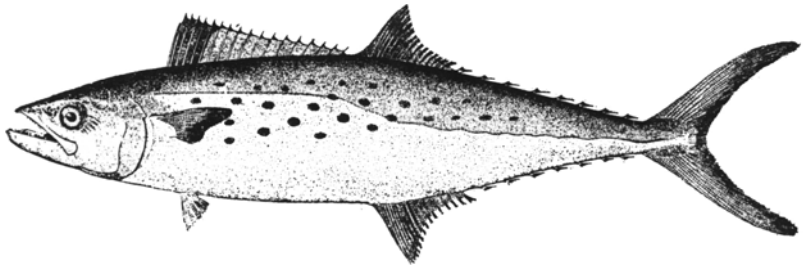
REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SPANISH MACKEREL (*Scomberomorus maculatus*) 2001 FISHING YEAR



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REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN FOR SPANISH MACKEREL (*Scomberomorus maculatus*)

I. Status of the Plan

The federal *Fishery Management Plan for the Coastal Migratory Pelagic Resources* (1983) and the Atlantic States Marine Fisheries Commission's *Fishery Management Plan (FMP) for Spanish Mackerel* (1990) manage Atlantic group Spanish mackerel in the state and federal Atlantic waters south of the New York/Connecticut border through the east coast of Florida. The states of Florida through New York, excluding Pennsylvania, have a declared interest in the Commission's FMP for Spanish Mackerel. The goal of the Commission Spanish Mackerel FMP is to complement federal management in state waters, to conserve the Atlantic Group Spanish mackerel resource throughout its range, and to achieve compatible management among the states that harvest Spanish mackerel. The Commission FMP objectives are to: (1) allow recovery of overfished populations and stabilize the stock at a level to produce maximum sustainable yield (MSY); (2) achieve compatible management throughout the range; (3) provide a flexible management system responsive to changes in the fishery and/or information; (4) promote cooperative interstate research and comprehensive monitoring activities and establish mandatory, timely reporting for quota monitoring; (5) minimize disruption of traditional fisheries and markets; and (6) minimize waste in the fishery.

Atlantic Group Spanish mackerel are managed on the basis of the annual recommendations of the joint Gulf of Mexico and South Atlantic Fishery Management Councils-appointed Mackerel Stock Assessment Panel (MSAP), a technical group which reviews the stock assessments and makes annual determinations of Acceptable Biological Catch (ABC). The South Atlantic Fishery Management Council (SAFMC) determines needed annual adjustments to regulatory measures such as Total Allowable Catch (TAC), bag limits, size limits, and trip limits. The SAFMC's Mackerel Committee includes representatives from the Mid-Atlantic Council and a fishermen Advisory Panel incorporating South Atlantic and Mid-Atlantic representation in their deliberations. A Plan Review Team (PRT) comprised of Council, Commission, and State representatives annually reviews the status of implementation of the interstate FMP and reports to the Commission's South Atlantic State/Federal Fisheries Management Board. The South Atlantic Board serves as the Commission's Spanish Mackerel Management Board and reports to the Commission's Interstate Fishery Management Plan (ISFMP) Policy Board. The interstate FMP is intended to be a flexible plan that tracks the federal FMP; thus, the SAFMC has the lead on Atlantic Group Spanish mackerel management.

The consensus of the Spanish Mackerel PRT is that the goal of the Commission FMP and its management objectives continue to be valid. The South Atlantic and most Mid-Atlantic states have completely implemented the current requirements of the interstate Spanish mackerel plan.

II. Status of the Stocks

The Mackerel Stock Assessment Panel (MSAP) conducted a full stock assessment for Atlantic Group Spanish mackerel in 1999 which included data through the 1996/97 fishing year. The MSAP concluded from those results that, according to SFA criteria, the stock was not undergoing overfishing and was not in an overfished state. Following the advice of the MSAP, the SAFMC specified a TAC of 7.04 million pounds for 1999/00 and 2000/01, however, the estimate of 1999/00 landings was only 3.84 million pounds. Projection results indicated that there was a very low probability of overfishing or of the stock

being overfished if 2000/01 landings were between 3.84 and 7.04 million pounds. Forward projections assuming low and average recruitment scenarios also indicated there was little likelihood of the stock falling below B_{MSY} or F exceeding MFMT in the next few years, even if future catches are as high as recent TACs. The median ABC projected to achieve F 40% SPR is 7.8 million pounds (25^{th} - 75^{th} percentile range = 6.6 to 9.6 million pounds).

The MSAP recommended no change to ABC for the 2001/02 fishing year, noting however, that a 7.04 million pound TAC is higher than MSY (6.4 million pounds). It is unlikely that the fishery currently has the capacity to realize a TAC of 7.04 million pounds given that the current estimate of 1999/00 landings is only 3.84 million pounds. If the fishery developed greater capacity and TAC was realized at a level of 7.04 million pounds for several years, fishing mortality rates would increase and eventually may exceed F 30% SPR. Consequently, fishing at this level over time would eventually reduce spawning stock biomass to a level below that which is capable of producing MSY on a continuing basis).

The PRT believes harvest reductions are due to elimination of gillnets in Florida's waters. The low level of harvest in relation to the stock size is encouraging for stock rebuilding, which is reflected in the increase in transitional SPR. Cooperative State/Federal management has achieved a successful stock recovery.

III. Status of the Fishery

Spanish mackerel remains an important recreational and commercial fishery in South Atlantic waters and is gaining importance in the Mid-Atlantic states. Trip limits implemented in state and federal waters off Florida continue to prevent premature closure of the commercial fishery before the end of the fishing year.

The July 1, 1995 net ban affected commercial landings in Florida, and changed the characteristics of the fishery. The MSAP reported commercial landings of 2 million pounds in Fishing Year (FY) 1995/96, significantly under the 5.2 million pounds for FY 94/95. Landings for FY 96/97 through FY 98/99 increased to about 3 million pounds each. Prosecuted predominantly in state waters from Virginia to Florida, the majority of the commercial fishery for Spanish mackerel occurs in Florida and North Carolina (Table 1). Less than 4% of the 2000 total commercial landings occurred north of Virginia.

The stock's continued resurgence into its historical northern range is evidenced by the increased harvest by recreational anglers in states north of Virginia (Table 2). The number of Spanish mackerel harvested by the recreational fishery increased in 1999 and 2000 after reaching a low in 1998. The 2001 recreational harvest in numbers of fish and pounds was almost equal to the previous year. North Carolina and Florida continue to account for the majority of recreational landings in both number and weight (Tables 2 & 3).

IV. Status of Assessment Advice

The Mackerel Stock Assessment Panel conducted a quantitative stock assessment in March 1999. The status of the Atlantic Spanish mackerel stock was evaluated using an age-based sequential virtual population analysis (VPA). The South Atlantic Fishery Management Council, inclusive of members of the South Atlantic Board, internally reviewed and endorsed the assessment. The SAFMC review process is accomplished by the Scientific and Statistical Committee and the Mackerel Advisory Panel.

Table 1. Commercial landings (in pounds) of Spanish mackerel along the Atlantic coast, 1960-2000 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.; * = confidential data).**

Year	MA	RI	NY	NJ	MD	VA	NC	SC	GA	FLEC	Total
1960						19900	118500	6100		2282300	2426800
1961		400			200	122600	133600	4000		3158300	3419100
1962						14600	83200	13300	300	2578300	2689700
1963						7930	135300	8300	900	2123400	2275830
1964				100		33100	78300	2500		2002200	2116200
1965		300			1000	73300	117200	13300	600	2900900	3106600
1966				100	400	141900	78500	1300	1300	2181300	2404800
1967				200	3600	26300	72700	2500	2000	1801500	1908800
1968				100	1700	58500	68900	8200	600	4406500	4544500
1969	100				1200	123000	88600	3800		2358800	2575500
1970		200		200	1100	200100	63300	1800	400	3574400	3841500
1971		100		100	900	51000	95200	4000	300	2581800	2733400
1972				100	400	22700	96300	5200	4700	3369000	3498400
1973				100	200	50000	64200	4100	4900	3203000	3326500
1974				1700	100	24000	73300	2000	500	2346100	2447700
1975		900	400	4500	400	61600	48900	9800	5800	5144800	5277100
1976			600	1400	400	79600	30500	3600	3000	9588600	9707700
1977				400		21100	46100	100	1800	10987300	11056800
1978				100	100	1600	39851	608	211	5510538	5553008
1979						700	12721	150	2201	4885628	4901400
1980			100	600		8300	75306	6769	1491	9811053	9903619
1981			500	500		3500	51639	***	518	4174432	4231089
1982			1000	200		12700	189217	1081	745	3758603	3963546
1983	2600	2600	600	100		3500	41336	706		5947102	5998544
1984			300	100		10000	127467	1321		2397373	2536561
1985			100			15300	173186	847		3244980	3434413
1986	600		3200	1500		168400	232197	6375	1335	4003738	4417345
1987	16000	4900	16600	24000	4800	251200	504063	961	255	3497135	4319914
1988		3400	19200	16900	4300	291600	438222	1029	726	3071687	3847064
1989	12400	8900	17700	24100	10400	354400	589383	1605		2853177	3872065
1990	6585	5530	24329	28336	43411	478167	838914	384	491	1979081	3405228
1991	19698	9530	149321	77151	62688	447127	858808	444	197	2986871	4611835
1992	608	2277	31873	51751	37930	271313	738362	1952	71	2022961	3159098
1993	5	2843	42063	23036	9445	335688	589868	480	95	3891979	4895502
1994	3273	893	124733	19915	3363	376818	531355	362		3099780	4160492
1995		12419	9136	2153	3089	168732	402197			3064926	3662654
1996		2523	17980	40821		283750	401546			2244667	2991287
1997	15	86	31138	12122	3033	164639	766683	***	***	2269289	3247005
1998	71	109	38391	13242	13204	121109	372440			2498400	3056966
1999	2407	276	47831	17144	21604	251626	459120			1527454	2327462
2000		188	34187	11757	26607	168679	659431			1675112	2575961
2001	3634	20052	15489	9401	18899	178610	653491			2115257	3014833

Table 2. Recreational harvest (numbers of A + B1 fish) of Spanish mackerel by state, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

YEAR	NY	NJ	DE	MD	VA	NC	SC	GA	FLEC	TOTAL
1981						231744	25058	1786	485395	748260
1982						694420	21092	408	173649	889569
1983						6156	3279	2109	117532	129076
1984						618313	79855	3718	248048	949934
1985						344965	36606	4809	84226	470606
1986		1479		457	6942	431021	147358	25257	195385	807899
1987	1417			8036	1520	815920	65846	20925	118184	1031848
1988					101691	1312070	82136	4403	233582	1733882
1989	1010	22067			73236	679360	121115	7444	213665	1118217
1990	1726	2495	319	1355	63821	821334	81375	31567	225263	1229658
1991	7608	25071	2054	41250	68102	676717	132198	2391	517290	1484003
1992	1325	10549	210	4847	71265	701974	62546	25736	370809	1249261
1993	2681	3457		43050	73832	451523	92621	12979	219458	899789
1994		7910		43710	145872	535949	113991	15235	252668	1115335
1995				26216	86899	285882	34355	16726	226334	676412
1996		1172			69399	355036	134282	16948	245085	821922
1997					68517	585765	101067	28396	246885	1030630
1998		4046	186	3633	33140	239052	65584	28002	244235	617878
1999		1335	226	1220	75972	476019	27477	9007	327621	919315
2000	4453	923		15219	71249	671353	28283	20545	547315	1360815
2001	802			8025	29590	400706	43501	11013	774065	1267702

(There have also been limited landings in the following states: CT 1991- 4,173; RI 1989-320, 1990-403, 1991-78, 1999-438; and MA 1981-4,277, 1991-7,071, 1993-188, 2000-1475; these are included in the total)

Table 3. Recreational harvest (pounds of A + B1 fish) of Spanish mackerel along the Atlantic coast, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FLEC	Total
1981						423801	53292	4306	808808	1290207
1982						928201	29546	483	251115	1209345
1983						14725	8274	4198	199331	226528
1984						848537	116083	5540	427501	1397661
1985						507545	34445	3547	152113	697650
1986		2500		1008	9709	639105	256157	47941	251673	1208093
1987	2890			14345	2011	1296732	117053	40681	230725	1704437
1988					160407	2136806	140896	5141	656047	3099297
1989	3560	35415			81107	877911	197982	6162	303485	1506469
1990	2332	3320	470	1790	86932	1084167	153932	45748	346585	1725276
1991	19612	36096	3062	57249	72708	1056524	291717	3717	887777	2471998
1992	3880	16526	302	9634	76411	947065	145451	79818	669160	1948247
1993	7590	5280		68757	93272	664815	135287	22209	439555	1437345
1994		8613		44969	160610	588035	152836	66949	350679	1372691
1995				34705	110433	329466	40995	12072	302632	830303
1996					80505	385922	184655	31856	413687	1096625
1997					22233	862497	143297	37877	400148	1466052
1998		9189	379	5725	57467	305630	106209	112562	408872	1006033
1999		2207	240	1715	79601	469258	44917	10031	578123	1187395
2000	10798	1118		20642	83296	671616	30543	47137	946395	1816424
2001	1168			14526	42046	499829	46945	23056	1232506	1860076

(There have also been limited landings in the following states: CT 1991- 16,958 lbs; RI 1989-847 lbs, 1991-251 lbs,1999-1,303 lbs; and MA 1991-26,327 lbs, 1993-580 lbs, 2000-4,879 lbs; these are included in the total)

V. Status of Research and Monitoring

In addition to conducting bi-annual stock assessments for Spanish mackerel, the National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) continues to study length and weight at age and size frequencies; fishing mortality, and migration; collect age data and catch per unit effort by area, season, fishery, and gear; monitor shrimp trawl bycatch; investigate methods to predict year class strength, calculate estimates of recruitment; and develop conservation gear to reduce bycatch. The NMFS is also collecting economic information through a North Carolina State University demand study on finfish. The Gulf and South Atlantic Fisheries Development Foundation and several states (North Carolina, South Carolina, Georgia, and Florida) have evaluated finfish bycatch in the southeastern shrimp trawl fishery, including bycatch of Spanish mackerel.

Abundance trends continue to be monitored primarily through fishery-dependent sources. The states and the SEFSC, through the cooperative commercial statistics collection program and the Marine Recreational Fishery Statistics Survey (MRFSS), monitor catch data. The commercial catch is monitored most

intensively in the winter and early spring by the state of Florida and the NMFS as the commercial quota is approached.

VI. Status of Management Measures

In response to the 1999 MSAP Report, the SAFMC, through a January 2000 Seasonal Framework Adjustment, recommended a Total Allowable Catch (TAC) for FY 2000-01 of 7.04 million pounds. The TAC is allocated on a 55:45 basis between the commercial fishery (3.91 million lbs) and the recreational fishery (3.2 million lbs). Trip limits for the commercial fishery in federal waters remain unchanged for vessels from Georgia through New York, with a year-round 3,500-pound daily possession/landing limit. The January 2000 Framework modified the trip limits for the Southern Zone (Brevard through Miami-Dade Counties, Florida) based on the amount of the TAC which is available on December 1 of each year. From December 1 until 75% of the adjusted allocation is taken, no trip limits are in place on Monday through Friday, but are limited to 1,500 pounds on Saturday and Sunday. Once 75% of the adjusted allocation is taken vessels are limited to 1,500 pounds per day for all days. When 100% of the adjusted allocation is taken, vessels are limited to 500 pounds per day until the end of the season (March 31). The timing of the fishing year is such that it is unlikely the commercial quota will affect any of the mid-Atlantic states.

The commercial fishery coastwide has been predominately in state waters; however, the Florida net ban, which became effective on July 1, 1995 shifted the bulk of the commercial harvest off Florida into federal waters. States are beginning to implement effort control; North Carolina implemented a two-year moratorium on issuance of new commercial licenses, 1997-99. Starting in July 1999, North Carolina capped the number and has strict income-related eligibility requirements for new licenses. Maryland capped its commercial licenses at the existing number for a five-year period in 1997. Virginia delayed entry for two-years into its gill net fishery. New York has a restrictive period for commercial licensing of non-residents and income-related eligibility requirements associated with certain fisheries.

VII. Implementation of FMP Compliance Requirements as of October 1, 2002.

Since adoption of the interstate Spanish Mackerel FMP in 1990, southern and mid-Atlantic states have responded to the plan's recommendations through implementation of bag limits, size limits, commercial trip limits, and/or provisions for seasonal closures (Table 4) to complement the Council's measures for federal waters. In February, 1994 the South Atlantic State/Federal Fishery Management Board determined the following measures of the Commission’s Spanish Mackerel FMP to be mandatory for compliance with the interstate plan: quota closures, 10 fish bag limit, 12-inch fork length minimum size, 3.5-inch minimum stretch mesh size for the directed gill net fishery, and commercial trip limits or landing restrictions (3,500 lb/trip from Georgia through New York; incremental trip limits in Florida). The date for compliance was March 20, 1995. All nine states with a declared interest have achieved full regulatory compliance with the interstate plan. The recovery of the Spanish mackerel fishery throughout its historical range continues to benefit from management measures in state (Florida in particular) and federal waters. The bag limit was increased to 15 fish through a regulatory adjustment on August 2, 2000.

Table 4. Summary of current (October 2002) State Regulations for Spanish Mackerel.

State	Recreational	Commercial	Notes
NY	14"; 15 fish	14"	3,500 lb. commercial possession limit/vessel
NJ	14"; 10 fish	14" TL	
DE	14" TL; 10 fish	no fishery	
MD	14"; 15 fish	14"	Declaration allowing regulation through framework; gill net mesh sizes for Chesapeake Bay
PRFC	14"; 15 fish	14"	
VA	14" TL; 15 fish	14" TL	Size limit exemption for pound net fishery; closure when quota reached; 3,500 lb. trip limit
NC	12" FL; 15 fish	12" FL	3,500 lb. commercial trip limit (Spanish and king mackerel combined); finfish excluder devices required in shrimp trawls. Purse gill net prohibition.
SC	12" FL; 15 fish	12" FL	Federal commercial harvest restrictions apply; federal permit required to exceed bag limit; state license required to land/sell.
GA	12" FL; 15 fish	12" FL	Commercial landings from state waters limited to bag limits; gillnets/longline gear prohibited in state waters; state waters closed December 1 - March 15 for harvest of Spanish mackerel; commercial landings (3,500 lb. trip limit) from EEZ by federally permitted vessels allowed throughout year as long as the federal quota remains open.
FL	12" FL; 15 fish	12" FL	3½ " minimum mesh size, 600 yd. maximum length net; Commercial daily trip limits: 1,500 lb. April 1 - November 30; December 1 until 75% of adjusted quota reached - unlimited harvest Mon-Fri, 1,500 lb. per vessel/day Sat-Sun; >75% adjusted quota until quota filled - 1,500 lb. per vessel/day; > 100% of adjusted quota - 500 lb. per vessel/day.

VIII. Recommendations

Management and Regulatory Recommendations

1. In order to prevent disruption of traditional fisheries and avoid user conflicts, it is recommended that states with commercial Spanish mackerel fisheries north of Florida maintain the trip limits as specified in the Council FMP.

2. States should be considered *de minimis* with regard to trip and landing limits (Council FMP measure 8.6.8) if their landings are less than five percent (5%) of the target commercial quota. If a state's landings are five percent or greater of the target commercial quota, the state should implement the required trip or landing limits in the next fishing year. Any state with *de minimis* status should provide monitoring reports for their commercial fishery on a timely enough basis to prevent quota overages.

Amendments

In light of the mandatory nature of state regulatory requirements implied as a result of federal action, it is preferable that the Commission have a mechanism to independently affirm those measures. This can be accomplished through:

- an amendment to the ASMFC plan to incorporate a framework mechanism for tracking the federal FMPs adjustments to TACs, bag limits, size limits, trip limits, and other regulatory measures; or

- a joint federal/interstate FMP for Spanish mackerel; or

- by a state law that automatically tracks federal regulations.

Given limited resources, the latter is probably the most efficient mechanism to accomplish complementary state/federal management of Spanish mackerel, with the South Atlantic Fishery Management Council remaining as the lead agency. However, a joint plan is not feasible until the SAFMC has a separate FMP for coastal migratory pelagics, which is being discussed for Amendment 15 to the federal plan. Until an amendment or joint plan is feasible, southern and mid-Atlantic states should remain actively involved in the joint councils' regulatory process for Atlantic Group Spanish mackerel.

The federal and interstate FMPs should clarify what constitutes a directed fishery.

Prioritized Research and Monitoring Recommendations

<u>High Priority</u>

- Length, sex, age, and CPUE data are needed for improved stock assessment accuracy. Simulations on CPUE trends should be explored and impacts on VPA and assessment results determined. Data collection is needed for all states, particularly those north of North Carolina.
- Evaluation of weight and especially length at age of Spanish mackerel.
- Development of fishery-independent methods to monitor stock size of Atlantic Spanish mackerel (consider aerial surveys used in south Florida waters).
- More timely reporting of mid-Atlantic catches for quota monitoring.
- Provide better estimates of recruitment, natural mortality rates, fishing mortality rates, and standing stock. Specific information should include an estimate of total amount caught and distribution of catch by area, season, and type of gear.
- Develop methodology for predicting year class strength and determination of the relationship between larval abundance and subsequent year class strength.

<u>Medium Priority</u>

- Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.
- Determine the bycatch of Spanish mackerel in the directed shrimp fishery in Atlantic Coastal waters (partially met: Branstetter 1997; Ottley et al. 1998; Gaddis et al. 2001).
- Evaluate potential bias of the lack of appropriate stratification of the data used to generate age-length keys for Atlantic and Gulf Spanish mackerel.
- Evaluate CPUE indices related to standardization methods and management history, with emphasis on greater temporal and spatial resolution in estimates of CPUE.
- Consideration of MRFSS add-ons or other mechanisms for collection of socioeconomic data for

recreational and commercial fisheries.

- Determine normal Spanish mackerel migration routes and changes therein, as well as the climatic or other factors responsible for changes in the environmental and habitat conditions which may affect the habitat and availability of stocks.
- Determine the relationship, if any, between migration of prey species (i.e., engraulids, clupeids, carangids), and migration patterns of the Spanish mackerel stock.

Low Priority

- Final identification of Spanish mackerel stocks through multiple research techniques.
- Complete research on the application of assessment and management models relative to dynamic species such as Spanish mackerel.
- Delineation of spawning areas and areas of larval abundance through temporal and spatial sampling.

List of References

Branstetter, S. 1997. Final implementation of high-priority objectives of a bycatch reduction research program for the Gulf of Mexico and South Atlantic shrimp fishery. NMFS 93-SER-059.

Gaddis, G., D. Haymans, J.L. Music, Jr., and J. Page. 2001. Interstate fisheries management planning and implementation. Final Report. Award No. NA86FG0116. USDOC/NOAA/NMFS. Atlantic Coastal Fisheries Management Act (P.L. 103-206).

Ottley, A., C.N. Belcher, B. Good, J.L. Music, Jr., and C. Evans. 1998. Interstate fisheries management planning and implementation. Final Report. Award No. NA57FG0170. USDOC/NOAA/NMFS. Atlantic Coastal Fisheries Management Act (P.L. 103-206).

Table 5. Numbers of recreational releases (B2 fish) of Spanish mackerel by state, 1981-2001 (source: pers. comm. NMFS, Fish. Stats. and Econ. Div.).

YEAR	NY	NJ	DE	MD	VA	NC	SC	GA	FLEC	TOTAL
1981						5616			56374	61990
1982									6613	6613
1983								515	4929	5444
1984						2931	1300		21797	26028
1985						27753	3862		23316	54931
1986					74	280252	7879	605	20469	309279
1987					13947	28136	5506	2916	7197	57702
1988						17413	27019	2456	18334	65222
1989					10286	64749	73983	391	83682	233091
1990	257				21094	76940	26929		35520	160740
1991		2674	1092	1747	28777	133601	19331	57	190602	378740
1992					18072	180235	15515	3859	113062	331329
1993		1160		2684	70081	81927	15966		74052	246454
1994	1059	50743			91832	241082	207055		136041	727812
1995	7297	1269		1562	24467	145845	14159	2594	129469	326662
1996					28951	103067	83543	139	167411	383111
1997			338		22658	140704	62356		168815	394871
1998				1075	49429	80700	32087	7351	87804	258446
1999	1415	2670			36276	205870	46400	495	185106	478232
2000			608	1656	82227	300384	47273	16479	353042	802311
2001	1657	4907	825	7265	30158	160591	9711	3188	285738	504040

(Releases have also been recorded for MA: 1991-859, 1992-586, 1993-584, and 2000-642; these are included in the total)