOVEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0												1								
9.5												2								
10.0																				
10.5																				
11.0							1				29									
11.5				1			3				59	1								
12.0				31	4		3				29	14			2		1			
12.5				82	16		14				61	18	3	19		2				
13.0				91	7		18				53	29	21	66		4				
13.5				81	10		11				148	43	34	81		15				
14.0				69	28		9				153	67	42	129		29				
14.5				107	51		12				140	52	38	99		18				
15.0				108	64		13				123	17	9	64		18				
15.5				102	63		8				84	3	6	47		11				
16.0				55	43		9				4	1	3	25		5				
16.5				11	25		7						2	1		1				
17.0				1	13		1									1				
17.5					4											3				
18.0					1											2				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				423	290		109				168	115	78	203	110					
Ns				739	331		109				884	249	158	533	110					
n				15	18		5				3	10	2	10	5					

DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5													1							
10.0												9								
10.5											10	14								
11.0											32	178								
11.5											65	258		3						
12.0					7						37	168		5						
12.5				10	10			12			52	71	1	19		4				
13.0				53	20	17		14			44	49	5	65		4				
13.5				85	42	11		21			17	57	17	82		6				
14.0				134	53	59		23			15	75	36	183		4				
14.5				183	107	155		17			6	72	35	157		5				
15.0				267	136	230		10			5	77	26	167		2				
15.5				258	103	220					1	46	10	65						
16.0				119	45	70						20	3	30						
16.5				26	11	17								5						
17.0				16	3	5														
17.5				1									1							
18.0													3							
18.5													5							
19.0													1							
19.5													3							
20.0													1							
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				453	197	443		50			85	279	133	409		25				
Ns				1152	538	784		97			284	1109	133	780		25				
n				16	4	10		1			4	8	5	13		1				

# **SELAR CRUMENOPHTHALMUS**

*Selar crumenophthalmus*

JANUARY '93

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0											1	2								
7.5											7	5								
8.0											1	5		1						
8.5														1						
9.0													4							
9.5	2												1						2	
10.0		3																	2	
10.5		1											2							
11.0		1											10						2	
11.5		5											13							
12.0		3											6							
12.5		7		1										3						
13.0					1															
13.5			2	2		2							8		1					
14.0	2		4	5	2	1							15		1		1			
14.5			1	8	2						3	68	4	3					2	
15.0	4	11	2	13	3	1		2			9	203	13	34	1	1			10	
15.5	7	67	23	55	10	24		12			19	290	37	58	3				12	
16.0	18	147	75	132	41	43		11			11	222	32	76	1				22	
16.5	35	90	98	189	52	69		14			2	66	9	31	2				7	
17.0	22	38	21	77	34	26		3			1	16	2	5					15	3
17.5	9	3	3	15	9	19					1	4		1					5	12
18.0		8	3	18	1	7						3		1					2	12
18.5	4	3	1	6	2	2						1							2	9
19.0				1	1									1					2	1
19.5		8	3	5	10	2						4		5					2	1
20.0		11		4	10									4						1
20.5		5		6	5	1														
21.0		11		2	2									1						
21.5		11		2	1	1														
22.0		5		1																
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	57	169	122	421	127	149		39			58	562	85	216	7	2			50	
Ns	102	437	236	543	186	197		41			58	946	99	224	7	2			83	
n	2	4	3	17	6	8		2			2	16	3	10	1	1			1	

FEBRUARY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0											3									
8.5											3	2								
9.0											6									
9.5											2									
10.0		1									8	1								
10.5											8	2								
11.0		1						2			3	1								
11.5								4			2									
12.0								2			8									
12.5				3		1					8		1	1	2					
13.0								1			3	1			2					
13.5					2			1			2	1			1					
14.0		1	1					3			2	13			1					
14.5		1			2	4		1	1		18	2		10						
15.0		7	1	8	4	11		7	13	2	76	4	4	51	1					
15.5		15	8	40	16	27		7	22	6	91	31	11	78	9					
16.0		25	23	181	43	41		2	14	11	87	36	16	79	17					
16.5		38	40	203	64	51		1	9	6	59	14	7	42	17					
17.0		25	13	88	47	56		4	3	2	25	6	5	13	11					
17.5		2	24	5	17	54			1	2	12	1	1	11	3					
18.0		2	24	5	7	51								4	1					
18.5		1	28	3	3	24						2								
19.0			27	3		9						2								
19.5		1	5		5	16								1	1					
20.0			5	3	4	32						2		1	1					
20.5			7	5		22							1	2						
21.0						12							1							
21.5					1	10				1			1							
22.0						2														
22.5										1										
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		103	113	284	158	319		35	51	54	303	98	45	135	61					
Ns		120	206	546	216	425		36	67	87	395	98	45	296	62					
n		5	3	8	4	17		2	1	1	11	5	4	6	3					



MARCH 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5											1									
6.0												2								
6.5											1	4								
7.0													2							
7.5								2												
8.0								1												
8.5								1			2									
9.0				1							1	2	2	2						
9.5				1							3	5	2	2						
10.0												5	6							
10.5				2														3		
11.0				1																
11.5				5									7							
12.0				5									1							
12.5				2																
13.0											4	6	3							
13.5						3		4			4	6	2	2						
14.0		15		2		1		2			4		2	2						
14.5		25	1	4		5		10			4	6	7					9		
15.0		25	3	8	1	7		44			5	18	40	11				19		
15.5		6	7	26	7	16		82			8	48	127	83				38		
16.0		21	80	174	19	15		93			20	86	160	106	1			41		
16.5		48	191	298	22	13	1	94			31	136	116	107	5			33		
17.0		47	162	252	12	9		89			15	64	19	54	1			21		
17.5		18	33	120	8	9		53			20	44	9	14				31		
18.0		1		26	4	8		25			2	8	1	7				9		
18.5				22	2	9		10			8	4	2	3						
19.0				3	4	1		1			2	2	4	1				6		
19.5			3	6	7						7	2	6	3				9		
20.0			2	7	15	1					1		4	3				6		
20.5				1	13						1	2		2				3		
21.0				8	1			3				2						3		
21.5				1	4							4						3		
22.0																		3		
22.5												2								
23.0												2								
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		151	218	527	113	86	1	214			141	312	355	167	7	113				
Ns		206	482	974	119	96	1	502			143	454	521	404	7	238				
n		4	6	11	4	6	1	17			5	10	9	4	1	2				

APRIL 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5																				
11.0																				
11.5																				
12.0																				
12.5																				
13.0																				
13.5																				
14.0																				
14.5																				
15.0																				
15.5																				
16.0																				
16.5																				
17.0																				
17.5																				
18.0																				
18.5																				
19.0																				
19.5																				
20.0																				
20.5																				
21.0																				
21.5																				
22.0																				
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	1	281	369	277	3	83		185				328	538	148	56	14	34		95	
Ns	1	432	493	284	3	94		418				375	634	148	56	14	34		95	
n	1	8	72	12	1	4		6				12	17	5	2	1	1		3	

MAY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0											5									
6.5											6									
7.0											9									
7.5											4									
8.0											9									
8.5				1							7									
9.0				1							9	6								
9.5											32	10							4	
10.0		1		1							21	11		1					11	
10.5		2		2				1			24	31							13	
11.0				3				2			26	31		1	3				4	
11.5				1				7			12	65	4		3				3	
12.0		1		1				14			11	51	8	1	1				1	
12.5								10			16	21	3	1	1				2	
13.0		1		1				2			25	29	10	2	1				2	
13.5								5			17	26	11		4					
14.0				2				1			22	10	2		14				3	
14.5		1			1			8			10	6	2	1	14					
15.0		1			1			7			6	10	7	10	10					
15.5	2			1	7			3			17	29	17	17	5					
16.0	1	2	2	5	2			3			24	52	95	43	25					
16.5		14	10	33	34			9			39	61	114	74	19				20	
17.0	2	31	22	76	83			19			43	66	79	57	10				20	
17.5	9	24	10	67	58			14			42	32	42	24	8				18	
18.0	11	17		28	21			11			46	19	18	11	3				6	
18.5	10	11		3	6			1			33	11	17	3					7	
19.0	2	5		2	3						12		23	3	2				5	
19.5	1	7		6	2			3			22	3	26	3	1				1	
20.0		10		5	5						15	6	7	7						
20.5	1	5		1	1			2			14	5	5							
21.0		5						3			1	1	2							
21.5		9			4			2			2									
22.0		3			2			1												
22.5																				
23.0																				
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	39	113	39	215	144			104			516	327	341	125	124				120	
Ns	39	151	44	241	230			128			579	592	492	261	124				120	
n	2	4	2	8	4			5			17	9	7	5	4				3	

JUNE 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5												2								
6.0												3								
6.5												3								
7.0											13	12							1	
7.5											83	20							4	
8.0											142	90							8	
8.5	4							1			132	340	1						2	
9.0	102				1			4			185	246	1						5	
9.5	164				1			7	1		173	97			3				5	
10.0	127				1			5	6		105	3			1				4	
10.5	84							1	9		106	12			3				13	
11.0	25							8	6		98	18							22	
11.5	22				1			10	7		36	14							16	
12.0	4							22	12		15	7			1				10	
12.5					1			31	11		19	3			2				12	
13.0		4						28	12		2	7			1				1	
13.5		16						49	7			4			1				1	
14.0		22						16	7						2					
14.5		23		3	1			9	8			1	2	1					1	
15.0		12						2	4		2	23		6					2	
15.5	4	10		3	5			4	2		16	6	3	2	6				1	
16.0		8		15				10			15	3	9	6	7				6	
16.5		4		87	6			10			6	5	12	10	14				10	
17.0	7	9		220	25			7	1		11	16	11	12	27				6	
17.5	17	7		195	40			12	3		21	16	16	8	17				7	
18.0	18	6		117	60			15			21	7	10	4	5				3	
18.5	24	10		34	34			8			10	20	4	10					3	
19.0	4	6		15	11			2			27	4	9		5					
19.5	3	6		10	4			6			5	2	12		5				4	
20.0		9		15	1			9			4	1	8		1				4	
20.5		4		2	2			1					13		1				1	
21.0		4		9	4			9					7		1				3	
21.5		4			1			11					8		3					
22.0		2			1								4		1					
22.5					1			1												
23.0								4												
23.5								2												
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	119	101		309	123			237	72		438	255	77	49	117				134	
Ns	609	166		724	199			306	96		1247	986	133	49	117				155	
n	3	2		6	6			10	2		8	5	3	2	4				4	

JULY 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5												5								
7.0												2								
7.5												12	2							
8.0			1									20	5							
8.5				1							2	7	19	8						
9.0			1	1								3	26	8						
9.5			1	1	1						2	3	16	2						
10.0	1			1							2	31	13	11						
10.5	1			2							37	109	42	9						
11.0	1			5				37			157	257	81	12						
11.5	5			4	2			66			239	285	101							
12.0	7		2	10	1			78			168	162	60	1						
12.5	21		5	7				56			77	52	11		1					
13.0	18		3	1				39			47	62	6							
13.5	18		1		1			32			23	22	1							
14.0			1	1				11			16	7	4	1	1			4		
14.5	1		6	1	2			2			14	10	5		2			2		
15.0			7	2	5			5			21	13	11	8	2					
15.5			5	3	2			9			10	25	8	8	2			2		
16.0			2	1	3			9			10	11	16	20	3			2		
16.5	3		5	9	4			12			17	36	3	23	8			1		
17.0			14	14	8			22			20	57	14	35	12					
17.5			11	14	33			13			47	72	17	68	29			2		
18.0	1		5	39	49			9			56	80	29	46	37			4		
18.5	1		6	104	41			2			43	31	8	32	41			3		
19.0	1		6	109	2						22	40	9	17	17					
19.5			7	61	2			3			18	46	3	5	18					
20.0			3	21				6			7	41	9	9	6					
20.5			4	17				1			6	31	2	10	6					
21.0			4	12	1			2			3	8	1	8	2					
21.5			4	4	1							4	1	3	1					
22.0				3										1						
22.5			1																	
23.0					1															
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	79		103	337	137			225			642	592	222	200	130			20		
Ns	79		105	451	160			414			1061	1544	521	342	188			21		
n	4		6	15	9			7			17	12	8	8	4			1		

AUGUST 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0												2								
6.5												2								
7.0												5		1						
7.5												3		7						
8.0				6								7		7	2					
8.5				10								37	6	18	2					
9.0			7	18								47	9	25	1					
9.5			21	19								50	5	25	3					
10.0			44	28								48	9	15	2					
10.5			51	31					5			27	8	34	6					
11.0			27	34					5			24	3	47	4					
11.5			27	34					2			56	38	41	5					
12.0			38	41					1			136	64	27	17					
12.5			40	41	1							124	94	32	10					
13.0	1		18	25	1							61	58	24	7					
13.5			6	3				3				22	25	42	13					
14.0	2		18	3				15				13	22	26	10					
14.5	1		8	6				27				4	5	29	4					
15.0	2		14	4				20				8	11	10	9					
15.5	2		9	7				4				8	15	9	8					
16.0	3		7	12	1							5	11	2	11					
16.5	1		6	17								4	16	2	14					
17.0			2	15	3							1	13	1	12					
17.5			4	10	1							5	21	8	16					
18.0	3		7	12	2							3	37	10	48					
18.5	10		10	47	7							1	15	5	18					
19.0	11		10	47	14							1	9	15	7					
19.5	4		29	40	3								2	5	3					
20.0	3		19	4	1									18	3					
20.5	1		9	12	5								1	19	2					
21.0	2		12	3	1								2	14	1					
21.5	1		4	9	1							2	2	18	3					
22.0				1								2		14	2					
22.5				1										5	1					
23.0														7						
23.5														2						
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm	45		400	397	39			51	13			564	349	415	189					
Ns	49		446	540	41			69	13			709	501	565	245					
n	1		16	12	5			1	1			15	9	13	7					

SEPTEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0														1						
7.5																				
8.0																				
8.5																				
9.0														1						
9.5														1						
10.0								9					3	1						
10.5			3					13				5	2	4					2	
11.0			9					16				12	2	17					8	
11.5			20					11				8	5	27					11	
12.0			22				3	4				14	15	37					4	
12.5		10	46				4	8				10	16	40					3	
13.0		67	33				10	6				12	6	30					1	
13.5		102	38				42	16				45	2	9					5	
14.0		61	8		1		47	16				51	2	3	1				4	1
14.5		15	4		1		24	13				29	5	1				5	4	
15.0							21	4				14	3	1	1			5	4	
15.5					12		26	5				4	2					2	1	
16.0			2		5		14	6				5	3	2					1	
16.5		5	2		6		3	2				2							1	
17.0			2		6			1				3							3	
17.5			2									13							2	
18.0					3							10							3	
18.5			8		1							20							3	
19.0			12		4			2				17		2						
19.5			7		2			1				11		3					1	
20.0			9		3							6	1						1	
20.5			11		1							5	1	2						
21.0			19									3							1	
21.5			25											3					1	
22.0			20											2						
22.5			2																	
23.0			4																	
23.5																				
24.0																				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		51	167		44		131	122				234	71	160	2			12	64	1
Ns		261	306		46		192	133				299	71	185	2			12	64	1
n		1	7		3		7	5				7	4	7	1			1	3	1

OCTOBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5																				
8.0																				
8.5																				
9.0																				
9.5																				
10.0																				
10.5								3												
11.0								10	1											
11.5								13	3					5						
12.0								30					2	4					2	
12.5								43	2	3	2	5							2	
13.0							2	43	3	12	2	14		1					1	
13.5	1						2	18	2	24	11	23	11	2		1			1	
14.0	5						2	6		29	16	35	12	3					1	
14.5	24						3	1		39	11	17	38	8						
15.0	16						1	1		17	5	11	33	6		1			2	
15.5	8		1	1			2	1		10	3	6	49	3					1	
16.0	1		1	1				1		4	1	5	27	5						
16.5	6		12	5			2			5		2	15	3						
17.0	6		6	12			1			3			4	1						
17.5	4		2	13						12				3						
18.0	2			7						15	1		4							
18.5				2			1			22			4							
19.0										15				2						
19.5										13	1		4	1						
20.0							1			14									2	
20.5							1			12	1		4	1		2				
21.0							1			3				5		2				
21.5										2			4	2		3				
22.0					1					2				4		1				
22.5							1			1			4	2		2				
23.0																			1	
23.5										1										
24.0							1									1				
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm		73		22	42		21	153	11	258	56	117	59	53		15		10		
Ns		73		22	43		21	172	11	256	56	128	213	53		15		10		
n		3		1	8		7	4	1	10	8	7	4	2		2		1		



NOVEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5												1								
6.0												3								
6.5											1	5								
7.0											1	14						1		
7.5											6	7						1		
8.0											9	10						2		
8.5											7	15						1		
9.0											15	12						1		
9.5											17	4		1						
10.0											15	8								
10.5											3	3								
11.0											3	4								
11.5											1									
12.0												8								
12.5												2								
13.0												5	1							
13.5											1	4		2						
14.0											4	4	10	8	1			2		
14.5				3							18	17	8	23	3			4		
15.0				7	3		1				32	46	6	20	6		15			
15.5				13	3		2				29	55		16	7		13			
16.0				26	3		11				17	29		9	6		10			
16.5				27	10		9				12	23		12	9		3			
17.0				27	10		15				9	11		8	9					
17.5				18	16		6				9	11		3	2					
18.0				8	13		4				6	7		3	5		3			
18.5				4	15		1				4	10		1	3		2			
19.0				2	5						5	9		3	2					
19.5				2	9						2	6		4	5					
20.0					10						1	4		1	1					
20.5				1	8		2				1			1	4					
21.0				1	1							6		2	3					
21.5					1						1	3			6					
22.0												2		1	3					
22.5							1								3					
23.0																				
23.5					1															
24.0					2															
24.5					1															
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				139	111		52				189	326	25	116	78		58			
Ns				139	110		52				227	344	25	119	78		59			
n				12	10		4				8	15	2	10	8		3			

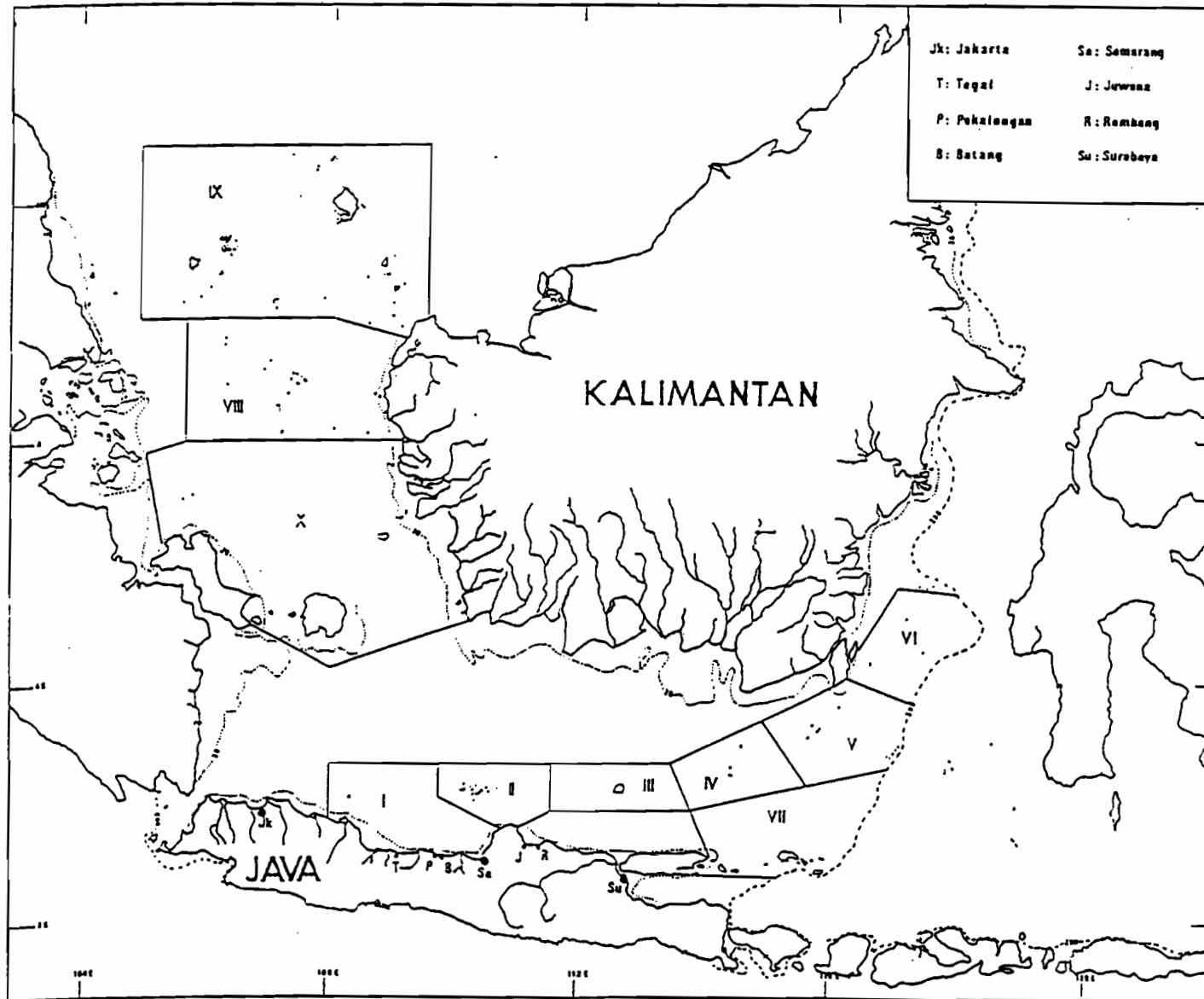
DECEMBER 1993

FL (cm)	LARGE SEINERS										MEDIUM SEINERS									
	FISHING ZONES																			
	I	II	III	IV	V	VI	VII	VIII	IX	X	I	II	III	IV	V	VI	VII	VIII	IX	X
5.0																				
5.5																				
6.0																				
6.5																				
7.0																				
7.5													3							
8.0													8							
8.5													4							
9.0												1	9							
9.5												1	9							
10.0						1						1	11							
10.5												1	14							
11.0												3	10	1	1					
11.5												2	5							
12.0												1	5							
12.5						1							1							
13.0												1	1							
13.5													2		6					
14.0				1	1	1						1	6	4	14					
14.5				2				1				5	15	18	25					
15.0				1	5	1		3				20	48	18	60					
15.5				21	13	6		3				28	60	24	54					
16.0				31	16	6						24	47	15	31					
16.5				24	8	16						13	22	7	20		2			
17.0				18	1	16						7	9	2	10		2			
17.5				1		18						4	3	8	14					
18.0						13							9	2	14		2			
18.5						7						5	9	2	11		4			
19.0					1	11							9	3	17					
19.5					1	9						1	11	6	8					
20.0					2	2						2	11	1	10					
20.5						1							5	1	2					
21.0												1	5		2					
21.5						2						1	7		6					
22.0													2		7					
22.5													1		2					
23.0																				
23.5																				
24.0															1					
24.5																				
25.0																				
25.5																				
26.0																				
26.5																				
27.0																				
27.5																				
Nm				90	48	111		7				124	345	112	328		10			
Ns				99	48	111		7				124	363	112	328		10			
n				8	4	8		1				4	13	4	15		1			

# ANNEXES

**ANNEX I**

LOCATION AND NAMES OF THE FISHING GROUNDS WITH THE MAIN  
ISLANDS IDENTIFIED FOR THE SAMPLING



Peta daerah penangkapan yang ditentukan proyek dan lokasi pendaratan armada kapal.

Map of the fishing grounds defined by the project and location of the landing places of the fleet.

## FISHING GROUNDS OF THE PURSE SEINERS

### FISHING GROUNDS LOCATED IN THE JAVA SEA

#### CENTRAL JAVA

- I - NORTH TEGAL  
- P. Rakit - P. Biawak
- II - KARIMUNJAWA  
- P. Bengkoang - P. Kembar  
- P. Parang - P. Nyamuk  
- P. Kemujan - P. Genting  
- P. Karimunjava - P. Gendikian  
- P. Menjangan - P. Gundul  
- P. Menyawakan - P. Tengah  
- P. Burung - P. Krakat  
- P. Cemara
- III - BAWEAN  
- P. Nusa - p. Menuri  
- P. Gule - P. Noko  
- P. Manukan - Karang gosong

#### EAST JAVA

- IV - MASALEMBO  
- P. Masalembo kecil - P. Masalembo besar  
- P. Karamian - P. Mare-mare  
- P. Tokang
- V - MATASIRI  
- P. Kalambau - P. Matasiri  
- P. Kadapangan - P. Laut kecil  
- P. Marabatua - P. Birahbirahan  
- P. Kunyit - P. Sumber geleng  
- P. Lima
- VII - KANGEAN  
- P. Sepanjang - P. Kangean  
- P. Sebuntan - P. Sapankur  
- P. Sidlangbesar - P. Peperungan  
- P. Paliat - P. Seel  
- P. Araan - P. Sekala  
- P. Sapudi - P. Puteran  
- P. Raas - P. Goagoa  
- P. Bulumanuk - P. Kamudi  
- Pemanukan

FISHING GROUNDS LOCATED IN THE MAKASSAR STRAIT

VI - SUMBER GELAP

- |                  |                   |
|------------------|-------------------|
| - P. Laut        | - P. Sumber gelap |
| - P. Takatalu    | - P. Balabalangan |
| - P. Lari-larian | - P. Lumu-lumu    |
| - Tk Pamukan     | - P. Sebuku       |
| - Batulicin      | - P. Samataha     |
| - Karang grogot  |                   |

FISHING GROUNDS LOCATED IN THE SOUTH CHINA SEA

VIII - PEJANTAN

- |                |                      |
|----------------|----------------------|
| - P. Datu      | - P. Temaju          |
| - P. Burung    | - P. Lemukutan       |
| - P. Pengiki   | - P. Badas           |
| - P. Jangkulan | - P. Benua           |
| - P. Tambelan  | - P. Tongkong kemudi |
| - P. Dumdum    | - P. Mendarik        |
| - P. Kayu air  | - P. Pengibu         |
| - P. Pejantan  |                      |

IX - NATUNA

- |                 |                  |
|-----------------|------------------|
| - P. Malu       | - P. Serasan     |
| - P. Seraya     | - P. Panjang     |
| - P. Subi kecil | - P. Subi besar  |
| - P. Midai      | - P. Timau       |
| - P. Dupere     | - P. Sedanau     |
| - P. Salor      | - P. Bunguran    |
| - P. Seluan     | - P. Semion      |
| - P. Sekatung   | - P. laut        |
| - P. Matak      | - P. Mubur       |
| - P. Tarempa    | - P. Siantan     |
| - P. Mangkai    | - P. Jemaja      |
| - P. Damar      | - P. Air abu     |
| - P. Bawah      | - P. Malang biru |
| - P. Muri       | - P. Tokongboro  |
| - P. Repong     | - P. Ritan       |
| - P. Gendeng    |                  |

X - BANGKA

- |            |               |
|------------|---------------|
| - P. Riau  | - P. Bangka   |
| - P. Tuju  | - P. Belitung |
| - P. Dokan | - P. Toty     |

**ANNEX II**

**SHEETS USED BY THE PROJECT FOR LENGTH FREQUENCIES STUDIES**

**A- ON THE FIELD**

**B- TO ENTER IN THE COMPUTER**



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
ORSTOM - BPPL																										Code	No.		
Java Sea Pelagic Fishery Assessment Project																													

A

# B

BULAN/TAHUN:  
 PELABUHAN :

## SAMPLING AND LENGTH FREQUENCY MEASUREMENTS

KAPAL 1

KAPAL 2

Tgl.datang:
D A S :
VESSEL :
F. GROUND:

Tgl.datang:
D A S :
VESSEL :
F. GROUND:

	1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10	
F L											F L											
10,0											10,0											
10,5											10,5											
11,0											11,0											
11,5											11,5											
12,0											12,0											
12,5											12,5											
13,0											13,0											
13,5											13,5											
14,0											14,0											
14,5											14,5											
15,0											15,0											
15,5											15,5											
16,0											16,0											
16,5											16,5											
17,0											17,0											
17,5											17,5											
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21,5											21,5											
22,0											22,0											
22,5											22,5											
23,0											23,0											
23,5											23,5											
24,0											24,0											
24,5											24,5											
25,0											25,0											
n											n											
Ns											Ns											
Ws											Ws											
Catch											Catch											
Asin:Segar =											Asin:Segar =											

1: Layang 2: deles 3: Banyar 4: Siro 5: Bentong  
 6: Tanjung gepeng 7: Tanjan bulat 8: Japuh 9: Selar 10: ..

## TERMS USED IN THE SHEET B

Bulan	Month
Tahun	Year
Pelabuhan	Landing place
Kapal	Vessel
Tgl. datang	Date of arrival
DAS	Days at sea

n	Number of fish measured
Ns	Number of fish in the sample
Ws	Weight of the sample
Catch	Catch of the sampled vessel
Asin	Salted fish
Segar	Fresh fish

## SPECIES OF FISH SAMPLED

1: Layang	<i>Decapterus russelli</i>
2: Deles	<i>Decapterus macrosoma</i>
3: Banyar	<i>Rastrelliger kanagurta</i>
4: Siro	<i>Amblygaster sirm</i>
5: Bentong	<i>Selar crumenophthalmus</i>
6: Tanjung gepang	<i>Sardinella gibbosa</i>
7: Tanjung bulat	<i>Sardinella fimbriata</i>
8: Japuh	<i>Dussumieria acuta</i>
9: Selar	<i>Selaroides leptolepis</i>
10:	<i>Other species</i>