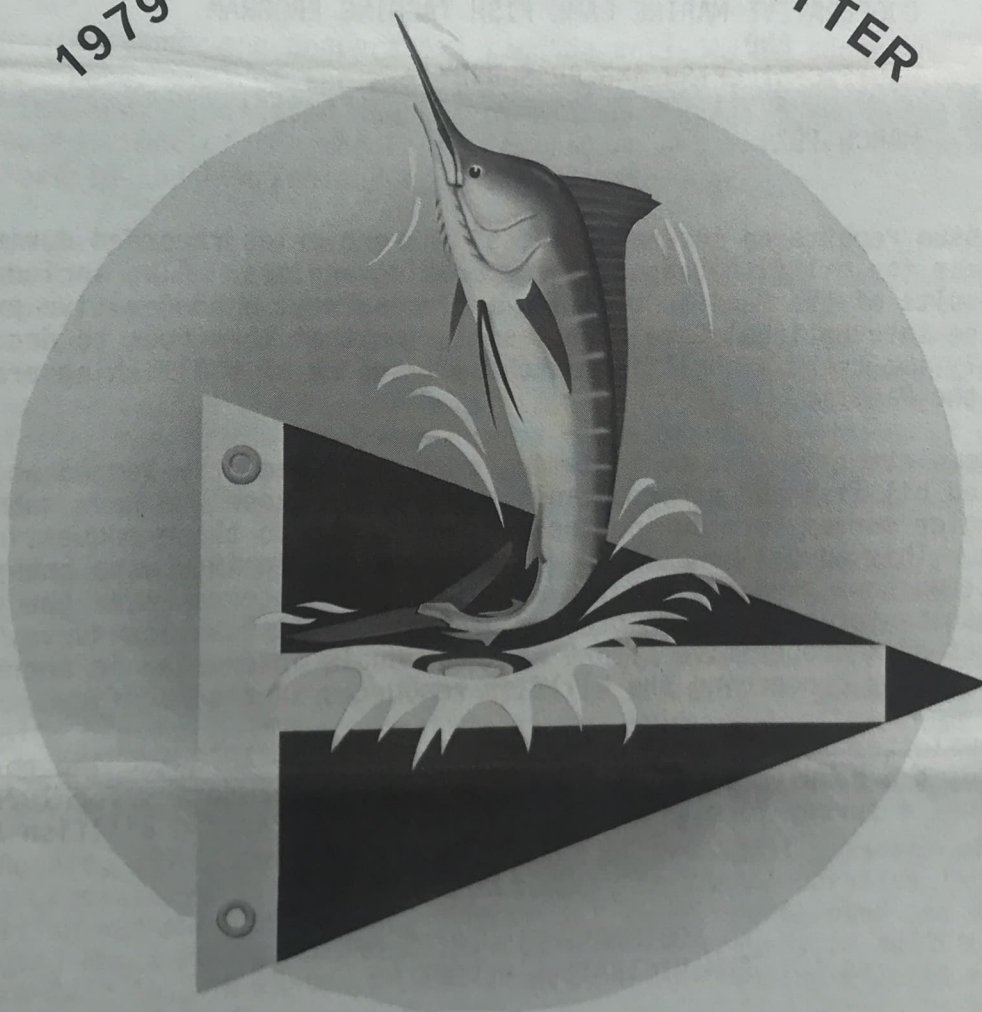




U.S. DEPARTMENT OF COMMERCE  
National Oceanic & Atmospheric Administration  
National Marine Fisheries Service

# 1979 BILLFISH NEWSLETTER



Southwest Fisheries Center

COOPERATIVE MARINE GAME FISH TAGGING PROGRAM & PACIFIC BILLFISH ANGLER SURVEY

Southwest Fisheries Center  
P. O. Box 271  
La Jolla, CA 92038

1979 NEWSLETTER

1978 RESULTS FOR THE

COOPERATIVE MARINE GAME FISH TAGGING PROGRAM  
AND  
PACIFIC BILLFISH ANGLER SURVEY

MARCH 1979

This issue reports on several "firsts" in recoveries recorded during the past year for billfish tagged by cooperating anglers. Also included are the results of the Pacific billfish angler survey, a cooperative program with the International Game Fish Association that continues to document annually the trend of billfish catches at the major billfishing areas about the Pacific.

This Newsletter is sent to individuals who have recently tagged and released billfish and other oceanic species, to those who have submitted the angler survey form during the past year, and to those requesting copies. This annual Newsletter was first issued in 1964 as a one-page report; we hope it has given you information of interest over the years. The results for the tagging program and the billfish angler survey are products of a cooperative effort of individuals interested in increasing the knowledge concerning the billfish resources in the Pacific.

The Newsletter is divided into two parts; one, the 1978 tagging results; and two, the results of the Pacific billfish angler survey for 1977. In addition, a survey form is enclosed for the 1978 Pacific Billfish Angler Survey.

SOUTHWEST FISHERIES CENTER  
ADMINISTRATIVE REPORT NO. LJ-79-8



## PART I - COOPERATIVE MARINE GAME FISH TAGGING PROGRAM

During 1978, the process of shifting the responsibility and direct support of the tagging activity for black marlin off north Queensland, Australia from the National Marine Fisheries Service to the New South Wales Fisheries Agency continued. The New South Wales Fisheries Agency is now supporting the tagging program and is currently furnishing tags to billfish anglers in the Cairns, Australia area. The program is under the direction of Dr. Julian Pepperell and is part of an extensive tagging program for several species of commercial and game fish being conducted by the Australian government.

In New Zealand, the cooperative tagging activity is under the supervision of Mr. Peter Saul of the Ministry of Agriculture and Fisheries, Whangarei, New Zealand. Increased numbers of big game species are being tagged and released. One of the major species tagged and released by cooperating anglers in the New Zealand area is the mako shark.

A new development is harpoon or free-tagging of swordfish off the coast of southern California, U.S.A. Results from the 1978 tagging are most encouraging; of the limited number of fish tagged in 1978 (15 fish), 6 have been recovered, to give tag return rate of 40%. We expect an increase in this type of tagging during the coming 1979 swordfish season to better define the rate of exploitation within the harpoon fishery off southern California and to determine the migration patterns of swordfish off southern California in relation to the other swordfish areas in the eastern Pacific.

Interest and cooperation by the Far Seas Research Laboratory, Shimizu, and the Kanagawa Prefectural Experimental Station, Miura, Japan has continued over the years and their assistance in the return of billfish tags recovered by Japanese fishermen is appreciated. Without some assurance of tag returns, there would be no point in conducting a tagging program. The cooperation of the Japanese longline fleet in returning billfish tags has enabled us to increase the knowledge of migratory rates for black marlin and striped marlin.

In August, 1978, through the assistance of Dr. Shoji Ueyanagi of the Far Seas Laboratory, Shimizu, the first start on the cooperative tagging of billfish was made off Japan. Commercial fishermen devoted one day to tagging and a 200kg (441 lb.) blue marlin was tagged, in addition to a 100kg (220 lb.) hammerhead shark. We hope the tagging efforts will continue, and be increased in 1979.

Interest in the tagging of white sturgeon in San Francisco Bay has increased during the past year through the effort of Mr. Roger Green of the NMFS/SWFC Tiburon Fishery Laboratory. In 1978, 155 sturgeon were tagged and released by cooperating anglers and 7 tagged fish were recovered. Another unusual tagging occurred off San Francisco when

several (6) great white sharks were tagged from a submerged diver cage as part of the research activities of Project Tektite.

In calendar 1978, 1054 billfish tag cards were received at the Southwest Fisheries Center (SWFC), La Jolla, California, U.S.A. This was an increase of 143 billfish tag cards over the 1977 total of 911. Because the tagging of black marlin off Australia is now being supported by New South Wales Fisheries, the number of tag cards received at the SWFC for black marlin is decreasing; however, the total number tagged is estimated to be between 500-600 in 1978. The total number of fish of all species reported tagged by cooperating anglers in 1978 was 1,349, an increase of 227 fish over that reported in 1977.

Cooperating anglers tagged and released 542 striped marlin (Tetrapturus audax) comprising 51.4% of the total billfish tagged. Tag totals and percentages for the other billfish species are: black marlin (Makaira indica) 250 tagged (23.7%); sailfish (Istiophorus platypterus), 217 tagged (20.6%); blue marlin (Makaira nigricans), 29 tagged (2.8%); swordfish (Xiphias gladius) 15 (1.4%); and short bill spearfish (Tetrapturus augustirostris) 1 tagged (0.09%).

The breakdown of numbers of billfish and other species tagged in 1978 by geographical area, compared to 1977 records is:

	1978	1977	Gain or (decrease)
<u>Striped marlin</u>			
Southern California	23	48	(25)
Baja California, Mexico	512	359	153
New Zealand	7	0	7
<u>Black marlin*</u>			
Baja California, Mexico	2	0	2
N. Queensland, Australia	248	339	(91)
<u>Blue marlin</u>			
Baja California, Mexico	18	10	8
Clarion Island, Mexico	1	0	1
Hawaii, U.S.A.	9	52	(43)
Shimoda, Japan	1	0	1
<u>Sailfish</u>			
Guaymas-Kino, Mexico	19	15	4
Baja California, Mexico	60	61	(1)

\*tag card count from N.S.W. Fisheries for black marlin not available.



	1978	1977	Gain or (decrease)
Mazatlán, Mexico	0	3	(3)
San Blas, Mexico	2	0	2
Manzanillo, Mexico	3	5	(2)
Zihuatanejo, Mexico	25	0	25
Acapulco, Mexico	57	9	48
Costa Rica	11	0	11
Panama	19	0	19
New Guinea	7	0	7
Queensland, Australia	14	9	5

#### Shortbilled spearfish

Hawaii, U.S.A.	1	1	-
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#### Swordfish

Southern California, U.S.A.	15	0	15
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#### Other species tagged, by general geographical area.

##### Eastern Pacific

U.S.A. - Black sea bass (3); blue shark (14); mako shark (1);  
great white shark (6); white sturgeon (155).

Baja California, Mexico - Amberjack (1); blue shark (2);  
dolphins (10); roosterfish (11).

##### Central Pacific

Hawaii, U.S.A. - Dolphins (mahi-mahi) (2)

##### Southwest Pacific

Australia - Barracuda (1); dog tooth tuna (1); wahoo (1);  
hammerhead shark (1); sea snake (1); grouper (1);  
mackerel tuna (7); turbot (1); skipjack (9).

##### Western Pacific

Japan - Hammerhead shark (1).

#### RECOVERIES

Recoveries of tagged billfish reported to the Southwest Fisheries Center in 1978 (January 1-December 31, 1978) totaled 26, 7 more than recorded in 1977.

Recoveries by species and area are: black marlin, 9 recoveries in the Coral Sea; striped marlin, 3 recoveries, one at the mouth of the Gulf of California, Mexico, and two from southern California, U.S.A.; one sailfish from the tip of Baja California, Mexico; and 6 swordfish off southern California, U.S.A. Other species recovered were one yellowtail (Seriola grandis) and two mako sharks tagged and recovered in New Zealand waters. The yellowtail was recaptured by pair-trawlers. One mako shark was recovered by a Korean longliner and one by a sport fisherman.

A yellowfin tuna of 48.5kg (107 lbs.) was recovered approximately 6 1/2 months after tagging about 42 miles south of the point of tagging which was near Kailua-kona, Hawaii. Off Anacapa Island, southern California, a black sea bass (Stereolepis gigas) that had been tagged by a diver (free diving) at 18.3 meters (60 ft.) was recovered 1,478 days (4+yrs.) after tagging. The fish weighed 176.9kg (390 lbs.) at capture. Near the tip of Baja California, Mexico, two roosterfish were recovered within 5 to 50 miles of tagging, and at 257 and 280 days from release respectively. Seven white sturgeon tags were recovered in the San Francisco Bay-Delta area. The reports on the tagging activity for white sturgeon will be made by the Southwest Center's Tiburon Laboratory.

Several recoveries were made of fish which had been tagged one or more years previously. The record for time released, for a billfish, was set by a sailfish tagged by one of the tagging program's major cooperators, Mr. Horace Witherspoon of Corona del Mar, California. On May 5, 1973, he tagged a sailfish (est. wt. 30-35 lbs.) at Gordo Bank near the tip of Baja California, Mexico. It was recovered near the point of tagging on January 16, 1978, 1,716 days (4.7 yrs.) later. The fish was estimated to weigh 85 lbs. upon recovery.

Setting a record for black marlin release time is a fish tagged off northeast Australia by Mr. E. J. Gould of New York City from the boat of Capt. Peter Bristow on October 29, 1973. The fish was recovered 1,453 (3 yr. 51 wks.) days later near the point of tagging. This surpasses an earlier record of time of release totalling 959 days for a black marlin tagged off Australia and recaptured off New Zealand. The third longest release time for a black marlin tagged off Australia is reported this year for a fish tagged by Pamela Marvin of Beverly Hills, California. The fish was recovered 747 days later in the Coral Sea, 128 miles from the point of tagging.

The following table lists the recoveries reported in 1978.

Table 1. 1978 Tag Recoveries.

Species/ location of tagging	TAGGED		RECOVERED			Days at Large
	Tagged By boat captain	Date mo/day/yr	Location	Recovered By	Distance recovered from point of tagging (miles)	
<u>BLACK MARLIN</u>						
(255) #3 Ribbon Reef N.Q. Australia H-22971	Cynthia Phipps New York, N.Y., USA Capt. L. Woodbridge	22 Oct '76	Lat. 18°13'S Long. 148°07'E	#8 Kompira-maru Mitsugu Saito	200 SE	413
(256) Linden Bank N.Q. Australia H-19298	Haakon Nordaas Minnesota Lakes, MN, USA Capt. K. Klaproth	6 Dec '76	Lat. 15°35'S Long. 146°04'E	#8 Kompira-maru Mitsugu Saito	38 NE	416
(257) Unknown H-18930	Unknown		Lat. 16°05'S Long. 146°40'E	Aomori-maru K. Shimizu		
(258) Opal Reef N.Q. Australia H-17419	Richard Mulholland Orange Cove, CA. USA Capt. D. Hayes	15 Oct '76	Lat. 16°03'S Long. 146°13'E	Funakawa-maru Captain	18 NE	367
(259) #2 Ribbon Reef N.Q. Australia H-22961	Dick Schubot W. Palm Beach, FL, USA Capt. D. Wallace	28 Sep '76	Lat. 15°35'S Long. 146°18'E	Ashu-maru Captain	32 NE	327
(260) Opal Reef N.Q. Australia H-19214	Pamela Marvin Beverly Hills, CA, USA Capt. D. Wallace	7 Nov '76	Lat. 17°43'S Long. 147°26'E	#25 Fukuyoshi-maru Seshi Funaba	128 SE	747



## TAGGED

## RECOVERED

<u>Species/ location of tagging</u>	<u>Tagged By boat captain</u>	<u>Date mo/day/yr</u>	<u>Location</u>	<u>Recovered By</u>	<u>Distance recovered from point of tagging (miles)</u>	<u>Days at large</u>
(261) #10 Ribbon Reef N.Q. Australia H-12225	E. J. Gould New York, N.Y., USA Capt. P. Bristow	23 Oct '73	Lat. 14°21'S Long. 145°46'E	Oyama-maru Capt. Minoru Nishigima	25 N	1,453
(262) #4 Ribbon Reef N.Q. Australia H-02331 tag from N.S.W. Fisheries	Evans Frankenheimer Unknown Capt. J. Cowells	30 Oct '77	Lat. 17°43'S Long. 147°26'E	#25 Fukuyoshi-maru Seshi Funaba	140 SE	22
(269) #1 Ribbon Reef N.Q. Australia H-44494 tag from W.H.O.I., USA	Roberto Estrada Guayaquil, Ecuador Capt. P. Bristow	20 Sep '77	Lat. 15°28'S Long. 146°05'E	Fukuichi-maru Nobuo Kondo	20 NE	19
(272) 16E of east end Catalina Isl., USA H-26659	Bill Hadley Newport Beach, CA, USA Capt. E. Garland	21 Aug '78	15 mi. SW Oceanside CA, USA	Sunshine Capt. John Callison	30 SE	10
(273) 8 mi. 150° Dana Pt., CA, USA H-5344	Ron Birtcher Santa Ana, CA, USA Capt. G. Grimes	15 Oct '78	7 mi 260° from Dana Pt., CA, USA	Wahoo Capt. Earl Elms	13 NW	4
(274) 5 mi. S of Dana Pt., CA, USA H-28238	Jim Bridges Newport Beach, CA, USA Capt. L. Bridges	4 Oct '78	Off Salt Creek, N of Dana Pt.	Espousa Capt. Douglas Bray	6 NW	1
(275) 209 Bank So. CA, USA H-13706	Jim Bridges Newport Beach, CA, USA Capt. L. Bridges	1 Sep '78	10 mi. 260° from Oceanside, CA, USA	Raider Capt. Rex Finney	16 NE	35

## SWORDFISH



<u>Species/ location of tagging</u>	<u>Tagged By boat captain</u>	<u>Date mo/day/yr</u>	<u>Location</u>	<u>Recovered By</u>	<u>Distance recovered from point of tagging (miles)</u>	<u>Days at large</u>
(279) Unknown So. CA. in Aug Sept. Oct. '78 H-26314	Unknown	'78	5 mi. 145° from Newport jetty, CA, USA	Channel Isle Capt. Ivan Adis		
(280) 8 mi. W of Oceanside, CA, USA H-12929	Bill Hadley Newport, CA., USA Capt. E. Garland	7 Oct '78	18 mi. 210° from Oceanside, CA, USA	Unknown Capt. Stew Foster	19 S	23
<u>STRIPED MARLIN</u>						
(276) 10 mi. 210° from E end of Catalina Isl., USA H-13569	Ed Martin Santa Ana, CA., USA Capt. M. Wisch	3 Sep '77	5 mi. off Laguna Beach, CA, USA	Sea Horse Steve Nesbitt	35 NE	398
(277) 3 mi. SW of Osborne Bank, CA., USA H-25866	Richard Barrett Newport Beach, CA, USA Capt. P. Lorntzen	12 Oct '77	10 mi. W of La Jolla, CA, USA	High Life Angler-MS. Cheryl Husfzr Capt. P. Groesbeck	83 SE	358
(263) Off Rancho Buena Vista, Baja CA, Sur Mexico H-17532	Carol Wener Venice, CA., USA Capt. L. Cota	23 Jun '75	Bahia de Palmas, near Rancho Buena Vista, Baja CA, Sur, Mexico	Elmer D. Landsaw Capt. J. Cota	<5	987
<u>SAILFISH</u>						
(264) Off Gordo Bank, Baja CA, Sur Mexico H-04547	Horace Witherspoon Corona del Mar, CA, USA Capt. G. Green	5 May '73	Off Gordo Bank, Baja CA, Sur Mexico	El Gato Robert Moran, Arcadia, CA, USA Capt. Oswald	<5	1,716

Species/ location of tagging	TAGGED		RECOVERED			
	Tagged By boat captain	Date mo/day/yr	Location	Recovered By	Distance recovered from point of tagging (miles)	Days at large
<u>MAKO SHARK</u>						
(268) 38°46'S Lat. 178°21'E long. near Gisborne, New Zealand	John E. Hough Gisborne, New Zealand	1 Jan '77	Lat. 31°S Long. 177°E	#7 Kwang Myong Capt. Byeong Ho Pak	480	204
(271) near Cavalli Island, Bay of Islands, New Zealand	Jack Wagglar Melbourne, Australia Capt. R. Cotterill	12 Feb '78	Near Cape Brett, Bay of Islands, New Zealand	Bob White Auckland, New Zealand	30 S	1
<u>YELLOWFIN TUNA</u>						
(270) Off Keahole Pt., Kona, Hawaii, USA	Haakon Nordaas Minnesota Lakes, MN, USA Capt. B. Brown	18 Jan '77	Off Milolii, South of Kona Hawaii, USA	Sueto Matsumura Kealahou, HI, USA	42 S	196
<u>ROOSTERFISH</u>						
(267) Near Rancho Buena Vista, Baja CA, Sur, Mexico	Wlm. G. Plesred Santa Monica, CA, USA Capt. Plutarco	3 Jul '77	Near Rancho Buena Vista, Baja CA, Sur, Mexico	Howard Popkin Roseburg, OR, USA	5	257
(278) Off Pt. Arena, Baja CA, Sur, Mexico	Sue Herridge Tarzana, CA, USA Capt. Pepe (Punta Colorado)	4 Jul '77	North of Cabo San Lucas, Baja CA, Sur, Mexico Off "La Playa"			
<u>BLACK SEA BASS</u>						
(266) Off Anacapa Isl, CA, USA "Quarter Acre"	W. G. Graham Thousand Oaks, CA, USA (free diving at 60 ft. (18.3 meters))	8 Aug '74	Off Anacapa Isl. CA, USA	Shawn Wilhite Ventura, CA, (wt of black sea bass 390 lbs.)	1	1,478

<u>Species/ location of tagging</u>	<u>TAGGED</u>		<u>RECOVERED</u>			
	<u>Tagged By boat captain</u>	<u>Date mo/day/yr</u>	<u>Location</u>	<u>Recovered By</u>	<u>Distance recovered from point of tagging (miles)</u>	<u>Days at large</u>
<u>YELLOWTAIL</u>						
(265) Takou Bay, Northland, New Zealand	Paul Robertson Kaeo, New Zealand	16 Aug '78	North of Cavalli Isl, New Zealand in 55-95 meters	Jaybel Nichima, Ltd. Auckland, New Zealand, (from catch of pair- trawlers)	10	39



## TAGGING AWARDS

Awards, sponsored by the Gardiner Foundation, Oakland, California, U.S.A., are made to the Mexican sportfishing boat captains who tag and release the most billfish during the calendar year. Awards are based on the tag cards received at the SWFC for the period January 1 through December 31. Awards consist of an engraved plaque plus a cash award: 1st, \$100; 2nd, \$80; 3rd, \$60; and 4th, through 6th, \$40. The fishing resort having the winning captain also receives a plaque.

In the 1978 Report, we listed the winners for 1977. At the present time, the winners for 1978 have not been verified. Their names will be listed in the 1980 Report. It is expected the awards will be made in May 1979 at the fishing resort locations about the tip of Baja California, Mexico.

## PART II - PACIFIC BILLFISH ANGLER SURVEY

Conducted in cooperation with the  
International Game Fish Association

The 1977 Pacific billfish angler survey marks the eighth year of the survey conducted in the Pacific area to determine the trend of billfishing in terms of catch per angler day for the major billfishing locations.

Marine game fish anglers who fished in the Pacific during 1977 were asked to complete a postcard form giving the number of days they fished for billfish, by quarter of the year, and the number of billfish caught (landed or released) by quarter. The results of the survey are given in graphic form for those areas having substantial amounts of reported effort or catch, and in tabular form for all areas having anglers that reported fishing for billfish or catches of billfish.

The report is given in terms of catch per angler day, as numbers of fish per day, or days of fishing per billfish caught. The catch rates may vary according to the variations in availability and catchability of the billfish in the sportfishing areas and the abundance of the stock that the fishery is operating upon. These factors may vary considerably resulting in highly variable catches in some areas, less so in others. The survey annually provides a rough measure of fishing success. What is important is the trend of the catch per unit effort over a period of time. Trends in apparent catch rates are observable for some of the fisheries during the period since the surveys were initiated. These data reflected the responses of the individual anglers and, over the years, we have stressed the need for accurate, unbiased reporting of catch and effort. This survey is only as valid as the data given by the cooperating anglers that participate in the survey. Therefore, we request accurate data from you for the 1978 form that is enclosed.

The 1977 billfish angler survey data show 10,667 angler days, an increase from the 8,532 angler days reported in 1976 and the 7,303 angler days

reported in 1975. The number of billfish reported captured in 1977 was 4,040, up from 3,119 fish in 1976. The overall billfish catch rate (fish per angler day) for 1977 was 0.38, or 2.64 days fishing per fish. This is slightly more than that observed in 1976 (0.36 fish per day, 2.7 days fishing per fish) and is approximately the same as observed in the 1975 survey. This is below the 1969-1972 average of 0.55 fish per day, or 1.80 days per fish.

The breakdown of survey response is given in the following table. Since these are averages over the total season, the catch rates given in this analysis are not necessarily the catch rates that would be expected during the major season of billfishing. However, these data represent the angler effort expended and the catch made; from the usual behavior of the big game angler, most of the effort is expended during the most productive period of the year.

Table 2. Breakdown of 1977 billfish angler survey results by location, number of angler days, and fish, catch per unit effort in terms of numbers of fish per day and number of days per fish, and major species reported for the area.

Location	Angler Days	No. of Billfish	Fish/Day	Days/Fish	Major species* reported by %	
So. California, USA	3,383	381	.113	8.88	SM	94
Baja California, Mex. (tip area)	2,186	880	.403	2.48	SM	73
Guaymas-Kino-Puerto Peñasco area, Mexico	73	9	.123	8.11	SF	100
Mazatlan, Mexico	149	118	0.79	1.26	SF	73
Manzanillo, Mexico	62	62	1.00	1.00	SF	100
Acapulco, Mexico	314	456	1.45	0.69	SF	98
Costa Rica	537	462	0.86	1.16	SF	98
Panama	377	288	0.76	1.31	SF	80
Columbia	22	14	0.64	1.87	SF	64
Ecuador	238	114	0.48	2.08	SF	60
Tahiti	14	1	0.07	14.0	SM	100
Hawaii, USA	1,984	432	.218	4.59	BLM	80
Guam, USA	36	6	0.17	6.00	BLM	100
American Samoa, USA	34	3	0.09	11.3	SF	67
Fiji	63	5	0.08	12.6	SF	100
New Zealand	191	17	0.09	11.2	SM	94
Australia	706	621	0.88	1.14	BKM	98
Total Pacific	10,667	4040	0.38	2.64		

\*SM-Striped Marlin  
 SF-Sailfish  
 BLM-Blue Marlin  
 BKM-Black Marlin



Trends In Catch-Per-Unit Effort

A graphic presentation of the catch per angler day is given for striped marlin (Figure 1), sailfish (Figure 2) and black marlin (Figure 3). The number of angler days represented for each year are given on the graph.

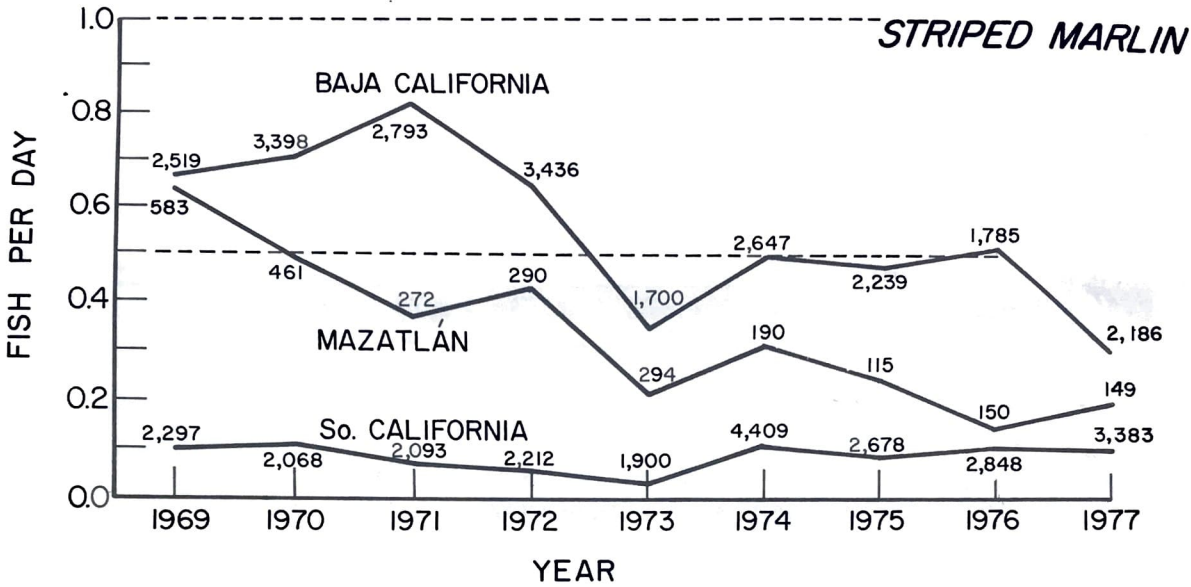


Figure 1. Trend in catch per day for striped marlin in the Northeastern Pacific, 1969-1977.

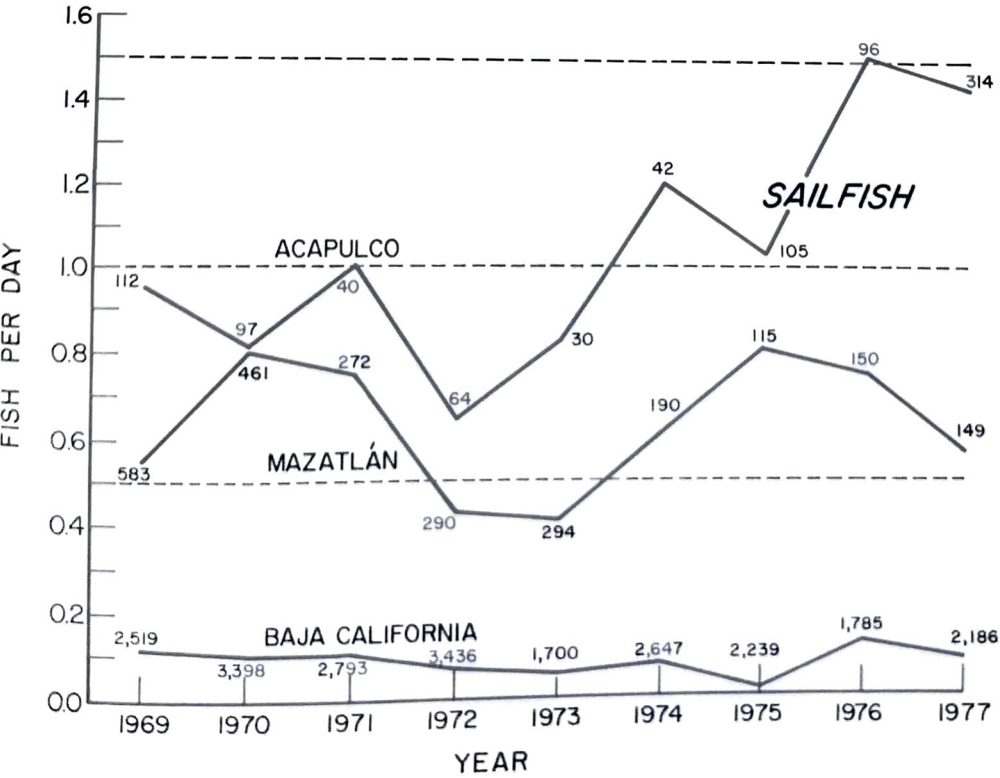


Figure 2. Trend in catch per day for sailfish in the eastern Pacific, 1969-1977.

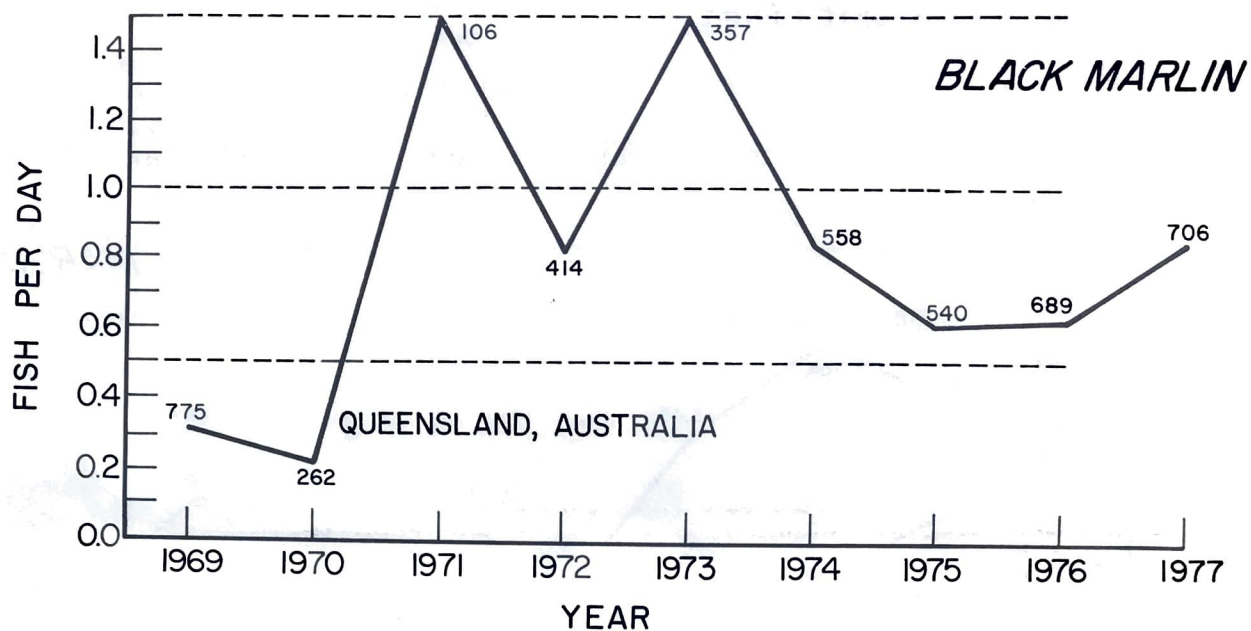


Figure 3. Trend in catch per day for black marlin off Queensland, Australia, 1969-1977.

## SUMMARY

Striped Marlin - The catch per unit of effort (CPUE) has remained near-constant for the southern California summer and fall fishery. The lowest CPUE was recorded in 1973 off Baja California, Mexico and the overall rate for Baja California, Mexico has dropped considerably since the late 1960's and early 70's, with a pronounced decline in 1977. The current catch rate (1977) is about 27% of the peak recorded in 1971. Mazatlan is not a noted striped marlin fishing area, but the decline parallels the decline about the tip of the Baja area which is located about 120 miles west of Mazatlan.

Black Marlin - An increase in CPUE was recorded in 1977, and aside from the peak years of 1971 and 1973, the catch rate for 1977 is near average.

Sailfish - For the three major fishing locations in Mexico, the CPUE declined slightly in 1977. CPUE rose substantially in the two major sailfish fishing areas, Mazatlan and Acapulco, after 1973 and is down only slightly since.

Blue Marlin - A substantial increase in blue marlin catch was noted about the tip of Baja California, Mexico during the latter part of 1977, continuing through the summer of 1978. For Hawaii, a substantial increase in CPUE was noted in 1977 (0.218 fish per day) compared to the 1976 survey (0.11 fish per day).

## Billfish Angler Survey Form

Enclosed you will find a billfish angler survey form for the 1978 Pacific Billfish Angler Survey. Remember this survey is for billfishing only, and for the year 1978 only. I again emphasize that we need an honest, accurate-as-possible response from you, for the number of days in each quarter of 1978 you went billfishing, and the number of billfish caught (boated or released) during each quarter. The accuracy of the resulting data depends on you. This survey is not to see which area has the highest catch rate, but to obtain a truthful measure of the impact of commercial and sportfishing on the billfish anglers' success throughout the Pacific.

Please complete only one form per angler for any billfishing in 1978 only.

Your response to the 1977 survey conducted last year is most gratifying and was up about 10% from the 1976 survey. However, we would like to attempt again to increase the statistical base of the survey for 1978



catches. So if you need additional forms, or your club needs them for distribution, please write me and I will get them to you promptly.

United States Government regulations require an annual revision of our mailing list for this report. If you wish to receive the next annual report, return the Angler Survey Card with your name, current address, and "zip" code, if applicable, to the Southwest Fisheries Center. If you did not fish for billfish in 1978, and wish to continue to receive this report, indicate on the card "no billfishing," list your name and address and return the card; your name will be retained on the mailing list. Those individuals fishing and returning the survey form with the catch and effort information will be automatically retained on the mailing list.

Again, the best in billfishing.

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Billfish Stock Assessment  
Program

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Enclosures