



TRAINING

Swim Easy to Swim Faster

by Terry Laughlin

A friend of mine is swimming faster at age of 45 than he did in college—and he's swum remarkably consistent times for the last 15 years or so, ranking in the National Top Ten year after year. Yet, he almost never trains hard.

The idea of swimming best times on a foundation of easy workouts may seem to defy logic, but recent research has convinced many respected exercise physiologists and top-rank coaches that endurance is best achieved by training at a fairly low intensity. This moderate pace is called the anaerobic threshold. Anaerobic threshold training is probably the most beneficial form of training for Masters swimmers because it improves cardiovascular fitness more for each hour of swimming than any other format. Threshold sets increase your training effectiveness and improve your fitness and racing potential. What is asked of you in return? Patient, consistent repetition rather than punishing effort.

Cardiovascular endurance is improved by keeping the heart rate elevated for long periods of time. There are two ways to do that: non-stop distance swims or large numbers of short repeats on a very brief rest interval. Common sense indicates that you can maintain a specific pace longer with cycles of work and rest than by swimming non-stop. Short-rest repeats reduce the stress of maintaining a fast pace by keeping your blood lactate at a constant level, allowing you to hold a given pace longer without fatigue. These long sets of short-rest, short-distance repeats are the most essential,

most productive, most mistake-proof form of training for all fitness and competitive swimmers.

The anaerobic threshold is the precise level of intensity at which lactate begins to accumulate in the muscles and bloodstream. Cross the threshold and you quickly fatigue, forcing you to slow down. Train at or just under the threshold and your energy metabolism is in a happy state of equilibrium, allowing you to continue swimming at that pace almost indefinitely. In threshold training, the object is to just reach the

anaerobic threshold during the last part of each repeat swim.

Training at the threshold day after day, week after week, month after month raises the threshold, slowly but steadily. As your threshold improves, you can swim at a faster pace for a longer period without fatiguing.

Threshold sets consist of short-rest (5 to 30 seconds) repeats of 50 to 400 yards, adding up to a total of at least 1500 yards. The ratio of work to rest is usually 4:1 or higher. The best results are achieved by selecting the fastest pace that can be maintained throughout the set without fatiguing.

Some typical threshold sets:

- 1) 20-40 x 50 with 5-10 seconds rest
- 2) 10-20 x 100 with 10-20 seconds rest
- 3) 5-10 x 200 with 20-30 seconds rest
- 4) 3-5 x 400 with 30-60 seconds rest

The key to establishing your best pace and interval is to do a monthly timed test swim of 20 to 30 minutes in

Threshold Training Paces

(Based on average time per 100 for 30-minute swim)

Average Pace/100	:10-:20 Rest Interval				:30-:40 Rest	
	50s	100s	200s	400s	200s	400s
1:10	31.1	1:07	2:16	4:34	2:14	4:32
1:12	32.0	1:09	2:20	4:42	2:18	4:39
1:14	32.8	1:11	2:23	4:50	2:22	4:47
1:16	33.7	1:13	2:27	4:58	2:25	4:55
1:18	34.6	1:15	2:31	5:06	2:29	5:03
1:20	35.5	1:17	2:35	5:14	2:33	5:10
1:24	37.2	1:20	2:42	5:30	2:41	5:25
1:28	39.0	1:24	2:51	5:46	2:48	5:40
1:32	40.7	1:28	2:58	6:02	2:55	5:55
1:36	42.5	1:32	3:06	6:18	3:02	6:10
1:40	44.2	1:35	3:16	6:34	3:09	6:25
1:45	46.4	1:40	3:26	6:54	3:17	6:43
1:50	48.6	1:45	3:36	7:14	3:25	7:00
1:55	50.8	1:50	3:46	7:34	3:33	7:18
2:00	53.0	1:55	3:56	7:54	3:40	7:36

duration (about 500-1000 yards for novices; 2000 yards or more for experienced swimmers.) It's best to do this swim alone, not with a training partner or in workout, because it must be done at your own individual pace and partners are unlikely to swim at their ideal pace. The pace and effort for your test swim is moderately hard but controlled, a pace that can be comfortably sustained for the entire distance.

Take your time for the test swim and divide by the number of 100s done. For example, if you swam 15:20 for 1000 yards, your pace per 100 was 1:32. Find 1:32 in the left column of the accompanying table, then move across that line to the right to

find your threshold pace for short rest repeats of 50 to 400 yards. A sample set would be 20 x 100 on an interval of 1:40-1:50, with each repeat held at a pace of about 1:28. For target paces for longer distances and longer rest intervals, refer to the two columns on the far right.

Low or moderate weekly yardage totals shouldn't discourage you from employing this training strategy. Threshold training sets are particularly effective when they make up the bulk of yardage for the under-10,000-yards/week swimmer. They also make an excellent transition vehicle from lap swimming to more demanding interval training. Finally, drills can easily be done as a substantial part of threshold sets, allowing you to improve technique and endurance at the same time.

Can you base an entire training program on threshold training? For fitness swimmers, the answer is probably yes. But competitive swimmers need other types of training to optimize the development of speed and anaerobic capacity. Threshold sets contribute little to speed or power, so they should be complemented with sprint training (12-20 x 25 on 20-30 seconds rest at maximum speed). These can also be used nearly every day as they are relatively low stress.

Terry Laughlin is the director of Total Immersion Masters Swimming Camps. (See Calendar for dates and locations.) In January Terry will begin publishing Swim Smarts—a monthly newsletter of training information for Masters and fitness swimmers and triathletes. For a free sample copy, call (914) 294-5212 or write Total Immersion, 381 Main Street, Goshen, NY 10924.

— the 50, 100 and 200-meter breaststroke, 200-meter butterfly and 400-meter individual medley events — in the 55-59 age bracket at the recent United States Masters National Swimming Championships at the University of Southern California at Los Angeles.

Pays her dues

It's no coincidence that McGuire is the top breastroker in the nation for women in her age category, and an All-American master's swimmer. She pays her dues.

McGuire works out with coach Greg Tye and the Florida Gold Coast Masters swimming team at 6 a.m. Monday, Wednesday and Friday at Aqua Crest, and she does afternoon workouts at the pool the other four days of the week.

June Krauser, another Purdue grad and one of McGuire's teammates at Aqua Crest, helped get the Master's program started in Florida.

"There's a lot more people swimming Master's now," says McGuire, who also teaches water aerobics and low-impact exercises to seniors at Abbey Delray. "There's a lot more pools in the area. Aqua Crest is new and so is Mission Bay."

Besides swimming, McGuire is an avid runner and tennis player. A two-time marathon participant, she now prefers 10K road races. She is also a former tennis instructor at the Delray Tennis Center.

"We're a physical fitness family," said McGuire, who has four children who've graduated from the University of Florida and a husband, James, who teaches physics at Florida Atlantic University. "We all play sports. My kids run, swim, play tennis, and do triathlons."

McGuire still swimming and winning

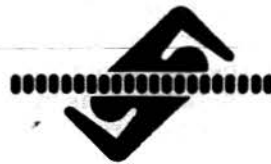
By Mark Ryan
Staff Writer

It's 1952 in West Lafayette, Ind., and Anne Bardwell, an 18-year-old student at Purdue University, is packing a duffle bag in preparation for an early-morning Boilermakers' swimming practice.

Fast forward to 1990: It's 5:30 a.m. in Delray Beach and 55-year-old Anne Bardwell McGuire is throwing a few things in a duffle bag, getting ready for her daily swimming workout at Aqua Crest Pool.

Different pool. Different duffle bag. Same Anne McGuire.

McGuire, the former member of Purdue's 400 medley relay team that set a world record in 1954, still has the '50s collegiate spirit and smooth strokes in the '90s. She won five events



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MASTERS WORLD SWIMMING RECORDS

WOMEN

LONG COURSE

AT NOV 1st '90

AGE	STROKE	FREESTYLE						BACKSTROKE		
		DIST.	50M.	100M.	200M.	400M.	800M.	1500M.	50M.	100M.
25	TIME	26.77 (84)	58.34 (89)	2:07.11 (89)	4:27.53 (89)	9:18.43 (89)	17:38.78 (88)	30.80 (89)	1:06.46 (89)	2:19.97 (89)
29	NAME	S. NEILSON	S. SHAND	S. SHAND	S. SHAND	S. SHAND	A. POPE	D. GRANER	M. RODAHL	D. GRANER
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	N.Z.	U.S.A.
30	TIME	26.37 (88)	58.09 (88)	2:07.84 (89)	4:33.08 (86)	9:35.17 (90)	18:04.05 (90)	32.11 (88)	1:07.08 (88)	2:29.27 (88)
34	NAME	S. NEILSON-BELL	S. NEILSON-BELL	B. WITZ-KNIGHT	S. PAMELIA	A. POPE	A. POPE	B. MAUER	B. MAUER	B. MAUER
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
35	TIME	27.91 (88)	1:00.25 (88)	2:09.33 (88)	4:33.08 (88)	9:24.54 (88)	18:12.11 (87)	32.64 (87)	1:10.94 (89)	2:35.77 (88)
39	NAME	J. HIRSTY	S. HALFACE	S. HALFACE	S. HALFACE	S. HALFACE	S. PAMELIA	L. VAL	L. VAL	P. GILMORE
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	CANADA
40	TIME	28.64 (88)	1:03.40 (88)	2:21.77 (88)	4:54.45 (90)	10:10.64 (89)	19:13.16 (89)	34.68 (88)	1:15.24 (86)	2:47.57 (85)
44	NAME	M. MARTIN	M. MARTIN	M. MARTIN	B. DUNBAR	B. DUNBAR	B. DUNBAR	M. MARTIN	S. TAKEUJI	E. CHIDESTER
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	JAPAN	U.S.A.
45	TIME	29.08 (87)	1:05.44 (87)	2:24.24 (87)	5:08.67 (87)	10:48.41 (87)	21:08.30 (87)	34.51 (88)	1:17.06 (89)	2:54.05 (88)
49	NAME	A. MUELLER	A. MUELLER	A. MUELLER	A. MUELLER	A. MUELLER	A. MUELLER	S. TAKEUJI	S. TAKEUJI	S. TAKEUJI
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	JAPAN	JAPAN	JAPAN
50	TIME	31.10 (86)	1:09.16 (88)	2:37.11 (89)	5:38.71 (89)	11:40.50 (87)	22:00.76 (87)	37.90 (88)	1:23.40 (88)	3:01.07 (87)
54	NAME	J. BRUNER	Y. OSAKI	Y. OSAKI	Y. OSAKI	L. STONOFF	L. STONOFF	B. JORDAN	B. JORDAN	B. JORDAN
	COUNTRY	U.S.A.	JAPAN	JAPAN	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
55	TIME	32.60 (85)	1:12.34 (90)	2:42.04 (88)	5:36.68 (88)	11:30.97 (88)	22:18.91 (88)	39.17 (83)	1:27.61 (83)	3:10.89 (82)
59	NAME	G. ROPER	J. BRUNER	L. STONOFF	L. STONOFF	L. STONOFF	L. STONOFF	C. WALKER	C. WALKER	L. STONOFF
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
60	TIME	35.01 (86)	1:18.28 (89)	2:50.03 (88)	6:02.28 (88)	12:19.35 (88)	23:55.57 (87)	40.35 (89)	1:31.06 (86)	3:15.92 (89)
64	NAME	G. JOHNSON	M. CUNNINGHAM	C. WALKER	C. WALKER	C. WALKER	C. WALKER	D. STEADMAN	C. WALKER	D. STEADMAN
	COUNTRY	N.Z.	AUST.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
65	TIME	35.56 (87)	1:22.80 (87)	3:07.68 (90)	6:30.19 (90)	13:33.26 (89)	25:38.81 (89)	40.99 (90)	1:31.58 (90)	3:17.12 (90)
69	NAME	G. JOHNSON	D. DONNELLY	F. CARR	F. CARR	P. SMITH	P. SMITH	D. STEADMAN	D. STEADMAN	D. STEADMAN
	COUNTRY	N.Z.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
70	TIME	39.03 (87)	1:30.37 (87)	3:24.61 (87)	7:19.34 (87)	15:04.91 (88)	28:46.45 (88)	45.21 (87)	1:39.85 (87)	3:47.59 (87)
74	NAME	J. GILBERT	B. ANDERSON	B. ANDERSON	B. ANDERSON	R. SIMONTON	R. SIMONTON	B. ANDERSON	B. ANDERSON	B. ANDERSON
	COUNTRY	U.S.A.	AUST.	AUST.	AUST.	U.S.A.	U.S.A.	AUST.	AUST.	AUST.
75	TIME	41.72 (89)	1:39.28 (86)	3:52.90 (84)	8:09.29 (84)	17:12.92 (89)	31:46.42 (90)	51.07 (86)	1:56.71 (89)	4:07.44 (84)
79	NAME	H. SUGAYA	V. WADA	V. CHERRIMAN	V. CHERRIMAN	J. DURSTON	J. DURSTON	M. WRIGHT	M. WICKLUN	M. WICKLUN
	COUNTRY	JAPAN	JAPAN	ENGLAND	ENGLAND	U.S.A.	U.S.A.	AUST.	U.S.A.	U.S.A.
80	TIME	46.62 (89)	1:49.27 (89)	4:16.48 (88)	9:27.56 (90)	19:56.01 (89)	36:54.26 (90)	53.73 (89)	2:01.87 (89)	4:22.89 (89)
84	NAME	M. WRIGHT	M. WRIGHT	V. CHERRIMAN	J. DOLCE	J. DOLCE	J. DOLCE	M. WRIGHT	M. WRIGHT	M. WRIGHT
	COUNTRY	AUST.	AUST.	ENGLAND	U.S.A.	U.S.A.	U.S.A.	AUST.	AUST.	AUST.
85	TIME	1:06.49 (84)	2:48.56 (84)	5:47.58 (89)	13:22.48 (84)	24:23.38 (88)	52:23.80 (89)	1:14.83 (84)	2:49.73 (84)	5:51.69 (84)
89	NAME	E. PECKHAM	E. PECKHAM	M. MCKEHNIE	E. PECKHAM	A. BAUSCHER	H. MCKEHNIE	E. PECKHAM	E. PECKHAM	E. PECKHAM
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
90	TIME	2:02.38 (88)	4:08.22 (88)					2:01.70 (88)	3:59.89 (88)	10:47.76 (88)
94	NAME	P. MILLER	P. MILLER					V. FERNANDEZ	V. FERNANDEZ	P. MILLER
	COUNTRY	U.S.A.	U.S.A.					AUST.	AUST.	U.S.A.

AGE	STROKE	BREASTSTROKE			BUTTERFLY			INDIVIDUAL MEDLEY	
		DIST.	50M.	100M.	200M.	50M.	100M.	200M.	200M.
25	TIME	32.01 (89)	1:16.05 (90)	2:49.86 (90)	28.79 (87)	1:03.91 (87)	2:22.42 (87)	2:22.89 (89)	5:06.34 (89)
29	NAME	S. SEMINATORE	S. SEMINATORE	S. SEMINATORE	R. SEAMAN	R. SEAMAN	J. FORD	M. RODAHL	S. SHAND
	COUNTRY	ITALY	ITALY	ITALY	U.S.A.	U.S.A.	U.S.A.	N.Z.	U.S.A.
30	TIME	34.56 (89)	1:14.52 (88)	2:48.41 (89)	29.91 (88)	1:06.24 (89)	2:28.24 (89)	2:29.22 (88)	5:23.84 (88)
34	NAME	M. HOHMANN	M. HOHMANN	D. HILBIG	S. NEILSON-BELL	R. SEAMAN	B. MAUER	S. NEILSON-BELL	B. MAUER
	COUNTRY	ENGLAND	ENGLAND	FRG.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
35	TIME	34.41 (89)	1:17.44 (90)	2:54.85 (89)	29.27 (88)	1:05.39 (88)	2:26.38 (89)	2:37.20 (88)	5:38.42 (88)
39	NAME	L. WETZEL-OSBORNE	L. WETZEL-OSBORNE	L. WETZEL-OSBORNE	S. HALFACE	S. HALFACE	L. VAL	P. GILMORE	L. WATSON
	COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	CANADA	AUST.
40	TIME	37.59 (88)	1:24.95 (86)	3:07.35 (86)	30.54 (88)	1:09.45 (89)	2:33.51 (89)	2:46.90 (89)	5:46.50 (89)
44	NAME	J. MACLEOD	G. PIERSON	G. PIERSON	M. MARTIN	B. DUNBAR	B. DUNBAR	B. DUNBAR	B. DUNBAR
	COUNTRY	AUST.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
45	TIME	39.43 (89)	1:27.39 (90)	3:10.49 (88)	30.74 (87)	1:12.67 (87)	2:44.10 (87)	2:46.91 (87)	5:54.98 (87)
49	NAME	E. BRAMWICH	C. FERRIS-BOAK	D. FORD	A. MUELLER	A. MUELLER	A. MUELLER	A. MUELLER	A. MUELLER
	COUNTRY	ENGLAND	U.S.A.	ENGLAND	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
50	TIME	39.00 (86)	1:28.83 (90)	3:14.70 (86)	34.67 (86)	1:24.40 (84)	3:14.27 (87)	3:05.13 (85)	6:35.20 (82)
54	NAME	E. MATSUMOTO	J. LEILICH	F. CONNOLLY	J. BRUNER	J. BRUNER	J. SEIDL	J. BRUNER	G. ROPER
	COUNTRY	JAPAN	U.S.A.	SCOTLAND	U.S.A.	U.S.A.	FRG	U.S.A.	U.S.A.
55	TIME	41.74 (89)	1:31.05 (89)	3:18.11 (89)	35.29 (85)	1:27.49 (85)	3:17.68 (89)	3:07.65 (85)	6:42.05 (85)
59	NAME	J. BRUNER	J. BRUNER	F. CONNOLLY	G. ROPER	G. ROPER	F. CONNOLLY	G. ROPER	G. ROPER
	COUNTRY	U.S.A.	U.S.A.	SCOTLAND	U.S.A.	U.S.A.	SCOTLAND	U.S.A.	U.S.A.
60	TIME	42.49 (88)	1:38.72 (88)	3:41.48 (89)	38.64 (88)	1:34.48 (88)	3:34.66 (86)	3:17.40 (86)	6:59.45 (86)
64	NAME	E. BOEHM	E. BOEHM	E. BOEHM	A. ADAMS	A. ADAMS	J. KRAUSER	C. WALKER	C. WALKER
	COUNTRY	FRG	FRG	FRG	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
65	TIME	48.13 (88)	1:45.89 (89)	3:45.71 (89)	43.25 (90)	1:48.37 (87)	3:58.77 (86)	3:34.41 (90)	7:57.05 (90)
69	NAME	C. COSTELLO	R. KENNER	M. EVANS	F. CARR	J. EPPLEY	J. EPPLEY	F. CARR	F. CARR
	COUNTRY	U.S.A.	U.S.A.	ENGLAND	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
70	TIME	52.17 (88)	1:56.24 (88)	4:17.06 (90)	50.72 (88)	2:02.61 (85)	4:37.05 (82)	4:09.35 (90)	8:39.36 (88)
74	NAME	G. ZINT	G. ZINT	M. HAYURO	G. ZINT	M. LENKZIGLER	M. MERLINO	M. DUTTON	R. SIMONTON
	COUNTRY	U.S.A.	U.S.A.	JAPAN	U.S.A.	BRAZIL	U.S.A.	AUSTRALIA	U.S.A.
75	TIME	52.90 (89)	2:07.86 (86)	4:36.72 (86)	1:02.39 (89)	2:30.80 (88)	4:54.79 (88)	4:25.80 (87)	9:11.23 (87)
79	NAME	E. PAULI	M. BUTZBACH	M. BUTZBACH	M. MERLINO	M. MERLINO	M. MERLINO	M. MERLINO	M. MERLINO
	COUNTRY	FRG	FRG	FRG	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
80	TIME	1:04.78 (89)	2:41.92 (90)	5:43.46 (90)	1:13.71 (88)	2:52.33 (90)	6:09.67 (90)	5:13.12 (90)	11:14.31 (90)
84	NAME	M. WRIGHT	C. CRESS	E. MATTILA	V. CHERRIMAN	E. MATTILA	E. MATTILA	E. MATTILA	E. MATTILA
	COUNTRY	AUST.	U.S.A.	U.S.A.	ENGLAND	U.S.A.	U.S.A.	U.S.A.	U.S.A.
85	TIME	1:28.69 (87)	3:32.03 (84)	7:45.92 (84)	1:27.77 (85)	2:20.01 (90)	7:40.47 (84)	7:08.59 (84)	14:02.65 (90)
89	NAME	D. VENNING	E. PECKHAM	E. PECKHAM	E. PECKHAM	K. PELTON	E. PECKHAM	E. PECKHAM	K. PELTON
	COUNTRY	N.Z.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
90	TIME								
94	NAME								
	COUNTRY								

MASTERS WORLD SWIMMING RECORDS

MEN

LONG COURSE

AT NOV. 1st '90

AGE	STROKE	FREESTYLE						BACKSTROKE			
		DIST.	50M.	100M.	200M.	400M.	800M.	1500M	50M.	100M.	200M.
25		TIME	22.59(83)	51.25(81)	1:53.78(81)	4:06.99(88)	8:41.43(88)	16:28.69(87)	27.39(86)	59.00(86)	2:12.92(84)
29		NAME	K. DEFORREST	J. MONTGOMERY	J. MONTGOMERY	M. MATTIOLI	M. MATTIOLI	C. REID	R. ARANTES	R. ARANTES	T. C. WOLF
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	BRAZIL	BRAZIL	U.S.A.	BRAZIL	BRAZIL	U.S.A.
30		TIME	23.29(90)	51.68(90)	1:54.04(90)	4:08.70(86)	8:46.29(86)	17:06.73(88)	27.32(89)	1:00.40(85)	2:11.77(87)
34		NAME	A. ROWDY GAINES	A. ROWDY GAINES	A. ROWDY GAINES	J. MONTGOMERY	J. MONTGOMERY	R. NICHOLS	D. OXIER	T. C. WOLF	T. C. WOLF
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
35		TIME	24.72(90)	55.08(90)	2:00.45(83)	4:18.35(87)	9:09.59(88)	17:26.29(89)	28.04(78)	1:01.60(90)	2:13.82(90)
39		NAME	R. HESS	G. HENRY	F. SCHLICHER	J. M. CONICA	B. BITTNER	J. MCGONICA	T. MANN	B. COOPER	T. WOLF
		COUNTRY	U.S.A.	AUST.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	AUST.	U.S.A.
40		TIME	25.25(83)	56.36(83)	2:04.82(90)	4:26.60(90)	9:19.37(90)	17:30.13(90)	29.24(83)	1:08.06(90)	2:25.23(88)
44		NAME	T. GARTON	T. GARTON	K. POLANSKY	K. POLANSKY	K. POLANSKY	K. POLANSKY	P. WHITTEN	W. TINGLEY	R. TOB SPIEGEL
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
45		TIME	26.12(83)	57.96(89)	2:08.93(88)	4:36.91(88)	9:50.24(88)	18:34.73(83)	30.67(88)	1:07.77(88)	2:28.25(88)
49		NAME	J. FARRELL	T. GARTON	T. GARTON	T. GARTON	E. CAZALET	E. HINSHAW	R. BURNS	E. BARTSCH	E. BARTSCH
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
50		TIME	26.16(83)	59.25(83)	2:14.39(88)	4:51.06(88)	10:04.71(88)	19:28.41(85)	30.93(88)	1:10.14(88)	2:36.44(88)
54		NAME	D. HILL	D. HILL	E. HINSHAW	E. HINSHAW	E. HINSHAW	B. JONES	J. SMITH	J. SMITH	B. JONES
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
55		TIME	27.42(88)	1:03.40(85)	2:22.94(88)	4:58.41(88)	10:27.09(88)	19:54.72(90)	33.29(85)	1:13.15(90)	2:42.37(88)
59		NAME	M. MUCKLER	I. DAFONSECA	B. JONES	B. JONES	B. JONES	B. JONES	I. DAFONSECA	J. BEATTIE	D. BROWN
		COUNTRY	U.S.A.	BRAZIL	U.S.A.	U.S.A.	U.S.A.	U.S.A.	BRAZIL	U.S.A.	U.S.A.
60		TIME	28.50(86)	1:07.24(84)	2:28.94(84)	5:17.64(88)	11:13.16(88)	21:17.93(88)	35.02(84)	1:18.06(84)	2:52.67(87)
64		NAME	P. POWLINSON	P. POWLINSON	P. POWLINSON	W. PHILLIPS	W. WILSON	W. PHILLIPS	P. HUTINGER	P. HUTINGER	R. FRANKS
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
65		TIME	29.17(87)	1:08.15(83)	2:32.90(87)	5:28.79(83)	11:36.97(87)	23:04.59(83)	38.47(89)	1:21.52(90)	2:58.62(90)
69		NAME	P. POWLINSON	J. WELCH	P. POWLINSON	J. WELCH	J. HALE	J. WELCH	G. GANDSEY	P. HUTINGER	P. HUTINGER
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
70		TIME	29.35(84)	1:11.61(83)	2:44.86(83)	6:04.62(89)	12:44.54(89)	24:58.38(88)	37.49(89)	1:25.35(89)	3:13.25(89)
74		NAME	K. LEMMON	K. LEMMON	K. LEMMON	R. TAFT	E. MORAN	A. DAROSA	R. TAFT	R. TAFT	R. TAFT
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
75		TIME	32.50(88)	1:14.86(87)	2:53.73(87)	6:27.76(81)	13:35.96(87)	25:41.53(87)	40.47(82)	1:32.92(82)	3:33.08(87)
79		NAME	L. COLLETT	K. LEMMON	K. LEMMON	A. RULE	H. HOWE	H. HOWE	A. HARGRAVE	A. HARGRAVE	H. SCHWARZ
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	FRG
80		TIME	36.62(90)	1:28.22(90)	3:31.79(83)	7:23.09(83)	15:48.62(90)	28:54.95(83)	45.62(87)	1:50.05(87)	4:04.72(87)
84		NAME	G. SOBEL	G. SOBEL	G. LANGNER	G. LANGNER	T. TERAO	G. LANGNER	A. HARGRAVE	A. HARGRAVE	H. EISENSCHMIDT
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.
85		TIME	44.65(89)	1:43.03(88)	3:48.91(88)	8:14.50(88)	17:11.21(88)	33:08.42(89)	1:01.44(86)	2:18.74(89)	5:15.15(86)
89		NAME	G. LANGNER	G. LANGNER	G. LANGNER	G. LANGNER	G. LANGNER	G. LANGNER	T. CURETON	R. HARRISON	T. CURETON
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
90		TIME	59.88(84)	2:14.06(84)					1:16.30(89)	5:04.51(82)	
94		NAME	C. WHEELER	C. WHEELER					T. LANE	L. MAGNER	
		COUNTRY	U.S.A.	U.S.A.					U.S.A.	U.S.A.	

AGE	STROKE	BREASTSTROKE			BUTTERFLY			INDIVIDUAL MEDLEY			
		DIST.	50M.	100M.	200M.	50M.	100M.	200M.	200M.	400M.	
25		TIME	29.88(86)	1:04.60(89)	2:26.73(87)	25.16(83)	56.34(84)	2:05.25(84)	2:09.21(87)	4:34.08(87)	
29		NAME	R. HOFSTETTER	D. LUNDBERG	T. LIGL	K. DEFOREST	M. BOTTOM	M. LUKASEK	C. REID	C. REID	
		COUNTRY	U.S.A.	U.S.A.	FRG	U.S.A.	U.S.A.	CZECH	U.S.A.	U.S.A.	
30		TIME	29.74(87)	1:06.87(87)	2:26.61(87)	25.31(88)	56.64(88)	2:07.71(87)	2:12.37(88)	4:43.93(88)	
34		NAME	R. HOFSTETTER	B. HOWELL	B. HOWELL	M. BOTTOM	M. BOTTOM	J. BELARDI	M. SCHUMAN	P. KOLLBAS	
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	CZECH	
35		TIME	31.52(87)	1:10.20(87)	2:35.66(89)	26.35(87)	58.59(83)	2:12.91(83)	2:19.17(90)	4:59.66(89)	
39		NAME	E. MILTENBERGER	E. MILTENBERGER	G. HARRISON	P. MUNGER	F. SCHLICHER	F. SCHLICHER	T. WOLF	F. SCHLICHER	
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
40		TIME	32.08(90)	1:11.58(83)	2:38.02(87)	27.56(83/88)	1:02.05(80)	2:23.05(88)	2:23.20(85)	5:08.30(85)	
44		NAME	M. WITASEK	V. LUKEN	P. WISNER	K. LEONIS	S. MACEI	L. LARSON	B. GALLAS	T. GARTON	T. GARTON
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.
45		TIME	33.10(86)	1:14.95(88)	2:47.28(88)	27.78(86)	1:04.31(88)	2:32.11(87)	2:25.46(88)	5:17.96(88)	
49		NAME	Y. OOSAKI	M. HULL	M. HULL	R. TAKAMINE	T. GARTON	J. O'CONNOR	T. GARTON	T. GARTON	
		COUNTRY	JAPAN	U.S.A.	U.S.A.	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
50		TIME	33.38(86)	1:15.60(83)	2:53.76(83)	28.90(87)	1:07.13(83)	2:33.79(83)	2:34.67(89)	5:41.04(85)	
54		NAME	H. KOTEGAWA	M. SANGUILY	M. SANGUILY	R. PROBSTING	W. YORZYK	W. YORZYK	D. GALLAGHER	B. JONES	
		COUNTRY	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
55		TIME	33.64(90)	1:17.87(88)	2:58.83(88)	30.94(86)	1:12.19(88)	2:56.19(88)	2:44.00(87)	5:53.77(87)	
59		NAME	H. KOTEGAWA	J. KORTHEUER	M. SANGUILY	J. KORTHEUER	W. YORZYK	M. WERNER	G. JOHNSTON	G. JOHNSTON	
		COUNTRY	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.	FRG	U.S.A.	U.S.A.	
60		TIME	37.58(90)	1:27.50(86)	3:14.50(88)	32.19(85)	1:17.39(88)	3:00.99(90)	2:55.70(88)	6:18.89(88)	
64		NAME	J. KURTZMAN	P. POWLINSON	K. KNOPS	F. PIEMME	W. WILSON	J. MASTERS	C. MOSS	C. MOSS	
		COUNTRY	U.S.A.	U.S.A.	FRG	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
65		TIME	39.59(89)	1:30.97(90)	3:26.14(90)	33.34(87)	1:25.56(89)	3:24.69(90)	3:02.81(87)	6:50.59(90)	
69		NAME	R. STOKHAUSEN	I. KEGAMI	L. ARTH	J. HALE	I. KATZ	L. ARTH	P. POWLINSON	L. ARTH	
		COUNTRY	FRG	JAPAN	U.S.A.	ENGLAND	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
70		TIME	41.20(89)	1:33.20(84)	3:32.90(88)	35.65(89)	1:32.85(90)	3:38.48(87)	3:11.42(89)	6:59.24(89)	
74		NAME	R. ROMAIN	B. ALLEN	A. DA ROSA	R. TAFT	A. HOLDEN	D. JEFFREY	R. TAFT	R. TAFT	
		COUNTRY	ENGLAND	U.S.A.	U.S.A.	U.S.A.	U.S.A.	AUST.	U.S.A.	U.S.A.	
75		TIME	43.52(90)	1:39.69(87)	3:50.51(87)	41.25(87)	1:48.44(87)	4:04.13(87)	3:30.50(87)	7:48.38(87)	
79		NAME	H. YOSHIMOTO	K. LEMMON	K. LEMMON	K. LEMMON	K. LEMMON	K. LEMMON	K. LEMMON	K. LEMMON	
		COUNTRY	JAPAN	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	
80		TIME	49.61(89)	2:00.89(88)	4:40.35(88)	53.20(88)	2:23.50(89)	5:11.48(89)	4:20.72(89)	9:47.72(88)	
84		NAME	K. KOYAMA	K. KOYAMA	F. GRIFFITHS	J. PENFIELD	F. GRIFFITHS	F. GRIFFITHS	F. GRIFFITHS	F. GRIFFITHS	
		COUNTRY	JAPAN	JAPAN	AUST.	U.S.A.	AUST.	AUST.	AUST.	AUST.	
85		TIME	1:01.47(89)	2:25.85(89)	5:35.03(89)	1:14.96(89)				5:33.20(86)	
89		NAME	A. KALLUNKI	A. KALLUNKI	A. KALLUNKI	A. KALLUNKI				T. CURETON	
		COUNTRY	U.S.A.	U.S.A.	U.S.A.	U.S.A.				U.S.A.	
90		TIME	1:35.87(89)	5:16.03(82)							
94		NAME	T. LANE	L. MAGNER							
		COUNTRY	U.S.A.	U.S.A.							

MASTERS WORLD SWIMMING RECORDS

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SHORT COURSE

WOMEN

	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
FREESTYLE														
50 metre	26.93 L. Fabrizio USA	26.55 S. Neilson USA	27.66 J. Hirsty USA	29.09 N. Patoh HUNGARY	30.05 N. Ridout USA	31.31 Y. Osaki JAPAN	31.83 J. Bruner USA	34.75 N. Cunningham AUSTRALIA	34.92 N. Cunningham AUSTRALIA	40.42 L. Donovan USA	43.29 M. Supava JAPAN	48.76 J. Doice USA	1:03.78 N. McKechnie USA	2:06.95 V. Fernance AUSTRALIA
100 metre	58.93 N. Rodahl N. ZEALAND	57.35 S. Neilson USA	1:00.75 J. Hirsty USA	1:04.92 S. Shripton ENGLAND	1:07.90 N. Ridout USA	1:09.99 Y. Osaki JAPAN	1:11.63 J. Bruner USA	1:17.99 C. Walker USA	1:21.44 P. Smith USA	1:31.84 L. Donovan ENGLAND	1:45.53 V. Cherrian ENGLAND	1:53.70 V. Cherrian ENGLAND	3:01.15 A. Bauscher USA	4:23.67 V. Fernance AUSTRALIA
200 metre	2:06.47 D. Graner USA	2:06.83 S. Neilson USA	2:12.69 J. Hirsty USA	2:21.91 C. Iannacone USA	2:28.69 A. Ruehler USA	2:35.01 Y. Osaki JAPAN	2:40.27 L. Steinoeff USA	2:50.94 C. Walker USA	3:02.54 N. Cunningham AUSTRALIA	3:28.41 L. Wingard USA	3:50.58 U. Mada JAPAN	4:17.73 J. Doice USA	5:33.83 N. McKechnie USA	
400 metre	4:26.18 D. Graner USA	4:31.88 B. Knight USA	4:52.99 B. Dunbar USA	4:53.28 B. Dunbar USA	5:34.44 N. Ridout USA	5:32.67 L. Steinoeff USA	5:34.32 L. Steinoeff USA	6:02.43 C. Walker USA	6:31.09 P. Smith USA	7:17.22 R. Simanton USA	7:56.05 V. Cherrian ENGLAND	8:51.10 V. Cherrian ENGLAND		
800 metre	9:21.42 B. Evans CANADA	9:17.55 B. Knight USA	9:46.95 L. Val USA	10:12.09 B. Dunbar USA	11:14.64 N. Ridout USA	11:35.78 L. Steinoeff USA	11:29.99 L. Steinoeff USA	12:21.47 C. Walker USA	13:35.92 P. Smith USA	15:06.99 R. Simanton USA	17:16.06 N. Merlino USA	18:11.90 V. Cherrian ENGLAND	24:05.34 N. McKechnie USA	
1500 metre	17:42.32 B. Evans CANADA	18:24.43 B. Durd USA	18:27.71 L. Val USA	19:00.81 B. Dunbar USA	22:55.80 P. McCullough CANADA	21:44.35 L. Steinoeff USA	21:35.84 L. Steinoeff USA	23:28.15 C. Walker USA	28:03.99 J. McCallister USA	28:49.23 R. Simanton USA	33:53.33 N. Merlino USA	35:44.26 V. Cherrian ENGLAND		
BACKSTROKE														
50 metre	30.63 D. Graner USA	32.24 L. Hasselquist USA	33.39 S. Rogers ENGLAND	34.42 N. Patoh HUNGARY	35.43 S. Takeuji JAPAN	38.14 B. Jordan USA	40.38 J. Asher ENGLAND	39.60 C. Walker USA	40.48 D. Steadman ENGLAND	45.08 W. Van Rysel ENGLAND	52.11 N. Wickham ENGLAND	1:05.08 V. Cherrian ENGLAND	1:13.57 N. McKechnie USA	1:55.07 V. Fernance AUSTRALIA
100 metre	1:04.66 D. Graner USA	1:11.53 L. Hasselquist USA	1:10.47 P. Gilmore CANADA	1:16.51 S. O'Neill ENGLAND	1:17.13 S. Takeuji JAPAN	1:23.58 B. Jordan USA	1:30.03 F. Connolly SCOTLAND	1:29.13 C. Walker USA	1:30.41 D. Steadman ENGLAND	1:44.02 W. Van Rysel ENGLAND	1:55.82 N. Wickham USA	2:24.00 V. Cherrian ENGLAND	2:52.17 A. Bauscher USA	4:19.46 V. Fernance AUSTRALIA
200 metre	2:20.66 D. Graner USA	2:34.27 J. Huddell NEW ZEALAND	2:34.09 P. Gilmore CANADA	2:43.34 S. O'Neill ENGLAND	2:56.06 B. Bennett USA	2:58.72 B. Jordan USA	3:11.13 L. Steinoeff USA	3:16.14 D. Steadman USA	3:15.72 D. Steadman USA	3:53.84 W. Van Rysel ENGLAND	4:01.89 N. Wickham USA	5:18.44 S. Scott USA	6:00.16 N. McKechnie USA	
BREASTSTROKE														
50 metre	33.60 R. Willisse HOLLAND	35.75 L. Bennett USA	34.63 L. Osborne USA	38.00 B. Frank CANADA	39.21 E. Bromwich ENGLAND	39.87 F. Connolly SCOTLAND	41.33 F. Connolly SCOTLAND	42.02 E. Boehm GERMANY	47.39 D. Christian USA	50.95 G. Zint USA	58.41 D. Weston ENGLAND	1:07.65 V. Cherrian ENGLAND		
100 metre	1:13.60 R. Willisse HOLLAND	1:18.13 L. Bennett USA	1:16.70 L. Osborne USA	1:23.81 G. Pierson USA	1:26.22 E. Bromwich USA	1:28.51 J. Leilich USA	1:28.13 F. Connolly SCOTLAND	1:39.86 C. Walker USA	1:43.57 L. Buro-Bonnier HOLLAND	1:55.84 G. Zint USA	2:06.60 D. Weston ENGLAND	2:44.80 V. Cherrian ENGLAND		
200 metre	2:44.82 B. Steinhof GERMANY	2:49.16 E. Isopel SWITZERLAND	2:50.93 L. Osborne USA	3:01.86 G. Pierson USA	3:06.59 D. Ford ENGLAND	3:11.20 J. Leilich USA	3:12.85 F. Connolly SCOTLAND	3:41.14 R. Evans ENGLAND	3:46.02 R. Evans ENGLAND	4:09.41 H. Hamao JAPAN	4:35.24 N. Merlino USA	6:31.81 K. Pelton USA		
BUTTERFLY														
50 metre	29.51 N. Rodahl N. ZEALAND	30.20 S. Neilson USA	30.21 L. Val USA	32.11 B. Dunbar USA	33.44 J. Wilson ENGLAND	36.43 J. Lambke USA	37.67 J. Asher ENGLAND	39.64 A. Adams USA	44.27 N. Cunningham AUSTRALIA	50.27 R. Dutton AUSTRALIA	59.27 N. Merlino USA	1:13.27 V. Cherrian ENGLAND	1:44.36 E. Peckham USA	
100 metre	1:05.71 S. McDonald SCOTLAND	1:07.34 T. Bennett USA	1:08.00 L. Val USA	1:10.56 B. Dunbar USA	1:17.02 J. Wilson ENGLAND	1:27.44 J. Lambke USA	1:27.88 F. Connolly SCOTLAND	1:36.95 P. Bolton USA	1:47.51 J. Emley USA	2:04.25 G. Zint USA	2:12.17 N. Merlino USA	3:09.18 K. Pelton USA		
200 metre	2:24.89 S. Palmer-White AUSTRALIA	2:30.73 H. Murray USA	2:35.70 B. Dunbar USA	2:52.19 B. Dunbar USA	2:37.88 A. Ruehler USA	3:11.83 S. Rode-maker USA	3:11.42 F. Connolly SCOTLAND	3:33.12 J. Krauser USA	4:10.63 J. Emley USA	4:36.96 N. Merlino USA	4:48.50 N. Merlino USA	6:46.72 D. Hopkins USA		
RELAY														
100 metre	1:04.84 N. Rodahl N. ZEALAND	1:07.78 S. Neilson USA	1:11.55 J. Hirsty USA	1:15.63 S. O'Neill ENGLAND	1:14.41 A. Ruehler USA	1:23.90 Y. Osaki JAPAN	1:24.19 J. Bruner USA	1:27.50 C. Walker USA	1:45.67 D. Donnelly USA	1:49.22 R. Dutton AUSTRALIA	2:00.07 N. Merlino USA	2:21.39 V. Cherrian ENGLAND	4:32.97 A. Bauscher USA	
200 metre	2:24.07 D. Graner USA	2:27.11 S. Neilson USA	2:35.52 C. Egan USA	2:44.85 S. O'Neill ENGLAND	2:42.88 A. Ruehler USA	2:59.01 Y. Osaki JAPAN	3:05.23 F. Connolly SCOTLAND	3:14.20 C. Walker USA	3:47.71 R. Evans ENGLAND	4:04.81 R. Simanton USA	4:17.89 N. Merlino USA	6:10.22 K. Pelton USA	9:49.36 A. Bauscher USA	
400 metre	5:14.28 B. Evans CANADA	5:21.01 B. Durd USA	5:32.65 P. Gilmore CANADA	5:46.82 B. Dunbar USA	5:55.35 A. Ruehler USA	6:39.01 J. Seidi GERMANY	6:36.03 F. Connolly SCOTLAND	7:12.48 J. Krauser USA	8:05.06 C. Kerr CANADA	8:34.79 R. Simanton USA	9:07.66 N. Merlino USA	12:11.13 D. Hopkins USA		

MASTERS WORLD SWIMMING RECORDS

SHORT COURSE

MEN

as at 1 NOV 1990

FREESTYLE	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
50 metre	23.73 J. Lillie USA	22.82 R. Gaines JAPAN	23.98 B. Vickery USA	24.91 A. McPherson USA	25.46 R. Woodrow USA	26.35 J. Farrell USA	26.60 D. Hill USA	28.86 F. Plesme USA	29.94 T. Ikegami JAPAN	31.80 T. Nakashima JAPAN	32.78 K. Lennon USA	38.65 T. Terao JAPAN	44.61 G. Langner USA	50.57 L. Spangier AUSTRALIA
100 metre	51.74 L. Verhage HOLLAND	50.51 R. Gaines JAPAN	53.94 B. Vickery USA	55.35 A. McPherson USA	56.64 L. Keefe USA	59.21 P. Berggren SWEDEN	1:00.08 D. Hill USA	1:06.98 J. Hale ENGLAND	1:09.55 E. Hall USA	1:14.48 K. Lennon USA	1:15.94 K. Lennon USA	1:29.06 T. Terao JAPAN	1:41.46 G. Langner USA	
200 metre	1:54.00 B. Wells USA	1:50.91 R. Gaines JAPAN	1:59.38 L. Wood USA	2:01.01 K. Polansky USA	2:05.81 E. Cazalet USA	2:15.95 R. Proebsting USA	2:21.87 T. Boyes ENGLAND	2:26.67 W. Phillips USA	2:39.55 J. Woods USA	2:46.86 R. Taft USA	2:59.20 D. Woodford USA	3:26.46 T. Terao JAPAN	3:48.20 G. Langner USA	6:01.39 P. Spangier USA
400 metre	4:04.50 G. Weibourn CANADA	4:02.66 R. Gaines JAPAN	4:21.67 L. Wood USA	4:18.45 K. Polansky USA	4:33.39 E. Cazalet USA	4:45.96 B. Jones USA	5:00.88 G. Johnston USA	5:14.08 W. Phillips USA	5:48.52 J. Woods USA	5:56.06 R. Taft USA	6:23.81 D. Woodford USA	7:05.20 F. Lough AUSTRALIA	7:54.24 G. Langner USA	11:09.76 P. Spangier USA
800 metre	8:54.31 G. Weibourn CANADA	8:34.26 D. Stephenson USA	9:13.76 L. Wood USA	9:01.20 K. Polansky USA	9:32.34 R. Boyd USA	9:50.17 D. Gallagher USA	10:35.62 G. Johnston USA	11:14.13 W. Phillips USA	12:15.44 K. Vickery AUSTRALIA	12:15.49 R. Taft USA	13:17.26 D. Woodford USA	15:41.78 G. Langner USA	16:53.90 G. Langner USA	
1500 metre	16:41.55 G. Weibourn CANADA	17:37.17 G. Christian- sen SWEDEN	17:54.26 K. Bell USA	17:38.17 D. Gray USA	18:27.36 H. Winn USA	19:16.63 B. Jones USA	20:18.89 B. Jones USA	21:46.98 W. Wilson USA	23:41.14 A. De Rosa USA	23:59.12 A. De Rosa USA	26:04.74 D. Woodford USA	29:58.32 G. Langner USA	32:20.20 G. Langner USA	55:20.27 P. Spangier USA
BACKSTROKE	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
50 metre	27.25 C. Britt USA	28.56 T. Wolf USA	28.05 H. Mash USA	29.58 T. Birnie USA	29.33 R. Smith USA	31.42 J. Smith USA	32.69 Y. Orakova USA	34.81 P. Mutinger USA	37.12 G. Gendsey USA	38.44 R. Taft USA	41.90 R. Reinstadt- ler M. GERRANY	46.85 T. Terao JAPAN	1:04.06 J. Earley USA	1:29.99 T. Lane USA
100 metre	58.42 C. Britt USA	1:01.39 F. Lehaan USA	1:01.45 T. Wolf USA	1:04.50 R. Cooley USA	1:05.31 R. Smith USA	1:10.07 J. Smith USA	1:12.17 Y. Orakova USA	1:17.31 P. Mutinger USA	1:24.81 R. Taft USA	1:24.30 R. Taft USA	1:37.80 T. Yoneda JAPAN	1:45.81 T. Terao JAPAN	2:29.75 J. Earley USA	
200 metre	2:09.12 B. Wells USA	2:15.67 F. Lehaan USA	2:15.47 T. Wolf USA	2:22.17 T. Soleker USA	2:28.51 R. Burns USA	2:37.52 B. Jones USA	2:41.11 J. Beattie USA	2:49.82 R. Franks USA	3:07.65 R. Taft USA	3:07.57 R. Taft USA	3:34.00 R. Reinstadt- ler USA	4:01.12 H. Eisen- scheidt USA	6:00.26 G. Langner USA	
BREASTSTROKE	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
50 metre	28.81 G. Farrow AUSTRALIA	30.03 G. Christian- sen JAPAN	31.94 B. Vickery USA	31.53 P. Henne USA	32.95 S. Guthrie USA	33.09 H. Kotevova JAPAN	33.77 N. Sanouilly USA	37.53 J. Kurtzman USA	38.53 K. Knops M. GERRANY	40.02 W. Rinnich M. GERRANY	42.99 W. Yoshimoto JAPAN	48.74 R. Zorge M. GERRANY	1:05.80 E. Kuppinger M. GERRANY	1:50.16 T. Lane USA
100 metre	1:04.91 D. Wilkie SCOTLAND	1:06.83 D. Wilkie SCOTLAND	1:08.30 G. Kruger M. GERRANY	1:10.70 R. Hernandez MEXICO	1:13.91 T. Boak USA	1:14.72 D. Gallagher USA	1:16.32 N. Sanouilly USA	1:23.19 D. VanRosen USA	1:27.85 K. Knops M. GERRANY	1:32.13 A. De Rosa USA	1:43.87 J. Everall USA	2:09.01 J. Penfield USA	2:31.20 G. Langner USA	
200 metre	2:24.48 P. McClafferty USA	2:29.21 G. Christian- sen JAPAN	2:28.35 G. Harrison USA	2:38.16 R. Hernandez MEXICO	2:41.44 R. Kendrick USA	2:45.11 D. Gallagher USA	2:51.47 N. Sanouilly USA	3:09.24 F. Haartz USA	3:18.20 T. Ikegami JAPAN	3:24.66 A. De Rosa USA	3:53.52 H. Offner USA	5:03.34 W. Share USA	5:30.76 G. Langner USA	
BUTTERFLY	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
50 metre	25.77 J. Lillie USA	25.06 H. Bottom USA	26.06 C. Evans USA	27.18 D. Thompson USA	27.62 R. Woodrow USA	29.34 R. Proebsting USA	30.24 W. Dobler USA	32.48 J. Hale ENGLAND	35.28 J. Schmidt USA	37.48 A. Holden USA	43.99 B. Shott USA	51.31 R. Zorge M. GERRANY	1:39.64 G. Langner USA	
100 metre	57.07 B. Wells USA	56.43 H. Bottom USA	1:00.67 H. Rogers AUSTRALIA	1:00.79 A. McPherson USA	1:05.71 G. De Long USA	1:06.66 R. Proebsting USA	1:15.67 R. Kaniva JAPAN	1:16.54 J. Hale ENGLAND	1:25.67 K. Knops M. GERRANY	1:31.20 P. Krup USA	1:48.55 J. Stinson USA	2:38.61 S. Craigie USA		
200 metre	2:07.65 P. Shackler ENGLAND	2:13.62 H. Schwan USA	2:21.47 L. Wood USA	2:16.15 B. Gallos USA	2:30.18 R. Kendrick USA	2:36.01 R. Proebsting USA	2:53.71 N. Sanouilly USA	3:06.04 C. Moss USA	3:34.81 P. Krup USA	3:31.97 A. Cerer USA	4:09.06 J. Stinson USA			
REDFLY	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+
100 metre	57.70 G. Farrow AUSTRALIA	1:01.07 P. Morris ENGLAND	1:01.17 H. Mash USA	1:02.30 R. Cooley USA	1:06.13 R. Smith USA	1:07.60 D. Gallagher USA	1:12.67 B. Jones USA	1:16.52 P. Mutinger USA	1:20.20 R. Taft USA	1:21.87 R. Taft USA	1:35.55 K. Lennon USA	1:53.59 H. Eisen- scheidt USA	2:30.55 G. Langner USA	
200 metre	2:12.28 C. Britt USA	2:12.33 T. Weissert USA	2:15.67 C. Evans USA	2:18.73 J. Calvert USA	2:27.78 R. Kendrick USA	2:31.52 D. Gallagher ENGLAND	2:43.63 T. Boyes ENGLAND	2:53.83 C. Moss USA	3:05.38 R. Taft USA	3:08.13 R. Taft USA	3:35.61 K. Lennon USA	4:36.38 H. Eisen- scheidt USA		
400 metre	4:48.69 D. Swenson USA	4:55.11 H. Schwan USA	4:53.16 C. Evans USA	5:00.76 J. Calvert USA	5:17.02 E. Cazalet USA	5:20.81 D. Gallagher USA	5:54.37 B. Jones USA	6:19.49 C. Moss USA	6:46.37 R. Taft USA	6:50.27 R. Taft USA	8:08.29 J. Stinson USA	9:25.63 H. Eisen- scheidt USA		

MASTERS WORLD SWIMMING RECORDS
RELAYS - LONG COURSE AT NOV. 1st. '90

AGE GROUP	SEX	FEMALE		MALE		MIXED	
		4 x 50 F/S	4 x 50 MED.	4 x 50 F/S	4 x 50 MED.	4 x 50 F/S	4 x 50 MED.
100+	TIME	1:53.20	2:06.67	1:38.53	1:49.84	1:43.89	1:56.58
	CLUB	HOLMES U.S.A.	HOLMES U.S.A.	REGATAS DO FLAMENGO BRASIL	POWERS AUST.	HOLMES U.S.A.	HOLMES U.S.A.
	YEAR	1988	1988	1989	1990	1988	1988
120+	TIME	1:53.05	2:08.21	1:37.43	1:49.84	1:44.83	1:58.03
	CLUB	LONE STAR U.S.A.	HOLMES U.S.A.	LONE STAR U.S.A.	POWERS AUST.	HOLMES U.S.A.	D.C.MASTERS U.S.A.
	YEAR	1987	1988	1986	1990	1988	1985
160+	TIME	2:03.48	2:20.53	1:43.26	1:57.08	1:48.82	2:02.10
	CLUB	D.C.MASTERS U.S.A.	D.C.MASTERS U.S.A.	HOLMES U.S.A.	SWIM WITH AEROBICS U.S.A.	HOLMES U.S.A.	HOLMES U.S.A.
	YEAR	1988	1988	1988	1990	1988	1988
200+	TIME	2:16.01	2:35.47	1:50.45	2:06.81	1:59.04	2:20.00
	CLUB	POWER POINTS AUST.	SOUTHERN CALIFORNIA U.S.A.	OLYMPIC CLUB U.S.A.	SCHWIMMGEM- ENSCHAFT NEUKOLLN FRG	D.C.MASTERS U.S.A.	OREGON U.S.A.
	YEAR	1986	1986	1986	1990	1987	1987
240+	TIME	2:28.24	2:51.82	1:58.63	2:21.34	2:09.67	2:29.30
	CLUB	HOLMES U.S.A.	HOLMES U.S.A.	HOLMES U.S.A.	HOLMES U.S.A.	HOLMES U.S.A.	NEW ENGLAND U.S.A.
	YEAR	1988	1988	1988	1988	1988	1988
280+	TIME	3:09.01	3:41.70	2:18.63	2:36.93	2:36.51	2:37.98
	CLUB	HOLMES U.S.A.	HOLMES U.S.A.	MIDDLE ATLANTIC U.S.A.	COLONIALS U.S.A.	SAN MATEO U.S.A.	HOLMES U.S.A.
	YEAR	1988	1988	1986	1990	1988	1988

SHORT COURSE

RELAYS 1 NOV 1990

	100+	120+	160+	200+	240+	280+
WOMEN						
4 x 50m FREESTYLE	1:58.02 SLAN USA	1:58.02 SLAN USA	2:01.10 D.C. Masters USA	2:11.64 Tampa USA	2:42.57 SoIK Mellis SWEDEN	3:16.06 Walnut Creek USA
4 x 50m MEDLEY	2:13.77 SLAN USA	2:13.77 SLAN USA	2:19.38 General Lopez HUNGARY	2:34.15 Tampa USA	3:06.94 St. Louis USA	3:45.54 Walnut Creek USA
MEN						
4 x 50m FREESTYLE	1:38.93 GCMF USA	1:38.93 GCMF USA	1:42.57 RMI USA	1:48.34 Los Altos USA	2:05.13 Rotherwell SCOTLAND	2:11.80 Mellis SWEDEN
4 x 50m MEDLEY	1:50.73 GCMF USA	1:50.73 GCMF USA	1:57.12 SCAO USA	2:02.44 Los Altos USA	2:21.09 GIRSA USA	2:45.43 Ohio USA
MIXED						
4 x 50m FREESTYLE	1:46.19 Jarfalla SWEDEN	1:48.60 Texas USA	1:50.55 GIRSA USA	1:57.25 Lincoln USA	2:29.51 Ettalong AUSTRALIA	2:38.80 Connecticut USA
4 x 50m MEDLEY	1:58.28 Lake USA	1:58.28 Lake USA	2:09.78 North Shore Masters NEW ZEALAND	2:15.20 Lincoln USA	2:41.00 SoIK Mellis SWEDEN	3:11.32 North Lodge AUSTRALIA

PERTH, AUSTRALIA

by June Krauser

I have just returned from the 6th World Swimming Championships held in Perth, Western Australia. Competitions were held in swimming, diving, water polo, synchronized swimming and long distance swimming. It was a very exciting experience! I saw most of the swimming finals, 10 water polo games, several of the diving events and I was an official timer at the synchronized swimming solos, duets and teams.

The Championships were secondary to my primary reason for being in Perth. Rule Change Proposals were to be considered at the FINA Congresses held 1-3 January 1991. I was there to represent United States Aquatic Sports at the Masters Congress (if approved by the Extraordinary General Congress held on 1 January 1991). The Constitution of FINA was amended to add Masters to the other four Technical Congresses. These Congresses have the power to determine the technical rules of FINA. (FINA being the World Governing body of swimming, diving, water polo, synchronized swimming and now - Masters.) The only other item on the agenda passed and it was that any alteration or addition to the Technical Rules shall not become effective until two (2) months after the decision has been made. (It use to be six (6) months.)

I attended the Swimming Congress on 2 January 1991. The false start rule was amended to read, "Any swimmer who starts twice before the signal to start is given shall be disqualified. If the starting signal sounds before the disqualification is declared, the race shall continue and the swimmer or swimmers shall be disqualified upon completion of the race. If the disqualification is declared before the starting signal, the signal shall not be given, but the remaining competitors shall be called back, be reminded by the Starter of the penalties, and start again." I imagine we will still use the no false start rule - now that we are use to it. We are the only country in the world that has a no false start rule. Backstroke swimmers will be able to stay underwater after starts and turns for 15 meters instead of 10 meters. Also, they will be able to make turns without a hand touching the end walls.

I attended the Masters Congress on 2 January 1991 and the Masters Rules proposed by the USA passed with few amendments. Our no false start

rule was turned down by the FINA Masters Committee before it ever got to the Congress! Masters rules for diving, water polo and synchronized swimming were also approved as amended. For the next four years, at least, our age determining date will remain the same. This was the most hotly debated rule at the Congress and the vote came out a tie. As our age determining date was the current rule in the FINA Handbook, it would have taken a majority to defeat it. A complete report of these Congresses should be available in about two months.

On 4 January 1991 our FINA Masters Committee held their meeting. The 4th World Masters Swimming Championships will be held in Indianapolis, IN in 1992. A review of Rio was discussed and it was felt that the problems were caused mainly by the economic situation that occurred before the Championships in Brazil. The results of Rio have been mailed. The next meeting of our committee will be at the World Championships in Indianapolis.

In explanation: Organization of FINA (the following entities are established to govern and administer FINA):

- the General Congress,
- the Technical Congress,
- the Bureau,
- the Standing Committees,
- the Ad Hoc Committees, and
- the Arbitration Court.

The General Congress of FINA shall consist of two duly appointed delegates of each affiliated member. The Congress shall be convened every four years, preferable on the occasion of the Olympic Games.

The Technical Congress shall consist of two duly appointed delegates of each affiliated member. The Congress shall be convened every four years, preferable on the occasion of the World Championships.

There are six standing committees. The Technical Swimming Committee, the Technical Diving Committee, the Technical Water Polo Committee, the Technical Synchronized Swimming Committee, the Masters Committee, and the Medical Committee. The Standing Committees, shall each consist of 12 members, each from different members. Members are grouped from Africa, America (north), America (south), Asia, Europe and Oceania.

The Committees meet at the World Championships and that is why our next FINA Masters Committee meeting will be in Indianapolis.

OFFICIATING CONCERNS AT MASTERS SWIMMING MEETS

The Ad-Hoc Official Committee would like meet directors and masters swimmers to be aware of the need for adequately officiated meets.

SWIMMERS AND COACHES SHOULD: 1) Look for a sanction number on the meet announcement as an indication that USMS rules will be followed. 2) Know the rules that pertain to the events they swim. 3) Swim events that they can complete successfully to avoid unpleasant DQ's. 4) Thank /appreciate officials' efforts to ensure fair competition. 5) Observe safe warmup procedures (no diving, kickboards OK, no other swim equipment in warmup).

MEET DIRECTORS SHOULD: 1) provide competent officials. 2) Prior to the start of the meet, meet with officials to convey expectations. 3) Maintain a USMS rule book on deck. 4) Have a sufficient number of meet workers so that officials can concentrate on the jobs they should be doing.

WITH RESPECT TO OFFICIATING A PROPERLY RUN MEET: 1) Has 2-4 officials (at least one who is certified with USS or YMCA). 2) Officials understand masters swimming rules. 3) DQ's are called in the same manner for all age groups. 4) False starts are called and handled in an educational manner.

It is important that meets are conducted under universal conditions across the country (and the world) so that swimmers are prepared for "big" meets such as nationals; so that times achieved in different parts of the country can be compared fairly in top-10 tabulations and records; and so that swimmers can be proud of performing an event correctly.

FROM THE EDITOR

Remember, SWIM-MASTER will be retired at the end of this year! Twenty years is a long time and hopefully, the needs will be met by someone. Just in case you wish the remaining issues, the following price list is made available.

CODE #	USA	FOREIGN
291	\$ 7	\$ 12.00
391	\$ 6	\$ 10.50
491	\$ 5	\$ 9.00
591	\$ 4	\$ 7.50
691	\$ 3	\$ 6.00
791	\$ 2	\$ 4.00
891	\$ 1	\$ 2.00

1989-90 USMS NATIONAL TOP 10
SHORT COURSE YARDS ERRATA

100 YD. BRST WOMEN 25-29	4:13.85	MERLYN EWBANK	70
1:07.26 VICKI MARSH	27	4:15.93 AGOTA FROHS	70
1:07.58 AMY PLESS	27	4:21.18 KAY SCHIMPF	72
1:07.83 CORRIN CONVIS	25	4:24.64 MARY WENTWORTH	74
1:08.51 PAMELA BIRSINGER	25	4:32.99 Y. FRISCHHERTZ	72
1:10.11 PAULA POLLARD	26	4:33.85 VIOLA THOMPSON	72
1:10.13 MARY ROEBUCK	28	4:38.59 SALLY JOY	73
1:10.42 ROBIN MOLESE	26	4:41.03 MARY JANE REEVES	73
1:10.96 ELLEN ATKINSON	27	1000 YD. FREE M E N 40-44	
1:11.07 NANCY MITCHELL	28	10:19.29 KEVIN POLANSKY	40
1:11.12 J. EDMUNDSON	26	10:44.87 TOD SPIEKER	41
50 YD. BRST WOMEN 40-44		10:50.09 JOHN FLANAGAN	44
34.44 GINGER PIERSON	44	11:05.64 JOHN LAWRENCE	40
35.12 CHRISTIE SLIMAK	41	11:06.70 ED CROSSMORE	42
35.22 SARA RICHARDSON	42	11:09.76 STEVEN L DURAPAU	40
35.53 NANCY STANBURY	40	11:13.58 RICHARD HART	43
35.76 CAROLYN F BOAK	44	11:14.87 VERN DASCH	40
35.91 JANET GETTLING	41	11:24.63 STEVE VANDERBEKEN	40
36.03 SALLY ANN DILLON	43	11:29.60 PATRICK HOWE	43
36.17 KATHRINE CASEY	41	50 YD. BACK M E N 65-69	
36.33 MEEGAN WILSON	41	31.39 PAUL HUTINGER	65
36.55 BARBARA G DUNBAR	41	33.84 GEORGE GANDSEY	66
200 YD. I.M. WOMEN 60-64		34.88 JACK W MC CANN	68
2:56.52 CLARA WALKER	63	34.95 DICK UPSALL	65
2:58.11 GAIL ROPER	60	34.97 GEORGE BRINTON	65
3:09.27 NANCY MACBETH	61	35.22 JOHN WOODS	66
3:10.56 JUNE KRAUSER	63	35.31 JOHN DILLEY	69
3:13.81 DELLA SEHORN	62	35.54 JOHN BAILEG	67
3:18.40 FLORENCE CARR	64	35.65 ROGER HOLMES	68
3:19.81 BETTY RUSS	62	36.58 DON BARTLETT	67
3:20.41 LISA BOGATKO	60	200 YD. FLY M E N 70-74	
3:22.29 EDIE GRUENDER	61	3:09.52 ANDREW HOLDEN	70
3:23.15 CAROL P TAYLOR	60	3:15.45 PAUL KRUP	72
100 YD. I.M. WOMEN 65-69		3:24.27 ALDO V DA ROSA	72
1:29.66 DOROTHY LA CHASSE	65	3:26.32 DICK WESTERFIELD	74
1:29.88 DOROTHY DONNELLY	68	3:34.18 HARWELL MOSELEY	70
1:31.52 BETTY CHRISTIAN	68	3:38.67 DON MCCULLOUGH	74
1:33.92 PETEY SMITH	65	3:38.99 DICK GUIDO	72
1:35.41 JEANNE MERRYMAN	67	3:40.20 JIM PENDERGRASS	71
1:35.93 CHARLOTE COSTELLO	67	3:42.37 RAYMOND WALKER	70
1:36.39 C.WILLIAMS	65	3:50.26 WALLACE SAWHILL	70
1:38.95 BETTY DUNN	65	50 YD. FREE M E N 75-79	
1:40.09 PATSY E WEISS	67	29.70 WOODY BOWERSOCK	76
1:41.90 SARAH ALLNUTT	66	30.91 OBEL JAMES	75
100 YD. BRST WOMEN 70-74		31.84 WILLIAM GRANT	76
1:45.71 GERTRUD ZINT	72	32.19 BERT KASSELL	77
1:56.60 RITA SIMONTON	71	32.62 HAROLD SEXTON	75
1:57.43 M. ALLERS-OLSEN	71	33.60 DEXTER WOODFORD	76
1:59.82 MERLYN EWBANK	70	34.36 GERSON SOBEL	79
2:00.45 KAY SCHIMPF	72	35.03 JOHN WHITTIER	75
2:01.11 MARGARET HUBBARD	74	35.08 GENE CROSSETT	75
2:02.64 DORTHEA WOODSIDE	72	35.50 WESLEY WEBB	76
2:02.78 VIOLA THOMPSON	72		
2:02.98 AGOTA FROHS	70		
2:03.30 MARDIE BROWN	73		
200 YD. BRST WOMEN 70-74			
3:49.93 GERTRUD ZINT	72		
3:57.79 RITA SIMONTON	71		

SWIM-MASTER



June Krauser, Editor
2308 N.E. 19th Avenue
Ft. Lauderdale, FL 33305

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LIFETIME VIGOROUS SWIMMING FOR FUN, SPORT AND HEALTH

VOL XX No 2

SWIM CALENDAR

FEB 1991

- FEB 2 SCY - Barbara-Ann Ellison, 1501 NE 62nd St, Ft. Lauderdale, FL 33334
- 2 SCY - Jerianne Donnelly, 47 Avonwood Rd, #102, Avon, CT 06001
- 2 SCY - Swim Cellar Pentathlon, O.M.S., 2380 SW Chelmsford Ave, Portland, OR 97201
- 3 SCM - SDI, 1135 Garnet-K, San Diego, CA 92109
- 8-9 SCY - Jerry Scheibner, Routel, Box 204, Spangle, WA 99031
- 8-10 SCY - Mardi Gras - Dick Bower, 600 Haring Rd, Metairie, LA 70001
- 9-10 SCY - Charleston, SC - contact Kathleen Wilson at 803-795-7507
- 9 SCY - Allen Hatchel, 1635 - 33rd Ave., Seattle, WA 98122
- 10 SCY - Michigan Masters - Bob Isbister (313) 459-6364
- 10 SCY - Pentathlon - Stee Highley, 7577 Cregger Ln, Manassas, VA 22111
- 10 SCY - John Merryman, 325 Abbey Rd, Berwyn, PA 19312
- 16 SCY - SHOF Pool, Ft. Lauderdale - Stu Marvin, 501 Seabreeze Blvd, Ft. Laud. FL 33316
- 16 SCY - Relay Meet - Nancy Brown, 424 Riverside Dr, Pasadena, MD 21122
- 16 SCY - Charlene Fitzgerald, 3641 Lydius St, Schenectady, NY 12303
- 16-17 SCY - Charleston, SC (803) 225-6447
- 17 SCY - Adirondack Masters, Mary Lou Schulz, 109 Westchester Dr. N., Delmar, NY 12
- 23 SCY - Michigan Masters - Richard Tenhoor (616) 866-6328
- 24 SCY - Pentathlon - SDI, 1135 Garnet-K, San Diego, CA 92109

- MAR 2-3 SCY - Spartanburg, SC (803) 225-6447
- 2-3 SCY - Barbara Protzman, 7919 Main Falls Cir, Catonsville, MD 21228
- 9 SCY - Pentathlon - Meadows Park Pool - Boca Raton, FL (407) 395-9564
- 9-10 SCY - Ashland, OR - So. Ore. State College
- 10 SCY - Alicia Coleman, 24 The Point, Coronado, CA 92118
- 15-17 SCY - Tom Harmon, 2806 Atlantic Ave., Ft. Pierce, FL 34947
- 16 SCY - Bangor, Washington
- 16-17 SCY - Dynamo - Lisa Watson, 804 Howell Ct, Duluth, GA 30136
- 17 SCY - Michigan Masters - Charles Enright (517) 832-9628
- 17 SCY - RPI Spring Frolic, Dan McMahon, 2E Circle Dr., Rensselaer, NY 12144
- 23-24 SCY - Greensboro, NC - Contact Maury Schott at 919-855-8715
- 24 SCY - April Fools - Bob Kane, 21 Wixted Ave., Danbury, CT 06810
- 30 SCM - SDI, 1135 Garnet-K, San Diego, CA 92109

APR 5-7 SCY - St Petersburg, Fl - Harold Ferris, 1146 44th Ave NE, St. Petersburg, FL 33703

NATIONAL AND INTERNATIONAL

- MAY 16-19, 1991 USMS SC NATIONALS; NASHVILLE, TN Mary Lee Watson, 6613 Rolling Fork Drive, Nashville, TN 37205 (615) 353-1632
- JUL 11-17, 1991 4TH PAN PACIFIC MASTERS SWIMMING CHAMPIONSHIPS, TOKYO JAPAN
- JUL 18-22, 1991 4TH PAN PACIFIC MASTERS WATER POLO & SYNCHRONIZED SWIMMING CHAMPIONSHIPS, GUAM
- AUG 15-18, 1991 USMS LC NATIONALS, ELIZABETHTOWN, KY -Cy Cyganieweiz, 206 S. Miles, Elizabethtown, KY 42702
- SEP 18-22, 1991 USMS NATIONAL CONVENTION, LOUISVILLE, KY
- JUN 27-JUL 5, 1992 4TH WORLD MASTERS SWIMMING CHAMPIONSHIPS, INDIANAPOLIS, IN USA
Heidi Neuburber, 901 W New York St, Rm 204, Indianapolis, IN USA
- JULY 1993 THIRD WORLD MASTERS GAMES - 1993 Secretariat, World Masters Games III, PO Box 65708
St. Paul, MN 55165-0708