

The Southwest Fisheries Science Center's



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U.S. West Coast Highly Migratory Species

INTRODUCTION

The Southwest Fisheries Science Center's (SWFSC) billfish research program provides information for the conservation and management of billfish resources in the Pacific Ocean. The primary objectives of this research include monitoring recreational and commercial fisheries, conducting research into the biology and ecology of specific billfish species, conducting stock assessments, and determining the economic importance of billfish resources. Two major components of that research, the International Billfish Angling Survey and the Billfish Tagging Program produce essential information pertaining to the recreational billfish angling community for exploring conservation and management concerns. The Billfish Angler Survey provides angler catch and fishing effort information at major fishing centers throughout the Pacific. Our angler-based Billfish Tagging Program has now provided tagging supplies to billfish anglers for 40 years thus accumulating data on the biology, distribution and migration patterns of billfish.

This Billfish Newsletter is published annually and describes the primary components of the SWFSC's billfish research. Many of our investigations rely on cooperation from billfish anglers, sportfishing clubs, commercial fishers and agencies affiliated with the SWFSC. We are grateful for their cooperation and support for billfish conservation and acknowledge those individuals and clubs that support our mutual efforts.

Also in this Newsletter are the results of the Adopt-A-Billfish program in the Pacific, AFTCO's Pacific Tag-Flag Tournament, angler and captain acknowledgements and an update on the fishery management plan for the highly migratory species off California, Oregon, and Washington.

THE INTERNATIONAL BILLFISH ANGLER SURVEY

The International Billfish Angler Survey began in 1969 and now provides a 34-year time series of recreational catch and fishing effort for billfish in many key Pacific locations. Catch per unit of effort (CPUE) is measured in catch of billfish per angler fishing day. This measure of angler success, tracked over time, can indicate changes in stock size caused by over fishing, changing environmental conditions, even local economic or political events. CPUE is an important component of stock assessment models used by fishery managers in developing management options.

In 2002, 477 billfish anglers reported catching 3,038 billfish during 4,824 fishing days. Table I indicates fishing effort, in angler days, and CPUE (measured in catch per day fishing) for all billfish reported by location for the year 2002. The annual mean catch-per-effort for all billfish was 0.63 billfish per day in 2002, up from, 0.44 in 2001. The current overall mean catch rate of 0.63 is above the prior four-year average of 0.53 (1999 - 2002). The years 2000 and 2002 had the highest overall billfish CPUE recorded since the survey began. The prior all-time mean high catch rate of 0.57 occurred during the first years of this survey (1969 to 1971). The lowest catch rates averaged 0.33 during the mid-1970s.

Table 1. Results of all billfish catches reported for the 2002 Billfish Angler Survey. Numbers indicate total days fished by location and catch-per-fishing day. Data in parentheses are values recorded in 2001. Major species in each location are indicated; striped marlin (SM), blue marlin (BLM), black marlin (BLK) and sailfish (SF).

LOCATION	ANGLER FISHING DAYS	BILLFISH PER FISHING DAY (CPUE)	MAJOR SPECIES
PACIFIC OCEAN	-	-	-
Hawaii, U.S.A.	2,960 (3,126)	0.37(0.40)	BLM
Southern California, U.S.A.	1,314 (1,405)	0.04 (0.11)	SM
Baja California, Mexico	903 (1150)	0.82 (0.63)	SM
Panama	120 (46)	3.33 (2.26)	SF
Australia	94 (21)	1.06 (0.67)	BKM
Costa Rica	56 (65)	3.04 (2.68)	SF
Acapulco, Ixtapa, Zihuatanejo Mexico	44 (89)	1.66 (1.49)	SF
Japan	42 (23)	0.02 (0.52)	BLM
New Zealand	32 (0)	0.09 (0.00)	SM
Mazatlan, Mexico	24 (11)	0.96 (0.36)	SF
Manzanillo, Mexico	21 (18)	1.14 (0.83)	SF
Tahiti	21 (9)	0.19 (0.56)	BLM
Guatemala	21 (27)	7.14 (4.81)	SF
Fiji	12 (5)	0.08 (0.20)	BLM
Marshall Islands	11 (10)	0.09 (0.20)	BKM
Kiribati	8 (6)	0.50 (0.33)	SF
Puerto Vallarta, Mexico	2 (181)	1.00 (0.03)	BKM/SM
Guam, U.S.A.	0 (10)	0.00 (0.30)	BLM
Midway Island	0 (2)	0.00 (1.00)	BLM
Japan	42 (23)	0.02 (0.52)	BLM
New Zealand	32 (0)	0.09 (0.00)	SM
Mazatlan, Mexico	24 (11)	0.96 (0.36)	SF
Manzanillo, Mexico	21 (18)	1.14 (0.83)	SF
INDIAN OCEAN	-	-	-
Dubai / United Arab Emirates	180 (0)	3.50 (0.00)	SF
Kenya	6 (0)	0.33 (0.00)	SF
ATLANTIC OCEAN	-	-	-
Atlantic Total	21 (148)	1.05 (0.37)	SF



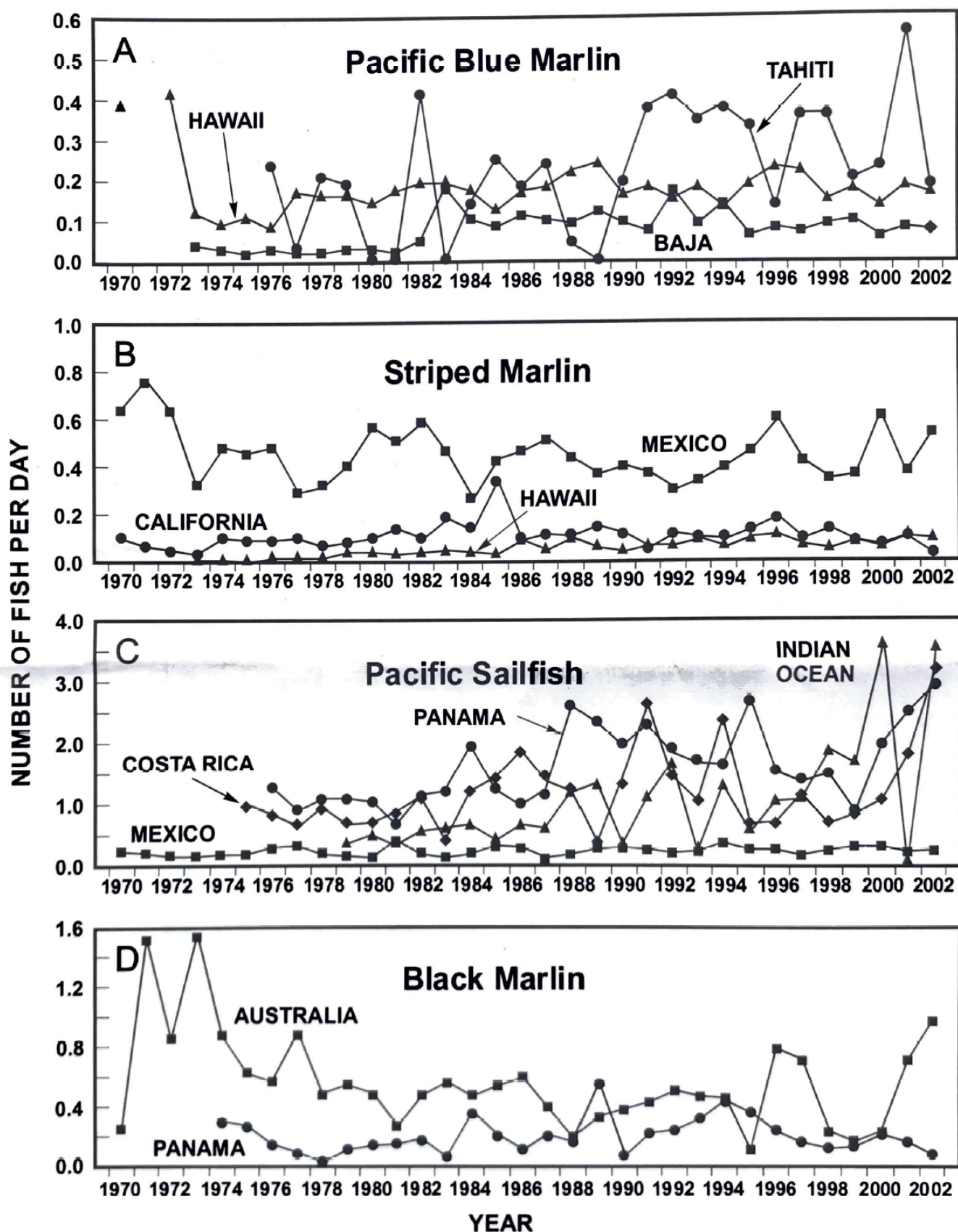


Figure 1. Catch per unit of effort (CPUE) in number of fish per angler day reported by region from 1969 to 2002, for blue marlin (A), striped marlin (B), Pacific sailfish (C), and black marlin (D).

Reported catch rates of blue marlin off Hawaii totaled 515 in 2,960 days of fishing or 0.17 blue marlin per day. This catch rate is less than last year but constant within a 20-year range (Figure 1a). Blue marlin are tropical and subtropical in habitat and rarely extend north of Magdalena Bay, Baja California Sur. The reported catch off Baja totaled 74 blue marlin in 903 days fishing (0.08 per day), which is consistent with prior years. Seven (7) additional blue marlin were reported caught from Manzanillo to Acapulco, Mexico, in fewer than 100 fishing days. The catch rate in Panama (0.08) was higher than normal but influenced by a few days of very good fishing. Minimal blue marlin catches were reported off Costa Rica, Tahiti, Fiji, Australia, and Japan.

Trends in mean angler catch rates for striped marlin are shown graphically in Figure 1b. The angler catch rate reported off Southern California (0.03) and Hawaii (0.09) dropped slightly in 2002 but still remains consistent since the mid-1980s. Around the southern tip of the Baja California peninsula anglers reported catching 555 striped marlin in 903 days of fishing. This catch-rate of 0.61 striped marlin per angler day was slightly more than for all of Mexico (0.56). The area around the tip of Baja California Sur, Guaymas and south to Mazatlán has usually provided good catch rates for striped marlin.

Striped marlin are less abundant south of Manzanillo where sailfish are more abundant from Manzanillo to Ixtapa, Zihuatanejo and Acapulco. Catch rates of sailfish throughout all of Mexico (0.23) did not reflect the greater success off the central coast from Manzanillo to Zihuatanejo and Acapulco (1.25). Costa Rica reported the highest catch rate with 162 sailfish reported in just 56 fishing days (2.89) and fishing off Guatemala continues to see improved catches of 150 sail fish in 21 days (Figure 1e).

Black marlin, common in tropical waters, occasionally frequent temperate areas. Reported catch rates of black marlin in Australia (0.97) improved over prior years although the catch rate off Panama (0.08) declined for the second straight year and remains below levels seen in the early 1990s (Figure 1d). Black marlin are often reported around the tip of Baja California and rarely occur off southern California. Short-billed spearfish continued a strong run off Hawaii where anglers reported catching 413 in 2,960 fishing days for a catch rate of 0.11.

Table 2. Summary of all fish tagged in 2002 with releases and recoveries for 1963-2002.

Species Name	Release 2002	Release Total	Return Total	Rate %
Striped Marlin	244	21,429	332	1.55
Sailfish	216	8,314	47	0.56
Pacific Blue Marlin	284	6,305	65	1.03
Billfish, unid.	3	4,308	5	0.12
Black Marlin	1	3,349	69	2.06
Mako Shark	58	1,407	36	2.56
Short-billed Spearfish	69	1,367	2	0.15
Broadbill Swordfish	3	519	16	3.08
Dolphinfish	-	408	3	0.73
Yellowfin Tuna	-	347	24	6.92
Blue Shark	2	331	5	1.51
Thresher Shark	2	135	16	11.85
Skipjack Tuna	-	99	2	2.02
Albacore Tuna	-	87	0	0
Bigeye Tuna	-	79	2	2.53
Bluefin Tuna	5	56	6	10.71
Hammerhead Shark	-	53	2	3.77
Bronze Whaler	-	50	1	2
Atlantic Blue Marlin	-	42	0	0
Whitetip shark	-	40	1	2.5
Leopard Shark	-	39	1	2.56
Wahoo	-	39	3	7.69
Bonito	-	38	0	0
Shark, other, unid.	-	33	1	3.03
Tiger shark	-	17	2	11.76
White marlin	-	13	1	7.69
Spanish Mackerel	-	9	0	0
White shark	2	9	0	0
Basking shark	-	7	0	0
Large-scale tuna	-	6	0	0
Dogtooth tuna	-	5	1	20
Whale shark	-	4	1	25
Whaler shark	-	4	0	0
Longbill spearfish	-	3	0	0
All Others	1	1,873	81	4.32
TOTALS	890	50,824	725	1.43



THE BILLFISH TAGGING PROGRAM

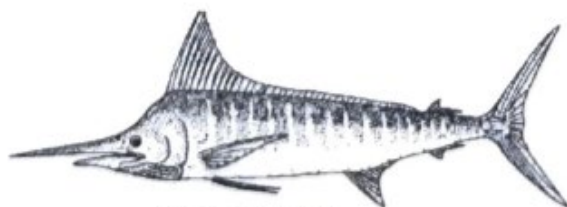
The SWFSC's Billfish Tagging Program began as the Cooperative Marine Gamefish Tagging Program in 1963 and has now provided tagging supplies to billfish anglers for 40 continuous years. Release and recapture data from tagged billfish are utilized to determine the movement, distribution, and growth patterns of billfish. This constituent-based tagging program depends on the participation and cooperation of recreational anglers, sportfishing organizations, and commercial fishers. Since its inception more than 50,000 fish of 75 different species have been tagged and released (Table 2). The Billfish Tagging Report cards received for 2002 indicate a total of 822 billfish were tagged and released by 510 anglers and 130 fishing captains (Table 3). In all, 284 blue marlin, 245 striped marlin, 216 sailfish, 69 spearfish, 1 black marlin, 3 swordfish and 3 unknown billfish were reported tagged and released.

Eight striped marlin and two unidentified marlin were tagged off Southern California. In Hawaii, 265 blue marlin and 81 striped marlin were reported tagged and released. This was another good year for tagging short-billed spearfish in Hawaii where 69 were tagged. Tagging off Mexico remained similar to past years with 155 billfish tagged from Magdalena Bay south to La Paz and 174 more tagged around Mazatlán, Zihuatanejo and Acapulco.

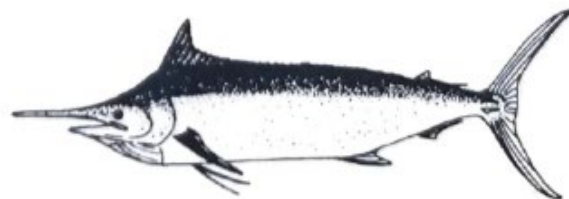
Each year we recognize the anglers and captains who tag and release billfish. In 2002, individual anglers numbering 510 reported tagging at least one billfish. Individual recognition of each angler who reported tagging two or more billfish in 2002 is presented in Table 4. Limited space prevents listing all 510 taggers. Pete Johnson, Rich Johnson and Don Anderson tagged 30, 22 and 21 respectively while fishing off Baja. Keishi Shiohata and Henry Potts tagged six and five marlin in Hawaii, and George Beckwith tagged 15 off Costa Rica.

Table 3. Summary of all billfish tagged in 2002.

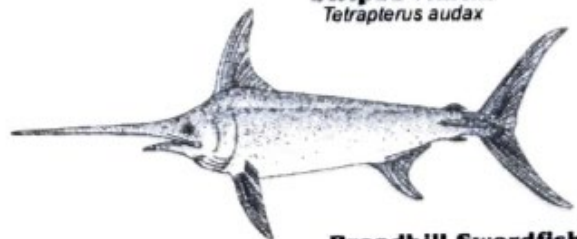
AREA- PACIFIC OCEANS	SPECIES	TOTAL
Hawaii, U.S.A.	Pacific Blue Marlin	265
Hawaii, U.S.A.	Striped Marlin	81
Hawaii, U.S.A.	Short-Billed Spearfish	69
Hawaii, U.S.A.	Broadbill Swordfish	2
Hawaii, U.S.A.	Sailfish	4
Hawaii, U.S.A.	Marlin, unidentified	1
Baja California, Mexico	Striped Marlin	128
Baja California, Mexico	Sailfish	17
Baja California, Mexico	Pacific Blue Marlin	10
Acapulco / Xtapa / Zihuatanejo, Mexico	Sailfish	168
Acapulco / Xtapa / Zihuatanejo, Mexico	Pacific Blue Marlin	4
Acapulco / Xtapa / Zihuatanejo, Mexico	Striped marlin	1
Acapulco / Xtapa / Zihuatanejo, Mexico	Black marlin	1
Costa Rica	Sailfish	28
Galapagos	Striped Marlin	26
Galapagos	Pacific Blue Marlin	1
Southern California, U.S.A.	Striped Marlin	8
Southern California, U.S.A.	Marlin, unidentified	2
Tahiti, French Polynesia	Pacific Blue Marlin	4
Indian Ocean- Maldive Islands, Diego Garcia	Sailfish	1
Atlantic Ocean	Broadbill swordfish	1
TOTAL	-	822



Striped Marlin
Tetrapterus audax



Black Marlin
Makaira indica



Broadbill Swordfish
Xiphias gladius



Sailfish
Istiophorus platypterus



Table 4. Names of anglers tagging substantial numbers of billfish, and the number of bill fish tagged and released during the 2002 calendar year.

ANGLER NAME	BILLFISH TAGGED
HAWAII, U.S.A.	-
Keishi Shiohata	6
Henry Potts	5
Bill Makens	4
Bruce Bosley	4
Ron Kamerlink	4
Betsy Bowes	3
Bob Creedon	3
Dan Borengasser	3
Eric Clark	3
Herbert Yen	3
Juris Kupirs	3
Kevin Coffey	3
Susie Bozzini	3
Bill Graham	2
Bob Jones	2
Boyd Deel	2
Brian Seastrom	2
Charles Helscel	2
Colin Dove	2
Dan Quirk	2
David Blair	2
David J. Becker	2
Don Pyle	2
Duane Llanes	2
Fred A. Sweeting	2
Gene Hatch	2
George Handgis	2
Holt Quinn	2
Hugh M. Pattinson	2
James Karamouzis	2
Jason Dibelka	2
Jim Taniyama	2
John C. Bullo	2
John Robinson	2
Kai Peterson	2
Kevin M. Hogan	2
Mark Wunderlich	2
Marlyn Stephens	2
Masaharu Matsushita	2
Mike Dalton	2
P.J. Riley	2
Ron Kos	2
Samuel Waller	2
Taylor Robinson	2
MANZANILLO-ACAPULCO, MEX.	-
Jean Roomo	18
Marie Johnson	8
Mike Ryba	7
Jeannie Winski	5
M. Scott Sheppard	5
Tony Pottratz	5
Alan Hartline	4
Jan Dekker	4
Jim Winski	4
John Newcoyb	4
David Sheppard	3
Herbert Yen	3
JC Frisella	3
Richard Lowther	3
Rodney Fisk	3
Walter Bragg	3
Armand Bariloth	2
Bernard Sydow	2
Bob Allison	2
Brian Lavin	2
Cameron Heath	2

Charles Grosse	2
Connie Lauterbach	2
Deborah Martin	2
Dennis Priem	2
Frank Cserpes	2
James Wihite	2
Joanne Lavin	2
John Mowlk	2
Kelly Laduke	2
Mark Baker	2
Paulette Warren	2
Scott Hersey	2
Terry Stricklin	2
Timothy Roberts	2
BAJA CALIFORNIA, MEX.	-
Pete Johnson	30
Rich Johnson	22
Don Anderson	21
Mark Henwood	11
Gerald Lester	6
Andrew J. Gowans	2
Jim Kopycki	2
Tim S. Jones	2
Wolfgang Muller	2
GALAPAGOS ISLANDS, ECUADOR	-
Christopher Dane	6
Dave Hobden	5
Larry Kahlberg	5
Christian Quintero D.	2
Miguel Molla	2
Tim Choate	2
COSTA RICA, CENTRAL AMERICA	-
George Beckwith	15
Larry Peabody	3
Bryan Freeman	2



We also list the captains of charter and private boats who tagged significant numbers of billfish in specific regions (Table 5). We acknowledge captains John Bagwell, Peter Hoggs, F. McGrew Rice, Dennis Cintas, Kent Mongreig and Scott Fuller for tagging more than 20 marlin off Hawaii. Captains Mark Henwood and Rich Johnson tagged 30 plus marlin off Magdalena Bay, BCS, Mexico. Captains Jose Servin and Armando Arciniega also tagged significant numbers of marlin off Zihatanajo, Mexico. Continued interest and cooperation by these captains have greatly enhanced the Billfish Tagging Program, and their efforts are truly appreciated.

ADOPT-A-BILLFISH PROGRAM

The Adopt-A-Billfish tagging program is coordinated by a team of experienced scientists who work with the NMFS Southeast and Southwest Fisheries Science Centers, the University of Miami's Center for Sustainable Fisheries, The Billfish Foundation, and the Bermuda Division of Fisheries. Tagging operations are currently underway in the Atlantic and Pacific oceans. In the Pacific, the researchers are collaborating with Presidential Challenge tournament series off the coast of Central America. In 2002, Adopt-A-Billfish collaborators traveled to the Tropic Star Lodge in Panama, where they tagged three billfish with satellite data archiving tags. This study seeks to determine the survival rate of large billfish caught and released during international tournament conditions and to evaluate site fidelity within the countries of Central America. In Panama, a 350-lb black marlin, 500-lb blue marlin, and 85-lb sailfish were tagged with satellite archive tags. The black marlin moved west to Costa Rica in 28 days and spent 80% of its time above 50 m depth and in water temperatures ranging from 22° to 24°C. The sailfish remained in the area tagged during the 28 days at liberty and stayed in a temperature

Table 5. Names of captains tagging substantial numbers of billfish, and the number of billfish tagged and released during the 2002 calendar year.

ANGLER NAME	BILLFISH TAGGED
HAWAII, U.S.A.	-
John Bagwell	33
Peter Hoogs	33
F. McGrew Rice	23
Dennis R. Cintas	22
Kent Mongreig	22
Scott Fuller	21
Tom Casey	18
Marlin Parker	17
Jerry Allen	15
William Dorr	15
Bill Crawford	13
John Jordan	13
Neal Isaacs	8
Charles E. Haupt	7
Guy Terwilliger	7
Dennis Cistas	6
Doug Armfield	6
Scotty Pruner	6
Steven D. Kaiser	6
Chip Van Mols	5
James Dean	5
Rennie Boyd	5
Tim E. Hicks	5
Bill Caseyh	4
Del Dykes	4
Kevin M. Hogan	4
Mark Shultz	4
Martin Herrera	4
Steve Tarbill	4
Brian Wargo	3

Randy Parker	3
Robert McGuckin	3
Scott Jones	3
Tony Clark	3
David W. Beaudet	2
Doug Lanterman	2
Fran O'Brien	2
Geoffrey R. Walker	2
Jeff Fay	2
Jim Patterson	2
John lanes	2
John Llanes Jr.	2
Michael A. Vidal	2
Mike Holtz	2
Robert C. Sylva Jr.	2
Robert J. Deeds	2
Steve Cravens	2
Tim D. Cox	2
MANZANILLO-ACAPULCO, MEX.	-
Jose Luis Servin Hernandez	72
Armando Arciniega	26
Arturo Lara	18
Ed Kunze	15
Margarito Romero	8
Rich Johnson	8
Martin G. Cortez	4
Ruben Lara Mogan	4
Ned Falschlehner	3
Roben	3
Alberto Hernandez	2
Rufugio Lopez	2

BAJA CALIFORNIA, MEXICO	-
Mark Henwood	33
Rich Johnson	30
Martin Verdugo Collins	21
Jose Chacho Bojorquez	20
Howard Bond	18
Dennis Priem	9
Sean Holden	6
Randy Rozell	5
Gerald Lester	3
Bobby Hall	2
Shawn Stephan	2
GALAPAGOS ISLANDS, ECUADOR	-
Chris Van Leeuwen	11
Mike Crosier	10
Broden Escobar	6
COSTA RICA, CENTRAL AMERICA	-
Jose Angel Contreras	4
Daniel Espinoza	3
Down East Guide Service	2
TAHITI, FRENCH POLYNESIA	-
Blais Francis	2
Chris Lilley	2
SOUTHERN CALIFORNIA, U.S.A.	-
Ken Knight	2

range of 24 ° to 30° C. This sailfish tended to have greater vertical depth excursions and spent more time at depths greater than 50 m than the black marlin. The blue marlin was fought for more than 90 minutes before it was tagged and was exhausted when released. In spite of being resuscitated (walked) for several minutes, the blue marlin died the following day.

Scientists also traveled to Costa Rica in March of 2003 where an additional 10 sailfish were tagged with satellite archival tags. The results of that work will be published in the 2004 Billfish Newsletter although preliminary results indicate all 10 sailfish survived the tagging procedure. This program is continuing and plans are set to tag additional billfish in Guatemala, Panama and Mexico.

RESULTS OF AFTCO'S 2002 PACIFIC TAG-FLAG TOURNAMENT

The third annual AFTCO Pacific Tag/Flag Tournament, conducted from November 1, 2002, to October 31, 2003, included all captains and anglers who tag and release fish in the Pacific. The SWFSC provides tagging supplies to participating anglers tagging billfish and bluefin tuna. AFTCO

Tournament officials combine tagging results from the SWFSC with those of the California Department of Fish and Game (CDFG) and The Billfish Foundation to identify anglers and captains who tag and release the most fish in each of five categories.

Awards presented in 2003 for captain went to Peter Hoogs and Billy Miyagawa and for top angler to Paul Bender. Tournament tag winners in 2003 are shown below.

Striped Marlin - Paul Bender, Martha Warlaumont, Ronald Bradley, Chuck Baker, Roy Benson, Robert Pernecky, Carlos Dominguez, Mark Mitchell, Chip Shapley, Scott Edgerton, John Gailey, Leonard Gaitan, Jr., Kelly Carle, David Corona, Mike Greer, Karen Hatch, Hans Kaspersetz, Dick Landfield, Mike Liola, Mike Morris, Dennis Reyes, Don Santorufio, David Denholm, Steve Brackmann, Larry Dahlberg, Toby Dial, Frank Caster, Christopher Dane, Don Anderson, Mark Brackmann.

Blue & Black Marlin - Paul Bender, Martha Warlaumont, Warren Keinath, Dennis O'Rourke, John R. Ostenberg, Martin Hirsch, John R. William, Joel Holubar, Bruce Neely, Rodney Caughman, Stephen Hapy, Dick Landfield, Marvin Nelli, Terrell Rhye, Jack Sanford, Bruce Scherr, George Vink, Ron Kammerlink, Keishi Shiohata.

TAG RECOVERIES IN 2002

Six (6) billfish were reported recaptured in 2002 including two striped marlin recaptured in 2001 but not reported until 2002 (Table 6). The striped marlin were tagged off Oahu and Lanai and recaptured after traveling short distances in 31 and 68 days, respectively. Two blue marlin were recaptured but we have not received the release information for one of them. The other moved a net distance of 864 nautical miles to the southeast in 260 days at liberty. Two sailfish were also reported recaptured. One tagged off Panama was recaptured off Costa Rica 83 days later and the other recaptured southwest of Hawaii. We have not received the tag release information for that sailfish.

Two recaptured bluefin tuna were reported in 2002. Both were tagged off Cedros Island, BC, Mexico, on July 9, 1999, and recaptured three years later. One was recaptured off Japan, a distance of 4,154 nmi, and the other bluefin tuna was recaptured north of Hawaii, 1,059 nmi away.

Additional shark tag recaptures are included here as general interest and because they relate to the SWFSC's ongoing shark research. Four shortfin mako sharks tagged during the juvenile shark abundance survey in 2002 were recaptured after 52 to 168 days and having moved from 53 to 436 nmi. These mako had all been measured and tagged with tetracycline for age and growth studies. The return of these tags is valuable to our research and we ask your cooperation in returning the tag and a section of the shark's vertebrae should you catch one of these sharks. These specially tagged shortfin mako and common thresher sharks have a white Roto tag with a 3-digit number attached to the dorsal fin indicating we need the vertebrae and tag. We offer a \$25 reward when returned with a section of vertebrae.



Table 6. Tag recovery information for 2002.

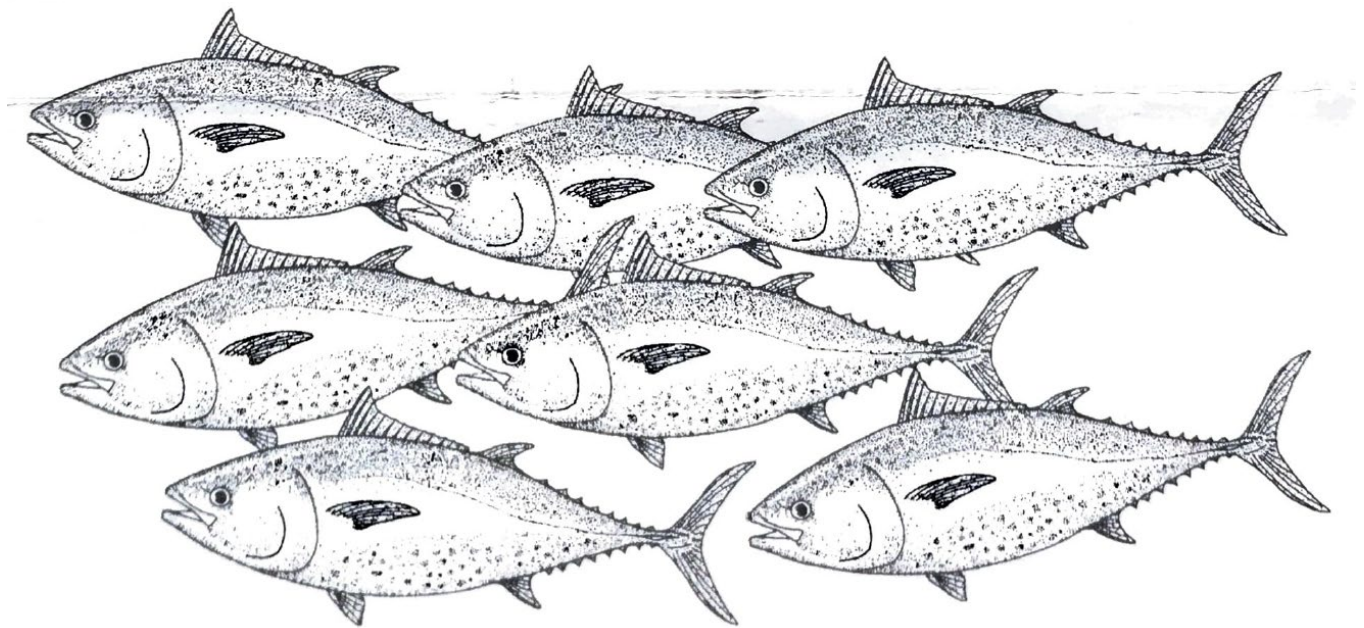
TAGGER/CAPTAIN	RELEASE DATE	RELEASE LOCATION	RECOVERY DATE	RECOVERY LOCATION	DAYS FREE	MILES & DIRECTION TRAVELED
BLUE MARLIN	-	-	-	-	-	-
Not Reported	-	-	5/15/2002	19°30'N 156°00'W, Kona coast, Hawaii	-	-
David Atwell, Chuck Haupt	12/1/2001	19°39'N 156°00'W, Kailua-Kona, Hawaii	4/18/2002	11 °22'N 168°22'W, Southwest of Hawaii	260	864- SE
STRIPED MARLIN	-	-	-	-	-	-
Kevin Driscoll, Karl dams	1/20/2001	21 °21'N 158°12'W, Oahu, Hawaii	2/10/2021	14°50'N 157°47'W, South of Hawaii	31	392-S
Thomas Patella, Scott Jones	7/18/2001	20°40'N 157°02'W, Lanai, Hawaii	9/24/2001	21°37'N 152°16'W, East of Hawaii	68	292-NNE
SAILFISH	-	-	-	-	-	-
Not Reported	-	-	2/23/2002	19°24'N 164°43'W, Southwest of Hawaii	-	-
Al Blasé, Daniel Espinoza	2/3/2002	9°11 'N 84°1 4'W, Panama	4/27/2002	9°33'N 85°05'W, Costa Rica	83	51-NW
MAKO SHARK	-	-	-	-	-	-
NMFS Shark LL, Research Cruise	6/21/2002	33°55'N 118°13'W, Catalina Island CA	10/2/2002	32°50'N 117°45'W, San Diego, CA	104	69-SE
NMFS Shark LL, Research Cruise	7/1/2002	33°01'N 118°23'W, San Diego, CA	12/15/2002	26°47'N 114°05'W, Baja Ascion, BCS, Mex.	168	436-SE
NMFS Shark LL, Research Cruise	6/22/2002	33°07'N 118°22'W, San Clemente Is., CA	8/13/2002	32°28'N 119°05'W, Cortes Bank, CA	52	53-NW
NMFS Shark LL, Research Cruise	7/6/2002	32°59'N 118°15'W, San Clemente Is., CA	11/7/2002	33°14'N 119°00'W, San Clemente Is., CA	124	314-SE
BLUEFIN TUNA	-	-	-	-	-	-
John Polovick, Norm Kagawa	7/9/1999	28°17'N 116°47'W, Cedros Is., BC, Mexico	4/14/2001	40°53'N 157°02'W, North of Hawaii	1,123	4,154 -NW
Dan Griffith, Norm Kawaga	7/9/1999	28°17'N 116°47'W, Cedros Is., BC, Mexico	5/25/2002	30°32'N 137°40'E, Japan	1,059	1,098

FISHERY MANAGEMENT PLAN UPDATE

In 2002, SWFSC biologists spent considerable effort preparing the West Coast Fisheries Management Plan (FMP) for highly migratory species (HMS). West Coast HMS fisheries target tuna, swordfish and pelagic sharks. Management measures are needed to ensure that domestic and international conservation of these species is consistent, precautionary and based on the most accurate information available. The FMP provides background information and management options for 13 pelagic species including swordfish, striped marlin, yellowfin tuna, bluefin tuna, bigeye tuna, skipjack, albacore, thresher shark (3 species), mako shark, blue shark and dorado. The goal is to implement long-term conservation, prevent overfishing, provide diverse recreational and commercial fishing opportunities, and to minimize bycatch and user conflicts.

On June 18, 2003, the Pacific Fishery Management Council voted to approve its highly migratory species fishery management plan, including measures for the California-based high seas longline fishery that primarily targets swordfish. In March 2003, NMFS had asked for a delay in final submission

of the plan, pending a scientific review and analysis of new data on sea turtle take rates in the California- and Hawaii-based fishery in the area where the fleet fishes. NMFS was concerned about the potential impact on turtles from West Coast-based longliners targeting swordfish beyond the EEZ out to 150° W longitude. Evidence presented to the Council in June did not show there was a difference in take rates E and W of 150° W. The Council will now transmit the plan to NMFS with a request for a joint biological opinion on Endangered Species Act-listed species, and 20% observer coverage in the high seas longline fishery. NMFS has indicated that it will immediately begin rulemaking to ensure sufficient protection for sea turtles in the fall, when the longline fishery typically becomes more active. The Council has asked the plan development team to provide recommendations in November 2003 for a limited entry program for the high seas longline fishery, including a control date, a qualifying period, a qualifying landing level, a capacity goal, and permit transferability. For additional information call or write the Pacific Fishery Management Council at 2130 SW Fifth Avenue, Suite 224, Portland OR 97201 (Phone 503/326-6352). The draft FMP is available online at <http://www.pcouncil.org>.



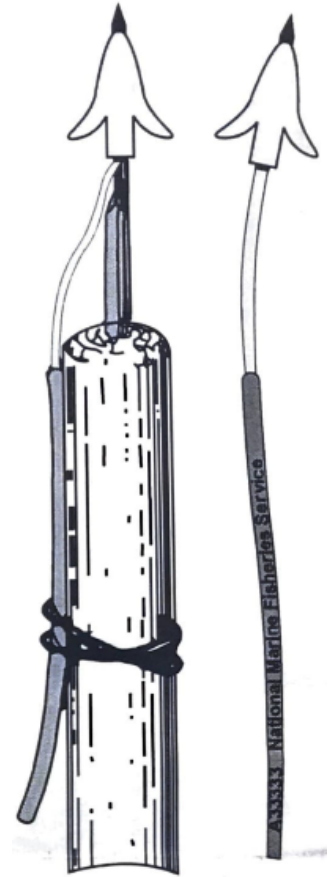
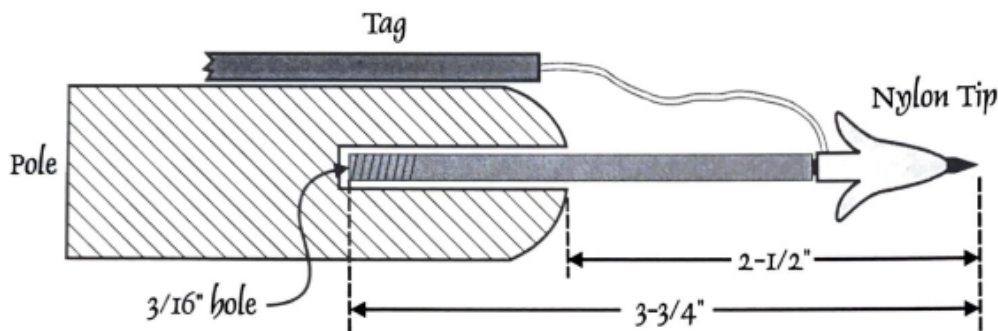
PAPER REDUCTION ACT NOTIFICATION

The NMFS needs this information for the conservation and management of fishery resources. The Information will be used for billfish research. Public reporting burden for the Billfish Angler Survey card is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of Information. The reporting burden to complete the Billfish Tagging Report is estimated to average five minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate to the SWFSC, 8604 La Jolla Shores Drive, La Jolla, CA 92037. The information submitted will be a public record. Notwithstanding any other provision of the law, no person is required to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

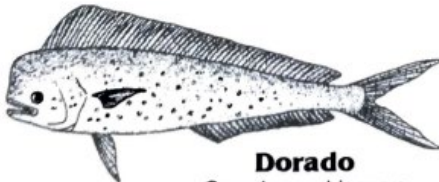
SUCCESSFUL CATCH, TAG AND RELEASE

It is important that the billfish tag be applied properly. Tag location, angle, and depth are critical to successful tagging. The tag should be inserted 2.5 inches just below the tallest part of the dorsal fin. Manufactured tagging poles are available at most retail sportfishing stores. It is important to check the length of the applicator pin installed on these poles to ensure the tip extends only 2.5 inches. Some manufacturers have changed the overall length of the pins in which case the stopper must be adjusted to only allow the 2.5-inch penetration.

If you construct your own tagging pole, an old wooden broom or mop handle about five feet long works very well. A hole should be drilled with a 3/16 inch or No. 16 drill bit to a depth of 1.25 inches for the applicator tip (see diagram below). Insure the applicator protrudes exactly 2.5 inches. Use a good grade epoxy to secure the applicator pin and seal out saltwater.



Survival of tagged and released billfish depends on several decisions you, the angler, must make prior to and during fishing. Following on page 12 is a guide that will enhance post-release survival of your billfish.



Dorado
Coryphaena hippurus



Northern Bluefin Tuna
Thunnus orientalis



Bigeye Thresher Shark
Alopias superciliosus



Common Thresher Shark
Alopias vulpinus



Pelagic Thresher Shark
Alopias pelagicus



Blue Shark
Prionace glauca



Shortfin Mako Shark
Isurus oxyrinchus



1. BEFORE YOU CATCH YOUR FISH:

First, decide if this is a fish you want to tag and release. If so, use a circle hook which reduces deep or foul hooking when bait fishing or a single circle or single 'J' hook if trolling. Do not use double rigged 'J' hooks when releasing your catch.

2. WHILE FISHING:

Never attempt to tag a fish while it is jumping or thrashing about. Bring your fish to leader as quickly as possible but wait until the fish is calm and swimming beside the boat before tagging.

3. TAGGING:

Tag the fish as it is being towed alongside the boat by inserting the tag in the back muscle below the tallest part of the dorsal fin. Avoid the gills, head and stomach. Take care not to allow your fish to injure itself on the vessel's transom or hull.

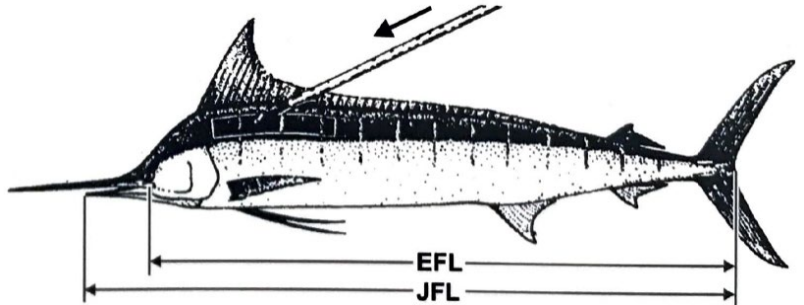
4. RELEASING:

Remove the hook with a good pair of pliers or if deeply hooked in the throat or stomach, release it by cutting the leader as close to the hook as possible. Revive all fish by slowly towing it through the water, allowing water to flow over the gills until its normal color returns and it begins to swim on its own.

5. COMPLETE THE BILLFISH TAGGING REPORT CARD:

Fill out the yellow Billfish Tagging Report card completely and as accurately as possible indicating latitude and longitude, date of release, estimated length (lower jaw-to-fork length; JFL) and weight of the fish. Include name and mailing address of the angler and boat captain and other remarks as appropriate. Return cards promptly to the Southwest Fisheries Science Center.

PLEASE NOTE: Billfish recaptures without tag release information now number 93, or 13 percent. This equates to nearly 6,400 billfish that have been tagged without the release information being returned to the SWFSC. Make your tagging effort count. Tag and release your fish skillfully and return the yellow BILLFISH TAGGING REPORT promptly. Though easily forgotten in the heat of battle and glow of success, returning the card is the most critical and final step in tagging your fish.



COMPLETING THE BILLFISH TAGGING REPORT CARD

- Fill out the card completely and as accurately as possible.
- Indicate latitude, longitude and locally known fishing area.
- Estimate the length of the fish as
 - "eye-to-fork" length (EFL)
 - "tip of lower jaw-to-fork" length (JFL).
- Estimate weight of the fish.
 - Include any remarks, club name and complete address of the angler and the boat captain.
- Return cards promptly to the Southwest Fisheries Science Center. Tagging is of no value unless this Billfish Tagging Report card is returned. Postage is paid if mailed in the U.S.A.

NOAA, National Marine Fisheries Service		If mailing outside USA, postage must be affixed	
BILLFISH TAGGING REPORT		Please return card. Otherwise tagging is of no value	
PLEASE FILL IN DETAILS AND MAIL TODAY.		TAG # A33333	
Latitude: 33° 14' N	Longitude: 118° 14' W		
Locality: East End Catalina Is. CA			
Species: Striped Marlin	Date: 6/10/98		
Estimate length (tip of jaw to fork of tail): 72 inches.	Weight: 140 lbs.		
Fish Condition: Good	Bait type: Plastic Lure		
Angler: Bill Fish	Fight time (minutes): 23		
Address: P.O. Box 271 La Jolla, CA		Zip: 92038	
Club: Anglers Club			
Captain: Capt. Joe Dew	Boat name: Good Grief		
Address: P.O. Box 271 La Jolla, CA		Zip: 92038	
Response to this form is voluntary OMB 0648-0008, expiration date 08/31/2001 NOAA 66-162, 2/99			

SEND US YOUR PHOTOGRAPHS

This year's winning cover photograph is of a Pacific sailfish caught and released during the Adopt-A-Billfish tagging in Los Suenos, Costa Rica in March of 2003. Photo courtesy of Ed Moody of Costa Del Mar Sunglass Co., Ormond Beach, FL. We thank them for the photo and their continuing support of the Adopt-A-Billfish program and billfish conservation.

The Southwest Fisheries Science Center is looking for good photographs of billfish for the cover of next year's Billfish Newsletter. Color or black-and white photos of billfish and/or fishing activities are appropriate. We would appreciate your sharing of photos and will give you full credit in the 2004 issue. A billfish baseball cap and plaque will be awarded to the winning photographer.

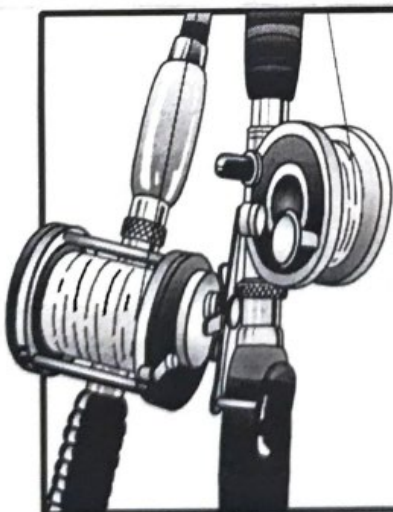
SURVEY RESPONSE

BILLFISH ANGLER SURVEY cards for fishing in the 2003 calendar year will be mailed out in December of this year. Please complete the survey and return the post-paid survey form by February 2004. Additional 2003 Angler Survey cards will be available to all billfish anglers from this office. U.S. Government regulations require we purge our mailing list each year. If you wish to continue to receive the Billfish Newsletter but did not fish, please indicate "NO FISHING" on the Billfish Angler Survey form and return it to the Center. Your name will be retained. Your continued response to the Billfish Angler Survey is needed to index changes in abundance of billfish stocks important to recreational fisheries.

ACKNOWLEDGEMENTS

The information reported here would not be possible without the cooperation of thousands of anglers and volunteers who support these investigations. Their efforts and assistance are greatly appreciated. We welcome reader comments and suggestions concerning the content of the Billfish Newsletter.

Roy Allen designed and produced the newsletter. The Billfish newsletter can also be accessed on the Southwest Fisheries Science Center's homepage at <http://swfsc.ucsd.edu/frd>.



Smooth seas and good fishing,

David B. Holts, Fishery Biologist
Randall Rasmussen, Computer Specialist

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