KING AND SPANISH MACKEREL MIGRATION AND STOCK ASSESSMENT STUDY IN THE SOUTHERN GULF OF MEXICO

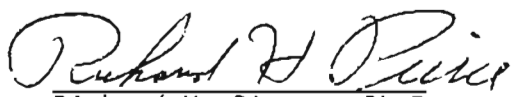
Contract No. NA90AA-H-MF 752 (MARFIN)
1991 Quarter V (October 1 - December 31, 1991) Report

Submitted to:

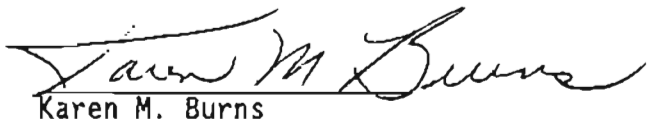
Dr. Donald Ekberg
Regional Director
National Marine Fisheries Service
Duval Building
9450 Koger Boulevard
St. Petersburg, FL 33702

Submitted by:

Mote Marine Laboratory
1600 Thompson Parkway
Sarasota,FL 34236
(813) 388-4441



Richard H. Pierce, Ph.D
Director of Research



Karen M. Burns
Principal Investigator

Jay M. Sprinkel
Data Manager

Mote Marine Laboratory Technical Report Number 238

January 31, 1992

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

The authors would like to thank Dr. Kumar Mahadavan, Dr. Richard Pierce, Marion Hersey, Teresa DeBruler, Anthony Dreifuss, Victoria Devine and Francesann Logan of Mote Marine Laboratory for their assistance.

Thanks are also extended to Mr. Eugene Nakamura, Mr. William Fable, Mr. Allen Collins and Ms. Barbara Palko of NMFS-Panama City.

Special thanks to Director Myrna Wong and Dilio Fuentes of INP-Mexico City, Director Javier Soto, Biol. Mauriso Garduño, and Tec. Raúl Lope of CRIP-Yucalpetén, and the owners and staff of the fish house Atlántida del Sur in Mérida.

PREFACE

The following information constitutes the Quarter V (October I, 1991 - December 31, 1991) Report by Mote Marine Laboratory (MML) on the 1991 King and Spanish Mackerel Migration and Stock Assessment Study in the Southern Gulf of Mexico.

This project is being conducted by Mote Marine Laboratory with funding from the MARFIN Program and under the auspices of the MEX-US Gulf Agreement. This report covers the period beginning October I, 1991, and ending December 31, 1991.

Presentations are made by task, beginning with movement and migration of mackerel, followed by length/frequency and CPUE data for mackerel, historical landings data and stock identification.

Each task presentation follows the format developed by NOAA/NMFS Panama City Laboratory and Mote Marine Laboratory.

PREFACIO

La siguente información constituye el Informe V del Trimestre (1 Octubre-31 Diciembre 1991) sobre el estudio King and Spanish Mackerel Migration and Stock Assessment in the Southern Gulf of Mexico. Este proyecto esta siendo conducido por Mote Marine Laboratory con la patrocinación del programa MARFIN y abajo del acuerdo de MEX-US GOLFO. Este informe cubre el periodo comenzando en 1 Octubre 1991 y terminando en 31 Diciembre 1991.

La presentación es hecha por tarea, comenzando con movimiento y emigratión de la macarela, seguido por longitud/frequencia y datos de CPUE por macarela y los datos históricos sobre captura y la identificación de los estockes.

La presentación de cada tarea sigue el formato desarrollado por NOAA/NMFS, Panama City y Mote Marine Laboratory.

INTRODUCTION

This study was undertaken as part of an attempt to understand the migration and stock identity of the king mackerel, *Scomberomorus cavalla*, and the Spanish mackerel, *S. maculatus*, in the Gulf of Mexico. This study is funded by the MARFIN Program. Mote Marine Laboratory (MML) works under the MEX-US Gulf Agreement to report length/frequency distributions and catch per unit effort (CPUE) information, to obtain specimens for electrophoresis and to tag Spanish mackerel at specific Mexican locations (Figure 1).

These locations were chosen so that the tagging effort would correspond with mackerel migration patterns off Mexico. Tagging efforts were concentrated off the Yucatán Peninsula during the winter of 1991 (Figure 2).

This report outlines MML's success in achieving the above-mentioned goals.

INTRODUCCION

Como parte de un intento a entender la emigración y identidad de los estockes de peto (carito) *Scomberomorus cavalla* y sierra, *S. maculatus*, en el Golfo de México (SEFC) Panama City Laboratory bajo del Programa MARFIN, contrató con Mote Marine Laboratory (MML) a trabajar con el Instituto Nacional de la Pesca (INP) Méxicano, bajo del acuerdo de *MEX-US GOLFO*. Con la *finalidad de* reportar datos históricos sobre captura y otra información pertinente, obtener especímenes para electroforesis y marcar sierra en localidades mexicanas especificas (Figura 1).

Estas localidades fueron escogidas de tal manera que el esfuerzo para marcar correspondiera con el patron de emigración de la macarela en México. Los esfuerzos para marcar se concentraron en Yucatán durante el invierno de 1991 (Figura 2).

Este informe delínea el éxito de MML para alcanzar las metas mencionadas anteriormente.

Figure 1. Spanish Mackerel Tag Release Locations, 1991 (☼).

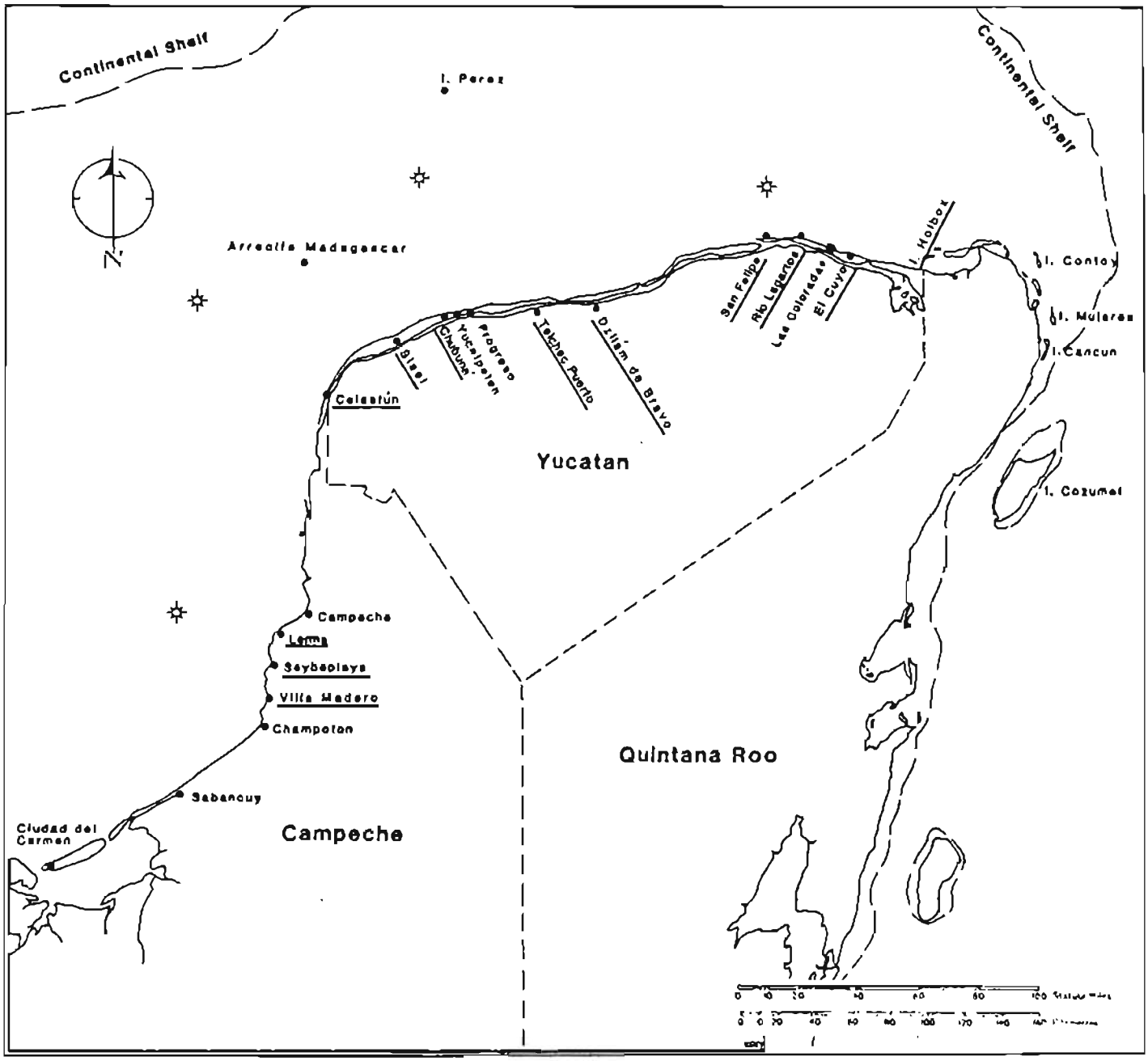


Figure 2. Mackerel length/frequency and catch per unit effort (CPUE) locations (___) and important Mackerel tag release locations (☼).

I. MOVEMENT AND MIGRATION OF MACKEREL

A. Tagging Synopsis

MML personnel left November 6th for Mexico. No fish were tagged during Quarter V. Although high winds and rough seas caused by weather fronts are common off Yucatán during the winter, this year's weather was the worst experienced by MML personnel in six years. Back-to-back weather fronts prevented MML personnel from being able to get out to the fishing grounds to tag. The weather was so severe that, for two weeks before the arrival of MML personnel and for various days during their stay, no fisheries products of any type were available. Fishermen often were unable to fish even for those species found close to shore because of perilous sea conditions.

Supplies and tags were left with CRIP-Yucalpetén personnel. If weather conditions permit, they will attempt to tag Spanish mackerel off Celestún, Yucatán, during the month(s) of January and/or February. A synopsis of their efforts will be included in the final report.

B. Tag Returns

No mackerel tags were returned during Quarter V. Table 1 lists all king and Spanish mackerel tag returns obtained by MML from 1986-present.

Tag returns in numerical order are presented in Appendix 2.

Table 1. King (KM) and Spanish (SM) mackerel returns from Mexico 1986-1991

Tag #	Sp	Release Date	Capture Date	Days of Freedom	Distance (miles)	Capture Area	Sub-Area
FLORIDA							
5141	KM	06-Sep-88	02-Aug-91	1060	1375	VER	BOCA DEL RIO
15286	KM	03-Sep-86	-Feb-89	"896"	1390	CAM	ISLA AGUADA
LOUISIANA							
12099	KM	25-Jun-85	15-Feb-86	235	1340	CAM	C.CARMEN
16383	KM	26-Sep-87	20-Apr-88	207	1140	VER	VERACRUZ
TEXAS							
E46301	KM	19-Jun-90	12-Dec-90	176	740	VER	COATZACOALCOS
E46335	KM	16-Aug-90	17-Jan-91	154	1100	CAM	SABANCUY
E46361	KM	29-Jul-90	21-Nov-90	115	740	VER	COATZACOALCOS
9146	KM	28-Jun-87	29-Jan-91	1311	578	VER	LA BLANQUILLE

10729	KM	24-Jun-87	21-Oct-87	119	1200	YUC	TELCHAC
12425	KM	29-Aug-87	09-Dec-87	102	800	VER	ALVARADO
14003	KM	14-Jun-88	22-Mar-90	646	600	VER	TECOLUTLA
14005	KM	14-Jun-88	01-Feb-89	232		CAM	UNK
14016	KM	15-Aug-88	14-Sep-89	395	425	VER	TECOLUTLA
14112	KM	20-Jul-87	25-Mar-88	249	870	CAM	SEYBAPLAYA
14122	KM	20-Jul-87	18-Jan-90	913	600	VER	ANTON LIZARDO
14131	KM	23-Jul-87	26-Aug-89	765	770	VER	ANTON LIZARDO
14479	KM	18-Aug-86	10-Feb-87	176	640	VER	VERACRUZ
15511	KM	20-Aug-87	31-Oct-87	72	525	VER	TECOLUTLA
15513	KM	20-Aug-87	21-May-88	275	680	VER	ALVARADO
15972	KM	SUMMER 87	09-Apr-88			VER	ALVARADO
15990	SM	09-Oct-87	30-Nov-87	52	500	VER	ARBOLI
17163	KM	07-Aug-87	04-Sep-89	759	400	TAM	TAMPICO
17273	KM	12-Aug-88	29-Dec-88	139	1020	CAM	SEYBAPLAYA
17419	KM	03-Jul-88	07-Feb-89	219	1140	YUC	P. PALMER
17421	KM	03-Jul-88	09-Jul-89	371	400	TAM	TAMPICO
17435	KM	28-Jul-88	02-May-89	278	630	VER	CHACHALACUS
17462	KM	01-Aug-88	13-Feb-89	196	600	VER	NAUTLA
TAMAULIPAS							
13723	KM	29-Apr-87	04-Feb-88	281	560	CAM	ISLA AGUADA
13820	KM	18-May-87	06-Dec-87	202	300	VER	ALVARADO
13856	KM	22-May-87	25-Jan-89	614	570	CAM	ISLA AGUADA
13857	KM	22-May-87	14-Apr-89	693	160	VER	LA ANTIGUA
VERACRUZ							
10002	KM	18-Apr-85	27-May-85	39	5	VER	BOCA DEL RIO
10050	KM	20-Apr-85	25-May-85	35	5	VER	BOCA DEL RIO
10071	KM	19-Apr-85	15-May-85	26	10	VER	VERACRUZ
10085	KM	19-Apr-85	17-May-85	28	40	VER	ALVARADO
10381	KM	02-May-85	06-May-86	369	20	VER	CHACHALACAS
10417	KM	05-May-85	13-May-85	8	5	VER	BOCA DEL RIO
10422	KM	05-May-85	10-Apr-86	340	5	VER	ISLA DE AMOR
10426	KM	05-May-85	12-May-88	1103	5	VER	VERACRUZ
10988	KM	05-May-89	12-May-89	7	40	VER	ALVARADO
11064	KM	28-May-87	30-May-87	2	50	VER	ALVARADO
11073	KM	29-May-87	03-Aug-87	66	15	VER	BARRANCAS
11074	KM	29-May-87	08-Jun-87	10	0	VER	BARRANCAS
11081	KM	29-May-87	27-Jul-87	59	15	VER	BOCA DEL RIO
11082	KM	29-May-87	16-Jun-87	18	10	VER	A.LIZARDO
11089	KM	10-May-89	02-May-90	357	15	VER	ALVARADO
11344	KM	11-May-89	26-Nov-89	199	10	VER	ALVARADO
11442	KM	21-May-87	02-Jun-87	12	50	VER	ALVARADO
11444	KM	21-May-87	29-May-87	8	10	VER	ALVARADO
11450	KM	21-May-87	18-Sep-87	120	450	YUC	TELCHAC
11455	KM	22-May-87	30-May-87	8	0	VER	BARRANCAS
11468	KM	22-May-87	15-Jun-87	24	0	VER	BARRANCAS
11469	KM	22-May-87	18-Feb-88	272	450	YUC	CHUBURNA
11472	KM	22-May-87	12-Jun-87	21	40	VER	ALVARADO
11473	KM	22-May-87	23-Dec-87	215	450	YUC	CELESTUN
11481	KM	21-May-87	25-May-87	4	40	VER	ALVARADO
11493	KM	22-May-87	15-Jun-87	24	15	VER	ANBOLI
11806	KM	16-Apr-86	30-Apr-86	14	UNK	VER	SANTIA

11816	KM	18-Apr-86	30-Apr-87	377	15	VER	A.LIZARDO
11904	KM	24-Apr-86	20-Jun-86	57	625	TEX	P.ARANSAS
11909	KM	30-Apr-86	31-Mar-88	701	15	VER	BARRANCAS
11912	KM	30-Apr-86	03-Mar-87	307	10	VER	A.LIZARDO
11947	SM	24-Apr-86	22-May-86	28	5	VER	BOCA DEL RIO
11977	KM	30-Apr-86	21-Jun-86	52	50	VER	ALVARADO
11991	KM	30-Apr-86	02-Dec-86	216	450	YUC	P.PALMAR
13029	KM	02-May-89	18-Aug-89	108	10	VER	ALVARADO
13031	KM	02-May-89	09-May-89	7	40	VER	ALVARADO
13067	KM	02-May-89	21-May-90	384	5	VER	ANTON LIZARDO
13081	KM	29-Apr-89	15-Feb-90	292	120	VER	TECOLUTLA
13082	KM	29-Apr-89	18-Nov-89	203	10	VER	ALVARADO
13101	KM	03-May-89	29-Jun-90	422	1	VER	LA CUELA
13252	KM	20-May-87	20-Aug-87	92	20	VER	VERACRUZ
13255	KM	20-May-87	09-May-90	1085	0	VER	ANTON LIZARDO
13292	KM	12-May-87	20-May-87	8	40	VER	ALVARADO
13313	KM	02-May-87	29-Jan-89	638	220	VER	COATZACO
13317	KM	02-May-87	31-Aug-87	121	260	TAM	TAMPACHICHI
13329	KM	04-May-87	23-Dec-87	233	50	VER	ALVARADO
13471	KM	15-May-87	16-May-87	1	40	VER	SALINAS
13489	KM	16-May-87	16-Jun-87	31	40	VER	ALVARADO
13508	KM	03-May-89	22-Apr-90	354	20	VER	LERDO TEJADA
13525	KM	05-May-89	22-Apr-90	352	60	VER	COATZACOALCOS
13531	KM	09-May-89	06-Sep-89	120	15	VER	VERACRUZ
13540	KM	03-May-89	11-Jul-89	69	450	CAM	SEYBAPLAYA
13545	KM	03-May-89	02-Nov-90	548	1	VER	ARBOLINO
13562	KM	03-May-89	22-Aug-89	111	10	VER	ALVARADO
13574	KM	08-May-89	23-May-89	15	0	VER	BARRANCAS
13578	KM	08-May-89	15-Jul-90	433	1	VER	CABEZOS
13598	KM	08-May-89	01-Jun-89	24	10	VER	ALVARADO
13602	KM	02-May-89	18-Aug-90	473	8	VER	SALINAS
13606	KM	02-May-89	18-Aug-89	108	40	VER	ALVARADO
13614	KM	02-May-89	03-May-89	1	0	VER	BARRANCAS
13620	KM	28-Oct-79	01-Feb-85	1923	600	YUC	PUERTO TELCHAC
13637	KM	03-May-89	05-Aug-89	94	5	VER	ANTON LIZARDO
13686	KM	09-May-89	23-Mar-90	318	60	VER	COATZACOALCOS
13700	KM	09-May-89	16-Feb-90	283	2	VER	ANTON LIZARDO
13749	KM	09-May-89	13-Jul-90	430	255	TAM	DEL RIO PANUCA
13790	KM	16-May-87	18-Jun-87	33	5	VER	BOCA DEL RIO
13955	KM	09-May-89	29-Jun-89	51	10	VER	BOCA DEL RIO
21640	SM	05-Mar-91	06-Mar-91	1	1	VER	LA SALERNA
24214	SM	23-Apr-90	07-May-90	14	1	VER	BOCA DEL RIO
24230	SM	26-Apr-90	27-Apr-90	1	1	VER	BOCA DEL RIO
24261	SM	04-May-90	14-May-90	10	15	VER	ALVARADO
24274	SM	04-Mar-91	05-Mar-91	1	13	VER	LAS BARRANCAS
24525	KM	02-May-88	19-May-88	17	40	VER	ALVARADO
24529	KM	04-May-88	06-May-88	2	40	VER	ALVARADO
24531	KM	04-May-88	22-May-88	18	40	VER	ALVARADO
24545	KM	05-May-88	07-Jun-88	33	40	VER	ALVARADO
24546	KM	05-May-88	17-May-88	12	40	VER	ALVARADO
24553	KM	06-May-88	17-May-88	11	40	VER	ALVARADO
24555	KM	06-May-88	17-May-88	11	40	VER	ALVARADO

24557	KM	06-May-88	17-May-88	11	40	VER	ALVARADO
24562	KM	06-May-88	14-May-88	8	40	VER	ALVARADO
24565	KM	06-May-88	18-May-88	12	40	VER	ALVARADO
24566	KM	06-May-88	14-May-88	8	120	VER	CASITAS
24567	KM	06-May-88	18-May-88	12	40	VER	ALVARADO
24572	KM	07-May-88	07-Jul-88	61	85	VER	COATZACOALCOS
24588	KM	17-May-88	09-Jun-88	23	40	VER	ALVARADO
24591	KM	17-May-88	02-Jun-88	16	40	VER	ALVARADO
24596	KM	17-May-88	18-May-88	1	40	VER	ALVARADO
24598	KM	18-May-88	24-Aug-88	98	3	VER	VERACRUZ
24630	KM	03-May-88	10-Jul-89	433	900	LA	CAMERON
24634	KM	03-May-88	07-Jun-88	35	40	VER	ALVARADO
24635	KM	03-May-88	17-May-88	14	40	VER	ALVARADO
24647	KM	04-May-88	19-May-88	15	40	VER	ALVARADO
24704	SM	29-Mar-90	30-Mar-90	1	1	VER	BOCA DEL RIO
24713	*SM*	*30-Mar-90*	*01-Apr-90*	*2*	*1*	*VER*	*MOCAMBO*
24724	SM	05-Apr-90	10-Jun-90	66	5	VER	ANTON LIZARDO
24725	SM	05-Apr-90	16-Apr-90	11	1	VER	BOCA DEL RIO
24759	KM	07-May-88	11-May-88	4	40	VER	ALVARADO
24762	KM	07-May-88	28-Jun-88	52	50	VER	LERDO TEJADA
24763	KM	07-May-88	09-Jun-88	33	10	VER	BOCA DEL RIO
24767	SM	05-Apr-90	06-Apr-90	1	1	VER	BOCA DEL RIO
24776	KM	17-May-88	28-Aug-88	103	20	VER	CARAEL
24777	KM	18-May-88	27-Mar-90	678	60	VER	COATZACOALCOS
24784	KM	18-May-88	02-Jul-88	45	0	VER	BARRANCAS
24796	KM	23-May-88	10-Mar-89	291	570	YUC	CELESTUN
24810	SM	21-Mar-90	24-Mar-90	3	7	VER	BARRANCAS
24840	KM	17-May-88	26-May-88	9	40	VER	ALVARADO
24845	KM	19-May-88	28-May-88	9	50	VER	ALVARADO
24846	SM	22-Mar-90	24-Mar-90	2	1	VER	VERACRUZ
24895	KM	05-May-88	17-May-88	12	40	VER	ALVARADO
24903	KM	02-May-88	18-May-88	16	40	VER	ALVARADO
24917	KM	04-May-88	06-Jun-88	33	0	VER	BARRANCAS
24919	KM	05-May-88	25-May-88	20	40	VER	ALVARADO
24919	SM	10-Apr-90	12-Apr-90	2	15	VER	ALVARADO
24928	KM	06-May-88	10-Jun-88	35	5	VER	A.LIZARDO
24929	KM	06-May-88	02-Jun-88	27	50	VER	ALVARADO
24933	KM	06-May-88	22-May-88	16	10	VER	BOCA DEL RIO
24934	KM	06-May-88	20-May-88	14	10	VER	BOCA DEL RIO
24947	SM	19-Apr-90	21-Apr-90	2	1	VER	VERACRUZ
24950	KM	18-May-88	14-Apr-89	331	10	VER	A.LIZARDO
24952	KM	05-May-88	17-May-88	12	0	VER	BARRANCAS
24954	KM	05-May-88	25-May-88	20	85	VER	COATZACOALCOS
24960	KM	05-May-88	21-May-88	16	40	VER	ALVARADO
24967	KM	05-May-88	12-May-88	7	40	VER	ALVARADO
24969	KM	05-May-88	16-May-88	11	40	VER	ALVARADO
24982	KM	06-May-88	17-May-88	11	40	VER	ALVARADO
24986	KM	06-May-88	17-May-88	11	40	VER	ALVARADO
24996	KM	12-May-88	17-May-88	5	40	VER	ALVARADO
25003	KM	05-May-88	21-May-88	16	40	VER	ALVARADO
25007	KM	05-May-88	17-May-88	12	10	VER	BOCA DEL RIO
25011	KM	05-May-88	20-Aug-89	472	50	VER	ALVARADO

25015	KM	06-May-88	04-Jun-88	29	40	VER	ALVARADO
25029	KM	06-May-88	07-Jun-88	32	85	VER	COATZACOALCOS
25033	KM	06-May-88	07-Jun-88	32	40	VER	ALVARADO
25034	KM	06-May-88	07-Jun-88	32	40	VER	ALVARADO
25038	KM	06-May-88	17-May-88	11	40	VER	ALVARADO
25040	KM	07-May-88	15-May-88	8	40	VER	ALVARADO
25041	KM	08-May-88	12-May-88	4	40	VER	ALVARADO
25044	KM	11-May-88	17-May-88	6	40	VER	ALVARADO
25049	KM	06-May-88	14-Mar-89	312	85	VER	COATZACOALCOS
25052	KM	11-May-88	13-Jun-88	33	5	VER	A.LIZARDO
25111	KM	10-May-88	09-Jun-88	30	50	VER	ALVARADO
25121	KM	16-May-88	03-Jun-88	18	40	VER	ALVARADO
25128	KM	16-May-88	07-Jun-88	22	40	VER	ALVARADO
25129	KM	16-May-88	11-Jun-88	26	10	VER	BOCA DEL RIO
25130	KM	16-May-88	01-Jun-88	16	40	VER	ALVARADO
25162	KM	16-May-88	14-Aug-89	455	40	VER	ALVARADO
25172	KM	16-May-88	13-May-89	362	30	VER	VERACRUZ
25199	KM	17-May-88	07-Jun-88	21	40	VER	ALVARADO
25256	KM	19-May-88	14-Nov-88	179	10	VER	ALVARADO
25308	KM	18-May-88	28-May-88	10	40	VER	ALVARADO
25312	KM	18-May-88	28-May-88	10	40	VER	ALVARADO
25316	KM	18-May-88	27-Jun-88	40	30	VER	PLAYA NORTE
25316	KM	18-May-88	01-Aug-90	805	30	VER	ANTIGUA
25324	KM	19-May-88	28-May-88	9	40	VER	ALVARADO
25325	KM	19-May-88	30-May-88	11	0	VER	BARRANCAS
25328	KM	19-May-88	07-Jun-88	19	40	VER	ALVARADO
25446	KM	08-May-89	23-May-89	15	40	VER	ALVARADO
25455	KM	02-May-89	18-Aug-89	108	12	VER	CHACHALACUS
25465	KM	02-May-89	11-May-89	9	30	VER	VERACRUZ
25472	KM	02-May-89	06-Aug-91	826	500	TEX	S.PADRE ISLAND
25483	KM	02-May-89	14-Jun-89	43	20	VER	VERACRUZ
25493	KM	03-May-89	17-May-89	14	40	VER	ALVARADO
25494	KM	03-May-89	30-Jan-90	272	390	CAM	SEYBAPLAYA
25496	KM	03-May-89	30-May-89	27	40	VER	ALVARADO
29711	SM	05-Mar-90	08-Mar-90	3	1	VER	BOCA DEL RIO
29713	SM	05-Mar-90	06-Mar-90	1	1	VER	BOCA DEL RIO
29718	SM	05-Mar-90	10-Mar-90	5	7	VER	BARRANCAS
29720	SM	05-Mar-90	06-Mar-90	1	5	VER	ANTON LIZARDO
29734	SM	05-Mar-90	06-Mar-90	1	1	VER	BOCA DEL RIO
29738	SM	05-Mar-90	06-Mar-90	1	1	VER	BOCA DEL RIO
29739	SM	05-Mar-90	22-Mar-90	17	5	VER	ANTON LIZARDO
29740	SM	05-Mar-90	06-Mar-90	1	1	VER	BOCA DEL RIO
29768	SM	05-Mar-90	22-Mar-90	17	550	TEX	BRAZ SANT PS
29778	SM	05-Mar-90	07-Mar-90	2	1	VER	BOCA DEL RIO
29813	SM	05-Mar-90	08-Mar-90	3	1	VER	BOCA DEL RIO
29824	SM	06-Mar-90	08-Jun-90	94	1	VER	BOCANA
29826	SM	06-Mar-90	08-Mar-90	2	1	VER	BOCA DEL RIO
29831	SM	06-Mar-90	14-Mar-90	8	5	VER	VERACRUZ
29925	SM	07-Mar-90	07-Mar-90	0	1	VER	BOCA DEL RIO
29961	SM	07-Mar-90	09-Mar-90	2	1	VER	BOCA DEL RIO
29968	SM	07-Mar-90	08-Mar-90	1	5	VER	VERACRUZ
29996	SM	07-Mar-90	08-Mar-90	1	1	VER	BOCA DEL RIO

29999	SM	07-Mar-90	09-Mar-90	2	1	VER	BOCA DEL RIO
30008	SM	07-Mar-90	08-Mar-90	1	1	VER	BOCA DEL RIO
30016	SM	07-Mar-90	09-Mar-90	2	1	VER	BOCA DEL RIO
30026	SM	08-Mar-90	09-Mar-90	1	1	VER	BOCA DEL RIO
30032	SM	08-Mar-90	08-Mar-90	0	1	VER	BOCA DEL RIO
30034	SM	08-Mar-90	10-Mar-90	2	1	VER	BOCA DEL RIO
30037	SM	08-Mar-90	10-Mar-90	2	5	VER	VERACRUZ
30038	SM	08-Mar-90	10-Mar-90	2	1	VER	BOCA DEL RIO
30062	SM	09-Mar-90	11-Mar-90	2	1	VER	BOCA DEL RIO
30068	SM	09-Mar-90	10-Mar-90	1	1	VER	BOCA DEL RIO
30071	SM	09-Mar-90	11-Mar-90	2	1	VER	BOCA DEL RIO
30076	SM	09-Mar-90	23-Mar-90	14	15	VER	ALVARADO
30088	SM	09-Mar-90	10-Mar-90	1	1	VER	BOCA DEL RIO
30107	SM	09-Mar-90	12-Mar-90	3	1	VER	BOCA DEL RIO
30110	SM	09-Mar-90	10-Mar-90	1	1	VER	BOCA DEL RIO
30119	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30125	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30145	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30147	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30152	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30187	SM	10-Mar-90	12-Mar-90	2	1	VER	BOCA DEL RIO
30189	SM	10-Mar-90	11-Mar-90	1	1	VER	BOCA DEL RIO
30211	SM	12-Mar-90	13-Mar-90	1	1	VER	BOCA DEL RIO
30228	SM	12-Mar-90	14-Mar-90	2	15	VER	VERACRUZ
30242	SM	13-Mar-90	14-Mar-90	1	1	VER	BOCA DEL RIO
30252	SM	13-Mar-90	14-Mar-90	1	5	VER	ANTON LIZARDO
30260	SM	13-Mar-90	14-Mar-90	1	1	VER	BOCA DEL RIO
30262	SM	13-Mar-90	20-Mar-90	7	5	VER	ANTON LIZARDO
30274	SM	13-Mar-90	14-Mar-90	1	5	VER	ANTON LIZARDO
30278	SM	13-Mar-90	14-Mar-90	1	15	VER	ALVARADO
30314	SM	06-Mar-91	07-Mar-91	1	1	VER	PUNTA DEL MORRA
30322	SM	06-Mar-91	11-Mar-91	5	25	VER	ALVARADO
30328	SM	06-Mar-91	08-Mar-91	2	1	VER	BARRA
30333	SM	06-Mar-91	10-Mar-91	4	18	VER	LAS BARRANCAS
30336	SM	06-Mar-91	07-Mar-91	1	1	VER	BOCA DEL RIO
30337	SM	06-Mar-91	08-Mar-91	2	1	VER	BARRA
30338	SM	06-Mar-91	08-Mar-91	2	1	VER	BARRA
30347	SM	06-Mar-91	08-Mar-91	2	1	VER	BARRA
30348	SM	06-Mar-91	18-Mar-91	12	1	VER	ARBOLILLO
30364	SM	12-Mar-91	16-Mar-91	4	1	VER	BARRA
30383	SM	12-Mar-91	15-Mar-91	3	1	VER	QUIOSEO
30391	SM	12-Mar-91	13-Mar-91	1	1	VER	CHACHALACAS
30409	SM	13-Mar-91	15-Mar-91	2	1	VER	BAJOS PAJAROS
30410	SM	13-Mar-91	15-Mar-91	2	1	VER	LOS PINOS
30434	SM	04-Apr-91	05-Apr-91	1	1	VER	LOGENIERO
30437	SM	04-Apr-91	05-Apr-91	1	1	VER	FRENTE ANTENO
30441	SM	05-Apr-91	13-Apr-91	8	1	VER	LA BOCANA
30455	SM	06-Apr-91	11-Apr-91	5	1	VER	LA SALERA
30457	SM	06-Apr-91	07-Apr-91	1	1	VER	MANDINGA
CAMPECHE							
24505	SM	08-Mar-88	-Dec-88	"282"	85	CAM	ISLA AGUADA
24509	KM	08-Mar-88	23-Mar-90	745	260	YUC	PORT COLORADAS

25230	SM	20-Mar-89	28-Apr-89	39	50	CAM	SABANCUY
25237	SM	20-Mar-89	30-Apr-89	41	65	CAM	ISLA AGUADA
YUCATÁN							
11150	KM	07-Mar-86	25-Aug-86	171	UNK	VER	BEGA DEL TORRE
11235	KM	03-Mar-86	08-Apr-86	36	60	YUC	EL CUYO
24617	SM	02-Feb-88	19-Feb-88	17	10	YUC	SISAL
24624	KM	03-Feb-88	22-Nov-90	1023	0	YUC	SISAL
24625	SM	03-Feb-88	18-Feb-88	15	10	YUC	TELCHAC
24626	SM	03-Feb-88	23-May-88	110	0	YUC	SISAL

King and Spanish mackerel tag releases and significant tag returns from both Mexico and the United States are graphically represented by Figures 3-10.

C. Public Information Program (PIP)

1. Reward Poster Distribution

Dissemination of information through newspaper articles and the distribution of flyers and reward posters (Figure 11) constitute a major effort in informing the public about the program and the reward system for tagged fish.

Reward posters were distributed to all participating PESCA laboratories in Mexico. They have been posted in fish houses, local fishing cooperatives, PESCA laboratories and local PESCA offices along the Mexican Gulf coast.

2. Public Presentations

The reward poster has been reprinted in flyer format and copies have been distributed to local fishermen by biologists during length/frequency and CPUE data collection trips. Flyers also have been distributed to fishing cooperatives and PESCA offices along the Mexican Gulf coast.

3. Rapid Reward System

Mote Marine Laboratory is continuing to maintain small accounts at all participating PESCA laboratories to ensure immediate payment of tags.

Figure 3. Number of mackerel tagged off Mexican Gulf Coast States (1986-1991).
Figure 4. Important tag returns from Texas to Mexico (1986-1991).
Figure 5. Significant long distance tag returns from Louisiana to Mexico (1986-1991).
Figure 6. Significant tag returns from Florida to Mexico (1986-1991).

Fig. 3

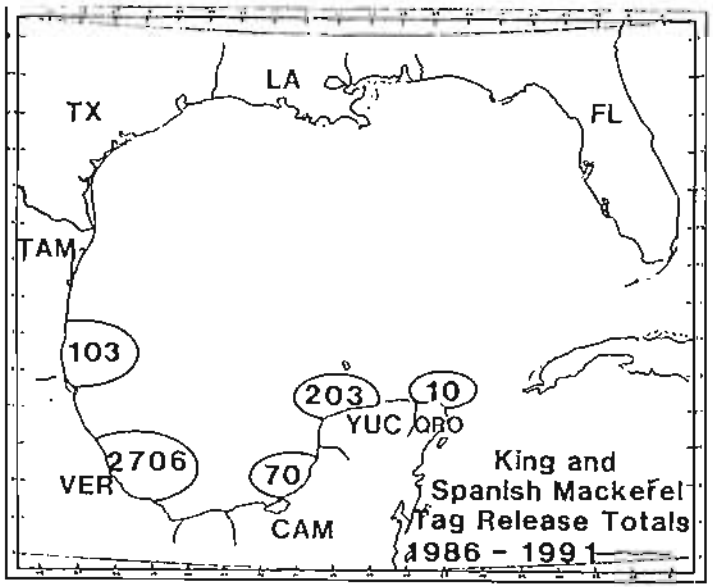


Fig. 4

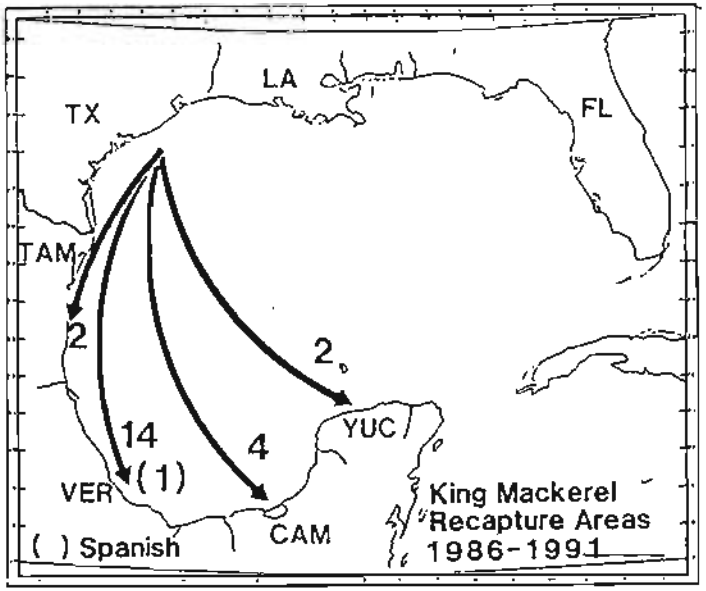


Fig. 5

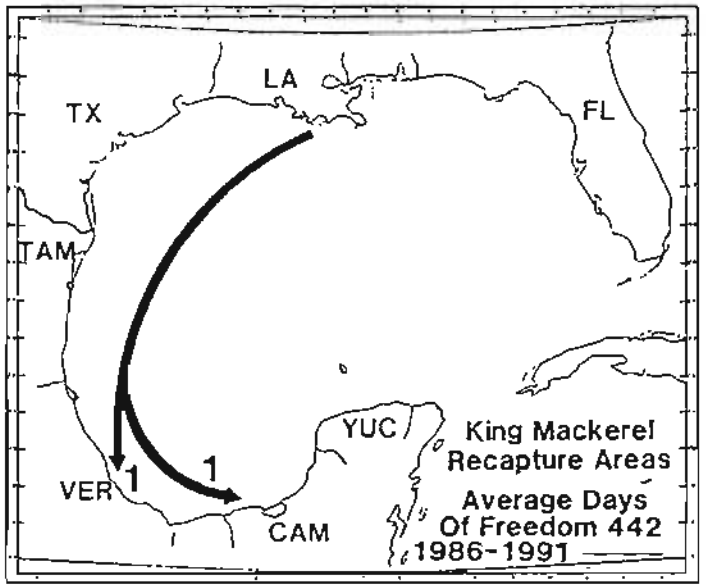


Fig. 6

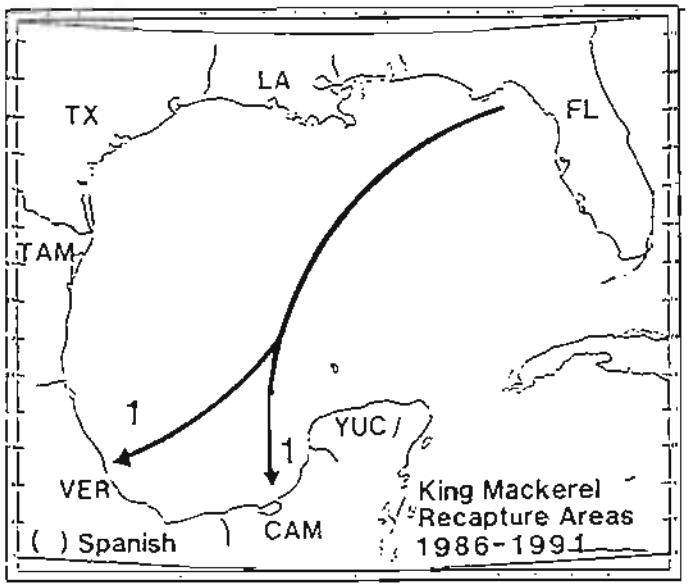


Figure 7. Significant tag returns within Mexico and from Veracruz, Mexico, to the U.S. (1986-1991).
Figure 8. Important long distance tag returns from Tamaulipas to other Mexican states (1986-1991).
Figure 9. Significant long distance tag returns from Campeche to other Mexican states (1986-1991).
Figure 10. Important tag returns from Yucatán to Veracruz (1986-1991).

Fig. 7

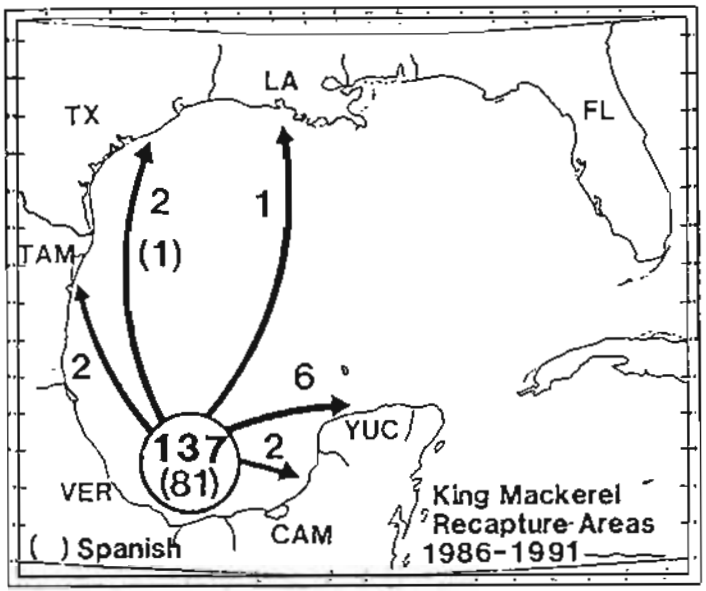


Fig. 8

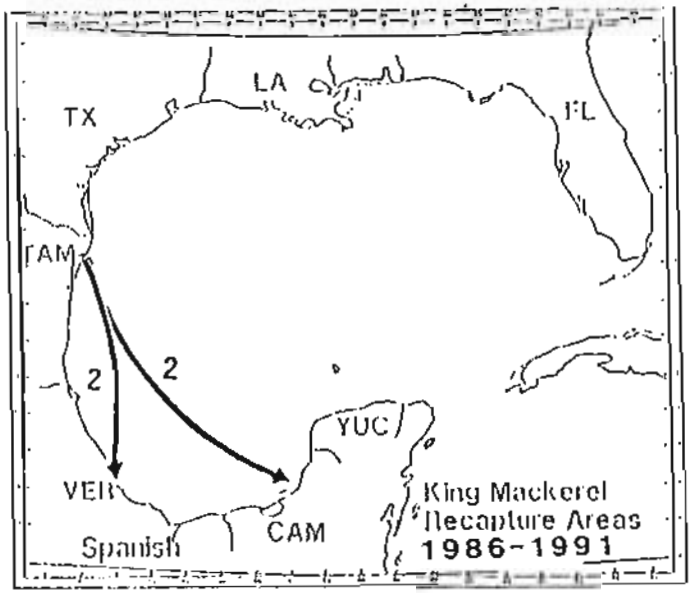


Fig. 9

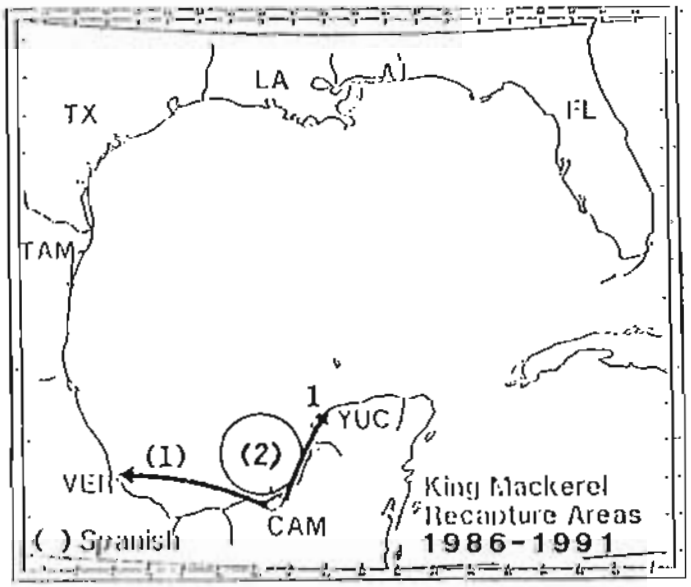
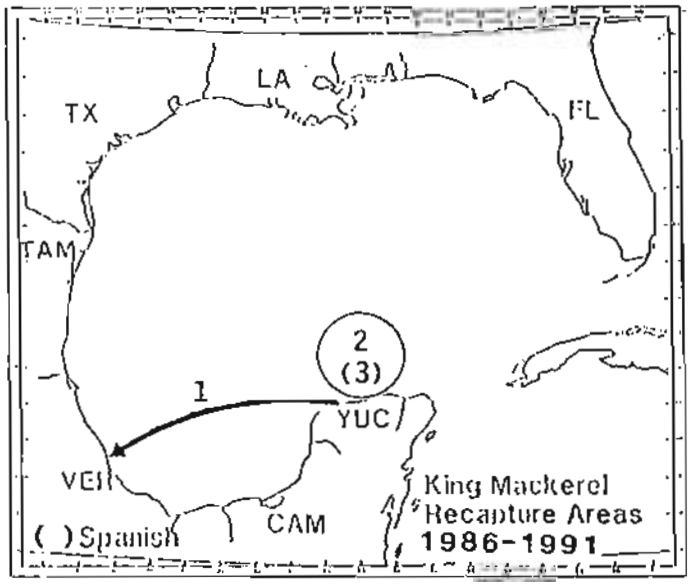


Fig. 10

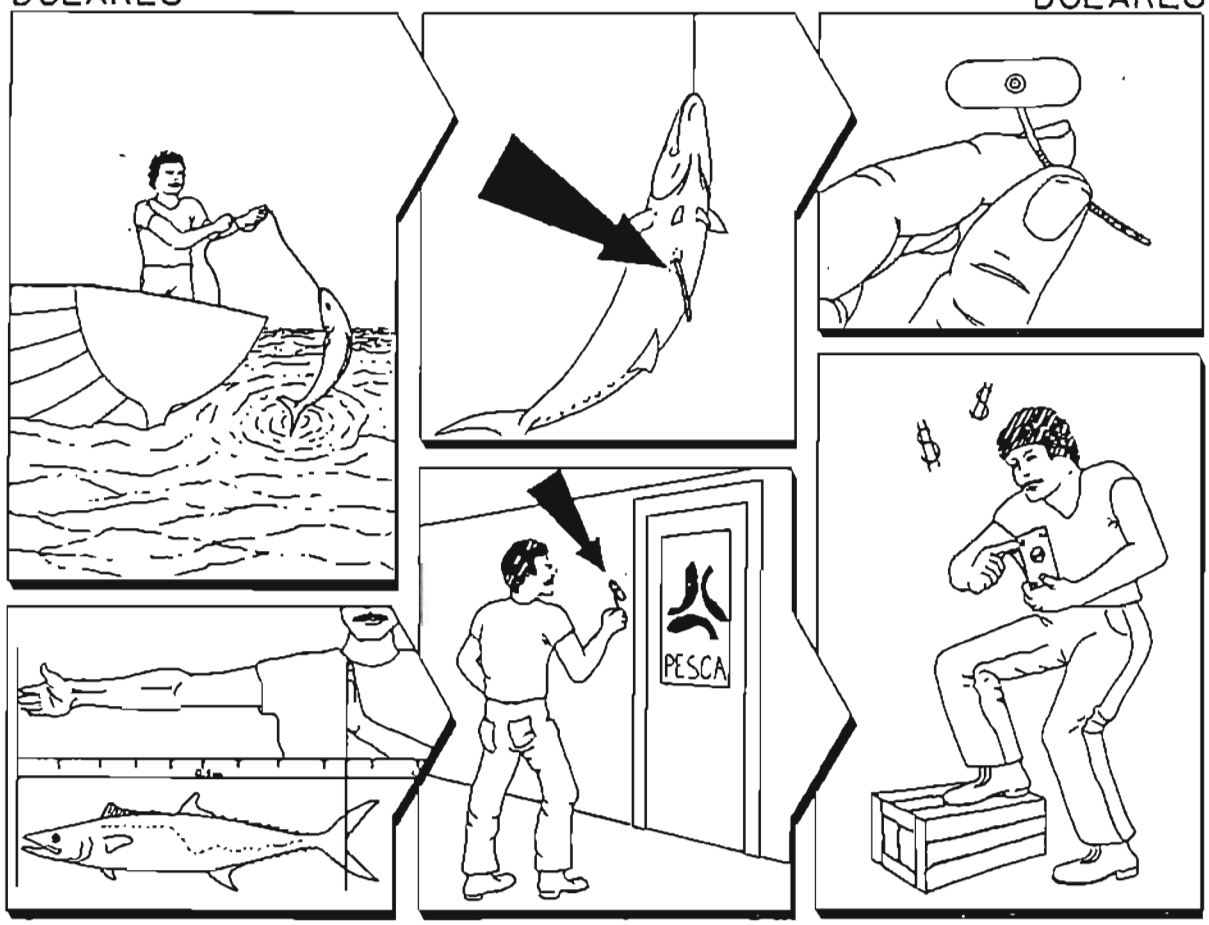


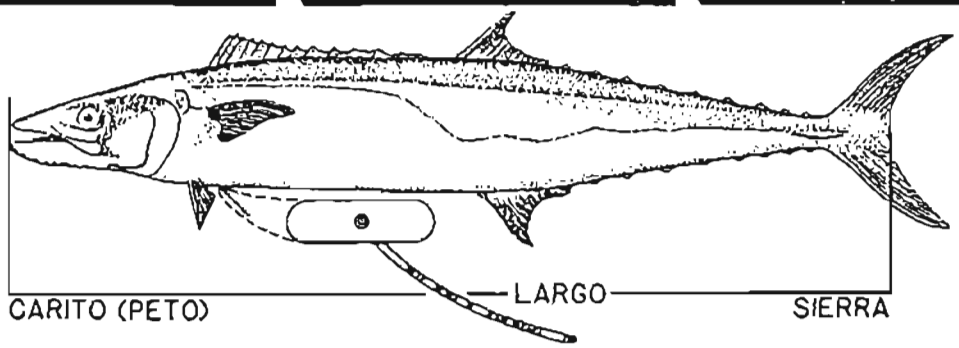
RECOMPENSA

$ 10 DOLARES

POR EL EQUIVALENTE EN MONEDA NACIONAL

$ 10 DOLARES





Caritos y Sierras están siendo marcados y puestos en libertad en todo el Golfo de México y a lo largo de la costa del sur del Atlántico para estudiar los hábitos migratorios y crecimiento. Este proyecto es un esfuerzo cooperativo entre el Gobierno Federal de los Estados Unidos y el Instituto Nacional de la Pesca. Si usted captura un pez con una placa, tenga la bondad de mandar la placa a la direccion anotada abajo. INCLUYA LUGAR, DIA DE CAPTURA, PROFUNDIDAD, PESO Y LARGO (VEA EL DIAGRAMA PARA MEDIR EL LARGO). INCLUYA TAMBIEN SU NOMBRE Y DIRECCION. Usted recibirá la recompensa en moneda nacional por el equivalente a $ 10.00 dolares, así como información a dónde y cuándo su pescado fue marcado. Muchas gracias por su valiosa ayuda.

National Marine Fisheries Service
3500 Delwood Beach Rd.
Panama City, Fl 32407-7499

CRIP Yucalpeten
Apdo. Postal 73
Progreso, Yuc. Tels. 5-14-24, 5-14-75 (Por Cobrar)

Figure 11. Reward Poster

II. LENGTH/FREQUENCY DISTRIBUTION OF MACKEREL - CATCH DATA

A. Length/Frequency Data Collection

Length measurements for king and Spanish mackerel were recorded from fish captured off the Yucatán Peninsula during November and December, 1991. Length/frequency data for king (*Scomberomorus cavalla*), Spanish (*Scomberomorus maculatus*), cero (*Scomberomorus regalis*) and Serra Spanish (*Scomberomorus brasiliensis*) mackerel from the Mexican states of Yucatán and Quintana Roo were collected during November and December. The term "Brazilian mackerel" has been substituted for "Serra Spanish mackerel" in this report when referring to *Scomberomorus brasiliensis* to prevent confusion with the Spanish term "sierra", used in Mexico for Spanish mackerel (*Scomberomorus maculatus*).

During Quarter V, 4,804 fish (2,983 king; 1,162 Spanish; 492 cero and 167 Brazilian mackerel) were measured. Table 2 is a summary of the length data collected during Quarter V.

Table 2. Length/frequency analysis (FL) summary statistics for king (KM), Spanish (SM), cero (CM) and Brazilian (BM) mackerel collected in Mexico (October 1-December 31, 1991).

Species	n	$\bar{x}$ cm	Min.	Max.
KM	2983	69.4	32	122
SM	1162	43.5	20	82
CM	480	53.7	30	71
BM	167	39.6	31	57

Data presented here came from the ports of Celestún, Dzilam de Bravo, Sisal, San Felipe and El Cuyo, Yucatán. Length measurements from the state of Quintana Roo were from fish captured off the island of Holbox.

All length/frequency data for mackerel are presented in Appendix 3. Data also have been sent to NMFS-Panama City on computer disk in NMFS format. Histograms of the length/frequency distribution of king, Spanish, cero and Brazilian mackerel are presented as Figures 12 and 13.

As during the spring of 1991 off Veracruz, Spanish mackerel were not abundant off the coast of Yucatán.

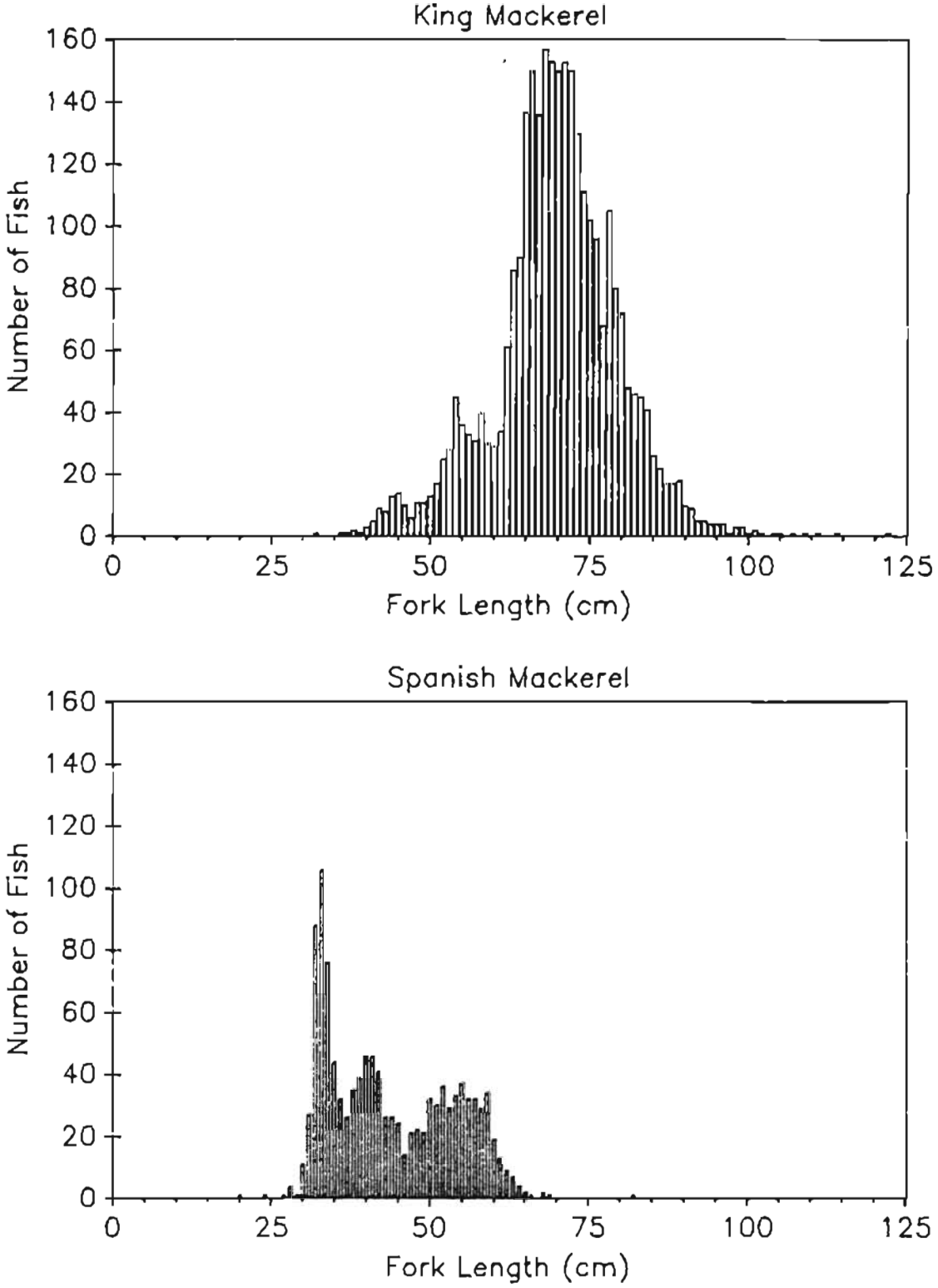


Figure 12. Length/frequency distribution of king (Scomberomorus cavalla) and Spanish (Scomberomorus maculatus) mackerel collected off the coast of Yucatan, 1991.

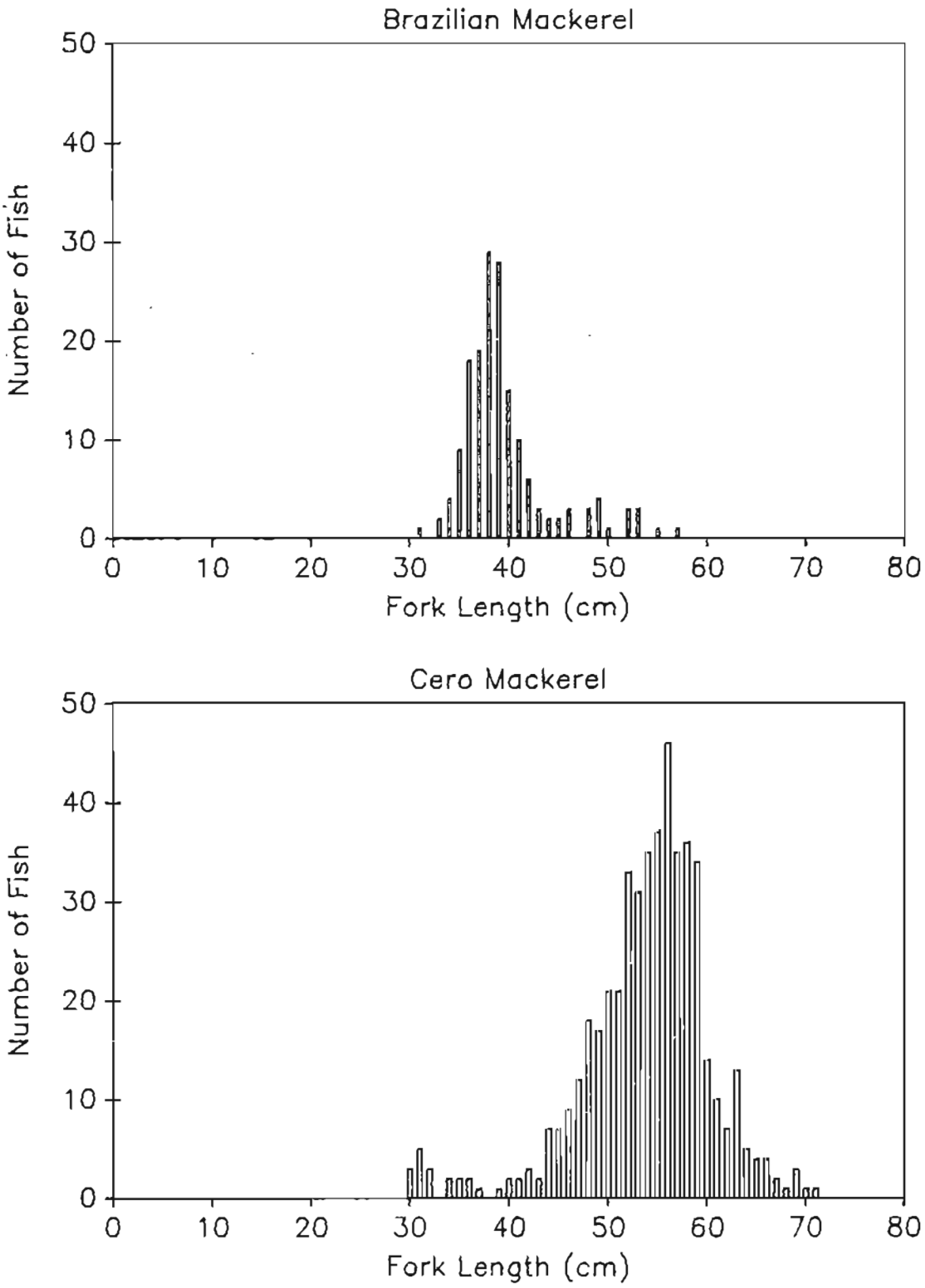


Figure 13. Length/frequency distribution of Brazilian (Scomberomorus brasiliensis) and cero (Scomberomorus regalis) mackerel collected off the coast of Yucatan, 1991.

On the few days of good weather, truck loads of fish arrived at the Atlántida de Sur fish house. When a full moon occurred, no mackerel arrived because the mackerel can see the gill nets and avoid them. MML personnel continued to go to the fish house in hopes that mackerel from the island of Holbox (where they use hook and line) would arrive. While waiting for mackerel to arrive, MML personnel noted the other species of fish being brought to the fish house by local fishermen. Table 3 contains a list of these species.

Table 3. Fishes processed by the Atlántida del Sur fish house, Mérida, Yucatán, November-December 1991.

BONY FISHES

Snook:	*Centropomus undecimalis*
Cobia:	*Rachycentron canadum*
Pompano	
Red snapper:	*Lutjanus campechanus*
Silk snapper:	*Lutjanus vivanus*
Lane snapper:	*Lutjanus synagris*
Yellowtail snapper:	*Ocyurus chrysurus*
Mangrove snapper:	*Lutjanus griseus*
White grunt:	*Haemulon plumieri*
Porgy:	*Calamus nodosus*
Mojarra	
Spotted seatrout:	*Cynoscion nebulosus*
Bonito:	*Sarda sarda*
Hogfish:	*Lachnolaimus maximus*
Great barracuda:	*Sphyraena barracuda*
Striped mullet:	*Mugil cephalus*
Red grouper:	*Epinephelus morio*
Gag:	*Mycteroperca microlepis*
Scamp:	*Mycteroperca phenax*
Black grouper:	*Mycteroperca bonaci*
Yellowfin grouper:	*Mycteroperca venenosa*

SHARKS AND RAYS

Nurse shark:	*Ginglymostoma cirratum*
Lemon shark:	*Negaprion brevirostris*
Dusky shark:	*Carcharhinus obscurus*
Silky shark:	*Carcharhinus falciformis*
Hammerhead:	*Sphyrna sp.*
Bonnethead:	*Sphyrna tiburo*
Bull shark:	*Carcharhinus leucas*
Tiger shark:	*Galeocerdo cuvieri*
Atlantic sharpnose:	*Rhizoprionodon terraenovae*
Spotted eagle ray:	*Aetobatus narinari*

B. Catch Data

No catch per unit effort (CPUE) data for November and December are included in this report. As mentioned previously, MML personnel were stationed at the Atlántida del Sur fish house in order to obtain length/frequency measurements. MML personnel were able to obtain total catch data for king and Spanish mackerel per month at three of the most important mackerel landing sites off Yucatăn. These data, as well as a comparison of the king and Spanish mackerel catch by gear type per month, are presented as tables 4-7.

Table 4. Amount (kilos) of king mackerel landed per month at the ports of Celestún, Dzilam de Bravo and Río Lagartos during 1991.

Month	CELESTUN	DZILAM DEL BRAVO	RIO LAGARTOS	Total Wt. (kilos)
Jan	8486.5	.0	1154.0	9640.5
Feb	285.0	.0	.0	285.0
Mar	21.0	.0	.0	21.0
Apr	12.5	.0	.0	12.5
May	17.0	.0	.0	17.0
Jun	.0	.0	.0	.0
Jul	.0	483.6	.0	483.6
Aug	.0	.0	.0	.0
Sep	1383.5	93.0	4.0	1480.5
Oct	.0	8.0	837.9	845.9
Nov	16442.2	.0	.0	16442.2
Dec	6124.5	.0	749.5	6874.0
Total	32772.2	584.6	2745.4	36102.2

Table 5. Number of kilos of king mackerel captured per month by gear type.

MONTH	Gill Net	Long Line	Hook & Line	Total Wt. (kilos)
Jan	9616.5	.0	8.0	9624.5
Feb	285.0	.0	.0	285.0
Mar	21.0	.0	.0	21.0
Apr	.0	.0	12.5	12.5
May	.0	.0	17.0	17.0
Jun	.0	.0	.0	.0
Jul	414.6	54.5	.0	469.1
Aug	.0	.0	.0	.0
Sep	1472.5	6.0	.0	1478.5
Oct	825.9	.0	20.0	845.9
Nov	.0	.0	16442.2	16442.2
Dec	5170.0	.0	1704.0	6874.0
Total	17805.5	60.5	18203.7	36069.7

Table 6. Amount (kilos) of Spanish mackerel landed per month at the ports of Celestún, Dzilam de Bravo and Río Lagartos during 1991.

MONTH	CELESTUN	DZILAM DEL BRAVO	RIO LAGARTOS	TOTAL WT. (kilos)
Jan	2312.5	.0	35.5	2348.0
Feb	26.5	.0	.0	26.5
Mar	.0	.0	.0	.0
Apr	38.0	.0	.0	38.0
May	.0	.0	.0	.0
Jun	9.0	.0	.0	.0
Jul	.0	189.5	.0	189.5
Aug	.0	.0	.0	.0
Sep	94.0	62.0	1.5	157.5
Oct	.0	.0	61.0	61.0
Nov	2590.2	.0	.0	2590.2
Dec	745.0	.0	15.0	760.0
Total	5815.2	251.5	113.0	6170.7

Table 7. Number of kilos of Spanish mackerel captured per month by gear type.

Month	Gill Net	Long Line	Hook & Line	Total Wt. (kilos)
Jan	2345.5	.0	2.5	2348.0
Feb	26.5	.0	.0	26.5
Mar	.0	.0	.0	.0
Apr	.0	.0	38.0	38.0
May	.0	.0	.0	.0
Jun	.0	.0	9.0	.0
Jul	177.5	12.0	.0	189.5
Aug	.0	.0	.0	.0
Sep	149.5	8.0	.0	157.5
Oct	61.0	.0	.0	61.0
Nov	.0	.0	2590.2	2590.2
Dec	650.5	.0	109.5	760.0
Total	3410.5	20.0	2749.2	6170.7

III. HISTORICAL LANDINGS DATA

The preliminary 1990 totals for king and Spanish mackerel landings data were obtained and reported to NMFS-Panama City during Quarter III. The final 1990 historical data is not available. If the data becomes available by March, it will be included in the final report.

IV. STOCK IDENTIFICATION

Mote Marine Laboratory's contractual commitment to provide adult king and Spanish mackerel tissue samples and otoliths for stock assessment studies was completed during Quarter III.

V. RESULTS

1. Due to bad weather, no Spanish mackerel were tagged during November and December. CRIP - Yucalpetén personnel will attempt to tag fish during January.
2. No tags were returned during Quarter V.
3. Reward posters and flyers were distributed and posted at important mackerel landings locations in Yucatán.
4. A total of 4,804 length measurements (2,983 king, 1,162 Spanish, 492 cero mackerel and 167 *Scomberomorus brasiliensis*) were obtained during Quarter V.

V. RESULTADOS

1. A causa de mal tiempo, no se marcaron ningun sierra durante el Trimestre V, pero biologos del CRIP - Yucalpetén van a marcar la sierra en enero si hay buen tiempo.
2. No hay marcas recapturadas para reportar por Trimestre V.
3. Se distribuieron y han puesto las carteles y volantes de recompensa en lugares importantes por la pesqueria de carito (peto) y sierra en el estado de Yucatán.
4. Se obtuvieron un total de 4,804 medidas de longitud (2,983 carito [peto], 1,162 sierra, 492 *Scomberomorus regalis* and 167 *Scomberomorus brasiliensis*) durante Trimestre V.

APPENDIX I

Appendix 1. King (KM) and Spanish (SM) mackerel release data from Mexico.

Tag #	Mo	Da	Yr	Sub-Area	Area	Depth	Gear	Sp	FL	Tagger	Comments
24274	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	405	ALF/RAF	
24275	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
21628	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
21629	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	444	ALF/RAF	
21630	N/A										LOST-CONFUSION
30301	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	ORANGE COLOR
30302	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	394	ALF/RAF	ORANGE COLOR
30303	3	4	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	ORANGE COLOR-REACCION LENTA PARA ESCAPAR
21631	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
21632	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	417	ALF/RAF	
21637	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	438	ALF/RAF	
21640	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	384	ALF/RAF	
21642	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	445	ALF/RAF	
21643	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	405	ALF/RAF	
21645	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	424	ALF/RAF	
21646	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	420	ALF/RAF	
21647	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
21648	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	355	ALF/RAF	
21649	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	419	ALF/RAF	
21650	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30304	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	338	ALF/RAF	
30305	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	388	ALF/RAF	
30306	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	368	ALF/RAF	
30307	N/A										BROKEN-ROTA (NO APUCADA)
30308	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	355	ALF/RAF	
30309	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	334	ALF/RAF	
30310	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	324	ALF/RAF	
30311	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	369	ALF/RAF	
30312	3	5	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
30313	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30314	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	379	ALF/RAF	
30315	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	379	ALF/RAF	
30316	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	355	ALF/RAF	
30317	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30318	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30319	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	410	ALF/RAF	
30320	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30321	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30322	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	350	ALF/RAF	
30323	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	388	ALF/RAF	
30324	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	395	ALF/RAF	
30325	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30326	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30327	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30328	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	447	ALF/RAF	
30329	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	348	ALF/RAF	
30330	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	372	ALF/RAF	
30331	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	425	ALF/RAF	
30332	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	367	ALF/RAF	
30333	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	404	ALF/RAF	
30334	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	420	ALF/RAF	
30335	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30336	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30337	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30338	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30339	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	364	ALF/RAF	
30340	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	350	ALF/RAF	
30341	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	410	ALF/RAF	
30342	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30343	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
30344	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30345	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30346	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	425	ALF/RAF	
30347	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	360	ALF/RAF	
30348	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30349	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	465	ALF/RAF	
30350	3	6	91	MOCAMBO	VER	13 MT	ALM	SM	405	ALF/RAF	
30351	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	445	ALF/RAF	
30352	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	350	ALF/RAF	
30353	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	454	ALF/RAF	
30354	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	405	ALF/RAF	
30355	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	375	ALF/RAF	
30356	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	410	ALF/RAF	
30357	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30358	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	394	ALF/RAF	
30359	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	353	ALF/RAF	
30360	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
30361	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	430	ALF/RAF	

Appendix 1. King (KM) and Spanish (SM) mackerel release data from Mexico.

Tag #	Mo	Da	Yr	Sub-Area	Area	Depth	Gear	Sp	FL	Tagger	Comments
30362	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	346	ALF/RAF	
30363	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	378	ALF/RAF	
30365	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	370	ALF/RAF	
30366	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	438	ALF/RAF	
30367	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30368	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	386	ALF/RAF	
30369	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	428	ALF/RAF	
30370	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	375	ALF/RAF	
30371	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	416	ALF/RAF	
30372	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	358	ALF/RAF	
30373	3	7	91	MOCAMBO	VER	13 MT	ALM	SM	460	ALF/RAF	
30364	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	370	ALF/RAF	
30374	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	366	ALF/RAF	
30375	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	330	ALF/RAF	
30376	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	355	ALF/RAF	
30377	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	350	ALF/RAF	
30378	3	12	91	MOCAMBO	VER	13 MT	ALM	SM	350	ALF/RAF	
30379	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	388	ALF/RAF	
30380	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	555	ALF/RAF	
30381	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30382	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30383	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30384	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	480	ALF/RAF	
30385	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	372	ALF/RAF	
30386	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30387	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30388	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	470	ALF/RAF	
30389	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	377	ALF/RAF	
30390	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	448	ALF/RAF	
30391	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30392	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	395	ALF/RAF	
30393	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	362	ALF/RAF	
30394	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	366	ALF/RAF	
30395	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	445	ALF/RAF	
30396	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	384	ALF/RAF	
30397	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30398	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	330	ALF/RAF	
30399	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30400	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	330	ALF/RAF	
30401	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	319	ALF/RAF	
30402	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	380	ALF/RAF	
30403	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	355	ALF/RAF	
30404	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	308	ALF/RAF	
30405	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30406	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	375	ALF/RAF	
30407	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	370	ALF/RAF	
30408	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30409	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	420	ALF/RAF	
30410	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	338	ALF/RAF	
30411	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	360	ALF/RAF	
30412	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	328	ALF/RAF	
30413	3	13	91	MOCAMBO	VER	13 MT	ALM	SM	370	ALF/RAF	
30414	3	19	91	MOCAMBO	VER	13 MT	ALM	SM	325	ALF/RAF	
30415	3	19	91	MOCAMBO	VER	13 MT	ALM	SM	354	ALF/RAF	
30416	3	19	91	MOCAMBO	VER	13 MT	ALM	SM	338	ALF/RAF	
30417	3	19	91	MOCAMBO	VER	13 MT	ALM	SM	360	ALF/RAF	
30418	3	19	91	MOCAMBO	VER	13 MT	ALM	SM	330	ALF/RAF	
30419	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	525	ALF/RAF	
30420	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	555	ALF/RAF	
30421	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	518	ALF/RAF	
30422	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	545	ALF/RAF	
30423	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	475	ALF/RAF	
30424	3	21	91	MOCAMBO	VER	13 MT	ALM	SM	475	ALF/RAF	
30425	3	23	91	MOCAMBO	VER	13 MT	ALM	SM	318	ALF/RAF	
30426	3	23	91	MOCAMBO	VER	13 MT	ALM	SM	519	ALF/RAF	
30427	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	415	ALF/RAF	
30428	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	340	ALF/RAF	
30429	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	440	ALF/RAF	
30430	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	362	ALF/RAF	
30431	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	368	ALF/RAF	
30432	4	2	91	MOCAMBO	VER	13 MT	ALM	SM	435	ALF/RAF	
30433	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	443	ALF/RAF	
30434	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30435	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	433	ALF/RAF	
30436	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	385	ALF/RAF	
30437	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	406	ALF/RAF	
30438	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	455	ALF/RAF	
30439	4	4	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	

Appendix 1. King (KM) and Spanish (SM) mackerel release data from Mexico.

Tag #	Mo	Da	Yr	Sub-Area	Area	Depth	Gear	Sp	FL	Tagger	Comments
30440	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	344	ALF/RAF	
30441	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	433	ALF/RAF	
30442	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	400	ALF/RAF	
30443	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	370	ALF/RAF	
30444	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30445	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	365	ALF/RAF	
30446	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	375	ALF/RAF	
30447	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	390	ALF/RAF	
30448	4	5	91	MOCAMBO	VER	13 MT	ALM	SM	428	ALF/RAF	
30449	N/A										LOST
30450	N/A										LOST
30451	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	400	AL/KA/RA	
30452	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	395	AL/KA/RA	
30453	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	360	AL/KA/RA	
30454	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	528	AL/KA/RA	
30455	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	380	AL/KA/RA	
30456	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	360	AL/KA/RA	
30457	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	340	AL/KA/RA	
30458	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	350	AL/KA/RA	
30459	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	350	AL/KA/RA	
30460	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	348	AL/KA/RA	
30461	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	365	AL/KA/RA	
30462	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	310	AL/KA/RA	
30463	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	350	AL/KA/RA	
30464	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	410	AL/KA/RA	
30465	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	378	AL/KA/RA	
30466	4	6	91	MOCAMBO	VER	13 MT	ALM	SM	415	AL/KA/RA	
30467	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	380	AL/KA/RA	
30468	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	380	AL/KA/RA	
30469	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	330	AL/KA/RA	
30470	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	345	AL/KA/RA	
30471	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	360	AL/KA/RA	
30472	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	368	AL/KA/RA	
30473	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	330	AL/KA/RA	
30474	4	8	91	MOCAMBO	VER	13 MT	ALM	SM	345	AL/KA/RA	
30475	4	9	91	MOCAMBO	VER	13 MT	ALM	SM	345	AL/KA/RA	
30476	4	12	91	MOCAMBO	VER	13 MT	ALM	SM	458	AL/KA/RA	
30477	4	18	91	MOCAMBO	VER	13 MT	ALM	SM	436	AL/KA/RA	
30478	4	18	91	MOCAMBO	VER	13 MT	ALM	SM	447	AL/KA/RA	
30479	4	18	91	MOCAMBO	VER	13 MT	ALM	SM	457	AL/KA/RA	

APPENDIX II

Appendix 2. King (KM) and Spanish (SM) mackerel returns from Mexico.

Tag #	Release Date	Area	Sub-Area	Depth	Gear	Sp	FL (mm)	Tagger	Capture Date	Area	Sub-Area	Days of Freedom	Distance (miles)
E46301	19-Jun-90	TEX	PORT ARANSAS			KM			12-Dec-90	VER	COATZACOALCOS	176	740
E46355	16-Aug-90	TEX	PORT ARANSAS			KM			17-Jan-91	CAM	SABANCUY	154	1100
E46361	29-Jul-90	TEX	PORT ARANSAS			KM			21-Nov-90	VER	COATZACOALCOS	115	740
5141	6-SEP-88	FL	PANAMA CITY		CHL	KM	745	NMFS	2-AUG-91	VER	BOCA DEL RIO	1060	1375
9146	28-Jun-87	TEX	P. MANSFIELD		RHL	KM	762	JR/FTI	29-Jan-91	VER	LA BLANQUILLE	1311	578
10002	18-Apr-85	VER	MOCOMBO	30M	ALM	KM	615	NMFS	27-May-85	VER	BOCA DEL RIO	39	5
10050	20-Apr-85	VER	MOCOMBO	30M	ALM	KM	680	NMFS	25-May-85	VER	BOCA DEL RIO	35	5
10071	19-Apr-85	VER	MOCOMBO	30M	ALM	KM	830	NMFS	15-May-85	VER	VERACRUZ	26	10
10085	19-Apr-85	VER	A.LIZARDO	25M	CHI	KM	625	NMFS	17-May-85	VER	ALVARADO	28	40
10381	02-May-85	VER	MOCOMBO	30M	ALM	KM	750	NMFS	06-May-86	VER	CHACHALACAS	369	20
10417	05-May-85	VER	MOCOMBO	30M	ALM	KM	675	NMFS	13-May-85	VER	BOCA DEL RIO	8	5
10422	05-May-85	VER	MOCOMBO	30M	ALM	KM	650	NMFS	10-Apr-86	VER	ISLA DE AMOR	340	5
10426	05-May-85	VER	MOCOMBO	15M	ALM	KM	1200	NMFS	12-May-88	VER	VERACRUZ	1103	5
10729	24-Jun-87	TEX	GALVESTON	20M	RHL	KM	635	FTI	21-Oct-87	YUC	TELCHAC	119	1200
10988	05-May-89	VER	BARRANCAS	34M	CHI	KM	540	JR/VER	12-May-89	VER	ALVARADO	7	40
11064	28-May-87	VER	BARRANCAS	20M	CHI	KM	620	RM/MML	30-May-87	VER	ALVARADO	2	50
11073	29-May-87	VER	BARRANCAS	40M	RV	KM	690	AI/VER	03-Aug-87	VER	BARRANCAS	66	15
11074	29-May-87	VER	BARRANCAS	40M	RV	KM	650	AI/VER	08-Jun-87	VER	BARRANCAS	10	0
11081	29-May-87	VER	BARRANCAS	40M	RV	KM	830	AI/VER	27-Jul-87	VER	BOCA DEL RIO	59	15
11082	29-May-87	VER	BARRANCAS	40M	RV	KM	690	AI/VER	16-Jun-87	VER	A.LIZARDO	18	10
11089	10-May-89	VER	BOCA DEL RIO	40M	CHI	KM	690	CM/VER	02-May-90	VER	ALVARADO	357	15
11150	07-Mar-86	YUC	CELESTUN	15M	RV	KM	840	PC/YUC	25-Aug-86	VER	BEGA DEL TORRE	171	UNK
11235	03-Mar-86	YUC	SAN FELIPE	25M	RV	KM	680	PC/YUC	08-Apr-86	YUC	EL CUYO	36	60
11344	11-May-89	VER	BARRANCAS	36M	CHI	KM	660	RL/YUC	26-Nov-89	VER	ALVARADO	199	10
11442	21-May-87	VER	BARRANCAS	20M	CHI	KM	625	RB/VER	02-Jun-87	VER	ALVARADO	12	50
11444	21-May-87	VER	BARRANCAS	14M	CHI	KM	608	PC/VER	29-May-87	VER	ALVARADO	8	10
11450	21-May-87	VER	BARRANCAS	14M	CHI	KM	830	RB/VER	18-Sep-87	YUC	TELCHAC	120	450
11455	22-May-87	VER	BARRANCAS	14M	CHI	KM	605	RB/VER	30-May-87	VER	BARRANCAS	8	0
11468	22-May-87	VER	BARRANCAS	14M	CHI	KM	690	PC/VER	15-Jun-87	VER	BARRANCAS	24	0
11469	22-May-87	VER	BARRANCAS	14M	CHI	KM	705	RB/VER	18-Feb-88	YUC	CHUBURNA	272	450
11472	22-May-87	VER	BARRANCAS	14M	CHI	KM	740	RB/VER	12-Jun-87	VER	ALVARADO	21	40
11473	22-May-87	VER	BARRANCAS	14M	CHI	KM	720	RB/VER	23-Dec-87	YUC	CELESTUN	215	450
11481	21-May-87	VER	BARRANCAS	20M	CHI	KM	720	RB/VER	25-May-87	VER	ALVARADO	4	40
11493	22-May-87	VER	BARRANCAS	14M	CHI	KM	620	RB/VER	15-Jun-87	VER	ANBOLI	24	15
11806	16-Apr-86	VER	BARRANCAS	20M	ALM	KM	777	BF/MML	30-Apr-86	VER	SANTIA	14	UNK
11816	18-Apr-86	VER	MOCOMBO	40M	ALM	KM	802	BF/MML	30-Apr-87	VER	A.LIZARDO	377	15
11904	24-Apr-86	VER	MOCOMBO	40M	ALM	KM	780	BF/MML	20-Jun-86	TEX	P.ARANSAS	57	625
11909	30-Apr-86	VER	MOCOMBO	15M	ALM	KM	550	BF/MML	31-Mar-88	VER	BARRANCAS	701	15
11912	30-Apr-86	VER	MOCOMBO	40M	ALM	KM	570		03-Mar-87	VER	A.LIZARDO	307	10
11947	24-Apr-86	VER	MOCOMBO	40M	ALM	SM	450	BF/MML	22-May-86	VER	BOCA DEL RIO	28	5
11977	30-Apr-86	VER	MOCOMBO	40M	ALM	KM	655	BF/MML	21-Jun-86	VER	ALVARADO	52	50
11991	30-Apr-86	VER	MOCOMBO	40M	ALM	KM	839	BF/MML	02-Dec-86	YUC	P.PALMAR	216	450
12099	25-Jun-85	LA	GRAND ISLE	25M	CHI	KM	725	NMFS	15-Feb-86	CAM	C.CARMEN	235	1340
12425	29-Aug-87	TEX	FREEPORT	20M	RHL	KM	685	BH/FTI	09-Dec-87	VER	ALVARADO	102	800
13029	02-May-89	VER	BARRANCAS	30M	CHI	KM	760	RL/YUC	18-Aug-89	VER	ALVARADO	108	10
13031	02-May-89	VER	BARRANCAS	30M	CHI	KM	680	RL/YUC	09-May-89	VER	ALVARADO	7	40
13067	02-May-89	VER	BARRANCAS	34M	CHI	KM	740	RL/YUC	21-May-90	VER	ANTON LIZARDO	384	5
13081	29-Apr-89	VER	BARRANCAS	25M	CHI	KM	700	RB/VER	15-Feb-90	VER	TECOLUTLA	292	120
13082	29-Apr-89	VER	BARRANCAS	25M	CHI	KM	630	RB/VER	18-Nov-89	VER	ALVARADO	203	10
13101	03-May-89	VER	BARRANCAS	32M	RV	KM	640	RL-YUC	29-Jun-90	VER	LA CUELA	422	1
13252	20-May-87	VER	A.LIZARDO	40M	RV	KM	680	AI/VER	20-Aug-87	VER	VERACRUZ	92	20
13255	20-May-87	VER	A.LIZARDO	40M	CHI	KM	900	BF/MML	09-May-90	VER	ANTON LIZARDO	1085	0
13292	12-May-87	VER	A.LIZARDO		RV	KM	700	AI/VER	20-May-87	VER	ALVARADO	8	40
13313	02-May-87	VER	A.LIZARDO	40M	CHL	KM	750	BF/MML	29-Jan-89	VER	COATZACO	638	220
13317	02-May-87	VER	A.LIZARDO	40M	RV	KM	810	BF/MML	31-Aug-87	TAM	TAMPACHICHI	121	260
13329	04-May-87	VER	A.LIZARDO		RV	KM	700	AS/VER	23-Dec-87	VER	ALVARADO	233	50
13471	15-May-87	VER	BARRANCAS	40M	CHI	KM	770	RB/VER	16-May-87	VER	SALINAS	1	40
13489	16-May-87	VER	BARRANCAS	40M	CHI	KM	680	RM/MML	16-Jun-87	VER	ALVARADO	31	40
13508	03-May-89	VER	BARRANCAS	32M	CHI	KM	690	BF/MML	22-Apr-90	VER	LERDO TEJADA	354	20
13525	05-May-89	VER	BARRANCAS	34M	CHI	KM	680	BF/MML	22-Apr-90	VER	COATZACOALCOS	352	60
13531	09-May-89	VER	BARRANCAS	36M	CHI	KM	650	AT/VER	06-Sep-89	VER	VERACRUZ	120	15
13540	03-May-89	VER	BARRANCAS	32M	CHI	KM	660	WF/NMFS	11-Jul-89	CAM	SEYBAPLAYA	69	450
13545	03-May-89	VER	BARRANCAS	32M	CHI	KM	660	WF-NMFS	02-Nov-90	VER	ARBOLINO	548	1
13562	03-May-89	VER	BARRANCAS	34M	CHI	KM	695	RL/YUC	22-Aug-89	VER	ALVARADO	111	10
13574	08-May-89	VER	BARRANCAS	60M	CHI	KM	670	RL/YUC	23-May-89	VER	BARRANCAS	15	0
13578	08-May-89	VER	BARRANCAS	56M	CHI	KM	815	RL-YUC	15-Jul-90	VER	CABEZOS	433	1
13598	08-May-89	VER	BARRANCAS	56M	CHI	KM	660	RL/YUC	01-Jun-89	VER	ALVARADO	24	10
13602	02-May-89	VER	BARRANCAS	25M	CHI	KM	800	RB-VER	18-Aug-90	VER	SALINAS	473	8
13606	02-May-89	VER	BARRANCAS	25M	CHI	KM	760	RB/VER	18-Aug-89	VER	ALVARADO	108	40
13614	02-May-89	VER	BARRANCAS	25M	CHI	KM	748	RB/VER	03-May-89	VER	BARRANCAS	1	0
13620	28-Oct-79	VER	VERACRUZ		GNT	KM	1070	W	01-Feb-85	YUC	PUERTO TELCHAC	1923	600
13637	03-May-89	VER	BARRANCAS	25M	CHI	KM	690	RB/VER	05-Aug-89	VER	ANTON LIZARDO	94	5
13686	09-May-89	VER	BARRANCAS	36M	CHI	KM	635	RB/VER	23-Mar-90	VER	COATZACOALCOS	318	60
13700	09-May-89	VER	BARRANCAS	36M	CHI	KM	688	RB/VER	16-Feb-90	VER	ANTON LIZARDO	283	2
13723	29-Apr-87	TAM	TAMPICO	18M	RV	KM	636	CD/TAM	04-Feb-88	CAM	ISLA AGUADA	281	560
13749	09-May-89	VER	BARRANCAS	36M	CHI	KM	600	AT-VER	13-Jul-90	TAM	DEL RIO PANUCA	430	255

Appendix 2. King (KM) and Spanish (SM) mackerel returns from Mexico.

Tag #	Release Date	Area	Sub-Area	Depth	Gear	Sp	FL (mm)	Tagger	Capture Date	Area	Sub-Area	Days of Freedom	Distance (miles)
13790	16-May-87	VER	A.LIZARDO	40M	CHI	KM	660	BF/MML	18-Jun-87	VER	BOCA DEL RIO	33	5
13820	18-May-87	TAM	TAMPICO	28M	RV	KM	709	CD/TAM	06-Dec-87	VER	ALVARADO	202	300
13856	22-May-87	TAM	TAMPICO	24M	CHL	KM	625	CD/TAM	25-Jan-89	CAM	ISLA AGUADA	614	570
13857	22-May-87	TAM	TAMPICO	24M	RV	KM	660	CD/TAM	14-Apr-89	VER	LA ANTIGUA	693	160
13955	09-May-89	VER	BARRANCAS	36M	CHI	KM	720	CM/MEX	29-Jun-89	VER	BOCA DEL RIO	51	10
14003	14-Jun-88	TEX	S. PADRE IS.	UNK	CHI	KM	785		22-Mar-90	VER	TECOLUTLA	646	600
14005	14-Jun-88	TEX	PORT ISABEL	33M	RHL	KM	623	TPWD	01-Feb-89	CAM	UNK	232	
14016	15-Aug-88	TEX	S. PADRE IS.	UNK	CHI	KM	968		14-Sep-89	VER	TECOLUTLA	395	425
14112	20-Jul-87	TEX	S.PADRE IS.	33M	RHL	KM	769	TPWD	25-Mar-88	CAM	SEYBAPLAYA	249	870
14122	20-Jul-87	TEX	P. MANSFIELD	UNK	CHI	KM	801		18-Jan-90	VER	ANTON LIZARDO	913	600
14131	23-Jul-87	TEX	P. O'CONNOR	UNK	CHI	KM	801		26-Aug-89	VER	ANTON LIZARDO	765	770
14479	18-Aug-86	TEX	PORT ARANSAS	40M	RHL	KM	788	TPWD	10-Feb-87	VER	VERACRUZ	176	640
15286	03-Sep-86	FLA	PANAMA CITY	20M	CHL	KM	580	NMFS	-Feb-89	CAM	ISLA AGUADA	"896"	1390
15511	20-Aug-87	TEX	PORT ARANSAS	UNK	CHI	KM	668		31-Oct-87	VER	TECOLUTLA	72	525
15513	20-Aug-87	TEX	PORT ARANSAS	20M	RHL	KM	692	TPWD	21-May-88	VER	ALVARADO	275	680
15972	SUMMER 87	TEX	UNK			KM			09-Apr-88	VER	ALVARADO		
15990	09-Oct-87	TEX	P.ISABEL	15M	RHL	SM	442	JR/FTI	30-Nov-87	VER	ARBOLI	52	500
16383	26-Sep-87	LA	GRAND ISLE	20M	CHI	KM	745	LDWF	20-Apr-88	VER	VERACRUZ	207	1140
17163	07-Aug-87	TEX	PORT ARANSAS	UNK	CHI	KM	700		04-Sep-89	TAM	TAMPICO	759	400
17273	12-Aug-88	TEX	PORT ARANSAS	20M	RHL	KM	830	TPWD	29-Dec-88	CAM	SEYBAPLAYA	139	1020
17419	03-Jul-88	TEX	PORT ARANSAS	20M	RHL	KM	730	TPWD	07-Feb-89	YUC	P. PALMER	219	1140
17421	03-Jul-88	TEX	PORT ARANSAS	UNK	CHI	KM	880		09-Jul-89	TAM	TAMPICO	371	400
17435	28-Jul-88	TEX	PORT ARANSAS	20M	RHL	KM	915	TPWD	02-May-89	VER	CHACHALACUS	278	630
17462	01-Aug-88	TEX	PORT ARANSAS	20M	RHL	KM	810	TPWD	13-Feb-89	VER	NAUTLA	196	600
21640	5-MAR-91	VER	MOCAMBO		ALM	SM	384	ALF/RAF	6-MAR-91	VER	LA SALERNA	1	1
24214	23-Apr-90	VER	MOCAMBO	13M	ALM	SM	355	RAKL	07-May-90	VER	BOCA DEL RIO	14	1
24230	26-Apr-90	VER	MOCAMBO	13M	ALM	SM	348	RAKL	27-Apr-90	VER	BOCA DEL RIO	1	1
24261	04-May-90	VER	MOCAMBO	13M	ALM	SM	335	LARB	14-May-90	VER	ALVARADO	10	15
24274	4-MAR-91	VER	MOCAMBO		ALM	SM	405	ALF/RAF	5-MAR-91	VER	LAS BARRANCAS	1	13
24505	08-Mar-88	CAM	SEYBAPLAYA	6M	CHL	SM	650	RL/YUC	-Dec-88	CAM	ISLA AGUADA	"282"	85
24509	08-Mar-88	CAM	SEYBAPLAYA	6M	CHI	KM	380	MH,RL	23-Mar-90	YUC	PORT COLORADAS	745	260
24525	02-May-88	VER	BARRANCAS	40M	CHI	KM	740	BF/MML	19-May-88	VER	ALVARADO	17	40
24529	04-May-88	VER	BARRANCAS	15M	CHI	KM	710	RB/VER	06-May-88	VER	ALVARADO	2	40
24531	04-May-88	VER	BARRANCAS	18M	CHI	KM	574	RB/VER	22-May-88	VER	ALVARADO	18	40
24545	05-May-88	VER	BARRANCAS	30M	CHI	KM	640	RL/YUC	07-Jun-88	VER	ALVARADO	33	40
24546	05-May-88	VER	BARRANCAS	18M	CHI	KM	600	RL/YUC	17-May-88	VER	ALVARADO	12	40
24553	06-May-88	VER	BARRANCAS	36M	CHI	KM	670	BF/MML	17-May-88	VER	ALVARADO	11	40
24555	06-May-88	VER	BARRANCAS	36M	CHI	KM	660	BF/MML	17-May-88	VER	ALVARADO	11	40
24557	06-May-88	VER	BARRANCAS	36M	CHI	KM	690	BF/MML	17-May-88	VER	ALVARADO	11	40
24562	06-May-88	VER	BARRANCAS	36M	CHI	KM	740	BF/MML	14-May-88	VER	ALVARADO	8	40
24565	06-May-88	VER	BARRANCAS	36M	CHI	KM	620	BF/MML	18-May-88	VER	ALVARADO	12	40
24566	06-May-88	VER	BARRANCAS	36M	CHI	KM	560	BF/MML	14-May-88	VER	CASITAS	8	120
24567	06-May-88	VER	BARRANCAS	36M	CHI	KM	670	BF/MML	18-May-88	VER	ALVARADO	12	40
24572	07-May-88	VER	BARRANCAS	36M	CHI	KM	580	AT/VER	07-Jul-88	VER	COATZACOALCOS	61	85
24588	17-May-88	VER	BARRANCAS	30M	CHI	KM	660	AT/VER	09-Jun-88	VER	ALVARADO	23	40
24591	17-May-88	VER	BARRANCAS	30M	CHI	KM	670	AT/VER	02-Jun-88	VER	ALVARADO	16	40
24596	17-May-88	VER	BARRANCAS	30M	CHI	KM	560	AT/VER	18-May-88	VER	ALVARADO	1	40
24598	18-May-88	VER	BOCA DEL RIO	20M	RV	KM	700	JV/MEX	24-Aug-88	VER	VERACRUZ	98	3
24617	02-Feb-88	YUC	SISAL	5M	CHI	SM	630	CD/TAM	19-Feb-88	YUC	SISAL	17	10
24624	03-Feb-88	YUC	SISAL	5M	CHI	KM	540	CD-CAM	22-Nov-90	YUC	SISAL	1023	0
24625	03-Feb-88	YUC	SISAL	5M	CHI	SM	500	BF/MML	18-Feb-88	YUC	TELCHAC	15	10
24626	03-Feb-88	YUC	P.P/SISAL	5M	CHI	SM	570	CD/TAM	23-May-88	YUC	SISAL	110	0
24630	03-May-88	VER	BARRANCAS	15M	CHI	KM	760	BF/MML	10-Jul-89	LA	CAMERON	433	900
24634	03-May-88	VER	BARRANCAS	15M	CHI	KM	690	BF/MML	07-Jun-88	VER	ALVARADO	35	40
24635	03-May-88	VER	BARRANCAS	15M	CHI	KM	590	BF/MML	17-May-88	VER	ALVARADO	14	40
24647	04-May-88	VER	BARRANCAS	40M	CHI	KM	680	RL/YUC	19-May-88	VER	ALVARADO	15	40
24704	28-Mar-90	VER	MOCAMBO		ALM	SM	340	V.I.S.B.	30-Mar-90	VER	BOCA DEL RIO	1	1
24713	30-Mar-90	VER	MOCAMBO	13M	ALM	SM	320	V.I.S.B.	01-Apr-90	VER	MOCAMBO	2	1
24724	05-Apr-90	VER	MOCAMBO	13M	ALM	SM	378	V.I.S.B.	10-Jun-90	VER	ANTON LIZARDO	66	5
24725	05-Apr-90	VER	MOCAMBO	13M	ALM	SM	380	V.I.S.B.	16-Apr-90	VER	BOCA DEL RIO	11	1
24759	07-May-88	VER	BARRANCAS	36M	CHI	KM	657	RB/VER	11-May-88	VER	ALVARADO	4	40
24762	07-May-88	VER	BARRANCAS	36M	CHI	KM	628	RB/VER	28-Jun-88	VER	LERDO TEJADA	52	50
24763	07-May-88	VER	BARRANCAS	36M	CHI	KM	610	RB/VER	09-Jun-88	VER	BOCA DEL RIO	33	10
24767	05-Apr-90	VER	MOCAMBO	13M	ALM	SM	335	LS,AI,RB	06-Apr-90	VER	BOCA DEL RIO	1	1
24776	17-May-88	VER	BOCA DEL RIO	20M	RV	KM	580	JV/MEX	28-Aug-88	VER	CARAEL	103	20
24777	18-May-88	VER	BARRANCAS	30M	CHI	KM	580	BF/MML	27-Mar-90	VER	COATZACOALCOS	678	60
24784	18-May-88	VER	BARRANCAS	30M	CHI	KM	760	CN/MML	02-Jul-88	VER	BARRANCAS	45	0
24796	23-May-88	VER	BOCA DEL RIO	15M	RV	KM	670	CN/MML	10-Mar-89	YUC	CELESTUN	291	570
24810	21-Mar-90	VER	MOCAMBO	13M	ALM	SM	354	SS,CB,LS,	24-Mar-90	VER	BARRANCAS	3	7
24840	17-May-88	VER	BARRANCAS	30M	CHI	KM	600	JR/VER	26-May-88	VER	ALVARADO	9	40
24845	19-May-88	VER	BOCA DEL RIO	20M	RV	KM	710	JV/MEX	28-May-88	VER	ALVARADO	9	50
24846	22-Mar-90	VER	MOCAMBO	13M	ALM	SM	325	SS,CB,LS,	24-Mar-90	VER	VERACRUZ	2	1
24895	05-May-88	VER	BOCA DEL RIO	40M	RV	KM	720	BF/MML	17-May-88	VER	ALVARADO	12	40
24903	02-May-88	VER	BARRANCAS	15M	CHI	KM	560	RB/VER	18-May-88	VER	ALVARADO	16	40
24917	04-May-88	VER	BARRANCAS	40M	CHI	KM	685	CS/VER	06-Jun-88	VER	BARRANCAS	33	0
24919	05-May-88	VER	BARRANCAS	18M	CHI	KM	510	RL/YUC	25-May-88	VER	ALVARADO	20	40

Appendix 2. King (KM) and Spanish (SM) mackerel returns from Mexico.

Tag #	Release Date	Area	Sub-Area	Depth	Gear	Sp	FL (mm)	Tagger	Capture Date	Area	Sub-Area	Days of Freedom	Distance (miles)
24919	10-Apr-90	VER	MOCAMBO	13M	ALM	SM	480		12-Apr-90	VER	ALVARADO	2	15
24928	06-May-88	VER	BOCA DEL RIO	30M	RV	KM	690	CS/VER	10-Jun-88	VER	A.LIZARDO	35	5
24929	06-May-88	VER	BOCA DEL RIO	30M	RV	KM	680	CS/VER	02-Jun-88	VER	ALVARADO	27	50
24933	06-May-88	VER	BOCA DEL RIO	30M	RV	KM	540	CS/VER	22-May-88	VER	BOCA DEL RIO	16	10
24934	06-May-88	VER	BOCA DEL RIO	30M	RV	KM	610	CS/VER	20-May-88	VER	BOCA DEL RIO	14	10
24947	19-Apr-90	VER	MOCAMBO	13M	ALM	SM	365	LS,AI,RB	21-Apr-90	VER	VERACRUZ	2	1
24950	18-May-88	VER	BARRANCAS	40M	RV	KM	670	RB/VER	14-Apr-89	VER	A.LIZARDO	331	10
24952	05-May-88	VER	BARRANCAS	18M	CHI	KM	715	RB/VER	17-May-88	VER	BARRANCAS	12	0
24954	05-May-88	VER	BARRANCAS	18M	CHI	KM	647	RB/VER	25-May-88	VER	COATZACOALCOS	20	85
24960	05-May-88	VER	BARRANCAS	18M	CHI	KM	704	RB/VER	21-May-88	VER	ALVARADO	16	40
24967	05-May-88	VER	BARRANCAS	18M	CHI	KM	613	RB/VER	12-May-88	VER	ALVARADO	7	40
24969	05-May-88	VER	BARRANCAS	18M	CHI	KM	520	RB/VER	16-May-88	VER	ALVARADO	11	40
24982	06-May-88	VER	BARRANCAS	36M	CHI	KM	543	AT/VER	17-May-88	VER	ALVARADO	11	40
24986	06-May-88	VER	BARRANCAS	36M	CHI	KM	700	AT/VER	17-May-88	VER	ALVARADO	11	40
24996	12-May-88	VER	BARRANCAS	40M	CHI	KM	680	RB/VER	17-May-88	VER	ALVARADO	5	40
25003	05-May-88	VER	BOCA DEL RIO	40M	RV	KM	650	BF/MML	21-May-88	VER	ALVARADO	16	40
25007	05-May-88	VER	BOCA DEL RIO	40M	RV	KM	620	BF/MML	17-May-88	VER	BOCA DEL RIO	12	10
25011	05-May-88	VER	BOCA DEL RIO	30M	RV	KM	670	BF/MML	20-Aug-89	VER	ALVARADO	472	50
25015	06-May-88	VER	BARRANCAS	36M	CHI	KM	580	RL/YUC	04-Jun-88	VER	ALVARADO	29	40
25029	06-May-88	VER	BARRANCAS	36M	CHI	KM	670	RL/YUC	07-Jun-88	VER	COATZACOALCOS	32	85
25033	06-May-88	VER	BARRANCAS	36M	CHI	KM	750	RL/YUC	07-Jun-88	VER	ALVARADO	32	40
25034	06-May-88	VER	BARRANCAS	36M	CHI	KM	880	RL/YUC	07-Jun-88	VER	ALVARADO	32	40
25038	06-May-88	VER	BARRANCAS	36M	CHI	KM	630	RL/YUC	17-May-88	VER	ALVARADO	11	40
25040	07-May-88	VER	BARRANCAS	36M	CHI	KM	560	RL/YUC	15-May-88	VER	ALVARADO	8	40
25041	08-May-88	VER	BARRANCAS	36M	CHI	KM	590	RL/YUC	12-May-88	VER	ALVARADO	4	40
25044	11-May-88	VER	BARRANCAS	40M	CHI	KM	700	RB/VER	17-May-88	VER	ALVARADO	6	40
25049	06-May-88	VER	BARRANCAS	36M	CHI	KM	760	RL/YUC	14-Mar-89	VER	COATZACOALCOS	312	85
25052	11-May-88	VER	BARRANCAS	40M	CHI	KM	690	RB/VER	13-Jun-88	VER	A.LIZARDO	33	5
25111	10-May-88	VER	BOCA DEL RIO	40M	RV	KM	680	AT/VER	09-Jun-88	VER	ALVARADO	30	50
25121	16-May-88	VER	BARRANCAS	30M	CHI	KM	630	RB/VER	03-Jun-88	VER	ALVARADO	18	40
25128	16-May-88	VER	BARRANCAS	30M	CHI	KM	652	RB/VER	07-Jun-88	VER	ALVARADO	22	40
25129	16-May-88	VER	BARRANCAS	30M	CHI	KM	513	RB/VER	11-Jun-88	VER	BOCA DEL RIO	26	10
25130	16-May-88	VER	BARRANCAS	30M	CHI	KM	710	RB/VER	01-Jun-88	VER	ALVARADO	16	40
25162	16-May-88	VER	BARRANCAS	30M	CHI	KM	680	BF/MML	14-Aug-89	VER	ALVARADO	455	40
25172	16-May-88	VER	BARRANCAS	40M	CHI	KM	590	BF/MML	13-May-89	VER	VERACRUZ	362	30
25199	17-May-88	VER	BARRANCAS	30M	CHI	KM	610	RB/VER	07-Jun-88	VER	ALVARADO	21	40
25230	20-Mar-89	CAM	SEYBAPLAYA	5M		SM	360	FS/CAM	28-Apr-89	CAM	SABANCUY	39	50
25237	20-Mar-89	CAM	SEYBAPLAYA	5M		SM	340	FS/CAM	30-Apr-89	CAM	ISLA AGUADA	41	65
25256	19-May-88	VER	BARRANCAS	30M	CHI	KM	750	CN/MML	14-Nov-88	VER	ALVARADO	179	10
25308	18-May-88	VER	BARRANCAS	40M	CHI	KM	739	RB/VER	28-May-88	VER	ALVARADO	10	40
25312	18-May-88	VER	BARRANCAS	40M	CHI	KM	585	RB/VER	28-May-88	VER	ALVARADO	10	40
25316	18-May-88	VER	BARRANCAS	40M	CHI	KM	559	RB/VER	27-Jun-88	VER	PLAYA NORTE	40	30
25316	18-May-88	VER	BARRANCAS	40M	CHI	KM	559	RB-VER	01-Aug-90	VER	ANTIGUA	805	30
25324	19-May-88	VER	BARRANCAS	30M	CHI	KM	610	SS/MEX	28-May-88	VER	ALVARADO	9	40
25325	19-May-88	VER	BARRANCAS	30M	CHI	KM	685	SS/MEX	30-May-88	VER	BARRANCAS	11	0
25328	19-May-88	VER	BARRANCAS	30M	CHI	KM	570	SS/MEX	07-Jun-88	VER	ALVARADO	19	40
25446	08-May-89	VER	BARRANCAS	56M	CHI	KM	680	RL/YUC	23-May-89	VER	ALVARADO	15	40
25455	02-May-89	VER	BARRANCAS	25M	CHI	KM	625	WF/NMFS	18-Aug-89	VER	CHACHALACUS	108	12
25465	02-May-89	VER	BARRANCAS	25M	CHI	KM	525	WF/NMFS	11-May-89	VER	VERACRUZ	9	30
25472	2-MAY-89	VER	BARRANCAS		CHL	KM	570	W.FABLE	6-AUG-91	TEXAS	S.PADRE ISLAND	826	500
25483	02-May-89	VER	BARRANCAS	25M	CHI	KM	720	WF/NMFS	14-Jun-89	VER	VERACRUZ	43	20
25493	03-May-89	VER	BARRANCAS	25M	CHI	KM	720	WF/NMFS	17-May-89	VER	ALVARADO	14	40
25494	03-May-89	VER	BARRANCAS	25M	CHI	KM	550	WF/NMFS	30-Jan-90	CAM	SEYBAPLAYA	272	390
25496	03-May-89	VER	BARRANCAS	25M	CHI	KM	690	WF/NMFS	30-May-89	VER	ALVARADO	27	40
29711	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	380	LS	08-Mar-90	VER	BOCA DEL RIO	3	1
29713	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	358	LS	06-Mar-90	VER	BOCA DEL RIO	1	1
29718	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	385	LS	10-Mar-90	VER	BARRANCAS	5	7
29720	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	390	LS	06-Mar-90	VER	ANTON LIZARDO	1	5
29734	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	345	LS	06-Mar-90	VER	BOCA DEL RIO	1	1
29738	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	350	LS	06-Mar-90	VER	BOCA DEL RIO	1	1
29739	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	390	LS	22-Mar-90	VER	ANTON LIZARDO	17	5
29740	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	445	LS	06-Mar-90	VER	BOCA DEL RIO	1	1
29768	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	355	LS	22-Mar-90	TEX	BRAZ SANT PS	17	550
29778	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	508	LS	07-Mar-90	VER	BOCA DEL RIO	2	1
29813	05-Mar-90	VER	MOCAMBO	13M	ALM	SM	348	LS	08-Mar-90	VER	BOCA DEL RIO	3	1
29824	06-Mar-90	VER	MOCAMBO	13M	ALM	SM	368	LS,RB,AI	08-Jun-90	VER	BOCANA	94	1
29826	06-Mar-90	VER	MOCAMBO	13M	ALM	SM	365	LS	08-Mar-90	VER	BOCA DEL RIO	2	1
29831	06-Mar-90	VER	MOCAMBO	13M	ALM	SM	365	LS	14-Mar-90	VER	VERACRUZ	8	5
29925	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	415	LS	07-Mar-90	VER	BOCA DEL RIO	0	1
29961	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	370	LS	09-Mar-90	VER	BOCA DEL RIO	2	1
29968	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	355	LS	08-Mar-90	VER	VERACRUZ	1	5
29996	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	370	LS	08-Mar-90	VER	BOCA DEL RIO	1	1
29999	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	374	LS	09-Mar-90	VER	BOCA DEL RIO	2	1
30008	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	395	LS	08-Mar-90	VER	BOCA DEL RIO	1	1
30016	07-Mar-90	VER	MOCAMBO	13M	ALM	SM	410	LS	09-Mar-90	VER	BOCA DEL RIO	2	1
30026	08-Mar-90	VER	MOCAMBO	13M	ALM	SM	340	LS	09-Mar-90	VER	BOCA DEL RIO	1	1

Appendix 2. King (KM) and Spanish (SM) mackerel returns from Mexico.

Tag #	Release Date	Area	Sub-Area	Depth	Gear	Sp	FL (mm)	Tagger	Capture Date	Area	Sub-Area	Days of Freedom	Distance (miles)
30032	08-Mar-90	VER	MOCAMBO	13M	ALM	SM	405	LS	08-Mar-90	VER	BOCA DEL RIO	0	1
30034	08-Mar-90	VER	MOCAMBO	13M	ALM	SM	440	LS	10-Mar-90	VER	BOCA DEL RIO	2	1
30037	08-Mar-90	VER	MOCAMBO	13M	ALM	SM	380	LS	10-Mar-90	VER	VERACRUZ	2	5
30038	08-Mar-90	VER	MOCAMBO	13M	ALM	SM	420	LS	10-Mar-90	VER	BOCA DEL RIO	2	1
30062	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	390	LS	11-Mar-90	VER	BOCA DEL RIO	2	1
30068	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	355	LS	10-Mar-90	VER	BOCA DEL RIO	1	1
30071	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	345	LS	11-Mar-90	VER	BOCA DEL RIO	2	1
30076	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	368	LS	23-Mar-90	VER	ALVARADO	14	15
30088	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	355	LS	10-Mar-90	VER	BOCA DEL RIO	1	1
30107	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	380	LS	12-Mar-90	VER	BOCA DEL RIO	3	1
30110	09-Mar-90	VER	MOCAMBO	13M	ALM	SM	358	LS	10-Mar-90	VER	BOCA DEL RIO	1	1
30119	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	400	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30125	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	400	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30145	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	420	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30147	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	395	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30152	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	374	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30187	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	385	LS	12-Mar-90	VER	BOCA DEL RIO	2	1
30189	10-Mar-90	VER	MOCAMBO	13M	ALM	SM	349	LS	11-Mar-90	VER	BOCA DEL RIO	1	1
30211	12-Mar-90	VER	MOCAMBO	13M	ALM	SM	420	LS	13-Mar-90	VER	BOCA DEL RIO	1	1
30228	12-Mar-90	VER	MOCAMBO	13M	ALM	SM	367	LS	14-Mar-90	VER	VERACRUZ	2	15
30242	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	363	LS	14-Mar-90	VER	BOCA DEL RIO	1	1
30252	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	373	LS	14-Mar-90	VER	ANTON LIZARDO	1	5
30260	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	340	LS	14-Mar-90	VER	BOCA DEL RIO	1	1
30262	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	328	LS	20-Mar-90	VER	ANTON LIZARDO	7	5
30274	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	374	LS	14-Mar-90	VER	ANTON LIZARDO	1	5
30278	13-Mar-90	VER	MOCAMBO	13M	ALM	SM	385	LS	14-Mar-90	VER	ALVARADO	1	15
30314	6-MAR-91	VER	MOCAMBO		ALM	SM	365	ALF/RAF	7-MAR-91	VER	PUNTA DEL MORRA	1	1
30322	6-MAR-91	VER	MOCAMBO		ALM	SM	350	ALF/RAF	11-MAR-91	VER	ALVARADO	5	25
30328	6-MAR-91	VER	MOCAMBO		ALM	SM	447	ALF/RAF	8-MAR-91	VER	BARRA	2	1
30333	6-MAR-91	VER	MOCAMBO		ALM	SM	404	ALF/RAF	10-MAR-91	VER	LAS BARRANCAS	4	18
30336	6-MAR-91	VER	MOCAMBO		ALM	SM	400	ALF/RAF	7-MAR-91	VER	BOCA DEL RIO	1	1
30337	6-MAR-91	VER	MOCAMBO		ALM	SM	380	ALF/RAF	8-MAR-91	VER	BARRA	2	1
30338	6-MAR-91	VER	MOCAMBO		ALM	SM	390	ALF/RAF	8-MAR-91	VER	BARRA	2	1
30347	6-MAR-91	VER	MOCAMBO		ALM	SM	360	ALF/RAF	8-MAR-91	VER	BARRA	2	1
30348	6-MAR-91	VER	MOCAMBO		ALM	SM	400	ALF/RAF	18-MAR-91	VER	ARBOLILLO	12	1
30364	12-MAR-91	VER	MOCAMBO		ALM	SM	370	ALF/RAF	16-MAR-91	VER	BARRA	4	1
30383	12-MAR-91	VER	MOCAMBO		ALM	SM	365	ALF/RAF	15-MAR-91	VER	QUIOSEO	3	1
30391	12-MAR-91	VER	MOCAMBO		ALM	SM	390	ALF/RAF	13-MAR-91	VER	CHACHALACAS	1	1
30409	13-MAR-91	VER	MOCAMBO		ALM	SM	420	ALF/RAF	15-MAR-91	VER	BAJOS PAJAROS	2	1
30410	13-MAR-91	VER	MOCAMBO		ALM	SM	338	ALF/RAF	15-MAR-91	VER	LOS PINOS	2	1
30434	4-APR-91	VER	MOCAMBO		ALM	SM	390	ALF/RAF	5-APR-91	VER	LOGENIERO	1	1
30437	4-APR-91	VER	MOCAMBO		ALM	SM	406	ALF/RAF	5-APR-91	VER	FRENTE ANTENO	1	1
30441	5-APR-91	VER	MOCAMBO		ALM	SM	433	ALF/RAF	13-APR-91	VER	LA BOCANA	8	1
30455	6-APR-91	VER	MOCAMBO		ALM	SM	380	KA/AL/RA	11-APR-91	VER	LA SALERA	5	1
30457	6-APR-91	VER	MOCAMBO		ALM	SM	340	KA/AL/RA	7-APR-91	VER	MANDINGA	1	1

APPENDIX III

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	52	2
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	54	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	55	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	59	2
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	60	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	61	3
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	62	5
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	63	10
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	64	7
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	65	8
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	66	17
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	67	10
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	68	11
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	69	12
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	70	20
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	71	14
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	72	15
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	73	6
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	74	9
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	75	10
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	76	5
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	77	6
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	78	9
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	79	5
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	80	7
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	81	6
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	82	3
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	83	4
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	84	3
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	85	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	86	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	87	2
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	88	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	89	2
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	90	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	91	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	94	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	95	1
YUC	RIO-LAGARTOS	11	13	91	GNT	KM	9	99	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	34	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	41	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	43	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	44	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	45	3
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	47	5
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	48	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	49	2
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	50	6
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	51	2
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	52	6
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	53	3
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	54	6
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	55	6
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	56	3
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	57	4
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	58	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	59	5
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	60	1
YUC	RIO-LAGARTOS	11	13	91	GNT	CM	9	61	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	37	2
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	38	2
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	39	4
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	40	3
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	41	7
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	42	7
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	43	5
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	44	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	45	2
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	46	2
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	47	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	48	2
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	49	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	50	5
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	51	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	52	1
YUC	RIO-LAGARTOS	11	13	91	GNT	SM	9	58	1
YUC	SAN FELIPE	11	13	91	GNT	SM	9	41	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	SAN FELIPE	11	13	91	GNT	SM	9	50	1
YUC	SAN FELIPE	11	13	91	GNT	CM	9	48	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	53	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	57	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	58	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	59	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	60	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	61	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	62	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	63	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	64	3
YUC	SAN FELIPE	11	13	91	GNT	KM	9	65	3
YUC	SAN FELIPE	11	13	91	GNT	KM	9	66	5
YUC	SAN FELIPE	11	13	91	GNT	KM	9	67	5
YUC	SAN FELIPE	11	13	91	GNT	KM	9	68	7
YUC	SAN FELIPE	11	13	91	GNT	KM	9	69	7
YUC	SAN FELIPE	11	13	91	GNT	KM	9	70	5
YUC	SAN FELIPE	11	13	91	GNT	KM	9	71	4
YUC	SAN FELIPE	11	13	91	GNT	KM	9	72	6
YUC	SAN FELIPE	11	13	91	GNT	KM	9	73	8
YUC	SAN FELIPE	11	13	91	GNT	KM	9	74	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	75	3
YUC	SAN FELIPE	11	13	91	GNT	KM	9	76	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	77	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	78	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	79	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	80	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	81	3
YUC	SAN FELIPE	11	13	91	GNT	KM	9	83	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	84	3
YUC	SAN FELIPE	11	13	91	GNT	KM	9	86	2
YUC	SAN FELIPE	11	13	91	GNT	KM	9	88	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	89	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	94	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	95	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	97	1
YUC	SAN FELIPE	11	13	91	GNT	KM	9	109	1
YUC	CELESTUN	11	13	91	GNT	KM	9	61	1
YUC	CELESTUN	11	13	91	GNT	KM	9	62	1
YUC	CELESTUN	11	13	91	GNT	KM	9	64	1
YUC	CELESTUN	11	13	91	GNT	KM	9	65	2
YUC	CELESTUN	11	13	91	GNT	KM	9	66	1
YUC	CELESTUN	11	13	91	GNT	KM	9	68	3
YUC	CELESTUN	11	13	91	GNT	KM	9	69	2
YUC	CELESTUN	11	13	91	GNT	KM	9	70	1
YUC	CELESTUN	11	13	91	GNT	KM	9	71	2
YUC	CELESTUN	11	13	91	GNT	KM	9	72	7
YUC	CELESTUN	11	13	91	GNT	KM	9	74	3
YUC	CELESTUN	11	13	91	GNT	KM	9	75	1
YUC	CELESTUN	11	13	91	GNT	KM	9	76	2
YUC	CELESTUN	11	13	91	GNT	KM	9	77	1
YUC	CELESTUN	11	13	91	GNT	KM	9	78	2
YUC	CELESTUN	11	13	91	GNT	KM	9	80	2
YUC	CELESTUN	11	13	91	GNT	KM	9	81	1
YUC	CELESTUN	11	13	91	GNT	KM	9	82	3
YUC	CELESTUN	11	13	91	GNT	KM	9	83	1
YUC	CELESTUN	11	13	91	GNT	KM	9	84	1
YUC	CELESTUN	11	13	91	GNT	KM	9	89	1
YUC	CELESTUN	11	14	91	GNT	SM	9	38	1
YUC	CELESTUN	11	14	91	GNT	SM	9	39	2
YUC	CELESTUN	11	14	91	GNT	SM	9	40	6
YUC	CELESTUN	11	14	91	GNT	SM	9	41	4
YUC	CELESTUN	11	14	91	GNT	SM	9	43	1
YUC	CELESTUN	11	14	91	GNT	SM	9	44	4
YUC	CELESTUN	11	14	91	GNT	SM	9	45	4
YUC	CELESTUN	11	14	91	GNT	SM	9	47	1
YUC	CELESTUN	11	14	91	GNT	SM	9	48	3
YUC	CELESTUN	11	14	91	GNT	SM	9	49	2
YUC	CELESTUN	11	14	91	GNT	SM	9	50	2
YUC	CELESTUN	11	14	91	GNT	SM	9	51	1
YUC	CELESTUN	11	14	91	GNT	SM	9	52	1
YUC	CELESTUN	11	14	91	GNT	SM	9	53	1
YUC	CELESTUN	11	14	91	GNT	SM	9	54	1
YUC	CELESTUN	11	14	91	GNT	SM	9	56	1
YUC	CELESTUN	11	14	91	GNT	SM	9	57	2
YUC	CELESTUN	11	14	91	GNT	CM	9	39	1
YUC	CELESTUN	11	14	91	GNT	CM	9	40	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	11	14	91	GNT	CM	9	43	1
YUC	CELESTUN	11	14	91	GNT	CM	9	45	1
YUC	CELESTUN	11	14	91	GNT	CM	9	46	3
YUC	CELESTUN	11	14	91	GNT	CM	9	47	1
YUC	CELESTUN	11	14	91	GNT	CM	9	48	2
YUC	CELESTUN	11	14	91	GNT	CM	9	51	1
YUC	CELESTUN	11	14	91	GNT	KM	9	48	1
YUC	CELESTUN	11	14	91	GNT	KM	9	49	1
YUC	CELESTUN	11	15	91	GNT	SM	9	36	1
YUC	CELESTUN	11	15	91	GNT	SM	9	39	1
YUC	CELESTUN	11	15	91	GNT	SM	9	40	1
YUC	CELESTUN	11	15	91	GNT	SM	9	43	1
YUC	CELESTUN	11	15	91	GNT	SM	9	44	2
YUC	CELESTUN	11	15	91	GNT	SM	9	47	2
YUC	CELESTUN	11	15	91	GNT	SM	9	48	3
YUC	CELESTUN	11	15	91	GNT	SM	9	49	4
YUC	CELESTUN	11	15	91	GNT	SM	9	50	5
YUC	CELESTUN	11	15	91	GNT	SM	9	51	2
YUC	CELESTUN	11	15	91	GNT	SM	9	53	5
YUC	CELESTUN	11	15	91	GNT	SM	9	54	4
YUC	CELESTUN	11	15	91	GNT	SM	9	55	1
YUC	CELESTUN	11	15	91	GNT	SM	9	57	2
YUC	CELESTUN	11	15	91	GNT	SM	9	58	3
YUC	CELESTUN	11	15	91	GNT	SM	9	59	1
YUC	CELESTUN	11	15	91	GNT	SM	9	60	3
YUC	CELESTUN	11	15	91	GNT	SM	9	61	1
YUC	CELESTUN	11	15	91	GNT	SM	9	62	1
YUC	CELESTUN	11	15	91	GNT	SM	9	63	1
YUC	CELESTUN	11	15	91	GNT	CM	9	44	1
YUC	CELESTUN	11	15	91	GNT	CM	9	46	2
YUC	CELESTUN	11	15	91	GNT	CM	9	47	1
YUC	CELESTUN	11	15	91	GNT	CM	9	48	1
YUC	CELESTUN	11	15	91	GNT	CM	9	49	1
YUC	CELESTUN	11	15	91	GNT	CM	9	50	1
YUC	CELESTUN	11	15	91	GNT	CM	9	51	1
YUC	CELESTUN	11	15	91	GNT	CM	9	52	2
YUC	CELESTUN	11	15	91	GNT	CM	9	53	3
YUC	CELESTUN	11	15	91	GNT	CM	9	54	1
YUC	CELESTUN	11	15	91	GNT	CM	9	55	2
YUC	CELESTUN	11	15	91	GNT	CM	9	56	6
YUC	CELESTUN	11	15	91	GNT	CM	9	57	2
YUC	CELESTUN	11	15	91	GNT	CM	9	58	2
YUC	CELESTUN	11	15	91	GNT	CM	9	59	1
YUC	CELESTUN	11	15	91	GNT	CM	9	60	3
YUC	CELESTUN	11	15	91	GNT	CM	9	62	1
YUC	CELESTUN	11	15	91	GNT	CM	9	63	3
YUC	CELESTUN	11	15	91	GNT	CM	9	64	1
YUC	CELESTUN	11	15	91	GNT	CM	9	66	2
YUC	CELESTUN	11	15	91	GNT	KM	9	43	1
YUC	CELESTUN	11	15	91	GNT	KM	9	48	1
YUC	CELESTUN	11	15	91	GNT	KM	9	50	1
YUC	CELESTUN	11	15	91	GNT	KM	9	51	2
YUC	CELESTUN	11	15	91	GNT	KM	9	54	2
YUC	CELESTUN	11	15	91	GNT	KM	9	55	1
YUC	CELESTUN	11	15	91	GNT	KM	9	56	1
YUC	CELESTUN	11	15	91	GNT	KM	9	57	7
YUC	CELESTUN	11	15	91	GNT	KM	9	58	2
YUC	CELESTUN	11	15	91	GNT	KM	9	59	1
YUC	CELESTUN	11	15	91	GNT	KM	9	61	3
YUC	CELESTUN	11	15	91	GNT	KM	9	62	1
YUC	CELESTUN	11	15	91	GNT	KM	9	63	1
YUC	CELESTUN	11	15	91	GNT	KM	9	64	3
YUC	CELESTUN	11	15	91	GNT	KM	9	65	4
YUC	CELESTUN	11	15	91	GNT	KM	9	66	1
YUC	CELESTUN	11	15	91	GNT	KM	9	67	1
YUC	CELESTUN	11	15	91	GNT	KM	9	68	5
YUC	CELESTUN	11	15	91	GNT	KM	9	70	1
YUC	CELESTUN	11	15	91	GNT	KM	9	71	2
YUC	CELESTUN	11	15	91	GNT	KM	9	72	6
YUC	CELESTUN	11	15	91	GNT	KM	9	73	5
YUC	CELESTUN	11	15	91	GNT	KM	9	74	3
YUC	CELESTUN	11	15	91	GNT	KM	9	75	2
YUC	CELESTUN	11	15	91	GNT	KM	9	76	1
YUC	CELESTUN	11	15	91	GNT	KM	9	77	5
YUC	CELESTUN	11	15	91	GNT	KM	9	78	4
YUC	CELESTUN	11	15	91	GNT	KM	9	79	2
YUC	CELESTUN	11	15	91	GNT	KM	9	80	3

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	11	15	91	GNT	KM	9	81	1
YUC	CELESTUN	11	15	91	GNT	KM	9	83	3
YUC	CELESTUN	11	15	91	GNT	KM	9	85	1
YUC	CELESTUN	11	15	91	GNT	KM	9	86	1
YUC	CELESTUN	11	15	91	GNT	KM	9	87	3
YUC	CELESTUN	11	15	91	GNT	KM	9	88	2
YUC	CELESTUN	11	15	91	GNT	KM	9	89	1
YUC	CELESTUN	11	15	91	GNT	KM	9	90	1
YUC	CELESTUN	11	15	91	GNT	KM	9	93	1
YUC	SAN FELIPE	11	15	91	GNT	KM	9	71	1
YUC	SAN FELIPE	11	15	91	GNT	KM	9	73	1
YUC	SAN FELIPE	11	15	91	GNT	KM	9	75	1
YUC	SAN FELIPE	11	15	91	GNT	KM	9	80	1
YUC	HOLBOX	11	16	91	GNT	SM	9	20	1
YUC	HOLBOX	11	16	91	GNT	SM	9	27	1
YUC	HOLBOX	11	16	91	GNT	SM	9	32	1
YUC	HOLBOX	11	16	91	GNT	SM	9	33	2
YUC	HOLBOX	11	16	91	GNT	SM	9	34	4
YUC	HOLBOX	11	16	91	GNT	SM	9	35	6
YUC	HOLBOX	11	16	91	GNT	SM	9	36	9
YUC	HOLBOX	11	16	91	GNT	SM	9	37	10
YUC	HOLBOX	11	16	91	GNT	SM	9	38	20
YUC	HOLBOX	11	16	91	GNT	SM	9	39	15
YUC	HOLBOX	11	16	91	GNT	SM	9	40	23
YUC	HOLBOX	11	16	91	GNT	SM	9	41	10
YUC	HOLBOX	11	16	91	GNT	SM	9	42	12
YUC	HOLBOX	11	16	91	GNT	SM	9	43	3
YUC	HOLBOX	11	16	91	GNT	SM	9	44	7
YUC	HOLBOX	11	16	91	GNT	SM	9	45	3
YUC	HOLBOX	11	16	91	GNT	SM	9	46	6
YUC	HOLBOX	11	16	91	GNT	SM	9	47	5
YUC	HOLBOX	11	16	91	GNT	SM	9	48	4
YUC	HOLBOX	11	16	91	GNT	SM	9	49	4
YUC	HOLBOX	11	16	91	GNT	SM	9	50	7
YUC	HOLBOX	11	16	91	GNT	SM	9	51	8
YUC	HOLBOX	11	16	91	GNT	SM	9	52	11
YUC	HOLBOX	11	16	91	GNT	SM	9	53	2
YUC	HOLBOX	11	16	91	GNT	SM	9	54	4
YUC	HOLBOX	11	16	91	GNT	SM	9	55	2
YUC	HOLBOX	11	16	91	GNT	SM	9	56	1
YUC	HOLBOX	11	16	91	GNT	CM	9	35	1
YUC	HOLBOX	11	16	91	GNT	CM	9	40	1
YUC	HOLBOX	11	16	91	GNT	CM	9	41	1
YUC	HOLBOX	11	16	91	GNT	CM	9	42	1
YUC	HOLBOX	11	16	91	GNT	CM	9	44	3
YUC	HOLBOX	11	16	91	GNT	CM	9	45	1
YUC	HOLBOX	11	16	91	GNT	CM	9	47	1
YUC	HOLBOX	11	16	91	GNT	CM	9	48	4
YUC	HOLBOX	11	16	91	GNT	CM	9	50	1
YUC	HOLBOX	11	16	91	GNT	CM	9	51	3
YUC	HOLBOX	11	16	91	GNT	CM	9	54	1
YUC	HOLBOX	11	16	91	GNT	CM	9	56	1
YUC	HOLBOX	11	16	91	GNT	CM	9	58	2
YUC	HOLBOX	11	16	91	GNT	CM	9	65	1
YUC	HOLBOX	11	16	91	GNT	KM	9	43	2
YUC	HOLBOX	11	16	91	GNT	KM	9	44	4
YUC	HOLBOX	11	16	91	GNT	KM	9	45	2
YUC	HOLBOX	11	16	91	GNT	KM	9	46	4
YUC	HOLBOX	11	16	91	GNT	KM	9	47	3
YUC	HOLBOX	11	16	91	GNT	KM	9	49	5
YUC	HOLBOX	11	16	91	GNT	KM	9	50	6
YUC	HOLBOX	11	16	91	GNT	KM	9	51	10
YUC	HOLBOX	11	16	91	GNT	KM	9	52	11
YUC	HOLBOX	11	16	91	GNT	KM	9	53	18
YUC	HOLBOX	11	16	91	GNT	KM	9	54	22
YUC	HOLBOX	11	16	91	GNT	KM	9	55	13
YUC	HOLBOX	11	16	91	GNT	KM	9	56	11
YUC	HOLBOX	11	16	91	GNT	KM	9	57	6
YUC	HOLBOX	11	16	91	GNT	KM	9	58	10
YUC	HOLBOX	11	16	91	GNT	KM	9	59	6
YUC	HOLBOX	11	16	91	GNT	KM	9	60	7
YUC	HOLBOX	11	16	91	GNT	KM	9	61	10
YUC	HOLBOX	11	16	91	GNT	KM	9	62	24
YUC	HOLBOX	11	16	91	GNT	KM	9	63	22
YUC	HOLBOX	11	16	91	GNT	KM	9	64	30
YUC	HOLBOX	11	16	91	GNT	KM	9	65	46
YUC	HOLBOX	11	16	91	GNT	KM	9	66	38

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	HOLBOX	11	16	91	GNT	KM	9	67	40
YUC	HOLBOX	11	16	91	GNT	KM	9	68	40
YUC	HOLBOX	11	16	91	GNT	KM	9	69	46
YUC	HOLBOX	11	16	91	GNT	KM	9	70	48
YUC	HOLBOX	11	16	91	GNT	KM	9	71	36
YUC	HOLBOX	11	16	91	GNT	KM	9	72	31
YUC	HOLBOX	11	16	91	GNT	KM	9	73	32
YUC	HOLBOX	11	16	91	GNT	KM	9	74	24
YUC	HOLBOX	11	16	91	GNT	KM	9	75	18
YUC	HOLBOX	11	16	91	GNT	KM	9	76	16
YUC	HOLBOX	11	16	91	GNT	KM	9	77	3
YUC	HOLBOX	11	16	91	GNT	KM	9	78	10
YUC	HOLBOX	11	16	91	GNT	KM	9	79	5
YUC	HOLBOX	11	16	91	GNT	KM	9	80	3
YUC	HOLBOX	11	16	91	GNT	KM	9	81	4
YUC	HOLBOX	11	16	91	GNT	KM	9	82	2
YUC	HOLBOX	11	16	91	GNT	KM	9	83	2
YUC	HOLBOX	11	16	91	GNT	KM	9	86	1
YUC	HOLBOX	11	16	91	GNT	KM	9	88	1
YUC	HOLBOX	11	16	91	GNT	KM	9	89	3
YUC	HOLBOX	11	16	91	GNT	KM	9	91	1
YUC	HOLBOX	11	16	91	GNT	KM	9	114	1
YUC	HOLBOX	11	16	91	GNT	BM	9	31	1
YUC	HOLBOX	11	16	91	GNT	BM	9	33	2
YUC	HOLBOX	11	16	91	GNT	BM	9	34	4
YUC	HOLBOX	11	16	91	GNT	BM	9	35	9
YUC	HOLBOX	11	16	91	GNT	BM	9	36	18
YUC	HOLBOX	11	16	91	GNT	BM	9	37	19
YUC	HOLBOX	11	16	91	GNT	BM	9	38	29
YUC	HOLBOX	11	16	91	GNT	BM	9	39	28
YUC	HOLBOX	11	16	91	GNT	BM	9	40	15
YUC	HOLBOX	11	16	91	GNT	BM	9	41	10
YUC	HOLBOX	11	16	91	GNT	BM	9	42	6
YUC	HOLBOX	11	16	91	GNT	BM	9	43	3
YUC	HOLBOX	11	16	91	GNT	BM	9	44	2
YUC	HOLBOX	11	16	91	GNT	BM	9	45	2
YUC	HOLBOX	11	16	91	GNT	BM	9	46	3
YUC	HOLBOX	11	16	91	GNT	BM	9	48	3
YUC	HOLBOX	11	16	91	GNT	BM	9	49	4
YUC	HOLBOX	11	16	91	GNT	BM	9	50	1
YUC	HOLBOX	11	16	91	GNT	BM	9	52	3
YUC	HOLBOX	11	16	91	GNT	BM	9	53	3
YUC	HOLBOX	11	16	91	GNT	BM	9	55	1
YUC	HOLBOX	11	16	91	GNT	BM	9	57	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	54	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	65	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	66	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	68	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	69	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	70	2
YUC	SAN FELIPE	11	16	91	GNT	KM	9	72	2
YUC	SAN FELIPE	11	16	91	GNT	KM	9	73	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	74	2
YUC	SAN FELIPE	11	16	91	GNT	KM	9	75	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	76	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	78	1
YUC	SAN FELIPE	11	16	91	GNT	KM	9	83	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	51	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	54	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	63	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	64	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	65	3
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	66	2
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	68	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	69	3
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	70	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	71	2
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	72	4
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	73	4
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	78	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	79	3
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	80	2
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	83	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	85	2
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	89	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	93	1
YUC	DZILAM DE BRAVO	11	21	91	GNT	KM	9	38	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	11	28	91	GNT	SM	9	32	1
YUC	CELESTUN	11	28	91	GNT	SM	9	34	1
YUC	CELESTUN	11	28	91	GNT	SM	9	36	1
YUC	CELESTUN	11	28	91	GNT	SM	9	39	3
YUC	CELESTUN	11	28	91	GNT	SM	9	40	1
YUC	CELESTUN	11	28	91	GNT	SM	9	41	9
YUC	CELESTUN	11	28	91	GNT	SM	9	42	5
YUC	CELESTUN	11	28	91	GNT	SM	9	43	4
YUC	CELESTUN	11	28	91	GNT	SM	9	44	1
YUC	CELESTUN	11	28	91	GNT	SM	9	45	3
YUC	CELESTUN	11	28	91	GNT	SM	9	46	1
YUC	CELESTUN	11	28	91	GNT	SM	9	49	1
YUC	CELESTUN	11	28	91	GNT	SM	9	51	1
YUC	CELESTUN	11	28	91	GNT	SM	9	55	1
YUC	CELESTUN	11	28	91	GNT	SM	9	56	1
YUC	CELESTUN	11	28	91	GNT	SM	9	57	1
YUC	CELESTUN	11	28	91	GNT	SM	9	59	1
YUC	CELESTUN	11	28	91	GNT	SM	9	60	2
YUC	CELESTUN	11	28	91	GNT	KM	9	54	1
YUC	CELESTUN	11	28	91	GNT	KM	9	56	1
YUC	CELESTUN	11	28	91	GNT	KM	9	62	1
YUC	CELESTUN	11	28	91	GNT	KM	9	65	1
YUC	CELESTUN	11	28	91	GNT	KM	9	66	1
YUC	CELESTUN	11	28	91	GNT	KM	9	67	3
YUC	CELESTUN	11	28	91	GNT	CM	9	58	1
YUC	CELESTUN	11	28	91	GNT	KM	9	71	1
YUC	CELESTUN	11	28	91	GNT	KM	9	92	1
YUC	SISAL	11	30	91	GNT	KM	9	62	1
YUC	SISAL	11	30	91	GNT	KM	9	63	1
YUC	SISAL	11	30	91	GNT	KM	9	66	3
YUC	SISAL	11	30	91	GNT	KM	9	67	1
YUC	SISAL	11	30	91	GNT	KM	9	68	3
YUC	SISAL	11	30	91	GNT	KM	9	69	2
YUC	SISAL	11	30	91	GNT	KM	9	70	3
YUC	SISAL	11	30	91	GNT	KM	9	71	2
YUC	SISAL	11	30	91	GNT	KM	9	72	2
YUC	SISAL	11	30	91	GNT	KM	9	73	1
YUC	SISAL	11	30	91	GNT	KM	9	74	3
YUC	SISAL	11	30	91	GNT	KM	9	75	1
YUC	SISAL	11	30	91	GNT	KM	9	76	2
YUC	SISAL	11	30	91	GNT	KM	9	77	3
YUC	SISAL	11	30	91	GNT	KM	9	78	1
YUC	SISAL	11	30	91	GNT	KM	9	79	3
YUC	SISAL	11	30	91	GNT	KM	9	82	1
YUC	SISAL	11	30	91	GNT	KM	9	83	4
YUC	SISAL	11	30	91	GNT	KM	9	86	1
YUC	SISAL	11	30	91	GNT	KM	9	87	1
YUC	SISAL	11	30	91	GNT	KM	9	88	1
YUC	SISAL	11	30	91	GNT	KM	9	89	2
YUC	SISAL	11	30	91	GNT	KM	9	90	1
YUC	SISAL	11	30	91	GNT	KM	9	91	2
YUC	SISAL	11	30	91	GNT	KM	9	92	2
YUC	SISAL	11	30	91	GNT	KM	9	96	2
YUC	SISAL	11	30	91	GNT	KM	9	98	1
YUC	SISAL	11	30	91	GNT	CM	9	57	1
YUC	SISAL	11	30	91	GNT	SM	9	47	1
YUC	CELESTUN	11	30	91	GNT	KM	9	36	1
YUC	CELESTUN	11	30	91	GNT	KM	9	37	1
YUC	CELESTUN	11	30	91	GNT	KM	9	38	1
YUC	CELESTUN	11	30	91	GNT	KM	9	39	1
YUC	CELESTUN	11	30	91	GNT	KM	9	40	3
YUC	CELESTUN	11	30	91	GNT	KM	9	41	4
YUC	CELESTUN	11	30	91	GNT	KM	9	42	6
YUC	CELESTUN	11	30	91	GNT	KM	9	43	2
YUC	CELESTUN	11	30	91	GNT	KM	9	44	4
YUC	CELESTUN	11	30	91	GNT	KM	9	45	7
YUC	CELESTUN	11	30	91	GNT	KM	9	46	3
YUC	CELESTUN	11	30	91	GNT	KM	9	47	2
YUC	CELESTUN	11	30	91	GNT	KM	9	48	4
YUC	CELESTUN	11	30	91	GNT	KM	9	49	3
YUC	CELESTUN	11	30	91	GNT	KM	9	50	3
YUC	CELESTUN	11	30	91	GNT	KM	9	51	1
YUC	CELESTUN	11	30	91	GNT	KM	9	52	2
YUC	CELESTUN	11	30	91	GNT	KM	9	53	1
YUC	CELESTUN	11	30	91	GNT	KM	9	54	1
YUC	CELESTUN	11	30	91	GNT	KM	9	55	2
YUC	CELESTUN	11	30	91	GNT	KM	9	56	4

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	11	30	91	GNT	KM	9	58	8
YUC	CELESTUN	11	30	91	GNT	KM	9	59	4
YUC	CELESTUN	11	30	91	GNT	KM	9	60	4
YUC	CELESTUN	11	30	91	GNT	KM	9	61	3
YUC	CELESTUN	11	30	91	GNT	KM	9	62	3
YUC	CELESTUN	11	30	91	GNT	KM	9	63	4
YUC	CELESTUN	11	30	91	GNT	KM	9	64	6
YUC	CELESTUN	11	30	91	GNT	KM	9	65	12
YUC	CELESTUN	11	30	91	GNT	KM	9	66	12
YUC	CELESTUN	11	30	91	GNT	KM	9	67	7
YUC	CELESTUN	11	30	91	GNT	KM	9	68	15
YUC	CELESTUN	11	30	91	GNT	KM	9	69	14
YUC	CELESTUN	11	30	91	GNT	KM	9	70	7
YUC	CELESTUN	11	30	91	GNT	KM	9	71	10
YUC	CELESTUN	11	30	91	GNT	KM	9	72	11
YUC	CELESTUN	11	30	91	GNT	KM	9	73	7
YUC	CELESTUN	11	30	91	GNT	KM	9	74	6
YUC	CELESTUN	11	30	91	GNT	KM	9	75	6
YUC	CELESTUN	11	30	91	GNT	KM	9	76	7
YUC	CELESTUN	11	30	91	GNT	KM	9	77	4
YUC	CELESTUN	11	30	91	GNT	KM	9	78	14
YUC	CELESTUN	11	30	91	GNT	KM	9	79	6
YUC	CELESTUN	11	30	91	GNT	KM	9	80	6
YUC	CELESTUN	11	30	91	GNT	KM	9	81	4
YUC	CELESTUN	11	30	91	GNT	KM	9	82	5
YUC	CELESTUN	11	30	91	GNT	KM	9	83	1
YUC	CELESTUN	11	30	91	GNT	KM	9	84	4
YUC	CELESTUN	11	30	91	GNT	KM	9	85	4
YUC	CELESTUN	11	30	91	GNT	KM	9	86	2
YUC	CELESTUN	11	30	91	GNT	KM	9	87	2
YUC	CELESTUN	11	30	91	GNT	KM	9	90	1
YUC	CELESTUN	11	30	91	GNT	KM	9	104	1
YUC	CELESTUN	11	30	91	GNT	KM	9	122	1
YUC	CELESTUN	11	30	91	GNT	SM	9	28	1
YUC	CELESTUN	11	30	91	GNT	SM	9	30	11
YUC	CELESTUN	11	30	91	GNT	SM	9	31	21
YUC	CELESTUN	11	30	91	GNT	SM	9	32	52
YUC	CELESTUN	11	30	91	GNT	SM	9	33	67
YUC	CELESTUN	11	30	91	GNT	SM	9	34	50
YUC	CELESTUN	11	30	91	GNT	SM	9	35	30
YUC	CELESTUN	11	30	91	GNT	SM	9	36	14
YUC	CELESTUN	11	30	91	GNT	SM	9	37	10
YUC	CELESTUN	11	30	91	GNT	SM	9	38	8
YUC	CELESTUN	11	30	91	GNT	SM	9	39	10
YUC	CELESTUN	11	30	91	GNT	SM	9	40	6
YUC	CELESTUN	11	30	91	GNT	SM	9	41	9
YUC	CELESTUN	11	30	91	GNT	SM	9	42	8
YUC	CELESTUN	11	30	91	GNT	SM	9	43	5
YUC	CELESTUN	11	30	91	GNT	SM	9	44	7
YUC	CELESTUN	11	30	91	GNT	SM	9	45	4
YUC	CELESTUN	11	30	91	GNT	SM	9	46	1
YUC	CELESTUN	11	30	91	GNT	SM	9	47	4
YUC	CELESTUN	11	30	91	GNT	SM	9	48	1
YUC	CELESTUN	11	30	91	GNT	SM	9	49	1
YUC	CELESTUN	11	30	91	GNT	SM	9	50	3
YUC	CELESTUN	11	30	91	GNT	SM	9	51	4
YUC	CELESTUN	11	30	91	GNT	SM	9	52	3
YUC	CELESTUN	11	30	91	GNT	SM	9	53	2
YUC	CELESTUN	11	30	91	GNT	SM	9	54	4
YUC	CELESTUN	11	30	91	GNT	SM	9	55	5
YUC	CELESTUN	11	30	91	GNT	SM	9	56	3
YUC	CELESTUN	11	30	91	GNT	SM	9	57	2
YUC	CELESTUN	11	30	91	GNT	SM	9	58	5
YUC	CELESTUN	11	30	91	GNT	SM	9	59	6
YUC	CELESTUN	11	30	91	GNT	SM	9	60	2
YUC	CELESTUN	11	30	91	GNT	SM	9	61	2
YUC	CELESTUN	11	30	91	GNT	SM	9	62	3
YUC	CELESTUN	11	30	91	GNT	SM	9	63	2
YUC	CELESTUN	11	30	91	GNT	SM	9	64	1
YUC	CELESTUN	11	30	91	GNT	SM	9	68	1
YUC	CELESTUN	11	30	91	GNT	SM	9	69	1
YUC	CELESTUN	11	30	91	GNT	SM	9	82	1
YUC	CELESTUN	11	30	91	GNT	CM	9	31	4
YUC	CELESTUN	11	30	91	GNT	CM	9	32	3
YUC	CELESTUN	11	30	91	GNT	CM	9	34	1
YUC	CELESTUN	11	30	91	GNT	CM	9	36	1
YUC	CELESTUN	11	30	91	GNT	CM	9	37	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	11	30	91	GNT	CM	9	42	1
YUC	CELESTUN	11	30	91	GNT	CM	9	44	1
YUC	CELESTUN	11	30	91	GNT	CM	9	49	1
YUC	CELESTUN	11	30	91	GNT	CM	9	50	2
YUC	CELESTUN	11	30	91	GNT	CM	9	54	1
YUC	CELESTUN	11	30	91	GNT	CM	9	55	2
YUC	CELESTUN	11	30	91	GNT	CM	9	56	1
YUC	CELESTUN	11	30	91	GNT	CM	9	57	2
YUC	CELESTUN	11	30	91	GNT	CM	9	58	1
YUC	CELESTUN	11	30	91	GNT	CM	9	60	1
YUC	CELESTUN	11	30	91	GNT	CM	9	61	1
YUC	CELESTUN	11	30	91	GNT	CM	9	65	1
YUC	SISAL	12	2	91	GNT	KM	9	61	1
YUC	SISAL	12	2	91	GNT	KM	9	64	1
YUC	SISAL	12	2	91	GNT	KM	9	65	1
YUC	SISAL	12	2	91	GNT	KM	9	68	1
YUC	SISAL	12	2	91	GNT	KM	9	69	1
YUC	SISAL	12	2	91	GNT	KM	9	70	2
YUC	SISAL	12	2	91	GNT	KM	9	72	1
YUC	SISAL	12	2	91	GNT	KM	9	74	3
YUC	SISAL	12	2	91	GNT	KM	9	75	1
YUC	SISAL	12	2	91	GNT	KM	9	78	2
YUC	SISAL	12	2	91	GNT	KM	9	79	1
YUC	SISAL	12	2	91	GNT	KM	9	84	1
YUC	SISAL	12	2	91	GNT	KM	9	86	1
YUC	SISAL	12	2	91	GNT	KM	9	87	1
YUC	SISAL	12	2	91	GNT	KM	9	89	1
YUC	SISAL	12	2	91	GNT	KM	9	91	2
YUC	CELESTUN	12	2	91	GNT	KM	9	42	2
YUC	CELESTUN	12	2	91	GNT	KM	9	44	1
YUC	CELESTUN	12	2	91	GNT	KM	9	46	1
YUC	CELESTUN	12	2	91	GNT	KM	9	48	1
YUC	CELESTUN	12	2	91	GNT	KM	9	49	1
YUC	CELESTUN	12	2	91	GNT	KM	9	50	1
YUC	CELESTUN	12	2	91	GNT	KM	9	51	2
YUC	CELESTUN	12	2	91	GNT	KM	9	52	6
YUC	CELESTUN	12	2	91	GNT	KM	9	53	3
YUC	CELESTUN	12	2	91	GNT	KM	9	54	5
YUC	CELESTUN	12	2	91	GNT	KM	9	55	8
YUC	CELESTUN	12	2	91	GNT	KM	9	56	5
YUC	CELESTUN	12	2	91	GNT	KM	9	57	6
YUC	CELESTUN	12	2	91	GNT	KM	9	58	7
YUC	CELESTUN	12	2	91	GNT	KM	9	59	7
YUC	CELESTUN	12	2	91	GNT	KM	9	60	4
YUC	CELESTUN	12	2	91	GNT	KM	9	61	3
YUC	CELESTUN	12	2	91	GNT	KM	9	62	6
YUC	CELESTUN	12	2	91	GNT	KM	9	63	15
YUC	CELESTUN	12	2	91	GNT	KM	9	64	12
YUC	CELESTUN	12	2	91	GNT	KM	9	65	16
YUC	CELESTUN	12	2	91	GNT	KM	9	66	14
YUC	CELESTUN	12	2	91	GNT	KM	9	67	15
YUC	CELESTUN	12	2	91	GNT	KM	9	68	14
YUC	CELESTUN	12	2	91	GNT	KM	9	69	16
YUC	CELESTUN	12	2	91	GNT	KM	9	70	11
YUC	CELESTUN	12	2	91	GNT	KM	9	71	21
YUC	CELESTUN	12	2	91	GNT	KM	9	72	14
YUC	CELESTUN	12	2	91	GNT	KM	9	73	12
YUC	CELESTUN	12	2	91	GNT	KM	9	74	11
YUC	CELESTUN	12	2	91	GNT	KM	9	75	7
YUC	CELESTUN	12	2	91	GNT	KM	9	76	10
YUC	CELESTUN	12	2	91	GNT	KM	9	77	9
YUC	CELESTUN	12	2	91	GNT	KM	9	78	11
YUC	CELESTUN	12	2	91	GNT	KM	9	79	7
YUC	CELESTUN	12	2	91	GNT	KM	9	80	7
YUC	CELESTUN	12	2	91	GNT	KM	9	81	4
YUC	CELESTUN	12	2	91	GNT	KM	9	82	2
YUC	CELESTUN	12	2	91	GNT	KM	9	83	3
YUC	CELESTUN	12	2	91	GNT	KM	9	84	4
YUC	CELESTUN	12	2	91	GNT	KM	9	85	1
YUC	CELESTUN	12	2	91	GNT	KM	9	86	4
YUC	CELESTUN	12	2	91	GNT	KM	9	88	2
YUC	CELESTUN	12	2	91	GNT	SM	9	28	2
YUC	CELESTUN	12	2	91	GNT	SM	9	32	13
YUC	CELESTUN	12	2	91	GNT	SM	9	33	12
YUC	CELESTUN	12	2	91	GNT	SM	9	34	4
YUC	CELESTUN	12	2	91	GNT	SM	9	35	3
YUC	CELESTUN	12	2	91	GNT	SM	9	36	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	12	2	91	GNT	SM	9	37	1
YUC	CELESTUN	12	2	91	GNT	SM	9	40	1
YUC	CELESTUN	12	2	91	GNT	SM	9	41	4
YUC	CELESTUN	12	2	91	GNT	SM	9	42	4
YUC	CELESTUN	12	2	91	GNT	SM	9	43	4
YUC	CELESTUN	12	2	91	GNT	SM	9	44	3
YUC	CELESTUN	12	2	91	GNT	SM	9	45	1
YUC	CELESTUN	12	2	91	GNT	SM	9	47	4
YUC	CELESTUN	12	2	91	GNT	SM	9	48	3
YUC	CELESTUN	12	2	91	GNT	SM	9	49	3
YUC	CELESTUN	12	2	91	GNT	SM	9	51	2
YUC	CELESTUN	12	2	91	GNT	SM	9	52	5
YUC	CELESTUN	12	2	91	GNT	SM	9	53	7
YUC	CELESTUN	12	2	91	GNT	SM	9	54	5
YUC	CELESTUN	12	2	91	GNT	SM	9	55	8
YUC	CELESTUN	12	2	91	GNT	SM	9	56	5
YUC	CELESTUN	12	2	91	GNT	SM	9	57	5
YUC	CELESTUN	12	2	91	GNT	SM	9	58	5
YUC	CELESTUN	12	2	91	GNT	SM	9	59	4
YUC	CELESTUN	12	2	91	GNT	SM	9	61	2
YUC	CELESTUN	12	2	91	GNT	SM	9	63	1
YUC	CELESTUN	12	2	91	GNT	SM	9	64	1
YUC	CELESTUN	12	2	91	GNT	CM	9	30	3
YUC	CELESTUN	12	2	91	GNT	CM	9	31	1
YUC	CELESTUN	12	2	91	GNT	CM	9	35	1
YUC	CELESTUN	12	2	91	GNT	CM	9	44	1
YUC	CELESTUN	12	2	91	GNT	CM	9	46	1
YUC	CELESTUN	12	2	91	GNT	CM	9	49	2
YUC	CELESTUN	12	2	91	GNT	CM	9	50	3
YUC	CELESTUN	12	2	91	GNT	CM	9	52	3
YUC	CELESTUN	12	2	91	GNT	CM	9	53	4
YUC	CELESTUN	12	2	91	GNT	CM	9	54	1
YUC	CELESTUN	12	2	91	GNT	CM	9	55	1
YUC	CELESTUN	12	2	91	GNT	CM	9	56	2
YUC	CELESTUN	12	2	91	GNT	CM	9	57	2
YUC	CELESTUN	12	2	91	GNT	CM	9	58	3
YUC	CELESTUN	12	2	91	GNT	CM	9	59	1
YUC	CELESTUN	12	2	91	GNT	CM	9	60	2
YUC	CELESTUN	12	2	91	GNT	CM	9	61	3
YUC	CELESTUN	12	2	91	GNT	CM	9	62	1
YUC	CELESTUN	12	2	91	GNT	CM	9	65	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	32	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	48	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	52	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	54	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	56	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	57	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	58	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	61	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	62	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	63	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	64	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	65	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	66	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	67	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	68	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	69	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	70	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	71	6
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	72	4
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	73	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	74	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	75	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	76	11
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	77	4
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	78	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	79	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	80	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	81	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	82	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	83	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	84	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	88	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	92	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	KM	9	102	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	33	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	34	4

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	35	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	36	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	37	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	38	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	39	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	40	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	41	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	43	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	45	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	46	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	47	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	48	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	49	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	50	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	51	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	52	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	53	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	54	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	55	6
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	56	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	57	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	58	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	59	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	60	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	SM	9	61	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	36	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	45	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	46	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	47	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	48	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	49	4
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	50	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	51	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	52	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	53	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	54	5
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	55	2
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	56	6
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	57	4
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	58	1
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	59	3
YUC	DZILAM DEBRAVO	12	2	91	GNT	CM	9	63	1
YUC	EL CUYO	12	2	91	GNT	KM	9	48	1
YUC	EL CUYO	12	2	91	GNT	KM	9	52	1
YUC	EL CUYO	12	2	91	GNT	KM	9	53	1
YUC	EL CUYO	12	2	91	GNT	KM	9	54	4
YUC	EL CUYO	12	2	91	GNT	KM	9	55	7
YUC	EL CUYO	12	2	91	GNT	KM	9	56	3
YUC	EL CUYO	12	2	91	GNT	KM	9	57	3
YUC	EL CUYO	12	2	91	GNT	KM	9	58	1
YUC	EL CUYO	12	2	91	GNT	KM	9	59	3
YUC	EL CUYO	12	2	91	GNT	KM	9	60	2
YUC	EL CUYO	12	2	91	GNT	KM	9	61	2
YUC	EL CUYO	12	2	91	GNT	KM	9	62	2
YUC	EL CUYO	12	2	91	GNT	KM	9	63	6
YUC	EL CUYO	12	2	91	GNT	KM	9	64	2
YUC	EL CUYO	12	2	91	GNT	KM	9	65	3
YUC	EL CUYO	12	2	91	GNT	KM	9	66	3
YUC	EL CUYO	12	2	91	GNT	KM	9	67	3
YUC	EL CUYO	12	2	91	GNT	KM	9	68	6
YUC	EL CUYO	12	2	91	GNT	KM	9	69	4
YUC	EL CUYO	12	2	91	GNT	KM	9	70	7
YUC	EL CUYO	12	2	91	GNT	KM	9	71	5
YUC	EL CUYO	12	2	91	GNT	KM	9	72	2
YUC	EL CUYO	12	2	91	GNT	KM	9	73	11
YUC	EL CUYO	12	2	91	GNT	KM	9	74	4
YUC	EL CUYO	12	2	91	GNT	KM	9	75	4
YUC	EL CUYO	12	2	91	GNT	KM	9	76	1
YUC	EL CUYO	12	2	91	GNT	KM	9	77	4
YUC	EL CUYO	12	2	91	GNT	KM	9	78	7
YUC	EL CUYO	12	2	91	GNT	KM	9	79	6
YUC	EL CUYO	12	2	91	GNT	KM	9	80	4
YUC	EL CUYO	12	2	91	GNT	KM	9	81	4
YUC	EL CUYO	12	2	91	GNT	KM	9	82	1
YUC	EL CUYO	12	2	91	GNT	KM	9	83	1
YUC	EL CUYO	12	2	91	GNT	KM	9	84	6
YUC	EL CUYO	12	2	91	GNT	KM	9	87	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	EL CUYO	12	2	91	GNT	KM	9	89	1
YUC	EL CUYO	12	2	91	GNT	KM	9	90	2
YUC	EL CUYO	12	2	91	GNT	KM	9	96	1
YUC	EL CUYO	12	2	91	GNT	KM	9	98	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	42	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	51	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	53	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	54	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	55	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	56	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	57	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	58	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	59	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	60	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	61	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	62	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	63	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	64	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	65	6
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	66	9
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	67	12
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	68	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	69	8
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	70	6
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	71	7
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	72	9
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	73	9
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	74	7
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	75	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	76	6
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	77	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	78	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	79	6
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	80	7
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	81	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	82	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	83	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	84	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	85	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	86	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	89	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	98	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	99	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	100	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	KM	9	111	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	38	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	39	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	42	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	45	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	48	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	50	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	51	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	52	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	53	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	54	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	56	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	57	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	58	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	59	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	60	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	SM	9	63	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	46	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	47	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	48	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	49	6
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	50	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	51	11
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	52	9
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	53	15
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	54	10
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	55	15
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	56	15
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	57	9
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	58	13
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	59	15
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	60	4
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	61	4

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	62	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	63	5
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	64	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	65	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	66	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	67	2
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	68	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	69	3
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	70	1
YUC	DZILAM DEBRAVO	12	3	91	GNT	CM	9	71	1
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	48	1
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	53	2
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	54	1
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	55	3
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	56	2
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	59	2
YUC	DZILAM DE BRAVO	12	3	91	GNT	CM	9	66	1
YUC	CELESTUN	12	7	91	GNT	KM	9	45	1
YUC	CELESTUN	12	7	91	GNT	KM	9	49	1
YUC	CELESTUN	12	7	91	GNT	KM	9	50	1
YUC	CELESTUN	12	7	91	GNT	KM	9	55	1
YUC	CELESTUN	12	7	91	GNT	KM	9	56	1
YUC	CELESTUN	12	7	91	GNT	KM	9	57	1
YUC	CELESTUN	12	7	91	GNT	KM	9	58	1
YUC	CELESTUN	12	7	91	GNT	KM	9	59	2
YUC	CELESTUN	12	7	91	GNT	KM	9	60	1
YUC	CELESTUN	12	7	91	GNT	KM	9	62	2
YUC	CELESTUN	12	7	91	GNT	KM	9	63	3
YUC	CELESTUN	12	7	91	GNT	KM	9	64	1
YUC	CELESTUN	12	7	91	GNT	KM	9	65	2
YUC	CELESTUN	12	7	91	GNT	KM	9	66	4
YUC	CELESTUN	12	7	91	GNT	KM	9	67	3
YUC	CELESTUN	12	7	91	GNT	KM	9	68	5
YUC	CELESTUN	12	7	91	GNT	KM	9	69	1
YUC	CELESTUN	12	7	91	GNT	KM	9	70	5
YUC	CELESTUN	12	7	91	GNT	KM	9	71	5
YUC	CELESTUN	12	7	91	GNT	KM	9	72	4
YUC	CELESTUN	12	7	91	GNT	KM	9	73	3
YUC	CELESTUN	12	7	91	GNT	KM	9	74	8
YUC	CELESTUN	12	7	91	GNT	KM	9	75	9
YUC	CELESTUN	12	7	91	GNT	KM	9	76	6
YUC	CELESTUN	12	7	91	GNT	KM	9	77	5
YUC	CELESTUN	12	7	91	GNT	KM	9	78	7
YUC	CELESTUN	12	7	91	GNT	KM	9	79	5
YUC	CELESTUN	12	7	91	GNT	KM	9	80	3
YUC	CELESTUN	12	7	91	GNT	KM	9	82	6
YUC	CELESTUN	12	7	91	GNT	KM	9	83	2
YUC	CELESTUN	12	7	91	GNT	KM	9	84	2
YUC	CELESTUN	12	7	91	GNT	KM	9	85	3
YUC	CELESTUN	12	7	91	GNT	KM	9	86	1
YUC	CELESTUN	12	7	91	GNT	KM	9	87	3
YUC	CELESTUN	12	7	91	GNT	KM	9	88	2
YUC	CELESTUN	12	7	91	GNT	KM	9	90	2
YUC	CELESTUN	12	7	91	GNT	KM	9	91	1
YUC	CELESTUN	12	7	91	GNT	KM	9	94	1
YUC	CELESTUN	12	7	91	GNT	KM	9	95	1
YUC	CELESTUN	12	7	91	GNT	KM	9	96	1
YUC	CELESTUN	12	7	91	GNT	KM	9	107	1
YUC	CELESTUN	12	7	91	GNT	SM	9	24	1
YUC	CELESTUN	12	7	91	GNT	SM	9	28	1
YUC	CELESTUN	12	7	91	GNT	SM	9	29	1
YUC	CELESTUN	12	7	91	GNT	SM	9	31	6
YUC	CELESTUN	12	7	91	GNT	SM	9	32	21
YUC	CELESTUN	12	7	91	GNT	SM	9	33	20
YUC	CELESTUN	12	7	91	GNT	SM	9	34	13
YUC	CELESTUN	12	7	91	GNT	SM	9	35	3
YUC	CELESTUN	12	7	91	GNT	SM	9	36	1
YUC	CELESTUN	12	7	91	GNT	SM	9	44	1
YUC	CELESTUN	12	7	91	GNT	SM	9	46	1
YUC	CELESTUN	12	7	91	GNT	SM	9	47	1
YUC	CELESTUN	12	7	91	GNT	SM	9	48	1
YUC	CELESTUN	12	7	91	GNT	SM	9	49	2
YUC	CELESTUN	12	7	91	GNT	SM	9	51	1
YUC	CELESTUN	12	7	91	GNT	SM	9	52	6
YUC	CELESTUN	12	7	91	GNT	SM	9	53	4
YUC	CELESTUN	12	7	91	GNT	SM	9	54	2
YUC	CELESTUN	12	7	91	GNT	SM	9	55	5

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	12	7	91	GNT	SM	9	56	8
YUC	CELESTUN	12	7	91	GNT	SM	9	57	8
YUC	CELESTUN	12	7	91	GNT	SM	9	58	8
YUC	CELESTUN	12	7	91	GNT	SM	9	59	8
YUC	CELESTUN	12	7	91	GNT	SM	9	60	6
YUC	CELESTUN	12	7	91	GNT	SM	9	61	2
YUC	CELESTUN	12	7	91	GNT	SM	9	62	1
YUC	CELESTUN	12	7	91	GNT	SM	9	63	1
YUC	CELESTUN	12	7	91	GNT	SM	9	64	2
YUC	CELESTUN	12	7	91	GNT	SM	9	65	1
YUC	CELESTUN	12	7	91	GNT	CM	9	45	1
YUC	CELESTUN	12	7	91	GNT	CM	9	51	1
YUC	CELESTUN	12	7	91	GNT	CM	9	53	2
YUC	CELESTUN	12	7	91	GNT	CM	9	55	2
YUC	CELESTUN	12	7	91	GNT	CM	9	56	1
YUC	CELESTUN	12	7	91	GNT	CM	9	57	1
YUC	CELESTUN	12	7	91	GNT	CM	9	58	1
YUC	CELESTUN	12	7	91	GNT	CM	9	60	1
YUC	CELESTUN	12	7	91	GNT	CM	9	62	1
YUC	EL CUYO	12	7	91	GNT	KM	9	43	1
YUC	EL CUYO	12	7	91	GNT	KM	9	52	2
YUC	EL CUYO	12	7	91	GNT	KM	9	53	1
YUC	EL CUYO	12	7	91	GNT	KM	9	54	2
YUC	EL CUYO	12	7	91	GNT	KM	9	59	1
YUC	EL CUYO	12	7	91	GNT	KM	9	60	1
YUC	EL CUYO	12	7	91	GNT	KM	9	61	1
YUC	EL CUYO	12	7	91	GNT	KM	9	63	1
YUC	EL CUYO	12	7	91	GNT	KM	9	64	2
YUC	EL CUYO	12	7	91	GNT	KM	9	65	1
YUC	EL CUYO	12	7	91	GNT	KM	9	66	3
YUC	EL CUYO	12	7	91	GNT	KM	9	68	4
YUC	EL CUYO	12	7	91	GNT	KM	9	70	1
YUC	EL CUYO	12	7	91	GNT	KM	9	71	2
YUC	EL CUYO	12	7	91	GNT	KM	9	72	1
YUC	EL CUYO	12	7	91	GNT	KM	9	73	1
YUC	EL CUYO	12	7	91	GNT	KM	9	75	2
YUC	EL CUYO	12	7	91	GNT	KM	9	76	1
YUC	EL CUYO	12	7	91	GNT	KM	9	78	2
YUC	EL CUYO	12	7	91	GNT	KM	9	79	2
YUC	EL CUYO	12	7	91	GNT	KM	9	85	1
YUC	EL CUYO	12	7	91	GNT	CM	9	52	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	57	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	58	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	60	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	61	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	62	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	63	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	64	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	65	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	66	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	67	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	68	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	69	3
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	70	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	71	6
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	72	8
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	73	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	74	5
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	75	8
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	76	5
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	77	6
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	78	6
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	79	6
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	80	4
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	81	5
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	82	9
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	83	4
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	85	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	86	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	87	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	88	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	89	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	90	2
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	91	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	92	1
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	93	3
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	94	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	DZILAM DEBRAVO	12	9	91	GNT	KM	9	95	1
YUC	CELESTUN	12	9	91	GNT	KM	9	41	1
YUC	CELESTUN	12	9	91	GNT	KM	9	43	2
YUC	CELESTUN	12	9	91	GNT	KM	9	44	4
YUC	CELESTUN	12	9	91	GNT	KM	9	45	4
YUC	CELESTUN	12	9	91	GNT	KM	9	46	2
YUC	CELESTUN	12	9	91	GNT	KM	9	47	1
YUC	CELESTUN	12	9	91	GNT	KM	9	48	2
YUC	CELESTUN	12	9	91	GNT	KM	9	50	1
YUC	CELESTUN	12	9	91	GNT	KM	9	53	1
YUC	CELESTUN	12	9	91	GNT	KM	9	54	3
YUC	CELESTUN	12	9	91	GNT	KM	9	55	2
YUC	CELESTUN	12	9	91	GNT	KM	9	56	4
YUC	CELESTUN	12	9	91	GNT	KM	9	57	4
YUC	CELESTUN	12	9	91	GNT	KM	9	58	4
YUC	CELESTUN	12	9	91	GNT	KM	9	59	2
YUC	CELESTUN	12	9	91	GNT	KM	9	60	4
YUC	CELESTUN	12	9	91	GNT	KM	9	61	3
YUC	CELESTUN	12	9	91	GNT	KM	9	62	6
YUC	CELESTUN	12	9	91	GNT	KM	9	63	13
YUC	CELESTUN	12	9	91	GNT	KM	9	64	13
YUC	CELESTUN	12	9	91	GNT	KM	9	65	23
YUC	CELESTUN	12	9	91	GNT	KM	9	66	32
YUC	CELESTUN	12	9	91	GNT	KM	9	67	31
YUC	CELESTUN	12	9	91	GNT	KM	9	68	34
YUC	CELESTUN	12	9	91	GNT	KM	9	69	30
YUC	CELESTUN	12	9	91	GNT	KM	9	70	27
YUC	CELESTUN	12	9	91	GNT	KM	9	71	27
YUC	CELESTUN	12	9	91	GNT	KM	9	72	23
YUC	CELESTUN	12	9	91	GNT	KM	9	73	25
YUC	CELESTUN	12	9	91	GNT	KM	9	74	18
YUC	CELESTUN	12	9	91	GNT	KM	9	75	21
YUC	CELESTUN	12	9	91	GNT	KM	9	76	20
YUC	CELESTUN	12	9	91	GNT	KM	9	77	14
YUC	CELESTUN	12	9	91	GNT	KM	9	78	19
YUC	CELESTUN	12	9	91	GNT	KM	9	79	19
YUC	CELESTUN	12	9	91	GNT	KM	9	80	18
YUC	CELESTUN	12	9	91	GNT	KM	9	81	13
YUC	CELESTUN	12	9	91	GNT	KM	9	82	10
YUC	CELESTUN	12	9	91	GNT	KM	9	83	8
YUC	CELESTUN	12	9	91	GNT	KM	9	84	12
YUC	CELESTUN	12	9	91	GNT	KM	9	85	6
YUC	CELESTUN	12	9	91	GNT	KM	9	86	1
YUC	CELESTUN	12	9	91	GNT	KM	9	87	3
YUC	CELESTUN	12	9	91	GNT	KM	9	88	4
YUC	CELESTUN	12	9	91	GNT	KM	9	89	1
YUC	CELESTUN	12	9	91	GNT	KM	9	91	1
YUC	CELESTUN	12	9	91	GNT	KM	9	99	1
YUC	CELESTUN	12	9	91	GNT	KM	9	101	2
YUC	CELESTUN	12	9	91	GNT	KM	9	105	1
YUC	CELESTUN	12	9	91	GNT	SM	9	37	1
YUC	CELESTUN	12	9	91	GNT	SM	9	39	1
YUC	CELESTUN	12	9	91	GNT	SM	9	40	3
YUC	CELESTUN	12	9	91	GNT	SM	9	41	1
YUC	CELESTUN	12	9	91	GNT	SM	9	42	4
YUC	CELESTUN	12	9	91	GNT	SM	9	43	2
YUC	CELESTUN	12	9	91	GNT	SM	9	45	3
YUC	CELESTUN	12	9	91	GNT	SM	9	46	1
YUC	CELESTUN	12	9	91	GNT	SM	9	47	1
YUC	CELESTUN	12	9	91	GNT	SM	9	48	1
YUC	CELESTUN	12	9	91	GNT	SM	9	49	2
YUC	CELESTUN	12	9	91	GNT	SM	9	50	1
YUC	CELESTUN	12	9	91	GNT	SM	9	51	3
YUC	CELESTUN	12	9	91	GNT	SM	9	52	6
YUC	CELESTUN	12	9	91	GNT	SM	9	53	6
YUC	CELESTUN	12	9	91	GNT	SM	9	54	6
YUC	CELESTUN	12	9	91	GNT	SM	9	55	9
YUC	CELESTUN	12	9	91	GNT	SM	9	56	9
YUC	CELESTUN	12	9	91	GNT	SM	9	57	6
YUC	CELESTUN	12	9	91	GNT	SM	9	58	3
YUC	CELESTUN	12	9	91	GNT	SM	9	59	8
YUC	CELESTUN	12	9	91	GNT	SM	9	60	1
YUC	CELESTUN	12	9	91	GNT	SM	9	61	5
YUC	CELESTUN	12	9	91	GNT	SM	9	62	4
YUC	CELESTUN	12	9	91	GNT	SM	9	65	1
YUC	CELESTUN	12	9	91	GNT	SM	9	66	1
YUC	CELESTUN	12	9	91	GNT	SM	9	68	1

Appendix 3. Mackerel length/frequency data, Mexico Oct-Dec 1991.

AREA	SUBAREA	MO	DA	YR	Gear	Sp	Hrs	FL	Count
YUC	CELESTUN	12	9	91	GNT	CM	9	42	1
YUC	CELESTUN	12	9	91	GNT	CM	9	46	1
YUC	CELESTUN	12	9	91	GNT	CM	9	47	1
YUC	CELESTUN	12	9	91	GNT	CM	9	48	2
YUC	CELESTUN	12	9	91	GNT	CM	9	49	1
YUC	CELESTUN	12	9	91	GNT	CM	9	50	1
YUC	CELESTUN	12	9	91	GNT	CM	9	52	7
YUC	CELESTUN	12	9	91	GNT	CM	9	54	9
YUC	CELESTUN	12	9	91	GNT	CM	9	55	4
YUC	CELESTUN	12	9	91	GNT	CM	9	56	9
YUC	CELESTUN	12	9	91	GNT	CM	9	57	10
YUC	CELESTUN	12	9	91	GNT	CM	9	58	11
YUC	CELESTUN	12	9	91	GNT	CM	9	59	7
YUC	CELESTUN	12	9	91	GNT	CM	9	60	2
YUC	CELESTUN	12	9	91	GNT	CM	9	61	1
YUC	CELESTUN	12	9	91	GNT	CM	9	62	3
YUC	CELESTUN	12	9	91	GNT	CM	9	63	4
YUC	CELESTUN	12	9	91	GNT	CM	9	64	2